Women’s Cognitive and Emotional Processing during
Sexual Arousal: the Effects of Erotic Film and Absorption

by

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ABSTRACT

Sexual arousal is a complex and dynamic element of women's sexuality. Accounts vary, however most multidimensional models highlight the cognitive, affective and physiological components of the female sexual arousal response. While literature examining the peripheral physiological changes that occur during female sexual arousal abounds, there has been a dearth of literature pertaining to the cognitive and affective components. Thus, while many authors have included cognitions and emotions as independent components of the female sexual arousal response, there has been little empirical research to validate this approach. The aim of the current thesis was to examine the cognitive and affective components of female sexual arousal in more depth, investigating the nature of the relationship between these components under various experimental conditions. In order to do so, two integrated studies were conducted, each highlighting the effects of either external or internal variables on women's subjective sexual arousal, absorption, positive affect and negative affect.

Study One was designed to evaluate women's emotional and cognitive processing of two elements of erotic film – foreplay and erotic context. 60 women were asked to report their subjective sexual arousal, absorption, positive affect and negative affect in response to one of four erotic film excerpts. The erotic excerpts varied in accordance with the degree of foreplay (low vs. high) depicted and the context in which the sexual activities took place (novel vs. habitual context). Women in the study responded more favourably to the high foreplay erotic film excerpts,
subsequently reporting higher degrees of subjective sexual arousal, absorption and positive affect. Women also responded favourably to the erotic excerpt filmed in a novel context, reporting greater subjective sexual arousal as a result. The environment in which the sexual encounters were filmed failed to have an effect however, on women’s absorption or their positive or negative affect. The results of Study One suggest that stimulus specific variables, such as the degree of foreplay depicted, have a significant influence on female cognitive and emotional processing of erotic film. The results also suggest that a relationship exists between absorption, subjective sexual arousal and positive affect, albeit a correlational one. Specifically, there was evidence of parallel processing during sexual arousal, as participant reported sexual arousal, absorption and positive affect all increased and decreased in unison. Based on the results it was suggested that future research attempt to experimentally manipulate one of these variables, to examine its direct effect on the remaining variable.

Thus, Study Two aimed to examine the effects of absorption on women’s cognitive and emotional processing of erotica. Study Two manipulated absorption at two levels (high vs. low), examining the impact of these states on participants’ subsequent absorption, subjective sexual arousal and positive and negative affect. 62 women were asked to read one of two sets of test session instructions. The first, participant-oriented instruction set, instructed participants to immerse themselves in the erotic film excerpt, as if they were active participants in the sexual exchange. The second, spectator-oriented instruction set, directed participants to observe and evaluate the erotic film. These instructions were designed to elicit high and low degrees of absorption, respectively. The utility of this approach when manipulating female
absorption, was demonstrated by self-reported ratings of absorption, given at the conclusion of the film presentation. Participants were also asked to report their subjective sexual arousal and positive and negative affect at the conclusion of the erotic film presentation. The findings of this study suggest that the adoption of a participant-oriented (high absorption) perspective elicits more favourable responses from participants than a spectator-oriented (low absorption) perspective, with participants in the former experimental group reporting greater degrees of subjective sexual arousal and positive affect. Negative affect was equivalent across experimental conditions, with the participants reporting that they experienced little to no aversive feelings during either of the experimental conditions. The results suggest that the degree to which a woman immerses and absorbs herself in a sexual stimulus has a significant impact on her subsequent cognitive and affective processing of that stimulus. More specifically, it appears that women respond more favourably when they are highly absorbed and immersed in a stimulus, reporting greater subjective sexual arousal and positive affect.

Overall, the results of Studies One and Two highlight the dynamic and complex nature of female sexual arousal. It appears that women have definite cognitive and affective responses to sexual stimuli. The magnitude of these responses may be mediated by a number of factors, however, including the intrinsic qualities of the stimulus and the degree to which the woman attends to the stimulus. Both these variables act to either enhance or inhibit the sexual arousal response. These results have important implications for current sexuality literature. While women's cognitions and emotions in response to erotic film were generally highly correlated, in some instances they differed, warranting their inclusion as separate elements in
models of female sexual arousal. Furthermore, it might be suggested that the inclusion of an additional variable – absorption – into current models of female sexual arousal would prove beneficial, aiding researchers to better understand and predict the arousal process. As such, recommendations are made for a revised model of female sexual arousal. In terms of future directions, the results of the present thesis have implications for the treatment of sexual dysfunctions, suggesting that clinicians need to understand the internal and external variables that might contribute to the etiology and maintenance of their presenting problems.
CHAPTER ONE: OVERVIEW

Sexual arousal in women is accompanied by a number of affective, cognitive and physiological changes. While previous research has highlighted the extensive physiological changes that occur, there is a dearth of literature pertaining to women’s cognitive and emotional processing during sexual arousal. This issue is highlighted when examining definitions of female sexual arousal. Masters, Johnson and Kolodny (1985, p. 147) for example, define sexual arousal as “a state of activation of a complex system of reflexes involving the sex organs and the nervous system”. These authors go on to assert that, in women, sexual arousal is accompanied by a number of physiological changes including vaginal lubrication, heightened sensitivity of the genitals and increased blood flow to the labia, clitoris and nipples (Levin, 1992). Although definitions may vary amongst authors, most accounts of sexual arousal tend to enumerate the extensive respiratory, cardiovascular, vasocongestive and muscular changes that accompany this state (Rosen & Beck, 1988). Despite the historical emphasis on the physiological concomitants of sexual arousal, physiological changes alone are not sufficient to account for the range of experiences that accompany sexual arousal in women. As such, more recent conceptualisations of female sexual arousal assert that arousal may be viewed as a multifaceted response which includes cognitive, affective and physiological elements (Rosen & Beck, 1988).

The aims of this thesis are threefold. First, this thesis aims to contribute to a revised multidimensional model of female sexual arousal by investigating women’s cognitive and emotional processing during arousal. In particular, this thesis will
examine the relationship between these variables, empirically investigating the validity of their inclusion as separate elements of the sexual arousal response. Second, this thesis will examine the effects of stimulus specific variables on women's cognitive and emotional processing of erotic film. Finally, this thesis aims to examine the role that attentional factors may play in either facilitating or inhibiting women's subjective sexual arousal responses.

To better understand the aims of the present thesis, the following chapters review literature pertaining to female sexual arousal. Chapter Two gives a brief overview of the history of research examining the sexual response cycle. The rationale underlying unidimensional models of female sexual arousal is discussed, along with empirical research examining the validity of unidimensional models of female sexual arousal.

In light of this discussion, Chapter Three presents three multidimensional models of female sexual arousal, which highlight the cognitive, emotional and physiological components of this response. Specifically, this chapter discusses models of female sexual arousal proposed by Masters, Johnson and Kolodny (1993), Bancroft (1989) and Basson (2002).

Chapter Four discusses the information processing approach advocated by Rosen and Beck (1988). This approach combines the emotional and cognitive components of female sexual arousal advocated within multidimensional frameworks, but also highlights the role that attentional allocation plays during female sexual arousal. Empirical research investigating the utility of this approach and the relationship
between attentional allocation and female sexual arousal is then reviewed, with a particular focus on the role that absorption plays during arousal.

Chapter Five explores women’s emotional processing of erotic film in more depth. The factors that might elicit either a positive or negative emotional response from women are discussed, along with empirical research which highlights the relationship between the attentional, cognitive, affective and subjective elements of female sexual arousal. The discussion then turns to the effects of positive mood induction on women’s subjective feelings of arousal.

Chapter Six discusses the impact that external factors, such as erotic film content, and internal factors, such as personal preference, may have on women’s cognitive processing of erotic film. While there are a number of variables that may influence women’s cognitive processing during sexual arousal, Chapter Six focuses predominantly on the cognitive interpretation and appraisal of erotic film content.

Chapter Seven summarises the main findings of the literature presented, making specific recommendations for the present research. Chapter Eight presents Study One, which examines the effects of two stimulus specific variables – foreplay and erotic context – on women’s cognitive and emotional processing of erotic film. Chapter Nine presents Study Two, which examines the effects of absorption on women’s cognitive and emotional processing of erotic film.

Finally, Chapter Ten discusses the conclusions drawn from these studies and the implications that the present research has for future research and clinical practice.
This chapter also makes recommendations for a revised model of female sexual arousal.
CHAPTER TWO: PREVIOUS MODELS OF FEMALE SEXUAL AROUSAL

This chapter gives a brief overview of the study of human sexuality and particularly, of sexual arousal. Previous conceptualisations of female sexual arousal are reviewed, with specific reference to unidimensional frameworks, which have been based predominantly on the writings of Masters and Johnson (1966). These models emphasise the physiological changes that occur during arousal, asserting that women’s subjective feelings of arousal occur only after their physiological responses have been registered and interpreted as sexual. While unidimensional models of female sexual arousal were favoured in the 1970’s, they have received limited empirical support. Generally, research based on these models suggests that physiological measures of sexual arousal correlate poorly with measures of subjective sexual arousal, which has been found to exist in the absence of a genital response. The remainder of the chapter discusses the methodological and theoretical explanations that have been given for these findings.

**Human sexuality: a brief review**

Research investigating sexual arousal in both men and women has relied almost exclusively on the Masters and Johnson (1966) approach to human sexuality. Considered to be pioneers of the laboratory study of human sexuality, Masters and Johnson conceptualized the four-stage model of the human sexual response. Progressively, the four phases are — excitation (arousal), plateau, orgasm and resolution. This approach emphasizes the importance of peripheral physiological
changes in the detection and interpretation of sexual arousal. Indeed the earlier work of these researchers consisted of an in-depth analysis of the physiological changes that occur as a result of adequate sexual stimulation, in the absence of an interpretation of these changes (Kaplan, 1979; Rosen & Beck, 1988).

The work of Masters and Johnson (1966) is of historical importance, as their research served to dispel popular myths regarding the relative inferiority of women’s sexuality, drawing parallels between the sexual arousal processes of men and women (Poulin, 1992; Rosen & Beck, 1988). As an illustration, comparisons were drawn between penile erection and vaginal lubrication during the excitatory phase in terms of reactive intensity, the timing of the changes and various age-related influences (Rosen & Beck, 1988). Masters and Johnson (1970) were also amongst the first researchers to categorize and define sexual dysfunctions.

Ironically, the apparent strengths of Masters and Johnson’s (1966, 1970) research have become the most pervasive flaw in the contemporary study of female sexual arousal. In their early research, Masters and Johnson emphasize the physiological components of the sexual arousal response. By contrast, their clinical work emphasizes the importance of cognitions and relationships between sexual partners. There is a preponderance of research however, that has only isolated a segment of their total work, resulting in the unidimensional approach to human sexual arousal, which focuses almost entirely on the physiological components of the sexual arousal response. Within this model, subjective sexual arousal, which involves the cognitive evaluation of an individual’s arousal state, is viewed as an artefact of the genital
response, generally occurring after the detection and recognition of genital arousal (Rosen & Beck, 1988).

**Correlations between subjective and genital measures of sexual arousal**

Poulin (1992) asserts that a more thorough understanding of the psychophysiology of sexual arousal can be accomplished through the inclusion of subjective assessments of arousal, provided by research subjects. Previous researchers have generally assessed participants' evaluations of their subjective sexual arousal as a means of verifying the validity of physiological measures. Consistent with unidimensional models of sexual arousal, these researchers assert that a valid measure of physiological sexual arousal will positively correlate with subjective assessments of sexual arousal, as subjective sexual arousal is thought to be an artefact of the individuals' more important genital response (Wincze, Hoon, & Hoon, 1977). This hypothesis does not necessarily correspond however, with the results of many studies examining the correlation between subjective and physiological indicators of sexual arousal, particularly among women.

Heiman (1977) conducted one of the earliest psychophysiological studies comparing subjective and physiological measures of sexual arousal. 59 women and 39 men participated in three consecutive sessions, designed to monitor their genital arousal and their reported subjective arousal. In order to do so, subjects were asked to listen to, and rate, four audiotapes that varied according to their content (erotic, romantic or neutral) and the sex roles depicted (traditional or non-traditional). For the purpose of this study 'traditional' sex roles were defined as erotic scenarios that were initiated
by the male actor, while 'non-traditional' sex roles were those tapes in which the
female actor initiated the sexual activity. Following the tape presentation, subjects
were asked to rate their subjective sexual arousal on a 5-point Likert scale. Heiman
found that the erotic tapes were more sexually arousing than the non-erotic tapes for
both sexes. Contrary to expectations, Heiman also found that tapes depicting non-
traditional sex roles were more arousing than those depicting traditional sex roles for
women. Overall, the data indicated high positive correlations between subjective and
genital measures of sexual arousal in men. By contrast, data based on the women's
responses showed conflicting results, with subjective-genital correlations ranging
from significant to nonsignificant, depending on the measurement devices used.

When comparing across genders, 42% of the women tested, compared with 0% of
the men, claimed to experience no physical arousal during their largest genital blood
volume response. Based on these results Heiman concluded that women might have
relied on contextual cues to interpret physical changes as sexual. By contrast it
appears that the men relied predominantly on genital cues when assessing their
subjective sexual arousal.

When assessing these results it is important to review a criticism of Heiman's (1977)
methodology put forward by Rosen and Beck (1988). In her research Heiman utilized
audio taped erotic stimuli to evoke arousal in participants. Later research has
indicated that this medium generally evokes less arousal in both men and women
than visual stimuli (Heiman, 1980; Jansen & Frijda, 1994; Julien & Over, 1988; Laan
Thus, the erotic materials used may not have been adequate to evoke an arousal
response in women sufficient to warrant subjective appraisal. It has also been
asserted that, at the low levels of arousal induced by audiotapes, women may not be aware of the physiological sensations of sexual arousal (Andersen & Cyranowski, 1995; Laan, Everaerd, van der Velde, et al., 1995).

In order to account for these limitations Steinman, Wincze, Sakheim, Barlow and Mavissakalian (1981) utilized a variety of different mediums, such as film, fantasy and audiotape, to examine the structural patterns of sexual arousal in men and women in response to erotica. Comparisons were made in terms of subjective arousal, assessed via several methods and analyzed individually, and physiological arousal. Subjective assessments included an evaluation of sexual arousal, made on a 7-point Likert scale, and assessments of participant’s affective responses to each of the erotic stimuli. The results indicated that, once again, men and women differed in terms of the direction and magnitude of their arousal response to erotic stimuli. More specifically, data from the men indicated high positive correlations between subjective and genital measures of sexual arousal, whereas correlations for women ranged from negative to nonsignificant. Thus, there was a stronger correspondence between subjective-genital correlations for men than for women.

A more recent study conducted by Laan, Everaerd, van der Velde and Geer (1995), isolated a sample of women in an attempt to identify the factors responsible for the poor concordance between their subjective and genital measures of sexual arousal. In order to do so, four stimulus conditions were created which served to evoke differential patterns of genital arousal over time. In the first ‘habitation’ condition subjects were exposed to 21 uniform presentations of a 1-minute film excerpt. In the ‘stable’ condition subjects were exposed to 21 1-minute film excerpts that differed in
content but were deemed equivalent in stimulus intensity. Subjects in the 'increasing' condition were exposed to 21 1-minute film extracts whose content gradually increased in stimulus intensity while subjects in the random condition were shown excerpts from the increasing condition, but in a random order. Participants in each of the four stimulus conditions were asked to evaluate their subjective arousal using a mounted lever placed on the chair next to them. Movements across each of the stages on the lever resulted in corresponding changes in the amount of light emitted by a small panel placed below the television. Genital measures of arousal were also taken throughout the stimulus presentation.

Laan, Everaerd, van der Velde, et al. (1995) reported that individual correlations between subjective assessments of sexual arousal and genital measures of sexual arousal were at their lowest in the first two stimulus conditions. More specifically, positive correlations between subjective and genital measures of sexual arousal were present for only 24% and 14% of subjects in the habituation and stable conditions, respectively. By contrast, the increasing stimulus condition resulted in a linearly increasing pattern of genital arousal, producing individual correlations between measures in 74% of subjects. Finally, the fourth random condition produced high positive correlations between subjective and genital measures of sexual arousal in 71% of participants.

To assess whether the high correlations in the third and fourth conditions were mediated by stimulus content, partial correlations were calculated between subjective and genital measures of arousal with the effect of order of presentation of the erotic stimulus partialled out. These correlations were calculated for each subject in the two
conditions. The 21 erotic scenarios were grouped so that trial numbers 1 to 3 represented kissing scenes; trials 4 to 6 were kissing, caressing and mutual undressing; and so forth. Laan, Everaerd, van der Velde, et al. (1995) found that stimulus content and genital arousal explained approximately equal amounts of variance in subjective sexual arousal ($r = .30$ and $r = .36$, respectively, $p < .10$). Thus, even though subjects were instructed to use genital signs of sexual arousal to assess their subjective feeling state in all four conditions, reasonable response agreement between subjective and genital measures of sexual arousal was found only for the two conditions in which large differences in genital arousal and stimulus content occurred over trials. Based on these results, Laan and colleagues asserted that when presented with changes in genital arousal, women only encode these changes. A change in the intensity of the stimulus presented is required to perceive that stimulus, and any associated genital arousal, as emotionally arousing. These researchers concluded that feedback regarding changes in genital arousal seems to be a relatively unimportant determinant of subjective sexual arousal. Thus, while autonomic encoding of genital arousal may add to the quality and intensity of the subjective experience of sexual arousal, external stimulus information such as erotic film content, was deemed to be an equally important determinant of subjective sexual arousal.

The above studies highlight one of the most pervasive issues in the laboratory study of female sexual arousal, namely, the inconsistent findings regarding subjective-genital arousal correlations. Across studies correlations among women have typically ranged from negative, to nonsignificant, to positive, irrespective of variations in methodology and the measurement devices used (Dekker & Everaerd, 1988; Geer,
1979; Heiman, 1977; Laan & Everaerd, 1995a; Meston & Worcel, 2002; Morokoff, 1985; Steinman et al., 1981). In contrast, correlations between genital and subjective sexual arousal in men are generally positive (Heiman, 1977; Laan & Everaerd, 1995a, Steinman et al. 1981). Given the pervasive inconsistencies within the literature, a number of researchers have examined the methodological and/or theoretical flaws in these studies in an attempt to amend these flaws and accurately define female sexual arousal.

**Methodological accounts for the subjective-genital response discordance**

From a methodological vantage, the low concordance between subjective and genital measures of female sexual arousal has been attributed in part to the inadequate self-report measures utilized in the majority of the literature (Laan & Everaerd, 1995a). Subjective arousal has previously been assessed by a single item asking subjects to rate their ‘subjective’ sexual arousal on a 7-point Likert scale (Laan & Everaerd, 1995a; Meston, 2000). Scores on the scale typically range from “1 = not at all aroused” to “7 = highly aroused”. This methodology has been criticised as it only permits a limited range of responses, particularly when compared to that afforded by a physiological measure (Meston, 2000).

A number of studies have also relied on the retrospective recall of subjective arousal states following stimulus presentations (Heiman, 1977; Schreiner-Engel et al., 1981). The use of retrospective recall limits the validity of correlations between subjective and physiological measures, as assessment utilising retrospective recall fails to adequately reflect the fluctuations in subjective arousal that may occur during
stimulus presentations, depending on individual sexual preferences (Meston, 2000). Alternatively, physiological devices give continuous feedback throughout the stimulus presentation.

In order to account for fluctuations in sexual arousal that may occur during an erotic presentation and eliminate the confounding influence of retrospective recall, Wincze, Hoon and Hoon (1977) examined subjective-genital correlations in 6 women using a continuous measure of sexual arousal. The continuous measure, a potentiometer, was mounted on a table next to participants. Participants were asked to indicate any fluctuations in their subjective arousal state, even if minute, during the presentation by moving a mechanical lever on the device across ten scaled points. This lever was directly linked to a light monitor placed beneath the television screen so subjects could reflect on their choices without distracting them from the stimulus materials. Wincze et al. found that the use of a continuous measure of subjective sexual responding did not promote higher correlations between subjective and genital measures of sexual arousal. While the results were initially attributed to the small sample size used in the study, later research using larger samples have also reported poor subjective-genital correlations using continuous measurement devices (Laan & Everaerd, 1995b; Laan, Everaerd, van der Velde, et al., 1995; Steinman et al., 1981).

Another possible explanation for the poor subjective-genital correlations in these studies is the use of the continuous measure. Researchers such as Heiman (1980) have criticized the use of the potentiometer as it has the potential to distract participants’ attention from their task. Wincze, Venditti, Barlow and Mavissakalian (1980) disagree with this claim however, as their research indicates that the
potentiometer is both a valid and reliable device. Furthermore, their research suggests that the potentiometer doesn’t produce physiological artifacts or interfere with attention to visual stimuli. Given that alternate measures of subjective arousal have failed to influence correlations between genital and subjective measures of arousal, the cause of the data inconsistencies may be not be solely methodological in nature. Therefore, a likely alternative for the discrepancy between subjective and genital accounts of sexual arousal may lie in the operationalisation of the term ‘subjective’ arousal.

**Theoretical accounts for the subjective-genital response discordance**

From a theoretical perspective, the term ‘subjective’ arousal has been poorly defined both within the literature, and within researchers’ experimental instructions to participants. As an illustration, few studies tell subjects to what degree they are required to evaluate their sexual arousal levels. Previous researchers may have attempted to isolate a particular element of arousal, such as the subject’s highest levels of arousal, lowest levels of arousal or mean level of arousal in response to the erotic stimulus. Failing to clarify these expectations however, may result in a range of interpretations of instructions to “rate your subjective sexual arousal on the following scale”. As a result, previous data collected may reflect more than one aspect of arousal depending on the individual participant’s interpretation of the experimental instructions (Laan & Eversnord, 1995a; Rosen & Beck, 1988).

Furthermore, researchers have simply asked participants to rate their subjective sexual arousal, without clarifying or adequately defining the term ‘subjective’
arousal (Laan & Everaerd, 1995a). Asking subjects to assess their subjective arousal, without clarifying the parameters of that term, may profoundly distort the evaluations given. Individual interpretations of the term may have varied considerably to include an assessment of the film itself, cognitive reactions in response to the film, emotional reactions, or a unique combination of all of these elements (Rosen & Beck, 1988).

It is important to clarify these theoretical issues, as a number of researchers have made broad generalizations regarding the nature of women's sexuality based on the poor subjective-genital correlations noted in previous research. As an illustration, a number of researchers have asserted that subjective-genital correlations may be low amongst women because they have an inadequate knowledge of their bodies and the mechanisms of sexual arousal (Heiman, 1977; Wincze et al., 1977).

Given the resounding uncertainty with regards to women's ability to estimate their subjective arousal, Korff and Geer (1983) conducted an empirical investigation, which aimed to improve measured correlations between subjective and genital arousal, with a view that any existing correlation was confounded by inadequate experimental instructions. In order to do so these researchers specified exactly what element of arousal subjects were required to assess. Subjects were also given a description of this state and examples of the changes that may occur. Korff and Geer randomly assigned 36 women to one of three experimental conditions. The first group were given instructions to attend specifically to signals related to genital arousal, such as pelvic warmth, vaginal lubrication and muscular tension. The second experimental group were given instructions to attend to non-genital body signals of arousal, such as heart rate, while the control group were given no attentional
instructions. Genital arousal was then correlated with participants' subjective evaluations of sexual arousal, which were taken using a verbal scale ranging from 0 (not at all aroused) to 4 (extremely aroused). To overcome the methodological flaws inherent in Likert scale designs, subjects were instructed to use whole numbers with decimal places in their subjective evaluations, thus broadening the range of possible responses. According to the researchers, this method also reduces the impact of response bias, as responses using decimal places are harder to remember and thus, less likely to be duplicated in subsequent evaluations. A light monitor controlled by subjects was also used throughout the study to give a continuous measure of subjective sexual arousal.

Korff and Geer (1983) reported that for women, attention to bodily cues played a large role in determining the relationship between subjective and genital measures of sexual arousal. These results were further supported by individually computed correlations, which were higher for the two attention groups than for controls. Based on these results Korff and Geer surmised that women typically do not attend to genital cues when judging sexual arousal. Thus, the assumption that females cannot report their physiological sexual arousal accurately appears to be incorrect, as the researchers instructions served to redefine sexual arousal for their participants and as such, increase measured correlations between the two constructs.

Based on their findings and a review of the literature pertaining to male sexual arousal, Korff and Geer (1983) tentatively concluded that gender differences between genital and subjective reports of sexual arousal apparent in previous research, may be partially accounted for by the experimental instructions given by researchers in each
of the studies. It appears that, when asked to rate their subjective sexual arousal, men
tend to use their genital arousal as a reference point, thus meeting the ill-defined
expectations of researchers, whereas women do not. Later studies have also found
that experimental instructions influence the patterns of correlations between
measures of sexual arousal (Dekker & Everaerd, 1989; Laan & Everaerd, 1995a).

In summary, two main accounts have been given to explain the discrepancy between
subjective and genital measures of sexual arousal in women. The first
methodological account asserts that flaws in the measurement techniques used could
account for the inconsistencies within the literature. Wincze et al. (1977) who
utilized a continuous measure of sexual arousal to overcome the inherent flaws in
Likert scale measures, failed to provide support for this claim. Further changes in
experimental methodology have also failed to increase measured correlations
between subjective and genital measures of sexual arousal (Henson, Rubin, &
Henson, 1979; Laan, Everaerd, & Evers, 1995; Laan, Everaerd, van der Velde, et al.,
1995; Steinman et al., 1981).

The second account asserts that inadequate experimental instructions may be
responsible for the low concordance between response measures. Previous
researchers have failed to give an adequate definition for the construct ‘subjective’
arousal, possibly resulting in confusion amongst research participants. As Korff and
Geer (1983) found, when the experimenters’ instructions were clarified for
participants, measured correlations between subjective and genital assessments of
sexual arousal increased substantially. Thus, it would be incorrect to surmise that
women cannot evaluate their genital arousal. Rather, women appear to use other
criteria when asked to rate their subjective arousal (Korff & Geer, 1983; Laan, Everaerd, van der Velde, et al., 1995). While both the methodological and theoretical explanations given for the poor subjective-genital response correlations in women may account for some of the variance amongst participants some of the time, they cannot account for the pervasive inconsistencies within the literature.

**Evaluation of unidimensional models of female sexual arousal**

The poor concordance between subjective and genital measures of sexual arousal in women resulted in considerable controversy, primarily because the differences between these measures are inconsistent with the unidimensional model of female sexual arousal (Laan & Everaerd, 1995a; Poulin, 1992; Rosen & Beck, 1988): A basic premise of the unidimensional model of female sexual arousal discussed earlier is that, in the process of sexual arousal, subjective and genital arousal both increase and decrease simultaneously and proportionately (Laan & Everaerd, 1995a; Poulin, 1992). Indeed subjective arousal has often been regarded as an artefact of genital arousal (Rosen & Beck, 1988). Research investigating the sexual arousal processes of men and women suggests otherwise however, as subjective and physiological measures of sexual arousal tend to be poorly correlated with one another (Heiman, 1977; Schreciner-Engel et al., 1981; Steinman et al., 1981; Wincze et al., 1977). Thus, while the results of an isolated study would have been easily attributed to methodological variations or experimental error, the pervasive inconsistencies within the literature suggest that the unidimensional model of female sexual arousal may be inherently flawed.
Proponents of the unidimensional approach to defining sexual arousal have typically cited the high positive correlations between genital and subjective measures of arousal in male subjects as evidence of the utility of this model (Griffitt, 1975; Heiman, 1977; Laan & Everaerd, 1995a; Wincze et al., 1977). Indeed, consistent with expectations, the relationship between subjective sexual arousal and genital arousal appears to be linear in men, as increases in genital arousal tend to be highly correlated with increases in subjective sexual arousal. What unidimensional models fail to explain however, are the results of a number of studies which indicate that cognitive distortions and extreme anxiety are the most common causes of erectile dysfunction among men (Barlow, 1986; Masters & Johnson, 1970; Masters et al., 1993). If, consistent with the unidimensional approach to male sexual arousal, subjective arousal occurs as the direct result of genital arousal, how can one account for the strong influence of cognitions in sexually dysfunctional men? While a comprehensive review of the sexual arousal processes of men is beyond the scope of the current thesis, further research examining the utility of a multidimensional approach to male sexual arousal is certainly warranted.

Research using female subjects is also inconsistent with unidimensional approaches to sexual arousal, as changes in genital responding to sexual stimuli do not appear to determine the subjective perception of being sexually aroused among the women tested (Heiman, 1977; Wincze et al., 1977; Meston, 2000; Laan & Everaerd, 1995a; Rosen & Beck, 1988). This observation is based on related evidence demonstrating that women often report little or no subjective sexual arousal when objective physiological measures indicate substantial genital arousal (Heiman, 1977; Rosen & Beck, 1988; Sakheim, Barlow, Beck, & Abrahamson, 1984; Schreiner-Engel et al.,
1981; Wincze et al., 1977). Conversely, women may report being subjectively sexually aroused in the absence of genital arousal (Heiman, 1977; Laan & Everaerd, 1995a; Rosen & Beck, 1988). These findings lead to the inevitable question, what is sexual arousal in women? If the previously established unidimensional approach to sexuality is applied, genital arousal is by necessity analogous to subjective reports of sexual arousal. As research examining correlations between genital and subjective reports of sexual arousal amongst women suggests, this is not always the case.

Revising unidimensional models of female sexual arousal

Previously, models of female sexual arousal were based on a unidimensional approach. These models tended to highlight the physiological changes that occur during sexual arousal, downplaying the role of cognitions in this process (Rosen & Beck, 1988). Research examining the utility of this approach produced mixed results however, as highlighted by the poor concordance between subjective and physiological measures of female sexual arousal (Geer, 1979; Heiman, 1977; Laan & Everaerd, 1995a; Wincze et al., 1977). Many previous researchers have attempted to account for the results by altering the methodology of their own research. Rather than attempting to artificially increase measured correlations between subjective and genital assessments of sexual arousal, researchers should be attempting to reframe unidimensional models of female sexual arousal, making them more inclusive to account for the role that cognitions and emotions play in this response (Janssen, Everaerd, Spiering, & Janssen, 2000).
Rosen and Beck (1988) assert that instances of discordance between subjective and physiological measures of female sexual arousal highlight the potential complexity of sexual arousal phenomena and the resulting need for a multidimensional methodology in the study of female sexual arousal. As such, research investigating female sexual arousal should explore the interrelationships between cognitive, affective, subjective and physiological processes, rather than emphasizing the physiological concomitants of sexual arousal as has been the case in previous research. Within this multidimensional model the cognitive, affective, subjective and physiological elements of female sexual arousal are viewed as both mutually exclusive and distinct entities. Accordingly, the response discordance between subjective measures of sexual arousal may be viewed as evidence of the importance of cognitive factors in determining female sexual arousal. These results also emphasize, in accordance with multidimensional approaches to female sexual arousal, the clear distinction between genital changes that may occur in response to erotica and women's cognitive evaluations of their sexual arousal state in response to erotica.

In summary, this chapter has briefly reviewed the study of human sexuality, highlighting the role that sexual arousal plays in this process. Early research examining the sexual arousal responses of men and women relied predominantly on the writings of Masters and Johnson (1966, 1970). As pioneers in the field of psychosexual research, these authors initially highlighted the physiological changes that occur during arousal, asserting that subjective feelings of arousal occur secondary to these changes. Research examining the validity of this approach has produced mixed results, as subjective sexual arousal has been found to occur
independently of physiological arousal, and vice versa. Moreover, when
physiological and subjective sexual arousal does co-occur, a low concordance
between these two measures has generally been noted amongst female participants.
While many theories have been forwarded to account for these results, few can
account for the pervasive discrepancy between measures of sexual arousal noted in
the literature, leading researchers in the field to question the validity of
unidimensional models of female sexual arousal. In line with this argument, Chapter
Three presents a few of the most comprehensive multidimensional models of female
sexual arousal that have been published to date.
CHAPTER THREE: MULTIDIMENSIONAL MODELS OF FEMALE
SEXUAL AROUSAL

In the past, unidimensional models of female sexual arousal, which highlight the
peripheral physiological changes that occur during this process at the cost of other,
cognitive and affective changes, dominated the literature (Rosen & Beck, 1988).
These models fail to account for a number of interesting research findings however,
leading to questions regarding the validity of these models (Basson, 2002; Leiblum,
2000; Rosen & Beck, 1988). In an effort to overcome the limitations of previous
unidimensional models of female sexual arousal, Rosen and Beck (1988) assert that
researchers would benefit from taking a broader, multidimensional perspective. More
specifically, they recommended that future research examining the sexual arousal
processes of women should explore the interrelationships between the cognitive,
affective, subjective and physiological components of this response. In keeping with
these recommendations, a number of multidimensional models or frameworks have
been proposed. The present chapter briefly outlines some of the most common
multidimensional models of female sexual arousal.

Masters, Johnson and Kolodny

As noted in the preceding chapter, Masters and Johnson were pioneers in the field of
psychosexual research, with their early work laying the foundations for the advent of
unidimensional models of the female sexual arousal (1966, 1970). As research in the
field progressed however, these authors conceded that unidimensional models might
not adequately account for the range of experiences reported by women during
sexual arousal. The poor predictive validity of these models prompted revisions by Masters, Johnson and Kolodny (1993). While retaining fundamental principles of the four-stage sexual response cycle, these authors revised the details of the excitation (arousal) component.

Masters et al. (1993) assert that female sexual arousal is multidimensional, with cognitive, affective and physiological elements. In women, input from feelings and thoughts, learning and language, personal and cultural values and many other sources are thought to combine with biological reflexes, creating a total experience. These authors assert that the brain plays a significant role in this process, integrating and focusing signals from other parts of the body, such as the skin, breasts and genitals, with thoughts and feelings. Without sexual thoughts, feelings or images, sexual arousal is deemed to be fragmentary and incomplete.

Interestingly, within the revised model thoughts and feelings of arousal are not always accompanied by a physiological arousal response. Masters et al. (1993) went on to advise that at times, sexual arousal might be a predominantly cerebral event during which the women feels aroused, without any visible physiological changes occurring elsewhere. Alternatively, these authors assert that physiological arousal might not be accompanied by thoughts or feelings of arousal. In this instance, genital sensations may become so intense that they block out awareness of almost everything else, including the woman's thoughts and feelings.

This framework may be used to understand the results presented in the preceding chapter, particularly with regards to the apparent discrepancy between subjective and
physiological measures of female sexual arousal. Masters et al. (1993) assert that sexual thoughts and feelings might occur without any evident physiological changes, and vice versa, resulting in a poor correlation between subjective and physiological measures of sexual arousal. When the two are combined to form an integrated, cohesive sexual response however, one might expect a high correlation between subjective and physiological measures of sexual arousal.

This framework represents a significant shift for Masters and Johnson, who spent the greater part of a decade focusing predominantly on the physiological changes that occur during sexual arousal (1966, 1970). There are however, a number of limitations associated with this framework. First it is important to highlight that Masters et al. (1993), while recognising the importance of sexual thoughts and feelings during arousal, fail to develop their arguments to outline how these thoughts and feelings might influence arousal. Thus, while thoughts and feelings are mentioned, they are poorly defined constructs, which require further investigation (Rosen & Beck, 1988). Unlike these authors, Bancroft (1989) is counted among the current theorists to identify specific dimensions of sexual arousal, providing an account of the essential features of this response.

Bancroft

Bancroft (1989) describes four essential features of sexual arousal: sexual appetite or drive, central arousal, genital responses and peripheral arousal. In order to better understand this model, it may be useful to consider each of these processes in turn.
Sexual appetite or drive

According to Bancroft (1989), the experience of sexual desire or appetite is the result of complex interactions between cognitive processes, the neurophysiological processes involved in encoding and interpreting sexual stimuli, and the prevailing affect or mood of the woman. Bancroft asserts that initially, women experience a sexual appetite or desire, which motivates them to seek out sexual stimulation. This sexual stimulation is cognitively processed and evaluated, producing thoughts of arousal, which may either enhance or inhibit the woman’s motivation to seek out further sexual stimulation.

Bancroft (1989) claims that the motivational and cognitive processes involved in this first phase of arousal are further influenced by the “mood of the moment”. Specifically, when in a depressed mood, a woman is less likely to interpret sexual stimuli as favourable. In this way, cognitions and emotions interact to influence sexual arousal. The final issue highlighted by Bancroft is that the actions and interactions of the cognitive, affective and neurophysiological aspects of sexual appetite are complex and difficult to predict.

Central arousal

Bancroft’s (1989) second component of arousal refers to central nervous system activation and the attentional factors that underlie women’s psychological processing of sexual stimuli. In its essence, central arousal appears to be closely related to the ‘subjective’ sexual arousal referred to in the preceding chapter. Unlike many of the
researchers in the preceding chapter however, Bancroft warns against linking central or subjective sexual arousal and physiological sexual arousal together. While they are clearly related, Bancroft asserts that they interact in a complex manner. As an illustration, while one woman may respond to her increased awareness of the peripheral physiological changes that occur during sexual arousal with increased excitement and positive feelings, another woman may interpret these changes as negative, responding with fear. In sum, Bancroft asserts that while related, subjective and physiological sexual arousal are also independent of one another.

According to Bancroft (1989), central arousal is linked with attentional commitment. Specifically, for a woman to feel aroused, she must focus on the sexual nature of the stimulus she is presented with. The stimulus is then cognitively appraised, enhancing or inhibiting central arousal. The important thing to note is that within this model, the woman must first attend to a stimulus before central arousal may occur.

Genital responses and peripheral arousal

The genital and peripheral changes that occur during female sexual arousal have been the focus of the most empirical research and discussion to date, and are thought to be the least controversial (Rosen & Beck, 1988). The third component of Bancroft’s (1989) model refers to the specific genital changes that occur during sexual arousal, such as vaginal engorgement and lubrication. The fourth and final component, peripheral arousal refers to the peripheral changes that accompany sexual stimulation, such as increased heart rate, skin temperature and raised blood pressure.
In sum, Bancroft (1989) outlines a specific account of the elements of female sexual arousal. In terms of sexual appetite he discusses the mediating role of cognitions, emotions and neurophysiological responses. In terms of central arousability Bancroft discusses the woman's experience of arousal. This aspect of women's sexuality appears to be closely related to the subjective sexual arousal discussed previously. In terms of the physiological aspects of female sexual arousal, Bancroft describes two separate but related types of physiological response – genital responses and peripheral physiological changes. Recognising the inherent complexity of interactional mechanisms, Bancroft introduces the possibility of reciprocal influences between at least two of the key response elements, central and peripheral arousal.

While his approach to identifying specific components of arousal is noteworthy, like many other contributors to the field, Bancroft (1989) is able to offer few specific predictions concerning the interrelationships between and within the components he discussed. There is one exception to this statement however. Bancroft did assert that central and peripheral arousal share a bi-directional relationship, with changes in one system able to effect changes in the other. Bancroft's model offers few other specific predictions regarding the interrelationships between sexual appetite, central arousal, genital responses and peripheral arousal however (Rosen & Beck, 1988).

Basson

Basson (2002) provides one of the most elaborate models published to date, which incorporates physiological, cognitive and affective factors as independent elements
of women's sexual arousal. Basson's model is similar to Bancroft's (1989) in that she highlights the importance of a woman's cognitions and emotions when registering and processing sexual stimuli. Unlike Bancroft however, Basson makes specific predictions as to the interrelationships between the components of her model.

Basson (2002) postulates that for many women, it is the desire for intimacy rather than for physical sexual release per se, that serves as the starting point of the sexual response cycle (Leiblum, 2000). From this point the woman seeks out or becomes receptive to sexual stimuli, potentially becoming aroused as a result. While playing an integral role on the female sexual response cycle, Basson asserts that sexual arousal is also an independent feature of this response, which contains its own inherent elements and responses.

Specifically, Basson's (2002) model of female sexual arousal shows the composite emotion of subjective sexual arousal, which results from the conscious appraisal of sexual stimuli and their context, in the presence of positive affect and cognitive feedback. Within this model, genital feedback augments the subjective arousal response to a variable degree. According to Basson, genital congestion may be triggered by sexual stimuli in the absence of subjective sexual arousal. In a similar manner, subjective sexual arousal may occur in the absence of a genital response.

In sum, Basson (2002) identifies four key features of female sexual arousal, which respond either directly or indirectly to sexual stimuli - cognitive processing, emotional processing, subjective sexual arousal and physiological arousal. In order to
better understand how sexual arousal occurs and which factors might influence arousal, it is necessary to explore each of these elements in turn.

**Cognitive processing**

Cognitive processing refers to the cognitive interpretation and appraisal of sexual stimuli. When presented with a sexual stimulus, Basson (2002) asserts that women first assess the intrinsic qualities of the stimulus to determine if the stimulus is sexually appealing to them. The aim of the cognitive interpretation and appraisal of sexual stimuli is to provide information, which contributes to the formulation of a subjective arousal response.

Basson (2002) further asserts that the contextual cues surrounding the presentation of the sexual stimulus are also appraised. During this appraisal the woman may, either consciously or unconsciously, ask herself: should I be sexual now? Is it appropriate to be sexual now? Do I want to be sexual now, in this context? The information gathered during this cognitive process is also an important determinant of the woman’s subsequent subjective arousal response. According to Basson, if the woman deems that the environment in which a sexual stimulus is presented or the timing of the presentation is inappropriate, she is unlikely to feel subjectively aroused.

**Emotional processing**

Women’s emotional processing of sexual stimuli is another aspect of arousal highlighted by Basson (2002). Within her model of female sexual arousal, genital
congestion is thought to elicit an affective response, which may be either positive or negative. Similarly, women’s subjective sexual arousal may also elicit an affective response, although in this case, the relationship is bi-directional, with changes in affect also thought to influence the woman’s subjective experience of arousal.

According to Basson (2002), the affective component of female sexual arousal may vary, depending on the individual. In some instances sexual arousal is viewed as a potentially positive and enjoyable experience. In other cases sexual arousal is viewed negatively, triggering guilt, shame, embarrassment and fear. This aspect of the model has been linked with findings that females tend to simultaneously dwell on positive and negative emotions along with their sexual excitement (Dekker & Everaerd, 1988).

When discussing the role of affect during female sexual arousal it is important to note that, aside from women’s affective responses to specific sexual stimuli, nonsexual interpersonal factors also play an important role in determining a woman’s affective responses during arousal (Basson, 2000). As an illustration, if a woman is angry at or resentful towards her sexual partner, what would otherwise be effective sexual stimuli may become completely ineffective. In other words, while the woman may be physiologically aroused and capable of attending to a sexual stimulus, nonsexual interpersonal factors may influence her affective response to the sexual stimulus, either inhibiting or facilitating her ability to become adequately aroused. Thus, female sexual arousal may be influenced both by the assessment of current external stimuli and by internal responses which are based on previous experiences and interpersonal factors. This is important to acknowledge as the majority of
researchers generally discuss women’s emotional processing of sexual stimuli, such as erotica, in terms of a short lived response to a specific stimulus, failing to take other broad factors that may influence emotional processing into account.

*Subjective arousal*

Within Basson’s (2002) model, the term ‘subjective’ sexual arousal refers to the woman’s feelings of arousal, described as a state of “mental excitement”. Moment to moment feedback from the emotional and cognitive aspects of arousal discussed previously, modulate processing within the limbic system and in turn, the composite experience of sexual arousal. Thus, the woman’s cognitive and emotional processing of sexual stimuli influences subjective sexual arousal.

According to Basson (2002) the continued tolerance of subjective arousal requires positive feedback from cognitive and emotional processing. In cases where the woman’s sexual arousal state elicits feelings of inadequacy, embarrassment, guilt or anxiety, her subjective arousal is likely to be inhibited. Subjective sexual arousal may also be augmented, to a varying degree, by the woman’s awareness of her genital arousal. Unlike previous models however, Basson asserts that subjective sexual arousal is not dependent on the occurrence or awareness of genital arousal. In fact within this model subjective sexual arousal may occur as the direct result of women’s emotional and cognitive processing of sexual stimuli, without any direct input from the woman’s genitals.
**Physiological arousal**

While incorporated within Basson's (2002) model, the nature and function of physiological arousal has been reframed. The traditional inference has been that the occurrence of somatic changes, particularly genital ones, implies that the mind has consciously registered the sexual nature and context of a stimulus, labelling it sexually appealing (Basson, 2002).

Psychophysiological studies of women with arousal disorder however, demonstrate that erotic stimuli can be processed with minimal simultaneous awareness of sexual emotions (Laan, Everaerd, van der Velde, et al., 1995). Moreover, physiological sexual arousal, as measured by the vaginal plethysmograph, has been repeatedly shown to correlate poorly with both subjective arousal and with awareness of genital sensations in response to visual erotic stimuli (Everaerd & Laan, 2000; Heiman, 1980; Laan, Everaerd, van der Velde, et al., 1995; Wouda et al., 1998) Given the low cognitive input required for physiological sexual arousal to occur, Basson (2002) has reframed the role of genital vasocongestion in her model, referring to it as a ‘response’ which requires little cognitive input, as opposed to a conscious process completely under volitional control.

The final issue that Basson (2002) highlights with regards to her model, is that sexual arousal in women is a dynamic and reactive process. According to Basson, genital responses have the capacity to modulate all aspects of women’s sexual arousal including subjective sexual arousal and cognitive and emotional processing of sexual stimuli.
As noted earlier, women's subjective sexual arousal is a composite of women's cognitive and emotional processing of sexual stimuli. The relationship between these variables is thought to be bi-directional however, with changes in subjective arousal influencing cognitive and emotional processing. In this manner subjective sexual arousal may have a direct impact on attentional focus, a cognitive process referring to the woman's ability to focus her attention on a sexual stimulus in order for further genital and subjective arousal to occur. Basson (2002) asserts that the experience of subjective sexual arousal may have a direct impact on a woman's attentional focus, motivating her to maintain and in some cases increase her focus on a sexual stimulus. While a number of other relationships exist within Basson's model of female sexual arousal, the most important and well researched of these have been reviewed. Essentially, it is important to note that sexual arousal in women is a dynamic and reactive process which is in need of further research.

While advocating a relatively novel approach to the conceptualisation of female sexual arousal, there are some flaws in Basson's (2002) model. Firstly, while based on previous research, Basson's' model is theory driven as opposed to research based. As such, research is needed to empirically investigate the utility of this approach. In a similar vein, certain elements of this model and the reciprocal relationship between the elements included therein are vague and at times contradictory. As an illustration, while Basson asserts that a woman's subjective feelings of arousal are capable of producing a genital response, the pictorial representation of Basson's
model featured in her 2002 article fails to demonstrate this notion (Basson, 2002, p. 3). As such, further consideration of the role of each of the components included within this model is important.

Given the theoretical nature of Basson's (2002) model of female sexual arousal and the need for future research investigating the relationships between the affective, cognitive and physiological components incorporated therein, it seems logical to refer to Basson's multidimensional model as a framework contingent on further research, as opposed to a definitive model of sexual arousal in women. Interestingly, Basson has also advocated for further research to be conducted in this regard.

**Summary and conclusions**

In summary, the difficulties encountered when applying unidimensional models of female sexual arousal to the study of women's sexuality, have been well documented. Both Leiblum (2000) and Tiefer (1991) stress that the focus on physiological arousal ignores major components of women's sexual satisfaction such as trust, intimacy, affection and the woman's subjective feelings of arousal. Rosen and Beck (1988) therefore advocate for the incorporation of cognitive and affective factors into revised models of female sexual arousal. While many multidimensional models of female sexual arousal have been published, this chapter has reviewed three models which are consistent with the research findings presented in Chapter Two. Each of these models approaches the investigation of women's sexual arousal from a different vantage. In terms of commonalities, each of these models has integrated cognitions, emotions and genital responses into a cohesive arousal framework. These
models differ however, with regards to how these components are integrated. Further research is needed to examine the utility of each model, particularly, Bancroft’s (1989) and Basson’s (2002), as they both present a specific framework for subsequent empirical research. In order to better understand these models and the rationale underlying the inclusion of cognitive and emotional processing in them, the following chapters will review empirical data relating to women’s cognitive and emotional processing during sexual arousal in more depth.
CHAPTER FOUR: WOMEN'S ATTENTIONAL ALLOCATION DURING SEXUAL AROUSAL

The previous chapter explored some common multidimensional models of female sexual arousal. While multidimensional models of female sexual arousal differ, they generally incorporate four core elements -- cognitions, emotions, subjective sexual arousal and physiological arousal (Bancroft, 1989; Basson, 2002; Masters et al., 1993). Rosen and Beck (1988) however, propose that female sexual arousal should be considered from an information processing perspective. The fundamental premise of this approach is that cognitive, affective, subjective, physiological and attentional responses all play an integral role in the processing of sexual stimuli and as such, the arousal response.

The role of attentional allocation during female sexual arousal has been largely underestimated in multidimensional models of female sexual arousal. As an illustration, while Basson (2002) and Bancroft (1989) both briefly highlight the relationship between attentional processing and female sexual arousal, these references are vague, the constructs poorly defined. To better understand the nature of female sexual arousal it is therefore necessary to investigate the sexual information processing approach further, establishing the role that attentional allocation may play during female sexual arousal. The present chapter aims to explore the role that attentional allocation plays during female sexual arousal. In order to do so, studies examining the relationship between attentional allocation and female sexual arousal are reviewed. In particular, this chapter explores literature
relating to one form of attentional processing identified frequently within sexuality 
literature – absorption.

Understanding the relationship between absorption and female sexual arousal

Tellegen and Atkinson (1974) define ‘absorption’ as a disposition for having 
episodes of total attention that fully engages one’s representational (i.e. perceptual, 
enactive, imaginative and ideational) resources. According to these authors, this kind 
of attentional functioning is believed to result in a heightened sense of the reality of 
the attentional object, imperviousness to distracting events and an altered sense of 
reality in general. In terms of the relationship between absorption and sexual arousal, 
it has been hypothesised that individuals who are absorbed in erotic cues are likely to 
be less distracted by competing stimuli and as such, open to the experience of sexual 
arousal (Masters & Johnson, 1970). It may be further hypothesised that, given 
adequate sexual stimulation such as an erotic videotape, absorbed individuals will 
not only be more open to the experience of sexual arousal but also more likely to 
report higher degrees of sexual arousal than their non-absorbed counterparts, who are 
more likely to be distracted by external cues (Koukounas & McCabe, 1997). In terms 
of the laboratory study of sexual arousal, this means that absorbed participants are 
immersed in the stimuli presented and as such, less likely to be distracted by external 
cues that may inhibit their arousal.

When discussing absorption it is important to note that the literature refers to two 
broads categories of absorption - state related absorption and trait related absorption. 
The former refers to absorption as a temporary or fluctuating state that may change
over time (Koukounas & McCabe, 1997). As an illustration, a participant’s degree of absorption in response to an erotic film excerpt may fluctuate throughout the stimulus presentation. Thus, the absorption that participants report in response to an erotic film presentation reflects the degree to which they immersed themselves in the erotic film presentation during that experimental session (Koukounas & McCabe 1997; Tellegen & Atkinson, 1974). By contrast, trait related absorption refers to the degree to which individuals generally absorb themselves across many situations.

Thus trait related absorption is defined as the individual’s characteristic absorption in response to external stimuli (Tellegen & Atkinson, 1974). As trait absorption is generally thought to be a personality characteristic as opposed to a reactive affective state, one would expect assessments of an individual’s trait absorption to remain fairly stable over time, not fluctuating in response to different stimuli (Koukounas & McCabe, 1997; Koukounas & Over, 1999).

The importance of the relationship between sexual arousal and absorption is emphasised by Masters and Johnson in their publication Human Sexual Inadequacy (1970). According to these authors, men and women both need to be actively absorbed and engaged in a sexual activity in order to experience adequate sexual arousal. Individuals who are not adequately absorbed in a sexual activity are more likely to assume the role of a spectator during the interaction. Spectatoring is defined by Masters and Johnson as the experience of detaching oneself from a sexual experience, as though one were an uninvolved observer, a third party.

Masters and Johnson (1970) refer to the process of spectatoring when attempting to explain the psychological aetiology of sexual dysfunctions. These researchers assert
that spectating is generally caused by fears of inadequate sexual performance, which lead an individual to question his/her sexual performance. Such behaviour generally initiates a negative feedback loop in which fears of performance facilitate spectating, which in turn decreases the individuals ability to immerse him or herself in a sexual activity, instead evaluating and critiquing the interaction as a third person. After taking on the role of a spectator most individuals find it difficult to become aroused as their focus is no longer on the sensations that accompany arousal but rather, on the critical examination of the experience and each partner’s role the interaction. The negative feedback loop triggered by spectating may result in sexual dysfunctions, whereby spectating decreases absorption, which in turn decreases arousal and the individual’s ability to become aroused. Thus, absorption is viewed as an essential component of adequate sexual functioning (Masters & Johnson, 1970).

Masters and Johnson (1970) give the illustration of a man with erectile dysfunction, who finds himself a spectator of his own sexual exchange. According to Masters and Johnson he is mutually observing his and his partner’s responses to sexual stimulation, asking endless questions such as “will there be an erection”. The involuntary spectator in this sexual exchange demands immediate answers to his questions, distracting attention from the sexual stimulation. Thus, rather than allowing himself to relax and enjoy the sexual stimulation, permitting a natural sexual response, as a spectator he demands instant performance. As the direct result of the accumulated effects of anxiety, poor attention and absorption, increased distraction and low sexual arousal a dysfunctional man adopting the role of a
spectator completely negates any opportunity for natural sexual arousal (Masters & Johnson, 1970).

In summary, Masters and Johnson (1970) argue that inadequate absorption during sexual arousal might lead to the adoption of a spectator role during sexual activity. This role in turn further inhibits attention and absorption, eventually leading to sexual dysfunction. Thus, absorption is viewed as a necessary precursor to both subjective and physiological sexual arousal. While Masters and Johnson discussed the effects of low absorption on sexual arousal as early as the 1970's, the relationship between these two constructs did not become the focus of empirical research until more recently.

**Empirical research investigating the relationship between absorption and sexual arousal**

While Masters and Johnson (1970) were pioneers in the field of sexual psychophysiology, their theories pertaining to the effects of distraction and anxiety on female sexual arousal were based predominantly on anecdotal evidence gathered through their clinical work, rather than empirical research (Cranston-Cuebas & Barlow, 1990). Since the theory of spectatorialing was proposed, the relationship between attentional commitment and female sexual arousal has been the focus of empirical research. One such study, conducted by Dekker, Everaerd and Verhelst (1985), examined the effects of attentional focus on subjective sexual arousal in response to an erotic audiotape. 24 men and 24 women were asked to listen to an erotic story in two repeated trials. Participants were asked to either attend to the
description of situations and events in the story (stimulus instructions) or to attend to their physical and sexual feelings in response to the stimulus and to the stimulus itself (stimulus/response instructions). At the conclusion of the tape presentation participants were asked to report their subjective sexual arousal, genital sensations and mood state. Dekker and colleagues reported that the stimulus and stimulus/response test session instructions had a significant effect on participants’ feelings of subjective sexual arousal, their surprise in response to the erotic stories and their enjoyment of the erotic stories. Specifically, these measures were higher in the stimulus/response condition than the stimulus condition. Based on these results it was concluded that attentional focus might either enhance or inhibit the cognitive and emotional processing of erotic stimuli.

The findings reported by Dekker et al. (1985) may be explained by referring to the phenomenon of spectatoring, outlined by Masters and Johnson (1970). Specifically, the stimulus condition instructed participants to listen to the erotic audiotape as impartial, uninvolved observers, essentially mimicking the conditions that occur during spectatoring. By contrast, participants in the stimulus/response condition were instructed to focus both on the erotic story and on their arousal responses to the story thereby increasing their absorption and as such, their arousal state. In sum, the stimulus condition primed subjects to act as spectators of the sexual exchange while the stimulus/response condition primed subjects to act as absorbed, immersed participants in the sexual exchange, subsequently facilitating their arousal responses.

Unfortunately, Dekker et al. (1985) failed to incorporate a direct measure of absorption into their research, making it difficult to ascertain if the test session
instructions had the desired effect, by either increasing or decreasing participants’ absorption in the erotic audiotapes. In order to overcome this limitation, Tokatlidis and Over (1995) incorporated a direct measure of absorption in their research.

Tokatlidis and Over (1995) asked 119 women to rate how sexually aroused and absorbed they felt when employing nominated themes during sexual fantasy. Participants in the study were initially asked to read the Female Sexual Fantasy Questionnaire (FSFQ) designed by Meuwissen and Over (1990). The FSFQ instructs participants to engage in fantasy on a nominated theme for approximately 60 seconds. Twelve fantasy scenarios are incorporated within the FSFQ. These scenarios include four themes (sexual situations) and three fantasy dimensions (genital activity, sensual activity, sexual power activity), identified by Meuwissen and Over. Subjective sexual arousal was measured at the conclusion of each fantasy scenario, via a 7-point Likert scale. After providing a rating of sexual arousal for the nominated fantasy themes, participants also rated the vividness of the images they had formed during fantasy, the extent to which they felt absorbed during fantasy and the level of distaste experienced when employing the nominated theme during fantasy. These assessments were given on a 7-point Likert scale. Once these measures had been completed women in the study were asked to rate the frequency with which they had experienced each of the 12 fantasies within the past year and the frequency with which they had engaged in the sexual behaviours or activities depicted within the scenarios. At the conclusion of the structured fantasy session, participants also completed trait measures of imagery and absorption, designed to measure the quality of participants’ imagery and the degree to which participants absorbed themselves in non-sexual situations.
Tokatlidis and Over (1995) reported that fantasy-induced sexual arousal correlated more highly with state (sexual) measures of absorption and imagery than with trait (non-sexual) measures of absorption and imagery. Overall, stronger positive correlations were reported between subjective sexual arousal and subjective reports of absorption (state) than between subjective sexual arousal and scores on the Tellegen Absorption Scale, which assesses trait absorption (Tellegen & Atkinson, 1974). The strength of these correlations did vary however, depending on the nominated content of the fantasy used.

The data obtained by Tokatlidis and Over (1995) also indicated that participants' subjective sexual arousal, subjective absorption and the vividness of the fantasies used by participants was dependent upon the nominated content of the fantasy employed, whether it be sensual, genital or power-related. More specifically, fantasy incorporating genital themes was more sexually arousing for females than fantasy incorporating sexual power themes, which in turn was more arousing than fantasy incorporating sensual themes. By contrast, participants reported feeling more absorbed in the fantasy employing genital themes, followed by the sensual and then the sexual power themes. In terms of the reported frequency of participants' use of these themes in the past year, participants reported using sensual, then genital then sexual power themes, although differences in the reported frequency of the genital and sensual themes were not significant. Based on these results Tokatlidis and Over concluded that state measures of absorption and imagery were better predictors of subjective sexual arousal than were trait measures of absorption and imagery.

Tokatlidis and Over also concluded that the content of the fantasy used, dictated
women’s subsequent subjective sexual arousal, degree of absorption and sexual behaviours.

Aside from providing additional evidence to support the premise that sexual arousal and absorption are related, the study by Tokatlidis and Over (1995) also highlighted the impact that socialisation plays on sexual behaviours. Tokatlidis and Over noted that while power related and genitally related fantasy themes evoked the highest sexual arousal from participants in the laboratory environment, participants reported that they generally utilised sensually based fantasy themes when engaging in fantasy in their home environment. Thus, the fantasy content that participants found most arousing was not the content that participants utilised in their own sex lives. One possible explanation for these results may be attributed to the variable impact of socialisation on women. According to Rook and Hammen (1977) the traditional impact of female socialisation has been to constrain the extent of women’s direct sexual experience in childhood and adolescence, particularly with regards to methods of self-gratification, and to provide a rigid set of norms regarding the appropriate context for sex and standards of appropriate sexual conduct. While these views may be slowly changing, society still tends to be more permissive of female sexuality when it is focused on romantic or sensual themes than when it is related to sexually explicit or genitally focused acts or themes (Mosher and Maclan, 1994).

Alternatively, the women assessed by Tokatlidis and Over (1995) may have found the power related fantasy themes highly arousing due to the novelty value associated with such themes. More specifically, because women in the study were accustomed to focusing on a particular type of fantasy theme in their own sex lives, the use of a
novel stimulus in the study may have resulted in higher degrees of sexual arousal. Thus, rather than women failing to incorporate power related themes in their own sex lives due to social inhibitions, they may have responded favourably to the power related fantasy themes because they do not generally use them. Further research is needed to better understand the relationship between sexual thoughts, fantasies and behaviours amongst women.

While the Tokatidis and Over (1995) study highlights some important issues pertaining to the nature of the relationship between absorption and subjective sexual arousal, the erotic medium employed in this study has been criticised. Koukounas and Over (1997) argue that the use of erotic fantasy in the laboratory study of female sexual arousal is problematic, as it is difficult to determine if differences in sexual responsivity are due to variations in the independent variables, or the specific content of the fantasy used. While Tokatidis and Over did incorporate the Female Sexual Fantasy Questionnaire (FSFQ) in their study, providing participants with specific instructions for engaging in specific fantasy scenarios, the results of the study may still limited by the degree to which participants actually complied with these instructions, making it difficult to infer that a causal relationship exists between the variables assessed. Moreover, while the FSFQ is more structured than non-directive approaches, it remains open to individual interpretation.

In an effort to eliminate the possibly confounding effects of individual fantasy variations when inducing sexual arousal, Koukounas and Over (1997) examined physiological and subjective sexual arousal responses to erotic film and fantasy matched in content. Thus, the fantasy sessions used by these authors were directive
and structured. By matching the content of the fantasy sessions with an erotic film segment Koukounas and Over decreased the potential for individual variation when using fantasy, as the confounding influence of participants’ individual interpretation of the stimulus materials is removed.

Koukounas and Over (1997) assessed the effects of erotic film and fantasy matched in content on absorption and sexual arousal in men. Prior to the commencement of each session subjects were given a ‘participant-oriented’ instruction set, directing them to imagine that they were participants in the sexual activities depicted in the film and fantasy segments. Subjects were instructed to experience the activities with all their senses, feeling fully absorbed emotionally and ignoring all distracting stimuli. The participant-oriented instruction set given to participants was expected to facilitate state absorption. After reading the test session instructions participants viewed eight erotic film segments. Following each segment participants were required to imaginatively reproduce the sexual events depicted in the preceding erotic excerpt, thus ensuring that the content of the erotic fantasy remained consistent across participants. After each of the erotic film and fantasy conditions subjects reported their subjective sexual arousal, absorption and in the case of the fantasy conditions, the vividness of the images formed. Participants also completed a questionnaire incorporating trait measures of absorption, vividness of imagery and daydreaming at the conclusion of the experimental session. For the purpose of this study physiological arousal was measured throughout the erotic film and fantasy conditions via changes in penile tumescence measured via a strain gauge.
Koukounas and Over (1997) found that erotic film elicited greater physiological and subjective sexual arousal from participants than did erotic fantasy involving similar sexual content. Consistent with previous research, participants also reported feeling more absorbed by the erotic film than the erotic fantasy sessions. Interestingly, the erotic film excerpts remained more sexually arousing than the erotic fantasy even when allowances were made for differences in levels of absorption between the two modalities. Koukounas and Over also noted that physiological and subjective sexual arousal during film and fantasy reflected the extent to which participants in the study reported having felt absorbed during the erotic stimulation. More specifically, subjects experienced greater subjective and physiological sexual arousal when they were absorbed in the erotic stimuli. Finally, state measures of absorption correlated higher with participants’ physiological and subjective sexual arousal, than did trait measures of absorption and imagery. Based on these results Koukounas and Over surmised that there is a strong correlation between both physiological and subjective sexual arousal and state measures of absorption, irrespective of the erotic stimulus modality utilised.

In summary, the results of the above studies indicate that there is a relationship between sexual arousal and absorption. Dekker et al. (1985) found that participants reported greater subjective sexual arousal and enjoyment in response to erotic audiotapes when they were highly absorbed and immersed in the stimuli and focused on their own arousal responses, than when they acted as spectators of the sexual exchange. In later research, Tokatlidis and Over (1995) and Koukounas and Over (1997) reported strong positive correlations between state assessed absorption and sexual arousal, compared with trait assessed absorption.
The problem of response contamination needs to be considered however, when interpreting the relationship between state absorption and subjective sexual arousal reported by Tokatlidis and Over (1995) and Koukounas and Over (1997). Participants from both of these studies were required to assess their state absorption after they reported how sexually aroused they were during the experiments. Thus, participant’s reports of their state absorption may have increased or decreased to remain consistent with their sexual arousal, particularly if participants were unsure of the meaning attached to the term ‘absorption’. As such, the possibility that the ratings of vividness of imagery and absorption given by participants were simply proxy measures of sexual arousal cannot be discounted. Rather than relying solely on self-report, multimodal assessments of sexual arousal and absorption need to be undertaken.

One objective measure of absorption identified by Koukounas and Over (1999) is the secondary task technique. This technique relies on an assessment of participants’ reaction times to a secondary stimulus under conditions of divided attention. Koukounas and Over asserted that measuring attentional commitment to a primary stimulus via performance on a secondary task relies on the implicit assumption that humans have a limited capacity to process information. While two tasks can be performed concurrently without interference when their combined demands are within attentional resource limits, when this limit is exceeded the tasks are processed in accordance with the level of priority each has been accorded (Posner & Boies, 1971). The secondary-task technique identifies the allocation of attentional resources and associated degree of absorption in a task by measuring participants’ reaction
time to a probe (such as a tone or light pulse). This stimulus is generally presented intermittently, while the subject is engaged in a ‘primary’ task (Dawson, Schell, Swerdlow, & Filion, 1997). Theoretically, individuals who are absorbed in the primary stimulus or task are expected to have a slower response to the secondary stimulus than individuals who are not absorbed in the primary stimulus, as absorbed individuals have less attentional resources to commit to the secondary task (Koukounas & Over, 1997).

Koukounas and Over (1999) utilised the secondary task technique to objectively assess participants’ absorption during the habituation and dishabituation of sexual arousal. Habituation refers to the decline noted in participants’ physiological and subjective sexual arousal, following repeated exposure of the same erotic stimuli (Koukounas & Over, 1999; Meuwissen & Over, 1990). Dishabituation occurs when participants are presented with a novel stimulus following habituation, then presented with the original stimulus. The subsequent rebound or increase in participants’ sexual arousal following the reinstatement of the original stimulus is referred to as the dishabituation of sexual arousal.

Koukounas and Over (1999) instructed 16 male volunteers to watch the same erotic film excerpts in 18 consecutive trials (habituation). A tone was presented intermittently throughout these trials. Once sounded participants were required to press a buzzer thus assessing their reaction times to the probe. Participants were then presented with 2 trials featuring different film segments (novel stimulus) and 2 trials where the original segment was reinstated (dishabituation). An objective measure of participants’ sexual arousal was also taken throughout the experimental session, via
assessment of participants’ penile circumference. Following each of the film segments participants were required to assess their subjective absorption and subjective sexual arousal on a 7-point Likert scale, reporting these estimates to a research assistant. Participant’s physiological sexual arousal was also measured during the study via a penile strain gauge. Koukounas and Over found that participants’ mean reaction times to the secondary-task (tone) shifted during the session in parallel with changes that occurred in penile tumescence and subjective sexual arousal. More specifically, participants’ reaction times in response to the secondary stimulus decreased as participants’ physiological and subjective sexual arousal decreased.

Koukounas and Over (1999) explained their results in terms of attentional commitment. Specifically, subjects’ reaction times in response to the tone were thought to reflect the attentional resources being committed to the erotic film excerpt. As such, individuals who were absorbed in the erotic film had slower responses following the tone than individuals who were not absorbed or immersed in the film. Koukounas and Over also reported that subjective ratings of absorption recorded at the conclusion of each film segment, indicated that participants felt less absorbed during the repeated stimulation, explaining their increased attention to the secondary task. Novel stimulation was found to increase sexual arousal and absorption, subsequently reducing reaction times to the probe. Higher absorption levels and slower reaction times than recorded prior to the presentation of the novel erotic stimulus accompanied the dishabituation of sexual arousal found upon the reinstatement of the original excerpt.
According to Koukounas and Over (1999) the distinctive feature of their study was participants’ reaction times to the secondary-task, which shifted over trials in conjunction with changes in penile tumescence, subjective sexual arousal and absorption. Based on these results Koukounas and Over concluded that a relationship exists between absorption and subjective sexual arousal in men, although the precise nature of the relationship remains unclear. Broadly these findings imply that the magnitude of sexual arousal reported by male subjects in response to an erotic stimulus is closely related to the level of absorbed attention allocated to the erotic stimulus.

Consistent with previous research, the results reported by Koukounas and Over (1999) indicate that there is a relationship between sexual arousal and absorption, as both variables decreased in response to the repeated erotic film clip and increased in response to the novel erotic film clips. While it is tempting to hypothesise that sexual arousal habituates as a consequence of subjects becoming less absorbed by an erotic stimulus over trials, the relationship between absorption and sexual arousal demonstrated by Koukounas and Over is again correlation, not causal.

In conclusion, multidimensional models of female sexual arousal highlight the importance of the cognitive, affective, subjective and physiological elements of this response (Bancroft, 1989; Basson, 2002; Masters et al., 1993). Rosen and Beck (1988) assert that attentional commitment should also be incorporated as a core element of models of female sexual arousal. One aspect of attentional processing highlighted repeatedly within the literature is absorption. Empirical research investigating the relationship between absorption and sexual arousal demonstrates
that a significant positive correlation exists between these variables. Generally, high estimates of subjective sexual arousal are associated with high degrees of absorption while low estimates of subjective sexual arousal are associated with low degrees of absorption. A similar relationship appears to exist between absorption and physiological indices of absorption. These results indicate that attentional allocation and in particular, absorption, is a key element of female sexual arousal, providing some support for the inclusion of this aspect of arousal in the multidimensional models of female sexual arousal reviewed previously. The results presented within this chapter were generally correlational, not causal. These findings highlight the need for future research in the field, and issue that will be addressed further in the following chapters.
CHAPTER FIVE: WOMEN’S EMOTIONAL PROCESSING DURING SEXUAL AROUSAL

The previous chapter explored the relationship between attentional processing and sexual arousal. The present chapter examines another equally important element of female sexual arousal – emotional processing. Specifically, the present chapter reviews empirical research investigating women’s emotional processing of erotica. The relationship between attentional allocation, emotional processing and arousal is also explored, with reference to research founded in the sexual information processing tradition. Finally, this chapter explores the effects of positive mood induction on women’s sexual arousal responses.

Empirical research investigating the relationship between emotional processing and sexual arousal

Much of the research reviewed in the preceding chapter focused specifically on the relationship between absorption and sexual arousal. Recent studies have taken a broader approach, incorporating the emotional, cognitive and arousal components of women’s sexual information processing into one integrated study. Researchers such as Koukounas and Over (2000) and Koukounas and McCabe (1997, 2001) argue that the study of female sexual arousal should be more inclusive in order to more accurately reflect the complexity of the processes that occur during arousal. As such, these researchers examined the relationship between absorption, emotional processing and erotic film type during sexual arousal. This approach is novel in that it takes a number of factors into account, acknowledging the multidimensional nature
of female sexual arousal rather than examining the specific relationships between particular variables exclusively.

One such study conducted by Koukounas and McCabe (1997) examined the interrelationships between subjective sexual arousal, absorption and emotional processing in men and women. In order to do so, 20 male and 20 female participants assessed one of two erotic videotape compilations. Each tape comprised 16 2-minute segments of film, with 8 erotic and 8 neutral segments. The erotic segments depicted a heterosexual couple engaging in various sexual acts while the neutral segments showed various nature scenes. The erotic and neutral segments were randomly ordered on the tape however this order remained fixed for all participants. Following each segment the screen went blank for 2 minutes to allow time for participants to respond to a brief questionnaire. Prior to the tape presentation participants also completed a longer questionnaire battery, which included trait measures of absorption and arousability, trait measures of the vividness of fantasy used by participants and questions related to participants sexual attitudes and behaviours. The brief questionnaire completed by all participants at the conclusion of each of the film segments included state measures of absorption and subjective sexual arousal. Participants were also asked to rate the degree to which they felt positive, anxious, disgusted, entertained, bored, angry and curious in response to each film excerpt.

Koukounas and McCabe (1997) found that men and women both reported greater sexual arousal in response to erotica when they became absorbed in the activities portrayed and when they experienced the erotic encounters as appetitive. Participants experienced a decrease in subjective sexual arousal however, when they were
distracted or perceived the encounters depicted in the erotic stimuli as aversive.

Consistent with previous research, sexual arousal did not correlate significantly with
trait measures of absorption (as indexed by the Tellegen Absorption Scale) and
vividness of imagery (as assessed by the Betts Questionnaire upon Mental Imagery).
Subjective sexual arousal did correlate significantly however, with measures of state
absorption. Specifically, subjective sexual arousal and state assessed absorption both
increased and decreased in unison, in response to the erotic and nature film segments.
These findings were demonstrated in both men and women. These results support the
hypothesis that there is a relationship between sexual arousal and absorption, as both
increased in response to the erotic film segments and decreased in response to the
neutral film segments. Once again however, the precise nature of this relationship is
unclear as the data gathered was correlation, not causal.

While Koukounas and McCabe's (1997) study provides some important information
with regards to the relationship between subjective sexual arousal and absorption,
Koukounas and McCabe only examined the responses of 40 subjects – 20 men and
20 women. Information based on such a small sample makes it difficult to generalise
the findings. As such, future research should aim to use larger sample sizes. Mosher
and Maclan (1994) utilised a larger sample size than that studied by Koukounas and
McCabe (1997), when examining the effects of erotic content on subjective sexual
arousal and absorption.

Mosher and Maclan (1994) asked 200 men and 195 women to assess one of six
erotic films. Three of the tapes selected were intended for a female audience and as
such, incorporated high degrees of foreplay (such as kissing and caressing), also
depicting the actors in the film as equals. The remaining three films were intended for a male audience and as such, incorporated less foreplay, focusing instead on the sexual and genital elements of the interactions depicted. Following the film presentation, participants completed questionnaires, which included assessments of participants’ subjective sexual arousal, subjective absorption and the Differential Emotions Scale (Laan & Everaerd, 1995a). Unlike previous researchers, Mosher and Maclan assessed state absorption via a scale consisting of seven items, each rated on a 7-point Likert scale. Items assessed a range of traits believed to be associated with absorption. For example, one of the items asked participants to rate the degree to which they felt the room faded away as they became absorbed in the erotic presentation. While previous researchers have typically assessed absorption via a single question, Mosher and Maclan assert that the incorporation of a more comprehensive state absorption scale can offer a more accurate assessment of state absorption.

Mosher and Maclan (1994) noted that overall, men reported higher sexual arousal than did women. As expected, women responded more favourably to the female oriented films, reporting greater subjective sexual arousal, greater positive affect and increased absorption. Consistent with previous research, Mosher and Maclan reported that subjective sexual arousal and absorption increased simultaneously in both men and women. Specifically, participants reported higher degrees of absorption in the conditions in which they were most sexually aroused. In a similar manner, participants’ absorption decreased in parallel with their subjective arousal. Based on these results Mosher and Maclan concluded that cognitions, emotions,
absorption and subjective sexual arousal are all integral components of the sexual arousal response.

The results of Mosher and MacIan's (1994) study also suggest that film specific variables may influence the cognitive appraisal of an erotic stimulus, subsequently increasing or decreasing women's feelings of subjective sexual arousal. These findings are consistent with Bancroft (1989) and Basson's (2002) models, which suggest that women's cognitive appraisal of sexual stimuli influences their subsequent arousal response. The role that cognitive processing plays during sexual arousal and the impact that film specific variables have on this process will be examined more thoroughly in the next chapter.

In sum, the results of the research reported above indicate that there is a strong relationship between absorption, positive affect and subjective sexual arousal, as these variables have been shown to increase and decrease in unison (Koukounas & McCabe, 1997; Mosher & MacIan, 1994). Specifically, subjects in the two studies reported above, felt more subjectively aroused when they were absorbed in the erotic films presented and when they experienced the erotic encounters as appetitive (Koukounas & McCabe, 1997). In a similar manner, men and women who reported high feelings of subjective arousal also reported experiencing other positive emotions such as enjoyment, entertainment and interest (Mosher & MacIan, 1994). By contrast, women reported a decline in their feelings of arousal when they experienced the erotic encounter as aversive, indicating that negative emotions such as disgust, anger or shame, may inhibit subjective arousal responses in women (Koukounas & McCabe, 1997). Overall, a high positive correlation was noted between absorption,
positive affect and subjective sexual arousal. This relationship was evident in both men and women (Koukounas & Over, 1999; Mosher & Maclan, 1994). While a similar relationship between emotional processing, absorption and subjective sexual arousal was reported for both men and women, the erotic films that each gender found appealing differed (Koukounas & McCabe, 1997; Mosher & Maclan, 1994). These results again reflect the influence that film specific variables may have on the sexual information processing of men and women, an issue that will be discussed in more depth in the following chapter.

Koukounas and McCabe (1997) and Mosher and Maclan (1994) both examined women’s emotional responses to erotic film. In order to do so, these researchers assessed women’s subjective reports of their emotional state. While subjective report is a valid measure of assessment, it leaves open the possibility of response bias, as participants may respond to their perceived demands of the situation, reporting the emotional responses they believe they should be feeling and not those they actually experience (Laan & Everaerd, 1995a). Thus, participants’ responses may have been influenced by the demand characteristics associated with the study. In order to overcome the limitations associated with demand characteristics, Koukounas and Over (2000) incorporated an objective, physiological measure of emotional response into the design of their study.

Koukounas and Over (2000) examined the relationship between measures of eye blink startle (which is believed to be an objective measure of emotional processing), absorption and sexual arousal under conditions in which habituation is known to occur. In order to better understand the rationale behinds its incorporation, it may be
useful to briefly review research pertaining to the use of the eye blink startle response as an objective measure of emotional processing.

A number of recent studies have demonstrated that the magnitude of a subject’s eye blink startle response, evoked by a burst of intense white noise (probe stimulus), varies as a function of the emotional valance of the stimulus to which the subject is attending (primary stimulus). More specifically, startle is augmented when the primary stimulus and the probe are similar in affective valence and reduced when they differ (Lang, Bradley, & Cuthbert, 1990; Lang, Greenwald, Bradley, & Hamm, 1993). Thus, by taking a physiological measurement of participants’ eye blink startle response, researchers can ascertain the degree to which participants find an erotic stimulus appealing or aversive.

Based on these findings, Koukounas and Over (2000) hypothesised that participants’ eye blink startle would be augmented when viewing erotic films that they found aversive, diminishing in response to appealing erotic films. 16 male university students were asked to view the same erotic film segment 18 times (habituation conditions). Two novel erotic film segments were then presented (novel conditions) followed by the reinstatement of the original stimulus (dishabituation condition). Participants’ eye blink startle response was elicited by a burst of white noise presented intermittently during the erotic presentations. Within each interstimulus interval, participants were asked to provide subjective ratings of their sexual arousal and absorption in response to the preceding segment. Subjective sexual arousal and absorption were measured on a 9-point Likert scale, with higher scores indicative of higher degrees of that construct.
Koukounas and Over (2000) found that repeated exposure to an erotic film segment yielded habituation of absorption, as indexed by subjective ratings of absorption. Absorption recovered when participants were presented with novel erotic stimulation while reinstating the original stimulus lead to absorption being above the degree indicated immediately prior to the novel stimulation. Participants' sexual arousal in response to the erotic stimulation followed a similar pattern. The finding of primary interest in the study however, is that participant's eye blink startle response increased in magnitude across trials, while subjective sexual arousal and absorption decreased. Novel erotic stimulation following habituation yielded a reduction in the magnitude of startle as well as a recovery in subjective sexual arousal and absorption, while the dishabituation of sexual arousal and absorption, evident when the original stimulus was reinstated, was accompanied by a level of startle below that prevailing immediately prior to novel stimulation.

In terms of the analysis of startle modulation offered by previous researchers, the trends noted by Koukounas and Over (2000) are to be expected if the erotic excerpts presented are experienced as less appetitive with repetition, with novel stimulation restoring appetitiveness while the original stimulus on reinstatement is more appetitive than it was immediately prior to the novel stimulus. Consistent with the patterns observed, Koukounas and Over noted that there was a positive correlation between measures of the eye blink startle in response to the probe, and subjective ratings of sexual arousal and absorption recorded by participants. This pattern of results indicates that with repeated presentation an erotic stimulus, the stimulus is
experienced not only as less sexually arousing but also as less appetitive and absorbing.

Broadly, the results reported by Koukounas and Over (2000) imply that there is a relationship between subjective sexual arousal, absorption and the broader construct measured by the eye blink startle response, emotional processing. The precise nature of this relationship however, remains unclear.

A more recent study conducted by Koukounas and McCabe (2001), investigated the sexual and emotional variables influencing sexual arousal in response to erotica. To account for the possibility of response contamination amongst the data these researchers utilised both subjective and objective measures of sexual arousal and affective response. Koukounas and McCabe asked 30 male participants to watch and assess a compilation tape featuring five 2-minute erotic segments and five 2-minute nature segments that were presented randomly. Physiological indices of sexual arousal were taken throughout the session via recordings of penile tumescence. Emotional processing was also measured physiologically, via measurement of participants eye blink startle in response to bursts of white noise. At the conclusion of each film segment participants gave subjective assessments of their sexual arousal, absorption and affect in response to the segments. Finally, participants completed a test battery incorporating trait measures of absorption and imagery.

Koukounas and McCabe (2001) reported that the magnitude of participants' eye blink startle response changed to parallel the emotional valence of the film segments presented. Specifically, participants' eye blink startle diminished in response to the
erotic film segments, relative to the nature film segments. Based on this data
Koukounas and McCabe concluded that participants must have found the erotic film
to be more appetitive than the nature film segments. The data gathered by
Koukounas and McCabe also demonstrated the utility of the eyeblink startle response
as a physiological measure of emotional processing as participants’ eye blink startle
was strongly correlated with subjective reports of positive affect. More specifically,
participants’ startle was diminished during the segments that participants rated as the
most subjectively appealing. Similarly, there was a strong correlation between sexual
arousal, absorption and positive affect. These authors reported that physiological and
subjective arousal were higher when subjects were absorbed in the activities
portrayed in the film and when they experienced the depicted erotic encounters as
appetitive, than when they were distracted and perceived the encounters as aversive.

Consistent with previous research, participants’ sexual responses were not
significantly correlated with trait measures of absorption (as assessed by the Tellegen
Absorption Scale) or vividness of imagery (indexed by the Bett’s Questionnaire of
Mental Imagery). Both physiological and subjective sexual arousal were however,
related to state assessed absorption. Specifically, state absorption and sexual arousal
were found to increase and decrease in unison. Indices of physiological and
subjective sexual arousal were also found to relate to positive affect and to
participants’ eye blink startle responses. These results further demonstrate the
multidimensional (and complex) nature of the sexual response, as the magnitude of
participants’ physiological sexual arousal was correlated with state assessed
appetitive, attentional and emotional variables such as absorption, pleasure and
entertainment, and aversive variables such as boredom. The magnitude of subjective
sexual arousal directly correlated with the same state variables (along with curiosity and anxiety) and also to physiological factors (magnitude of startle response).

This study highlights the importance of attentional and emotional processing of erotic film during sexual arousal. There were however, some limitations associated with the study. Koukounas and McCabe (2001) noted that the order in which the film segments were presented was not counterbalanced between subjects. While these researchers asserted that response contamination is unlikely given that there was little to no variation in the magnitude of sexual responsivity to each erotic film segment, the possibility that some degree of response contamination did occur cannot be discounted. As such, it is important to interpret these results with caution, noting that there may be differences in participants’ responses to the films if presented in a different sequence. Given this limitation future research employing a similar methodology should counterbalance the order of the films presented between subjects.

Another limitation of the above study, and many others utilising objective measures of emotional processing such as the eye blink startle response, is the homogenous sample chosen by these researchers. Koukounas and Over (2000) and Koukounas and McCabe (2001) both examined the responses of small samples of male university students. While these findings related well to the sexual information processing styles of men, the frequent use of small samples of men in these and other studies may be problematic when applying the findings to women. Previous research indicates that generally, there is a relatively high degree of concordance between physiological and subjective measures of sexual arousal amongst men (Heiman,
1977; Steinman et al., 1981). As discussed previously however, psychophysiological research with women has found a general discordance between sexual response measures, suggesting differences in the manner in which men and women register and interpret sexual cues which limits the generalisability of research which has focused solely on the sexual responses of men (Heiman, 1977; Wincze et al., 1977). Given the differences in the sexual information processing of men and women, further research examining the relationships between sexual arousal, absorption and subjective and objective measures of emotional processing in women is strongly recommended.

Examination of the effects of mood on female sexual arousal

A number of studies demonstrate that sexual arousal is accompanied by positive affect (Koukounas & McCabe, 1997; Koukounas & McCabe, 2001; Mosher & MacIlan, 1994). The nature of the relationship between mood and sexual arousal however, remains unclear. Laan, Everaerd, van Berlo and Rijs (1995) examined the effects that different mood states have on women's subsequent subjective arousal responses. 51 women were randomly assigned to one of four conditions: erotic film preceded by mood induction, erotic fantasy preceded by mood induction, erotic film without mood induction and erotic fantasy without mood induction. The mood induction procedure referred to by Laan and colleagues consisted of a musical mood induction found to be effective in eliciting a positive mood from participants in previous studies (Albersnagel, 1988). In addition, participants were asked to think about positive sexual experiences and to monitor their bodily sensations while listening to the music. All participants in the study were asked to either watch a 5-
minute erotic videotape or engage in erotic fantasy for 5 minutes. Thus, the primary difference between participants in the two experimental conditions and those in the control conditions was the incorporation of the musical mood induction procedure (positive mood induction or control) and the type of eliciting stimulus used (film or fantasy).

Both prior to and following the erotic film or fantasy participants were asked to complete a short series of rating scales. Two of the primary items of interest were participants' estimates of their subjective sexual arousal, rated on a 7-point Likert scale, and the extent to which participants believed they had experienced a pleasant mood, also rated on a 7-point Likert scale. Participants' sexual arousal was also measured objectively throughout the experimental session, via a vaginal plethysmograph. The results indicated that, contrary to expectations, positive mood did not effect objective or subjective sexual arousal. Thus, participants in the experimental conditions did not report overall, greater sexual arousal than participants in the control conditions. Participants in the experimental conditions did report fewer negative emotions than those in the control conditions however, indicating that positive mood induction procedures may inhibit negative emotional responses.

Laan, Everaerd, van Berlo, et al. (1995) also reported that the erotic stimuli used in the experiment had an effect on sexual arousal, with erotic film yielding larger genital responses, greater subjective sexual arousal and more positive emotions than erotic fantasy. Based on the data reported, Laan and colleagues concluded that sexual cues are far more effective in eliciting sexual arousal than mood. Thus, it appears
that positive mood is not a necessary precursor to subjective sexual arousal. Rather, it appears that positive emotions may occur in parallel with women’s feelings of subjective sexual arousal and excitement.

In sum, the present chapter examined the relationship between emotional processing and female sexual arousal. The empirical investigation of this relationship has generally been framed within the sexual information processing model. Within this theoretical framework, women’s sexual arousal in response to an erotic stimulus is measured concurrently with the degree to which the woman actively attends to and becomes immersed in the situation without distraction (absorption), and experiences pleasant emotions (positive affect) (Rosen & Beck, 1988). The findings reported within this chapter indicate that a complex range of interrelationships exist between these variables. Generally, the studies reviewed indicate that subjective sexual arousal, absorption and positive feelings such as entertainment and enjoyment correlated highly with one another. Thus, when feeling highly aroused, women tend to report high estimates of other positive emotions such as entertainment, enjoyment and interest. These women also tend to report high estimates of absorption. By contrast, women who feel disgust or anger in response to erotic materials report experiencing fewer subjective feelings of sexual arousal. While these elements are correlated, it appears that positive mood does not directly facilitate subjective feelings of arousal. It was noted consistently throughout this chapter however, that stimulus specific variables do influence women’s subjective sexual arousal. As such, the following chapter will discuss women’s cognitive processing during sexual arousal, with particular reference to the effects that stimulus specific variables have on subjective sexual arousal.
CHAPTER SIX: WOMEN’S COGNITIVE PROCESSING OF EROTIC FILM

The previous chapters have examined absorption and emotional processing, two aspects of female sexual arousal identified within the sexual information processing framework. These elements of sexual arousal have also been highlighted, albeit briefly, by Bancroft’s (1989) and Basson’s (2002) models of female sexual arousal. The present chapter examines another aspect of the multidimensional sexual arousal response, namely, cognitive processing. According to Zajonc (1984), cognitive processing refers to the internal processes involved in the acquisition, transformation and storage of information.

While the models of female sexual arousal proposed by Basson (2002) and Bancroft (1989) differ in many respects, both authors highlight the importance of cognitive processing during the initial phases of female sexual arousal. These authors assert that, when presented with a sexual stimulus, women must first cognitively interpret and appraise the stimulus. This evaluation elicits sexual thoughts and feelings, which may be either positive or negative in nature (Basson, 2002).

The present chapter explores issues related to the cognitive appraisal of sexual stimuli. A number of variables may influence the manner in which women interpret and appraise erotic stimuli. These generally fall into one of two categories – internal and external factors. Internal factors that may influence women’s cognitive processing during sexual arousal include individual preference, personality, socialisation and previous sexual experiences (Byrne & Schulte, 1990; Koukounas &
McCabe, 1997; Mosher & Maclan, 1994). External factors that may influence women's cognitive interpretation and appraisal of erotic stimuli include stimulus specific variables and the context in which the erotic stimuli are presented (Basson, 2002). This chapter reviews research and theory pertaining to the effects that internal and external variables may have on women's cognitive processing of erotic film. In particular, this chapter focuses on the effect that erotic film content may have on sexual arousal.

The effects of external variables on women's cognitive processing during sexual arousal

As recent research suggests that the cognitive interpretation of external stimulus information may influence women's evaluations of sexual arousal (Barlow, 1986; Heiman, 1977; Korff & Geer, 1983; Laan & Everaerd, 1995a), it would be useful to review literature pertaining to the influence of external variables on cognitive evaluations of female sexual arousal within a laboratory setting. Understanding variables that influence subjective reports of female sexual arousal within the laboratory will further the creation of a multidimensional model of female sexual arousal by aiding in the creation of a real-life analogue of the cognitive determinants of female sexual arousal.

One external variable found to influence women's evaluations of sexual arousal is the content of the erotic stimulus (Dekker & Everaerd, 1989; Koukounas & McCabe, 1997; Laan, Everaerd, van Bellen, & Hanewald, 1994; Mosher & Maclan, 1994). Literature examining female sexual arousal has generally classed all erotic
audiovisual materials under the one general grouping (Mosher & MacIlan, 1994). These materials however, differ measurably in their quality, content and representation of the female actors (Mosher & MacIlan, 1994). As such, it is important to investigate the impact that different types of erotic film have on female sexual arousal.

Koukounas and McCabe (1997) evaluated the emotional impact of male dominated erotica on men and women. In order to do so, participants were asked to watch and assess one of two compilation tapes. Each tape consisted of 16, 2-minute film segments. 8 of the film segments depicted men and women engaging in consensual, sexual acts such as kissing, caressing, oral and manual stimulation of the genitals and vaginal intercourse. The final 8 segments, labelled as neutral by the researchers, depicted nature scenes such as forests and rivers. At the conclusion of each of the 16 film segments, participants were required to provide ratings of their subjective sexual arousal, absorption, positive affect, anxiety, disgust, entertainment, anger, boredom and curiosity. Participants also completed the Tellegen Absorption Scale, the Arousability Scale and Bett’s QMI to provide trait measures of absorption, arousability and vividness of imagery, at the conclusion of the tape presentation. Koukounas and McCabe hypothesized that men and women in the study would generate different sexual responses to the erotic film segments, based on the content of the segments and their differing approaches to the cognitive processing of these segments with respect to attentional allocation and emotional experience.

Koukounas and McCabe (1997) found participants’ attentional and emotional processing of the erotic film segments differed significantly to that of the neutral
(nature) film segments. Specifically, the erotic film segments elicited greater subjective sexual arousal, absorption, positive affect and entertainment than the neutral film segments, the latter being identified as more boring in content. Gender based differences were also noted, with men in the study reporting greater subjective sexual arousal and anxiety in response to the erotic film segments overall, than women. By contrast, women in the study reported greater disgust in response to the erotic film segments.

In order to analyse the factors influencing participants’ sexual responses to the erotic materials, Koukounas and McCabe (1997) calculated participants’ aggregate responses to the 8 most erotic film segments. These aggregates were then utilised in a between-subjects, correlational analysis. The results indicated positive correlations between participants’ subjective sexual arousal and their positive affect, absorption, entertainment and curiosity, with each of these variables increasing and decreasing in unison. Absorption was also found to correlate with positive affect and entertainment.

Finally, Koukounas and McCabe (1997) conducted multiple regression analyses to determine the relative contribution of state and trait attentional and emotional variables on subjective sexual arousal. Overall, there was a higher degree of association between subjective sexual arousal and state measures of attention and emotion, than trait measures of the same constructs. According to Koukounas and McCabe, the multidimensional nature of the sexual arousal response is demonstrated by the fact that participants’ ratings of subjective sexual arousal were predicted by separate groupings of state assessed appetitive, attentional and emotional variables.
(such as absorption, entertainment and curiosity) and state indexed aversive factors
(such as anxiety, anger and disgust). These findings emphasize the importance of
both attentional and emotional processes in the evaluation of subjective sexual
arousal, providing further support for the reconceptualisation of current approaches
to sexual arousal, consistent with the multidimensional models recommended by
authors such as Rosen and Beck (1988).

The apparent gender discrepancy in subjective evaluations of subjective sexual
arousal noted by Koukounas and McCabe (1997) warrants further consideration.
These researchers found that overall, men reported greater degrees of subjective
sexual arousal than did women. While a number of factors may be responsible for
these differences, Koukounas and McCabe focused on the effects of socialisation on
participants’ responses. Koukounas and McCabe asserted that the fact that both sexes
were simultaneously angered and disgusted by the erotic film clips, yet sexually
aroused by their curiosity to the materials, suggests socialization may have
influenced participants’ processing of the erotic materials. Specifically, Koukounas
and McCabe asserted that within Western society, men and women are socialized to
identify the aversive qualities of pornography. As a result of this subtle ‘social
education’, participants’ may have felt compelled to identify the aversive qualities of
the erotic clips presented, subsequently reporting feelings of anger and disgust in
response to the erotic materials. The appealing qualities of these films still appeared
to stimulate participants’ curiosity however, resulting in the dual reports of curiosity,
anger and disgust.
While Koukounas and McCabe (1997) discussed the dual influence of socialization on men and women, they failed to explicitly identify the differential impact that socialization might have on the subjective sexual arousal responses of men and women. As Gagnon and Simon (1973) have argued, traditionally, society's double standard of sexuality has been less permissive to women than to men concerning the expression of sexual feelings. While these double standards may have relaxed in the past three decades, the fundamental truth of this proposition remains. Schreiner-Engel et al. (1981) agree, adding that men and women are socialized to attribute different qualities to erotic materials and to matters relating to sexuality in general. According to these authors, women are often socialized to believe that becoming aroused to blatantly erotic imagery is immoral or inappropriate in some way. Alternatively, men are often socialized to believe that viewing erotic materials is essentially a right of passage, a manly enterprise.

Thus, while socialization factors may have influenced the responses of participants in Koukounas and McCabe's (1997) study, this influence is likely to have been reinforced more consistently amongst the women in the sample, possibly leading them to underestimate their degree of subjective sexual arousal in response to the erotic images as a result of learned social injunctions against women being aroused by such materials. The women assessed by Koukounas and McCabe may have also been embarrassed by their sexual arousal in response to the films, once again resulting in low estimates of subjective sexual arousal. Thus, women in the study may have gauged their subjective and genital arousal in response to the films accurately; however this interpretation was countermanded by negative socialization influences, leading them to underestimate their actual sexual arousal.
Alternatively, Baumeister (2000) argues that female sexuality is more flexible and malleable than male sexuality, making it more susceptible to the influence of socialisation. According to this theory, the gender differences noted by Koukounas and McCabe (1997) are due to inherent differences in the nature of male and female sexuality, with female sexuality seen as being the more ‘malleable’ of the two and as such, more susceptible to the “controlling influence” of socialisation.

In sum, Koukounas and McCabe (1997) noted that there was a discrepancy between the sexual arousal responses of men and women in their study. This discrepancy was discussed in terms of the impact that socialisation has on the cognitive processing of erotic stimuli. When discussing the impact that socialisation may have on women’s cognitive processing of erotic film however, it is important to reflect on the characteristics of the population sampled. Rosen and Beck (1988) have identified a possible volunteer bias, as women who participate in sex research conducted within a laboratory environment generally report greater degrees of sexual experience than the wider community. These researchers further assert that, from their experience, these women are generally more comfortable with their sexuality and have higher levels of self-esteem than other women within the community who agree to complete questionnaires regarding their previous sexual experiences, but do not participate in laboratory research. This contention has been supported by other researchers in the field, who assert that women who volunteer to participate in sexual arousal research generally report a higher level of previous sexual experience than would be expected from the general community (Masters et al., 1993; Laan & Everaerd, 1995a). Given the possible volunteer bias for participants in laboratory sex research, it is difficult to
ascertain exactly what influence socialization will have on these participants, particularly as these volunteers report engaging in behaviours that are inconsistent with social expectations. Thus, while socialization certainly plays a fundamental role in shaping women’s individual preferences and the values, ethics and morals that they hold, it may be possible to overcome or actively ignore the influence these learned social injunctions have on sexual behaviour.

Alternatively, the gender discrepancy reported by Koukounas and McCabe (1997) may be explained in terms of the cognitive interpretation and appraisal of film specific variables. The women assessed by Koukounas and McCabe reported high levels of disgust in response to the erotic stimulus materials. It appears that the depiction of the female actresses as passive in the sexual interactions angered some female participants. In contrast, the male participants in the study generally responded positively to the erotic film excerpts. As such, women’s negative interpretation and appraisal of the content of the erotic films may also account for the gender discrepancy reported. While the results reported by Koukounas and McCabe may be explained in terms of differences in the cognitive interpretation and appraisal of erotic film content between men and women it is important to understand why these differences might exist. Clearly external stimulus specific variables play a role but other internal factors may also be important.

Mosher and MacIan (1994) refer to the sexual involvement theory to explain the reasons underlying differences in the cognitive processing of erotic film content between men and women. According to the sexual involvement theory (Mosher, 1980, 1988a), deep involvement while watching erotic films requires a goodness of
fit between the scenes portrayed in the film and the person's sexual script (individual sexual preferences). When the erotic stimulus matches the person's sexual script, the individual involved experiences more positive affect, less negative affect and increased subjective sexual arousal. Conversely, a low goodness of fit between the stimuli and the person's sexual script may result in decreased estimates of sexual arousal. These authors assert that a failure of fit explains why most individuals do not become aroused to sexually deviant fantasies, such as paraphilic fantasies, when they are portrayed within erotic materials (Mosher & O'Grady, 1979). Sexual scripts are influenced by personal choices, individual temperaments, socialization and previous sexual experience (Byrne & Schulte, 1990; Carlson, 1986). Aside from being intuitively appealing, the sexual involvement theory has also received some empirical support (Carlson, 1986; Mosher, 1980, 1988a; Mosher & Maclan, 1994; Tomkins, 1979, 1987, 1991).

In keeping with the sexual involvement theory, low goodness of fit between women's sexual scripts and the content of the erotic materials presented by Koukounas and McCabe (1997) may account for the discordance between men and women's evaluations of sexual arousal in response to the erotic film segments. Low goodness of fit between women's sexual scripts and the erotic film content may also explain the gender differences found in previous research between subjective and genital measures of sexual arousal, as previous researchers have generally used erotic films targeted toward a male audience (Steinman et al., 1981; Wincze et al., 1977). Thus the aforementioned studies may have presented materials that were inherently unappealing to women, both from a cognitive and an affective viewpoint (Mosher & Maclan, 1994).
Laan, Everaerd, van Bellen and Hanewald (1994) presented participants with erotic scenes taken from "man-made" and "woman-made" erotic films. By presenting females with erotic films intended for a female audience, it was hypothesized that the participants would respond more favorably to the stimuli. For the purpose of the study "man-made" films were defined as those in which the sexual contact is male-initiated, male-dominated and focused primarily on the pleasure of the male participant. These films are generally limited in foreplay and sensual acts such as kissing, focusing primarily on intercourse (Mosher & Maclan, 1994). Alternatively, "woman-made" films were defined as erotic scenes that were female-initiated, focusing on the erotic pleasure of both actors, as opposed to focusing only on the male. These films are also slower in their depiction of human sexuality, focusing on the build of up sexual tension prior to intercourse (Mosher & Maclan, 1994).

Laan et al. (1994) assessed the subjective and genital arousal patterns of 47 women in response to the so-called man-made and woman-made erotic films. These authors hypothesised that, as a result of the enhanced positive affect evoked by woman-made erotica, participants would report increased absorption, subjective sexual arousal and genital arousal in response to the erotic films. It was further hypothesised that the man-made erotic films would result in lower subjective and genital arousal and increased negative affect, particularly when compared to the woman-made erotica.

Subjects were required to watch two 11-minute film excerpts, one taken from a man-made film and the other taken from a woman-made film. Following the film excerpts subjects were required to subjectively assess the erotic films and their sexual arousal in response to the films. Subjective arousal was assessed through an evaluation of 10
emotions, each made on a 7-point Likert scale, as opposed to one question evaluating "total" subjective arousal. These emotions were interest, surprise, disgust, distress, shame, contempt, guilt, anger, fear and enjoyment. The results indicated that, contrary to expectations, genital measures of sexual arousal did not differ between films. By contrast, subjective evaluations of arousal differed measurably. In response to the woman-made film subjects reported increased positive affect, decreased negative affect, increased subjective sexual arousal and increased interest. Alternatively, the man-made film evoked increased feelings of shame, guilt and aversion in subjects and increased negative affect. Laan et al. concluded that the increase in subjective sexual arousal appears to be elicited by the content of the woman-made films, and the meaning it conveys, rather than a specific response to increased peripheral feedback. In terms of the sexual involvement theory (Mosher & MacIlan, 1994), there appears to be a good fit between the woman-made erotic film and participants' sexual scripts. Alternatively, evaluations of the man-made erotica indicated a poor fit between participants' sexual scripts and the content of the film.

The results reported by Laan et al. (1994) further reflect the inadequacy of unidimensional approaches to female sexual arousal, which presume that subjective arousal is merely an artefact of physiological arousal. Laan and colleagues found that, despite equivocal genital arousal in response to the two film clips, subjects' cognitive and affective evaluations of their sexual arousal in response to the two erotic film clips differed measurably. These results provide evidence to support a multidimensional approach to female sexual arousal that recognises the roles of both physiological and subjective elements such as affect and cognitions as being mutually exclusive and distinct entities.
While these findings provided important information with regards to how women cognitively process erotica, they should be interpreted with caution. Laan and colleagues (1994) acknowledge that the use of only two specific film clips, one for each level of the independent variable, limits the generalisability of their findings to the stimuli tested. Moreover, subjects’ responses were apparently influenced by the order in which the films were presented, i.e. whether the man-made film excerpt or the woman-made film excerpt was presented first. These authors hypothesised that, next to the content proper of one film, contrast with the content of another film may sharpen the appraisal of likes and dislikes in subsequent viewings. Thus, showing the man-made film first may have highlighted the flaws in this genre, leading to inflated estimates of subjective arousal in response to the second, woman-made film excerpt. Alternatively, viewing the woman-made film excerpt first may have increased negative perceptions of the man-made film, which followed shortly thereafter.

The results reported by Laan et al. (1994) have limited generalisability, as these researchers only examined the effects of two erotic films on participants’ subjective sexual arousal responses. Mosher and MacLan (1994), however, examined the subjective sexual arousal responses of men and women in response to six different erotic films. 200 men and 195 women were asked to assess their responses to one of six erotic videotapes. Three of the tapes presented were intended for a male audience (man-made) while the other three tapes were intended for a female audience (woman-made). Aside from increasing the number of film excerpts shown to participants, this study also used a substantially larger subject sample.
Mosher (1988a) asserted that deep involvement in a pornographic image or fantasy requires a goodness-of-fit to the person's preferred sexual image and plans. To measure the potential for involvement in the sexual scenes presented in their 1994 study, Mosher and MacIan (1994) utilized the Sexual Path Preferences Inventory (SPPI) (Mosher, 1988b). This inventory measures three different paths for deepening involvement: a) Role Enactment, b) Sexual Trance and c) Partner Engagement. Each path was thought to represent a set of individual preferences (sexual scripts) or features commonly found in sexual stimuli (Mosher, 1980). Mosher and MacIan also assessed participants' subjective sexual arousal in response to the stimuli on a number of scales, along with participants' absorption, affective responses and subsequent sexual behaviours. Based on previous research it was hypothesized that men would experience greater sexual arousal overall than women. Moreover, an interaction effect was hypothesized wherein the gender of the audience would interact with the intended audience of the erotic materials. Finally, it was hypothesized that men would prefer the path of Role Enactment, as assessed by the SPPI, whereas women, compared to men, would prefer the path of Partner Engagement.

As predicted, men reported more positive psychosexual responses to all the films presented, than did women. In comparison to the man-made films, which evoked a negative affect in women, the woman-made films evoked more positive affect, more absorption and increased overall arousal in women. Thus, consistent with expectations there was an interaction between gender and the intended audience of the erotic film, such that women responded more favourably to the films marketed towards a female audience, and vice versa. Responses on the SPPI indicated that
women, compared with men, preferred the path of Partner Engagement whereas men, compared with women, preferred the path of Role Enactment. Interestingly, in a follow up questionnaire the women studied also reported a high frequency of sexual intercourse after viewing the female oriented films, compared with the male oriented films. Thus the content of the films not only influenced women's cognitive processing of the films but their subsequent behaviours as well.

These results were interpreted by Mosher and MacIan (1994) in terms of the sexual involvement theory originally proposed by Mosher (1980). Consistent with the sexual involvement theory, Mosher and MacIan found that the female oriented erotic films resulted in increased levels of subjective arousal in women, compared to the male oriented erotica. These researchers attributed their results to the compatibility of the female's sexual scripts (individual preferences) with the scenes portrayed in the woman-made erotica, thus generating greater depth of involvement, a higher degree of identification with the female actresses in the films and increased positive affective, enjoyment and excitement. Alternatively, the man-made films were less script abiding, leading to less involvement in the erotic interaction, higher degrees of negative affect in response to the film segments and increased disgust in the identification figure. With regards to the SPPI, an extensive review of unpublished literature by Mosher and MacIan indicates that men, compared with women, prefer the path of Role Enactment for exciting, novel sexual performance. Alternatively, women prefer the path of Partner Engagement for a familiar, loving union. The results of this study were consistent with previous research indicating that erotic film content and individual preferences may influence women's subsequent cognitive processing of erotic film (Koukounas & McCabe, 1997; Laan et al., 1994).
Based on the findings of the studies reported above, it may be concluded that external variables such as the content of an erotic stimulus have a significant effect on women's cognitive interpretation and appraisal of that stimulus. Overall, it would appear that females report increased negative affect, increased disgust and decreased sexual arousal in response to erotic materials that are targeted toward a male audience (Koukounas & McCabe, 1997; Laan et al., 1994; Mosher & Maclan, 1994). These films generally show the male initiating the sexual activity, focus solely on the pleasure of the male and generally depict females as passive (Mosher & Maclan, 1994). By contrast, films that depict female actresses initiating the sexual interaction, focus on the pleasure of the female actress and engage the female audience are rated as more sexually arousing, resulting in increased positive affect and increased enjoyment (Laan et al., 1994; Mosher & Maclan, 1994). A number of internal variables may also influence women's cognitive processing of erotic film. These include individual preferences (sexual scripts) and the effects of socialisation on the formation of sexual thoughts and attitudes towards erotic materials (Koukounas & McCabe, 1997; Mosher & Maclan, 1994). In the laboratory study of female sexual arousal, external stimulus specific variables are particularly salient, as researchers must be able to identify the most appropriate erotic stimulus for use in their study.

While researchers such as Laan et al. (1994) and Mosher and Maclan (1994) have identified a class of erotic materials that women appear to find more arousing, it remains unclear which specific elements of the woman-made erotica women respond to. As noted earlier, erotic films vary measurably with regards to their quality, content and representation of the female actors (Mosher & Maclan, 1994). The same
may be said for woman-made erotica. Within this genre the films are likely to vary measurably. As such, it would be useful to identify the stimulus specific variables that influence women’s cognitive processing of erotic film.

In sum, while previous research has accurately identified a class of erotic materials that females appear to find more arousing, the factors underlying participants’ evaluations of sexual arousal in response to the films have not been extensively evaluated. What specific elements of the erotic films are women reacting to? Is it sex of the actor who initiates the sexual activity or the pleasure focus of the erotic film clip that appeals to women? Alternatively, is it the romantic as opposed to the sexual nature of the acts portrayed? Beyond the producer of the erotic film, what factors influence women’s cognitive evaluations of these materials? Future research is needed to clarify exactly which elements of erotica women respond to. These issues will be addressed within the present research.
CHAPTER SEVEN: EXAMINATION OF WOMEN’S COGNITIVE AND EMOTIONAL PROCESSING DURING SEXUAL AROUSAL

The origins of the current thesis lie in the diverse theories and research findings discussed previously. The present thesis focuses primarily on the subjective, cognitive and affective elements of female sexual arousal discussed, with the integration of attentional commitment, to assist in the creation of a revised, multidimensional model of female sexual arousal similar to that advocated by Rosen and Beck (1988).

While women’s physiological responses during sexual arousal should be an integral component of a multidimensional approach, genital arousal will not be assessed in the present thesis. The reasons for this are twofold. Firstly, there is a preponderance of literature pertaining to the physiological elements of female sexual arousal. The physiological changes that occur during sexual arousal have been well researched and documented (Levin, 1992; Masters & Johnson, 1966; Rosen & Beck, 1988). The present thesis however, aims to improve scientific understanding of the cognitive and emotional elements of female sexual arousal, not the physiological changes that occur during this response.

The second argument pertains to the measurement devices used to assess physiological sexual arousal. The plethysmograph and the labial clip are amongst the most widely used and reliable measures of genital arousal (Laan, Everaerd, & Evers, 1995; Poulin, 1992; Rosen & Beck, 1988). These measures however, may be perceived by many women as being invasive in nature. While genital responses may
not be effected by aversive stimuli or invasive measurement techniques (Laan, van Driel, & van Lunsen, 2003), emotional processing and subjective sexual arousal often are (Koukounas & McCabe, 1997), increasing the likelihood that these elements of female sexual arousal will be inhibited by the incorporation of genital measurement devices (Rosen & Beck, 1988). In light of this concern, the present thesis aims to focus solely on women's cognitive and emotional processing during sexual arousal, obtaining a more reliable assessment of these processes. This research may also provide a baseline measurement of cognitive and emotional processing for later, comparative research investigating the impact that genital measures have on women's estimates of their subjective arousal state.

Thus, the aim of the present thesis is to investigate women's cognitive and emotional processing during sexual arousal. In order to do so, two empirical investigations will be conducted. These studies will take an information processing approach to the investigation of female sexual arousal. Within this theoretical framework, an individual's level of sexual arousal in response to a sexual stimulus, such as erotic film, is measured concurrently with the degree to which the participant actively attends to and become immersed in the situation without distraction (absorption), and experiences pleasant (appetitive) emotions (Koukounas & McCabe, 1997; Rosen & Beck, 1988). As such, Studies One and Two will both examine women's absorption, subjective sexual arousal and positive and negative affect in response to erotic film.

Study One will examine the impact that film specific variables have on women's cognitive and emotional processing of erotic film during sexual arousal. Previous research indicates that erotic films selected from the "woman-made" genre elicit
more favourable responses from women than films selected from the “man-made”
genre (Laan et al., 1994; Mosher & MacIan, 1994). Specifically, these studies
indicate that women report greater subjective sexual arousal and more positive
feelings after watching “woman-made” compared with “man-made” films. These
studies however, fail to identify which specific elements participants respond
favourably to. As such, Study One will examine the effects of two film specific
variables on women’s cognitive and emotional processing of erotica.

In their discussion of erotic materials, Laan et al. (1994) identified a number of
stimulus specific elements inherent in woman-made erotica, which may influence
women’s sexual information processing. Factors such as the perceived attractiveness
of the actors in the erotic stimulus, the lighting used or the sexual acts depicted may
all play a role in participant’s subsequent sexual arousal and absorption. In addition,
Mosher and MacIan (1994) proposed that the specific sequence of the erotic acts
depicted in the stimuli and the environment in which the sexual activities take place
may also influence women’s responsiveness to erotic film. Alternatively more
mundane aspects of an erotic stimulus, such as the lighting or camera angles used,
may have an impact on women’s responses. The present research will focus on two
stimulus specific variables that may vary between erotic films – foreplay and erotic
context.

The first variable – foreplay – refers to the amount of foreplay depicted in the erotic
film excerpt. This variable will be manipulated at two levels of intensity – high and
low. In the high foreplay conditions the actors in the erotic film excerpts will be
shown engaging in approximately 3.5 minutes of kissing, caressing and undressing.
In the low foreplay conditions the actors will be shown engaging in approximately 30 seconds of kissing, caressing and undressing. While there is a dearth of literature pertaining specifically to the effects of foreplay on sexual arousal, previous research indicates that nonverbal cues such as eye contact, touch and proximity have a significant effect on women's sexual information processing (Fichten, Tagalakis, Judd, Wright, & Amsel, 1992; Koukounas & Letch, 2001). Consistent with this research, and theories suggesting that women prefer sexual scenes that integrate romance and passion, it was hypothesised that women in the study would respond more favourably to the high foreplay conditions, reporting greater subjective sexual arousal, absorption and positive affect as a result.

The second independent variable selected for examination in Study One is the context in which the sexual activities take place. This variable has two levels. In the 'habitual' conditions the actors will be shown engaging in sexual activities in a bedroom. In the 'novel' conditions the actors will be shown engaging in sexual activities in a lounge room. Basson (2002) suggests that contextual cues have the potential to effect women's cognitive interpretation and appraisal of erotic film. While Basson does not identify specific cues which women may find appealing, it was predicted that the women assessed in Study One would find the 'novel' conditions more appealing.

Thus, Study One will examine the effects of two variables – erotic foreplay and context – on women's absorption, subjective sexual arousal and positive and negative affect in response to four erotic film excerpts. An additional aim of Study
One is to determine which of the four erotic film excerpts shown elicits the most favourable responses from women. This excerpt will then be utilised in Study Two.

While Study One will examine the interrelationships between absorption, subjective sexual arousal and positive and negative affect elicited by different types of erotic film, Study Two will examine the direct impact that one of these variables – absorption – has on the other dependent variables. Using the most sexually arousing erotic film excerpt from Study One, Study Two will experimentally manipulate the degree to which participants attend to that erotic film excerpt.

Study Two will experimentally manipulate absorption at two levels – low and high. In order to experimentally manipulate absorption participants will be given one of two sets of test session instructions, taken from a study conducted by Koukounas and Over (1999). Women in the low absorption condition will be given 'spectator-oriented' instructions prior to the presentation of the erotic film excerpt. These women will be instructed to watch and critically evaluate the erotic film excerpt, behaving as impartial observers of the sexual interaction.

Alternatively, women in the high absorption condition will be given 'participant-oriented' instructions. These participants will be instructed to absorb themselves in the erotic film excerpt, imagining that they are participants in the sexual activities depicted. They will also be instructed to relax and completely immerse themselves in the film, focusing both on the film and their arousal in response to the film.
At the conclusion of erotic tape presentation, participants will be instructed to complete a questionnaire designed to assess their subjective absorption, sexual arousal and positive and negative affect. Subjective measures of absorption will be taken to ensure that the test session instructions effectively manipulated participants' absorption during the erotic film presentation. The effects that these test session instructions have on participants' subjective sexual arousal and positive and negative affect will then be examined.

Aside from adding to scientific knowledge on the mechanisms of female sexual arousal, and assisting in the creation of a revised multidimensional model of female sexual arousal, the studies incorporated in this thesis are designed to overcome a number of limitations inherent in past research (Heiman, 1977; Schreiner-Engel et al., 1981; Wincze et al., 1977). Unlike previous research, the present thesis will focus exclusively on the sexual information processing of women, measuring their absorption, arousal and affect in conjunction with one another. As such, the erotic film excerpts will be specifically selected with this sample in mind.

The present study will examine the sexual information processing of female university students of varied ages. In order to overcome the limited generalisability associated with small sample sizes, Studies One and Two will aim to assess the responses of at least 60 women. While future research should aim to examine the sexual arousal of women from the general community, Andersen and Cyranowski (1995) assert that university students report more sexual experience than the wider community. As the current study wishes to focus on the cognitive and emotional processing of women during sexual arousal, a sample of women that are comfortable
with their sexuality is advisable. By assessing the arousal patterns of a sample of women that understand the mechanisms of sexual arousal this study will hopefully overcome the limitations that might be associated with feelings of embarrassment or limited sexual knowledge.

The subjective measurement devices used previously to assess women's sexual information processing have been subject to a number of criticisms (Laan & Everaerd, 1995a; Meston, 2000). As a result, the proposed research will make a number of changes to the manner in which subjective sexual arousal is measured, with a specific emphasis on the measurement questionnaire. As an illustration, Studies One and Two will ask participants to rate their overall level of subjective sexual arousal in response to the film excerpt. It is hoped that this method of assessment will reduce the ambiguity noted in some of the studies reviewed thus far, by making it clear that participants' are required to provide a rating of their subjective sexual arousal across the entire experimental session (Heiman, 1977; Schreiner-Engel et al., 1977; Wincze et al., 1977).

In order to provide a structured assessment of participants' emotional processing, the Differential Emotions Scale used by Laan and Everaerd (1995a) has also been incorporated in the questionnaire. This scale was designed to assess participants' emotional processing of the erotic film excerpts by measuring the degree to which participants experience 10 emotions during the erotic tape presentation. These emotions include interest, disgust, distress, shame, guilt, entertainment, fear, enjoyment, curiosity and anger. Laan and Everaerd identified two primary factors derived from the scale - positive and negative affect - the data collected from both
studies will also be analysed to ensure that these factor structures are consistent in an Australian sample.

Studies One and Two will also ask participants to rate their subjective absorption in response to the erotic film excerpts. The assessment of absorption solely through self-report (by ratings) leaves open the possibility that subjects evaluate how absorbed they feel during the erotic film excerpts primarily with reference to how subjectively aroused they are (Koukounas & Over, 2000). Thus, instead of being rated on an independent basis, absorption as assessed by self-report may simply be a proxy measure of sexual arousal (Koukounas & Over, 2000). To account for this possibility, all relevant terms on the questionnaire, including absorption and subjective sexual arousal, will be defined for participants. Absorption will also be assessed prior to subjective sexual arousal.

In conclusion, there have been many models of female sexual arousal which have relied on a unidimensional approach, emphasising the role of the peripheral physiological changes that occur during sexual arousal at the expense of other, equally important elements, such as emotional processing (Griffith, 1975; Heiman, 1977; Schreiner-Engel et al., 1977; Wincze et al., 1977). While the unidimensional model of female sexual arousal has dominated literature in the past, empirical, clinical and anecdotal evidence suggests this approach may have limited utility. As such, the preceding chapters have suggested that researchers consider a multidimensional framework when investigating female sexual arousal. These frameworks typically integrate the physiological, cognitive, affective, attentional and behavioural elements of female sexual arousal as independent, but related processes.
This is not to suggest however, that research must integrate each component of the model in order to investigate female sexual arousal effectively. Rather, it is suggested that each element be considered when interpreting the results.

The aim of the current thesis is to aid in the creation of a revised multidimensional model of female sexual arousal by examining women’s cognitive and emotional processing of sexual stimuli. As such, two empirical investigations will be conducted. The first will examine the effects of two film specific variables – foreplay and erotic context - on women’s cognitive and emotional processing of erotica. Using data from Study One, Study Two will then manipulate participants’ absorption to investigate the effects of low and high absorption on women’s cognitive and emotional processing of erotic film during sexual arousal.
CHAPTER EIGHT: STUDY ONE

Study One adopts the information processing approach to the study of female sexual arousal in response to erotica, focusing on the concurrent measurement of the sexual, attentional and emotional processes committed to various types of erotic film. In order to do so, the present study utilises two variables inherent in “woman-made” erotica, examining the effects of each variable on women’s subsequent subjective sexual arousal, absorption and positive and negative affect. The first independent variable – foreplay - was selected based on research indicating that nonverbal cues play a significant role in determining female’s perceptions of sexual interest (Koukounas & Letch, 2001). The effect of the second independent variable – context – on women’s sexual information processing has not been the focus of past research.

Many of the previous studies conducted in the information processing tradition have failed to incorporate the attentional and emotional changes experienced during erotic stimulation into one experimental design (Koukounas & McCabe, 1997). The few studies that have, have limited generalisability due to response contamination, inadequate test session instructions and poor assessment techniques (Rosen & Beck, 1988).

To overcome the limitations inherent in past research, this study will incorporate a number of changes. First, participants in the present study will be asked to provide a subjective assessment of their absorption. Second, this study will provide participants with a definition of all key terms assessed with the questionnaire booklet. Third, this study will examine the effects of stimulus specific elements of erotic film on
women’s sexual information processing, rather than using the broader categories of woman-made and man-made erotic films as has been the case in past research.

Thus, the aim of the present study is to investigate the effects of two variables, context and foreplay, on women’s cognitive and emotional processing of erotica. For the purpose of this study, the first independent variable, foreplay, is defined as the amount of erotic activity, including kissing, caressing, undressing and eye contact, featured in the film excerpt. This variable is presented at two levels (high vs. low). In the high foreplay conditions participants will watch an erotic excerpt featuring approximately 3.5 minutes of foreplay, followed by sexual intercourse. By contrast, participants in the low foreplay conditions will watch an erotic excerpt featuring approximately 30 seconds of foreplay, followed by sexual intercourse.

The second independent variable, context, is defined as the environment in which the erotic excerpts are filmed. This study assesses the effect of two different environments on subjective sexual arousal. Specifically, two of the excerpts selected will depict a man and a woman engaging in sexual intercourse in a lounge room. As it is hypothesised that the majority of ‘real life’ sexual interactions occur in a bedroom, these scenes will be described as ‘novel’ (novel context). The final two excerpts will depict a man and a woman engaging in intercourse in a bedroom. It is hypothesised that the majority of participants will be familiar with this erotic context. As such, these scenes will be described as ‘habitual’ (habitual context).

It is hypothesized that the erotic films depicting increased foreplay (high foreplay conditions) will elicit a greater degree of subjective sexual arousal and absorption
than the films depicting less foreplay (low foreplay conditions). It is also predicted that the increased foreplay conditions will elicit highly favourable emotions from participants resulting in high ratings of positive affect, while the limited foreplay conditions are expected to elicit a neutral or negative response from participants. It is hypothesised that the erotic excerpts filmed in a novel context (lounge room) will elicit greater subjective sexual arousal and absorption than the erotic excerpts filmed in a habitual context (bedroom). Finally, an interaction is predicted such that participants assessing the high foreplay erotic excerpt, filmed in the novel environment, are expected to respond to the film with greater absorption and subjective sexual arousal than participants in the remaining experimental conditions.

Method

Participants

60 women aged between 18 and 43 years (M = 25.05 years, SD = 6.13) were recruited via advertisements placed on notice boards at Deakin University (Appendix A). The sample had a high level of sexual experience: 100% had experienced sexual intercourse, and 86.7% had a current sexual partner(s). The sample also had a high degree of experience with erotic materials: 96.7% of the participants had previously been exposed to erotic materials while 91.7% had previously been exposed to erotic film. Of the women that had been exposed to erotic film in the past, 5% had seen an erotic film in the past two days, 23.3% had seen an erotic film in the past 2 weeks, 6.7% had seen an erotic film in the past 2 months and for 53.5% it had been 6 months or more since they had seen an erotic film.
Stimuli

Participants were asked to view one of four erotic film excerpts. Films were selected based on research conducted by Mosher and MacIan (1994) who examined the differential impact of “man-made” and “woman-made” erotica on females’ subjective sexual arousal. The present study utilised films from the “woman-made” genre as Mosher and MacIan (1994) reported that these films were viewed more favourably by women than the “man-made” films. More specifically, the women in their study reported greater subjective sexual arousal and positive affect, and decreased negative affect, in response to the “woman-made” erotica, compared with the “man-made” erotica.

The film excerpts used in the present study were approximately 7 minutes in duration and varied according to the amount of foreplay shown (low vs. high) and the environment in which the sexual intercourse took place (bedroom vs. lounge). In the low foreplay conditions participants were asked to watch one of two 7-minute erotic excerpts depicting a man and a woman engaging in intercourse. The film excerpts depicted minimal kissing and caressing, a short undressing scene and minimal eye contact between the actors. Thus participants in the low foreplay conditions were presented with an erotic excerpt depicting approximately 30 seconds of foreplay with the remainder of the excerpt focusing on sexual intercourse. Participants in the high foreplay conditions were required to watch one of two 7-minute erotic excerpts, each depicting a man and a woman engaging in intercourse. In contrast to the previous conditions however, actors in the high foreplay erotic excerpts were shown engaging
in long, lingering kisses, caressing each other slowly, undressing each other slowly and engaging in high degrees of eye contact. Thus, participants in the high foreplay conditions were asked to evaluate an erotic excerpt depicting approximately 3.5 minutes of foreplay with the remainder of the excerpt focusing on sexual intercourse.

The four films also varied according to the environment or context in which the sexual activities took place. Two of the erotic film excerpts showed the actors engaging in sexual intercourse in a bedroom. The final two erotic film excerpts showed the actors engaging in sexual intercourse in a lounge room, in front of a fireplace. For the purpose of this study the bedroom scenes were classed as ‘habitual’ contexts while the fireplace scenes were classed as ‘novel’ contexts.

Aside from the independent variables manipulated, the four film excerpts were matched as closely as possible. The actresses in each of the films were blond and paired with a brunette man. The four film excerpts were also matched with respect to the activities depicted. Each erotic excerpt depicted a male-female dyad engaged in intercourse. Prior to the engagement of sexual intercourse the couples were all shown engaging in oral sex, manual stimulation of both the male and female genitals and kissing. Thus the only differences between the four film excerpts were the amount of foreplay depicted and the environment in which the sexual activities took place.

**Materials**

To assess participants’ cognitive and emotional processing of the erotic film excerpts, a questionnaire was administered shortly after the film presentation
(Appendix B). The questionnaire, based on that utilised by Koukounas and McCabe (1997), incorporated two sections:

Section A: Required participants' to assess their overall response to the erotic film excerpt by rating the degree to which they experienced 10 emotions. These emotions, adapted from research by Laan et al. (1994), included interest, disgust, distress, shame, guilt, entertainment, fear, enjoyment, curiosity and anger. Section A also assessed participants' absorption and their subjective sexual arousal in response to the film excerpts. Participants were asked to rate the overall degree to which they experienced each emotion in response to the erotic film excerpt, on a 5-point Likert scale. Responses ranged from “1 = not at all” to “5 = extremely”.

Section B: The sexual information checklist required participants to report a number of demographic features including their age, occupation, marital status and any previous exposure to erotic materials.

Procedure

Participants were initially recruited via advertisements placed on notice boards at Deakin University. Potential volunteers were given a Plain Language Statement, informing them that the study aimed to investigate the influence of different types of erotic film on women's subjective assessment of their sexual arousal (Appendix C). Those agreeing to participate were asked to sign consent forms and were then randomly allocated to one of the four experimental conditions. The first condition
required participants to assess an erotic film excerpt with high foreplay filmed in a novel context (n=15); the second involved an erotic excerpt with high foreplay filmed in a habitual context (n=15); the third condition involved an erotic excerpt with low foreplay filmed in a novel context (n=15) while the final condition required participants to assess an erotic excerpt with low foreplay filmed in a habitual context (n=15). Once allocated to an experimental condition, participants were asked to view the film excerpt in an isolated room, with the sound muted to prevent participants from being distracted by verbal cues, which were not the focus of the present study. Following the film presentation participants completed a short questionnaire assessing their responses to the film. To ensure that all responses remained anonymous participants were asked to place completed questionnaires and consent forms in separate envelopes. Both documents were stored at separate locations. This procedure was approved by the Deakin University Human Research Ethics Committee (Appendix D).

Results

Data reduction

Ten items reflecting a number of varied emotions, taken from Section A of the questionnaire, were included in a principal components analysis (PCA) with varimax rotation. It should be noted that participants’ ratings of absorption and subjective sexual arousal were not included in the PCA. Analysis of the data indicated three factors with eigen values greater than 1. Further examination however, revealed that
the third factor only explained 11% of variance in the data. Moreover, the three-factor solution yielded initially had little theoretical utility. As such, the analysis was run again with only two factors extracted.

The second analysis, which isolated two factors, proved theoretically sound and accounted for 63.2% of total variance. The first factor, labelled negative affect, accounted for 37.1% of variance in the data while the second factor, labelled positive affect, accounted for a further 26.1% of variance. Factor 1 (negative affect) consisted of six items relating to negative emotions such as anger and fear (Cronbach’s alpha = 0.76) while Factor 2 (positive affect) consisted of four items relating to pleasurable emotions such as enjoyment and interest (Cronbach’s alpha = 0.85). The overall reliability of the scale was sufficient, (Cronbach’s alpha = 0.66). The loadings of each item contributing to the rotated component matrix are shown in Table 1.

The emotions contributing to the two factors, positive and negative affect, were both averaged and used as dependent variables in a multivariate analysis of variance (MANOVA). Thus, in the case of positive affect, participants’ ratings of interest, entertainment, enjoyment and curiosity in response to the erotic film excerpts were added and then divided by four to find a score for the new dependent variable positive affect. In the case of negative affect, participants’ ratings of disgust, distress, shame, guilt, fear and anger were added and then divided by six to find participants’ scores for the new dependent variable negative affect.
Table 1

Rotated component matrix

<table>
<thead>
<tr>
<th></th>
<th>Factor 1</th>
<th>Factor 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angry</td>
<td>.84</td>
<td></td>
</tr>
<tr>
<td>Fear</td>
<td>.83</td>
<td></td>
</tr>
<tr>
<td>Ashamed</td>
<td>.77</td>
<td></td>
</tr>
<tr>
<td>Guilty</td>
<td>.74</td>
<td></td>
</tr>
<tr>
<td>Disgust</td>
<td>.70</td>
<td></td>
</tr>
<tr>
<td>Distress</td>
<td>.57</td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td></td>
<td>.85</td>
</tr>
<tr>
<td>Enjoyment</td>
<td></td>
<td>.87</td>
</tr>
<tr>
<td>Curious</td>
<td></td>
<td>.77</td>
</tr>
<tr>
<td>Entertained</td>
<td></td>
<td>.82</td>
</tr>
</tbody>
</table>

Note: Values <.30 have been suppressed

**MANOVA**

A two-way between subjects MANOVA was conducted investigating women’s cognitive and emotional processing of different types of erotic film during sexual arousal. Two independent variables were used in this analysis. The first independent variable, foreplay, referred to the amount of the foreplay presented within the erotic film excerpts. This variable was presented at two levels (low and high). The second
independent variable, *context*, consisted of two conditions based on the environment in which the sexual activities within the erotic excerpts took place. This variable was also presented at two levels (novel and habitual). Four dependent variables were used in the analysis. These were participants’ reported *subjective sexual arousal*, *absorption* and *positive* and *negative affect*. Participants’ were required to report their rating of each variable overall, in response to the erotic film excerpt they watched. Each of the dependent variables was rated on a 5-point Likert scale, with higher scores indicating that participants’ experienced a greater degree of that feeling or experience. All analyses were performed using the computer package SPSS: Version 10.0 (SPSS Inc., 1999). Statistical significance was determined using a preselected alpha level of .05, as recommended by Gravetter and Wallnau (1992).

**Assumption testing**

Analyses of assumptions were conducted on a cell-by-cell basis (that is, all four cells featuring the two foreplay conditions and the two context conditions were analysed independently). The data were initially screened for missing data, univariate and multivariate outliers, and both multicollinearity and singularity.

No missing data were detected. A univariate outlier was detected however, which exceeded the criterion of ± 3SD’s recommended by Tabachnick and Fidell (2001). Further examination of the z-scores for the dependent variable negative affect, indicated that only one case had a value exceeding the recommended ± 3SD’s. As MANOVA is reasonably robust to violations of this assumption when only a small number of cases are present, this case was retained. The data were also assessed for multivariate outliers. One multivariate outlier was present (exceeding $x^2$ [4] =
18.476, p < .001). Given the small number of outlying cases and the negligible effect on the final analysis, this case was also retained.

Evaluations of the normality of the sampling distribution, as derived from histograms with normal curves, box plots and comparisons of skewness to standard error of skewness, indicated a violation of this assumption in one of the four cells. More specifically, the skewness statistic for the dependent variable negative affect was equal to 5.28, exceeding the upper skewness value of 4 recommended by Tabachnick and Fidell (2001). The kurtosis value for this cell also exceeded the recommended value. While transformation was considered, MANOVA is also reasonably robust to violations of this assumption. Moreover, it is beneficial to retain the natural shape of a distribution where possible as it provides a more accurate reflection of the variations that may occur among the population sampled, than does a transformed data set. As such, it was decided that transformation was unnecessary. It is important however, that these results be taken into account when evaluating further data related to the variable negative affect.

The data were also tested for violations of the assumption of homogeneity of variance. This test was conducted using Levene’s Test for Homogeneity of Variances. The results obtained for the dependent variables subjective sexual arousal [F(3,56) = 1.549, p = .212], positive affect [F(3,56) = 1.871, p = .145], and negative affect [F(3,56) = 2.606, p = .061] were all non-significant indicating that this assumption was not violated. The results of the dependent variable absorption [F(3,56) = 5.990, p = .001] were significant however, indicating that the assumption of homogeneity of variance for this dependent variable was violated. In cases where
a moderate violation of this assumption occur, Tabachnick and Fidell (2001) recommend that further analyses be conducted using a more stringent alpha level of .025. As such, the alpha level of $\alpha = .025$ was chosen for all further analyses incorporating the dependent variable *absorption*.

Homogeneity of the variance-covariance matrices was assessed using Box's M. The result of this test was satisfactory, indicating that this assumption was not violated.

**Multivariate analyses**

Multivariate analyses using Pillai's Trace criterion, indicated that the independent variable *foreplay*, had a significant effect on the combined dependent variables, $[F(4,53) = 4.701, p = .003]$, $\eta^2 = .262$. The independent variable *context* also had a significant effect on the combined dependent variables, $[F(4,53) = 3.736, p = .009]$, $\eta^2 = .220$. By contrast, the *foreplay by context* interaction did not have an effect on the combined dependent variables, $[F(4,53) = 2.257, p = .075]$, $\eta^2 = .146$.

**Univariate analyses**

*The effects of foreplay on women's reported absorption, subjective sexual arousal, positive affect and negative affect*

The independent variable *foreplay* had a significant effect on participants' reported absorption, even with the adoption of a more conservative alpha level, $[F(1,56) = 11.104, p = .002]$, $\eta^2 = .165$. Examination of the means presented in Table 2 indicates
that participants' reported that they were more absorbed in the high foreplay erotic film excerpts compared with the low foreplay erotic film excerpts. The independent variable foreplay also had a significant effect on participants' sexual arousal, [F(1,56) = 17.898, p < .001], \( \eta^2 = .242 \) and positive affect, [F(1,56) = 14.243, p < .001], \( \eta^2 = .203 \). Examination of the mean scores reported in Table 2 indicates that women reported higher subjective sexual arousal and greater positive affect in response to the high foreplay erotic film excerpts compared with the low foreplay erotic film excerpts.

By contrast, the amount of foreplay presented in the erotic film excerpts did not have an effect on participants' negative affect in response to the film excerpts, [F(1,56) = .019, p = .892], \( \eta^2 = .000 \). Examination of the mean scores in Table 2 suggests a possible floor effect, with subjects reporting minimal negative affect in response to both the high and low foreplay erotic excerpts. This result is consistent with earlier analyses of the assumption of normality, which indicated that the data for this variable had a positive skew.

The effects of erotic film context on women's absorption, subjective sexual arousal, positive affect and negative affect

The context in which the erotic excerpts were filmed had a significant effect on participants' subjective sexual arousal, [F(1,56) = 6.443, p = .014], \( \eta^2 = .103 \). The independent variable context had no effects however, on participants' absorption, [F(1,56) = .025, p = .874], positive affect [F(1,56) = .002, p = .961], or negative affect, [F(1,56) = 2.262, p = .138].
Table 2
Women’s mean ratings of absorption, subjective sexual arousal, positive affect and negative affect in response to erotic film excerpts

<table>
<thead>
<tr>
<th>Film excerpt</th>
<th>Absorption M (SD)</th>
<th>Sexual arousal M (SD)</th>
<th>Positive affect M (SD)</th>
<th>Negative affect M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Foreplay</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Novel</td>
<td>2.00 (.38)</td>
<td>2.07 (.70)</td>
<td>2.02 (.43)</td>
<td>1.06 (.10)</td>
</tr>
<tr>
<td>Habitual</td>
<td>1.80 (.94)</td>
<td>1.67 (.98)</td>
<td>2.15 (.82)</td>
<td>1.22 (.48)</td>
</tr>
<tr>
<td>Total</td>
<td>1.90 (.71)</td>
<td>1.87 (.86)</td>
<td>2.08 (.64)</td>
<td>1.14 (.35)</td>
</tr>
<tr>
<td>High Foreplay</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Novel</td>
<td>2.47 (.83)</td>
<td>3.27 (1.03)</td>
<td>2.80 (.74)</td>
<td>1.11 (.22)</td>
</tr>
<tr>
<td>Habitual</td>
<td>2.73 (.96)</td>
<td>2.47 (.92)</td>
<td>2.65 (.58)</td>
<td>1.19 (.33)</td>
</tr>
<tr>
<td>Total</td>
<td>2.60 (.89)</td>
<td>2.87 (1.04)</td>
<td>2.73 (.66)</td>
<td>1.15 (.27)</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Novel</td>
<td>2.23 (.68)</td>
<td>2.67 (1.06)</td>
<td>2.41 (.71)</td>
<td>1.08 (.17)</td>
</tr>
<tr>
<td>Habitual</td>
<td>2.27 (1.05)</td>
<td>2.07 (1.01)</td>
<td>2.40 (.72)</td>
<td>1.21 (.41)</td>
</tr>
</tbody>
</table>

Note: Mean (M) and Standard Deviation (SD).
Possible scores ranged from 1-5 (1 = “not at all”; 5 = “extremely”).

Examination of the foreplay by context interaction

The interaction foreplay by context did not have a univariate effect on any of the dependent variables, absorption [F(1,56) = 1.234, p = .271], subjective sexual arousal [F(1,56) = .716, p = .401], positive affect [F(1,56) = .694, p = .408] and negative affect [F(1,56) = .299, p = .587]. As there were multivariate effects associated with this interaction, it may be surmised that some unique combination of
the four dependent variables resulted in the significant results reported previously. This effect was not replicated at the univariate level of analysis however.

MANCOVA

It has been asserted that theoretically, absorption is a precursor to women’s sexual and emotional responses to erotic film. Thus, when women are highly absorbed, positive affect and subjective sexual arousal should increase. When women are not absorbed in the erotic stimulus materials however, it has been asserted that their subjective sexual arousal and positive affect should subsequently decrease (Dekker et al., 1985). In order to assess the statistical utility of this theory and measure the importance of absorption, the dependent variable absorption was used as a covariate in a further multivariate analysis of covariance (MANCOVA). Thus, a two-way between subjects MANCOVA was run with foreplay and context as independent variables, both with two levels as per previous analyses, absorption as a covariate and subjective sexual arousal, positive affect and negative affect as dependent variables.

Multivariate analyses

By adjusting for absorption as a covariate, it was noted that the effect size associated with the multivariate analysis of foreplay \[ F(3,53) = 2.307, p = .087 \], \( \eta^2 = .116 \), as indicated by comparisons of Partial Eta Squared values, decreased. By contrast, the effect size associated with the multivariate analysis of context \[ F(3,53) = 4.972, p = .004 \], \( \eta^2 = .220 \), remained constant. Data from the multivariate analysis of the
foreplay by context interaction [F(3,33) = 2.564, p = .064] \( \eta^2 = .127 \), were not significant. As such, these results will not be discussed further.

Univariate analyses

The effects of foreplay on women’s subjective sexual arousal, positive affect and negative affect, after adjusting for absorption

Examination of the pattern of the results indicates that the effects of foreplay on participants’ ratings of their subjective sexual arousal decreased, after adjusting for absorption, [F(1,55) = 6.216, p = .016], \( \eta^2 = .102 \). This pattern was noted after comparing Partial Eta Squared values from the current analysis, with those of the preceding MANOVA. The effects of foreplay on positive affect [F(1,55) = 3.148, p = .082], \( \eta^2 = .054 \), and negative affect [F(1,55) = .001, p = .982], \( \eta^2 = .000 \), were not significant, after adjusting for absorption. As such, these analyses will not be discussed further.

The effects of context on women’s subjective sexual arousal, positive affect and negative affect, after adjusting for absorption

With regards to the effects of the independent variable context on participants’ subjective sexual arousal, the results remained significant even after absorption was accounted for [F(1,55) = 11.167, p = .001], \( \eta^2 = .169 \). Moreover, the magnitude of the effect, as indicated by comparison of Partial Eta Squared values, increased. After accounting for the influence of absorption, the independent variable context did not
have a significant effect on positive affect \( F(1,55) = .058, p = .811 \) or negative affect \( F(1,55) = 2.207, p = .143 \). Thus, the incorporation of absorption as a covariate had a substantial impact on aspects of the data set, increasing the effects of context on subjective sexual arousal. The effects of context on positive affect and negative affect however, remained unchanged.

Attentional and emotional factors as correlates of women’s subjective sexual arousal

Table 3 reports the extent to which the four dependent variables - subjective sexual arousal, absorption, positive affect and negative affect - correlated with one another. Subjective sexual arousal in response to the erotic film excerpts correlated +0.78 (\( p < .001 \)) with positive affect, and +0.64 (\( p < .001 \)) with the extent to which participants became absorbed by the erotic film excerpts. Absorption was also correlated with positive affect, +0.76 (\( p < .001 \)). Negative affect in response to the erotic film excerpts was not significantly correlated with any of the other dependent variables.

Table 3
Inter correlations between absorption, subjective sexual arousal, positive affect and negative affect

<table>
<thead>
<tr>
<th></th>
<th>Absorption</th>
<th>Sexual arousal</th>
<th>Positive affect</th>
<th>Negative affect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absorption</td>
<td>1.00</td>
<td>0.64***</td>
<td>0.76***</td>
<td>0.03</td>
</tr>
<tr>
<td>Sexual arousal</td>
<td>1.00</td>
<td>0.78***</td>
<td>-0.22</td>
<td></td>
</tr>
<tr>
<td>Positive affect</td>
<td>1.00</td>
<td>-0.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Negative affect</td>
<td></td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*** \( p < 0.001 \)
Discussion

The present study assessed the effects of two variables, foreplay and erotic context on women's cognitive and emotional processing of erotic film. In order to do so, participants were asked to evaluate their emotional, attentional and sexual responses to a range of erotic film excerpts. These excerpts varied according to the amount of foreplay depicted (high vs. low) and the sexual environment in which the sexual interaction was filmed (novel vs. habitual context).

A strong positive correlation exists between women's ratings of their absorption, subjective sexual arousal and positive affect. More specifically, women in the study reported moderate subjective sexual arousal and moderate positive affect in response to the high foreplay erotic film excerpts. Alternatively, the low foreplay erotic film excerpts elicited minimal ratings of subjective sexual arousal and positive affect from participants. These results were consistent with predictions, as it was hypothesised that the high foreplay erotic excerpts would elicit greater subjective sexual arousal and greater positive affect than the low foreplay erotic excerpts.

The women assessed also reported moderate subjective sexual arousal overall, in response to the erotic excerpts filmed in a novel context (lounge room). By contrast, those filmed in a habitual context (bedroom) elicited moderate to low degrees of subjective sexual arousal. These results were also consistent with those predicted, as it was hypothesised that the lounge room scenes would elicit greater subjective sexual arousal than the bedroom scenes. Further examination of the data indicates that the environment in which the erotic interactions took place had no effect on
women's attentional and emotional processing, with participants reporting comparable degrees of absorption and positive and negative affect across the two context conditions.

Contrary to expectations, the interaction of foreplay by context also failed to have an effect on women's responses to the excerpts. It appears that participants' responses to the high foreplay erotic excerpts remained constant, irrespective of the erotic environment shown. More specifically, the erotic environment presented failed to enhance or significantly alter the overriding effect of foreplay on participants' subjective sexual arousal, absorption and positive and negative affect.

The results regarding negative affect were also inconsistent with expectations. Based on previous research, it was predicted that the erotic excerpts depicting low foreplay would elicit a neutral or negative response from females, as these excerpts were closely matched to the "man-made" erotic excerpts utilised by Laan et al. (1994). Contrary to expectations, both the high and low foreplay erotic excerpts elicited comparable degrees of negative affect. Further examination of the pattern of participants' responses indicates a possible floor effect, whereby participants reported minimal negative affect in response to all four of the erotic film excerpts shown. This indicates that participants' sexual arousal was not inhibited by a negative affective response. These results are also inconsistent with those reported by Koukounas and McCabe (1997). These researchers reported that the women in their study reported high levels of disgust, guilt and shame in response to the erotic excerpts shown in this research.
Koukounas and McCabe (1997) presented men and women with a series of 8 erotic and neutral film segments. The erotic film segments consisted of material “judged by the authors to be erotic” and incorporated several aspects of heterosexual behaviours including petting and genital and oral sex. The neutral film segments included nature scenes depicting flowers and trees. Each of the segments was approximately 2 minutes in duration. Koukounas and McCabe reported that the women in their study responded to the erotic excerpts with high degrees of disgust, guilt and shame. The depiction of the female actresses as passive recipients of the male actor’s desires in the erotic film clips also angered some respondents. These results are clearly inconsistent with those reported in the present research, as only three participants in the present study reported any degree of disgust or negative affect in response to the stimulus materials.

The difference in negative affect reported by Koukounas and McCabe (1997) and the present research may be at least partially explained by differences in the erotic stimuli presented in the two studies. Koukounas and McCabe presented erotic materials that were of a non-specific origin and incorporated a number of heterosexual activities such as genital and oral sex. Koukounas and McCabe failed to give additional information with regards to the stimulus materials presented however, making it difficult to determine if sexual acts such as kissing or caressing were incorporated in the film clips. Moreover, the comments made by respondents regarding the passive representation of the female actresses in the films gives weight to the conclusion that the male and female actors portrayed in the erotic clips were not depicted as equals, leading to unfavourable attitudes among respondents.
By contrast, participants in the present study were asked to assess erotic excerpts that portrayed the male and the female actors as equals. Both the high and the low foreplay excerpts also incorporated some degree of intimacy, portrayed through the use of kissing and caressing. It is not known if the scenes shown by Koukounas and McCabe (1997) depicted similar degrees of intimacy. Thus, the differences in reported negative affect across the two studies may be at least partially explained by differences in the erotic stimuli presented in the two studies. That is, the erotic excerpts shown by Koukounas and McCabe may have been less appealing than those shown in the present study, resulting in greater degrees of negative affect than reported here.

The favourable responses to the high foreplay erotica demonstrated by the women in this study warrant further consideration. Mosher and MacIan (1994) refer to the sexual involvement theory when examining differences in subjective sexual arousal in response to erotica. According to the sexual involvement theory, deep involvement while watching erotica requires a goodness of fit between the scenes portrayed in the erotic film and the individuals' sexual script (Mosher, 1980, 1988a). In this case a sexual script is defined as the set of rules for ordering information in a connected and psychologically meaningful way. Sexual scripts therefore allow women to interpret and understand, to justify and evaluate, erotic stimuli (Tomkins, 1979, 1987, 1991). Goodness-of-fit between the individuals' sexual script and the events, actions, and affects occurring within the sexual scene deepens involvement, which results in increases in subjective sexual arousal (Mosher & MacIan, 1994). When the erotic stimulus matches the script, involved individuals experience more positive affect, less negative affect and increased subjective sexual arousal. Conversely, low
goodness of fit results in less subjective sexual arousal and greater negative affect (Mosher & MacIan, 1994).

In their examination of men and women’s subjective sexual arousal in response to “man-made” and “woman-made” erotica, Mosher and MacIan (1994) found that women responded in a more favourable manner to woman-made erotica. More specifically, they reported greater subjective sexual arousal, greater absorption and greater positive affect in response to this genre. Alternatively, women reported greater negative affect and less subjective sexual arousal in response to the man-made erotica. These authors concluded that the differences in psychosexual responsiveness found in their research, could be explained in terms of the compatibility between participants’ sexual scripts and the woman-made erotic films shown. This compatibility was thought to generate greater depth of involvement, affective enjoyment and excitement in participants resulting in greater subjective sexual arousal.

In a similar manner, it is possible that the high foreplay erotic excerpts shown in the present study were more compatible with participants’ sexual scripts than the low foreplay erotic excerpts, resulting in the differences in sexual arousal, absorption and positive affect reported. Based on this data, it may be surmised that the familiar, intimate and loving union presented in the high foreplay erotic excerpts was more consistent with participants’ personal preferences (sexual scripts), than the sexually focused intercourse presented in the low foreplay erotic excerpts. Subsequently, these films generated greater depth of involvement, greater affective enjoyment, greater absorption and as such, greater subjective sexual arousal.
Socialisation is another factor that may have played a role in women's differential responses to the high and low foreplay erotic excerpts. According to Mosher and Maclan (1994) psychosexual responsiveness is influenced both in men and in women, by the socialisation of gender specific mannerisms and expectations, commonly referred to as gender roles. Theoretically, women who are socialised in accordance with traditional feminine gender roles are likely to view sex as part of love and an intimate act that provides a familiar and enjoyable sexual union. As foreplay is essentially the nonverbal embodiment of love and intimacy, it stands to reason that women would respond more favourably to higher degrees of foreplay as they have been socialised to identify with this ideal. This prediction is consistent with the results of the present study, as the women assessed reported higher positive affect and greater subjective sexual arousal in response to the high foreplay erotica.

Finally, it is possible that participants' subjective sexual arousal in response to the high foreplay erotica was enhanced by negative expectations of the stimulus materials. As noted in preceding chapters, erotic films vary measurably with regards to the content, quality and representation of the actresses (Mosher & Maclan, 1994). As such, it is possible that the erotic films that participants had been exposed to in the past were less appealing and appetitive than those used in the present research, making the high foreplay erotica more appealing by contrast. Thus, the women studied may have reported greater positive affect and subjective sexual arousal in response to the high foreplay erotic excerpts as they were more appealing than expected, thereby artificially inflating their subjective sexual arousal in response to the excerpts.
The data pertaining to the effects of erotic environment or context on subjective sexual arousal also warrant further consideration. In the present study women reported greater subjective sexual arousal in response to the so-called 'novel' context than the 'habitual' context. More specifically, women responded more favourably to the erotic scenes filmed in a lounge room in front of a fireplace than to the erotic scenes filmed in a bedroom.

These results may be explained in terms of the novelty of each of the erotic environments. Presumably, the sexual interactions filmed in a lounge room would be less familiar to women than those filmed in a bedroom. Anecdotal evidence supports this assertion, as most women report that the vast majority of their sexual interactions occur in a bedroom. As a result, the lounge room scenes may have been seen as 'novel' stimuli, increasing the erotic fantasy elements associated with this context and as such, women's subjective sexual arousal.

The effects that erotic context had on women's feelings of subjective sexual arousal may also reflect the personal preferences of the women studied (Cranston-Cuebas & Barlow, 1990; Laan, Everaerd, van der Veld, et al., 1995). Specifically, the women in the present study may have found that the novel context excerpts, which were filmed in a lounge room in front of a fireplace, depicted a similar scene to their own sexual thoughts and fantasies thereby increasing their feelings of arousal. This hypothesis is supported by the smaller effect sizes associated with this variable compared with foreplay. Thus, rather than appealing to all the women in the sample, the novel context films may have appealed to a smaller subgroup of the women studied. Laan,
Everaerd, van der Velde, et al. (1995) provide some support for this contention, asserting that the setting or circumstances in which sexual arousal occurs may influence women’s subjective estimates of their arousal state.

In her model of female sexual arousal, Basson (2002) highlights the importance of contextual cues during the cognitive appraisal of sexual stimuli. Basson also highlights the role that individual preferences may play in the cognitive appraisal of contextual cues, providing some support for the hypothesis that the individual preferences of a subgroup of the women sampled may have inflated the group estimates of subjective sexual arousal in response to the novel erotic excerpt.

When discussing the relationship between females’ reported absorption, sexual arousal and positive affect, it should be noted that the results reported are correlational, not causal. Examination of the pattern of women’s responses in the present study indicates that their absorption, subjective sexual arousal and positive affect increased and decreased in unison. Thus, while it appears that some relationship exists between these variables, the precise nature of that relationship remains unclear.

Koukounas and Over (1999) experimentally manipulated men’s absorption as an independent variable by requiring subjects to employ, during erotic stimulation, either a spectator-oriented perspective (low absorption) or a participant-oriented perspective (high absorption). There was a substantial difference in sexual arousal levels between these two conditions, with participants reporting greater subjective sexual arousal when they responded to the film as engaged, immersed participants
(high absorption) than when they viewed the film as critical spectators of the sexual exchange (low absorption). These results suggest that absorption is a necessary precursor to high subjective sexual arousal and high positive affect in men. The generalisability of these findings as they relate to female sexual arousal may be limited however, given differences in the sexual information processing styles of men and women documented by Heiman (1977, 1980) and others (Koukounas & McCabe, 1997; Rosen & Beck, 1988).

The results of the present study also highlight the importance of absorption to women’s sexual and emotional processing of erotica. The results do not imply however, that women’s absorption in response to an erotic stimulus is necessary for women to respond favourably to the erotic stimulus. While it may be intuitively appealing to assume that sexual arousal increases or decreases as a consequence of subjects degree of absorption, the relationship between absorption and sexual arousal demonstrated in the present study and much of the previous research cited, is correlation not causal (Koukounas & McCabe, 1997; Koukounas & Over, 1997; Tokatidis & Over, 1995). Instead of sexual arousal decreasing in response to changes in attention and absorption, subjects may have committed less attention to the low foreplay sexually-focused excerpt as a result of them becoming less sexually aroused. Another possibility is that sexual arousal and absorption co-varied across conditions without being causally related (Koukounas & Over, 1997). As the nature of these findings is correlation, not causal, it is impossible to positively determine which variable influences the other and to what extent. Future research that manipulates absorption as an independent variable and examines the effects on the dependent variable, sexual arousal, may prove useful in this discourse.
Future research should aim to experimentally manipulate women’s absorption in order to assess the subsequent effects on the subjective sexual arousal and positive affect. By comparing the sexual and emotional responses of women who are either engaged in and attending to an erotic stimulus (high absorption) or distracted and critical (low absorption) we can determine if absorption acts as a precursor to women’s sexual and emotional processing of erotica (Koukounas & Over, 2001). Based on the work of Masters and Johnson (1970), it is hypothesised that women who are actively absorbed and immersed in an erotic stimulus will report high subjective sexual arousal and high positive affect, as they are more focused and open to the experience of arousal. Alternatively, women who take on the role of a spectator are more likely to be distracted by other external stimuli, decreasing their subjective sexual arousal and positive affect.

The results of the present study also highlight the influence of stimulus specific variables on women’s cognitive and emotional processing of erotica. As such, it seems pertinent to incorporate the high foreplay, novel context film excerpt from this study in further research so as to examine the relationship between absorption, subjective sexual arousal and positive and negative affect under conditions known to elicit favourable responses from female participants.

There were some limitations associated with the present research. This study aimed to assess the effects of foreplay and erotic context on women’s cognitive and emotional processing of erotica. Foreplay and context were isolated as independent variables as research indicates that nonverbal cues such as eye contact and touch
(Koukounas & Letch, 2001) and contextual cues such as erotic environment (Basson, 2002) may effect women's cognitive and emotional processing of erotica. There are however, a number of other factors that may influence females' emotional and cognitive processing of erotica, including the attractiveness of the actors, the lighting used in the film and the sequence of the sexual acts depicted (Laan, Everaerd, van Bellen, et al., 1994; Laan, Everaerd, van der Velde, et al., 1995; Mosher & MacIlan, 1994).

Furthermore, while every effort was made to ensure that the film excerpts utilised in the present research were matched as closely as possible (with the exception of the independent variables), unless the erotic excerpts are produced specifically for research purposes, this task is difficult to achieve. Thus, while the results are presumed to be associated with the effects that each of the independent variables had on the dependent variables, it is impossible to calculate the impact that contaminating factors may have had on the results. As such, it is important that further research replicating the current study, with perhaps the inclusion of more films, be conducted to assess the accuracy of these results.

In conclusion, the present study assessed the effects of two stimulus specific variables - foreplay and context - on women's cognitive and emotional processing of erotica. The results were generally consistent with expectations as the high foreplay erotic excerpts elicited greater subjective sexual arousal, greater absorption and greater positive affect than the low foreplay erotic film excerpts. The excerpts filmed in a novel context also elicited greater subjective sexual arousal than those filmed in a habitual context. These results highlight the complex and multidimensional nature
of the female sexual response, as arousal, absorption and positive affect all appear to be influenced by stimulus specific variables. A strong association between each of these variables was also noted, as absorption, positive affect and subjective sexual arousal generally appeared to increase and decrease in unison. Future research may wish to identify other factors that effect the cognitive processing of erotic film, perhaps emphasising the role of absorption in the sexual arousal response.
CHAPTER NINE: STUDY TWO

Study One indicates that there is a strong correlation between women's absorption, positive affect and subjective sexual arousal. These results have been demonstrated in a number of other studies in response to erotic film (Koukounas & McCabe, 1997, 2001; Mosher & MacIan, 1994) and fantasy (Tokatidis & Over, 1995). The results reported within these studies have been correlation however, not causal. As such, Study Two aims to examine the influence that differing degrees of absorption have on women's subsequent cognitive and emotional processing of erotic film.

According to Masters and Johnson (1970), the extent to which a woman absorbs herself in a sexual situation or stimulus will have a significant impact on her ability to become emotionally and sexually involved in that situation or stimulus. Specifically, these authors assert that women who take a spectator-oriented perspective during sexual arousal are more likely to become distracted by other external stimuli. As a direct result, these women are less likely to experience the same emotional and sexual fulfilment as women who take a participant-oriented perspective and are actively engaged and immersed in a stimulus during sexual arousal.

Based on Masters and Johnson's (1970) spectating theory, it might be predicted that the adoption of a participant-oriented focus rather than a spectator-oriented focus while viewing erotic film will enhance women's subjective sexual arousal in response to the film. This is not to suggest however, that the relationship between absorption, affect and sexual arousal is not a dynamic one. In all likelihood, the degree to which a woman is aroused or feeling positive about the stimulus will also
influence her motivation to remain focused on the stimulus. A thorough investigation of all the possible interrelationships between these variables is however, beyond the scope of the present study. As such, this study will specifically examine the effects of absorption on women's cognitive and emotional processing of erotic film.

As mentioned previously, the majority of research investigating the relationship between absorption, sexual arousal and positive affect has noted that a strong positive correlation exists between these variables (Koukounas & McCabe, 1997; Mosher & Maclan, 1994; Tokatlidis & Over, 1995). In order to test the notion that absorption acts as a catalyst for women's subsequent sexual and emotional processing however, further causal research needs to be conducted. The issue of causation can be addressed by establishing the effects that manipulation of one process (absorption) has on the other process (sexual arousal and affect).

Koukounas and Over (2001) attempted to address the question of causation by experimentally manipulating men's absorption in response to erotic film. Participants were presented with one of two sets of test session instructions. These instructions were designed to manipulate the degree to which participants became absorbed by a compilation of erotic films. The first, spectator-oriented test session instructions (low absorption) directed participants to view a compilation of erotic films while adopting the role of a spectator. Thus, participants in this condition were instructed to critically judge and evaluate the scenes depicted. Alternatively, the participant-oriented test session instructions (high absorption) directed participants to immerse themselves in the erotic films, becoming participants in the interaction. Thus participants were instructed to watch a series of erotic film segments, later reporting
their subjective sexual arousal while taking either a spectator or a participant-oriented perspective. Koukounas and Over noted significant differences in subjective sexual arousal between these conditions, such that participants in the high absorption condition reported greater absorption and greater subjective sexual arousal than those in the low absorption condition. Thus, the adoption of a spectator role resulted in lowered absorption and decreased subjective sexual arousal amongst participants, while the adoption of a participant role resulted in high absorption and as such, greater subjective sexual arousal. Based on the results of this study Koukounas and Over concluded that absorption plays an integral role in initiating and facilitating male sexual arousal.

In a similar manner, Study Two aims to investigate the effects of absorption on women’s cognitive and emotional processing of erotica. The novelty of this study lies in the experimental manipulation of women’s absorption, using the test session instructions described by Koukounas and Over (2001). Specially, this study aims to examine the effects of high and low absorption on women’s subjective sexual arousal and positive and negative affect, in response to an erotic film excerpt rated as highly sexually arousing by a similar demographic sample.

Based on Masters and Johnson’s (1970) theory of spectating, and the results of previous empirical research (Koukounas & Over 2001), it is hypothesised that women in the high absorption condition will respond more favourably to the erotic film excerpt than those in the low absorption condition. Specifically, women in the high absorption condition are expected to report greater subjective sexual arousal and greater positive affect than women in the low absorption condition. Based on the
findings of Study One, it is predicted that the degree of negative affect reported by participants will be similar in both the high and low absorption conditions.

Method

Participants

62 women aged between 18 and 50 years ($M = 25.53$ years, $SD = 6.69$) were recruited via advertisements placed on notice boards at Deakin University (Appendix A). The sample had a high level of sexual experience: 100% had experienced sexual intercourse, and 80.6% had a current sexual partner(s). The sample also had a high degree of experience with erotic materials: 87.1% of the participants had previously been exposed to erotic materials while 80.6% had previously been exposed to erotic film. Of the women that had been exposed to erotic film in the past, 4.8% had seen an erotic film in the past two days, 12.9% had seen an erotic film in the past 2 weeks, 16.1% had seen an erotic film in the past 2 months and for 46.8% it had been 6 months or more since they had seen an erotic film.

Stimuli

Participants were asked to view an abbreviated version of an erotic film excerpt used in Study One. Data from Study One indicated that participants evaluated this erotic excerpt most favourably, reporting greater positive affect and subjective sexual arousal in response to the excerpt. The erotic excerpt, which was 3.5 minutes in duration, portrayed a man and a woman engaging in consensual intercourse. The film
portrayed a high amount of foreplay, with the actors engaging in long lingering
kisses, caressing each and engaging in a high degree of eye contact. The excerpt was
filmed in a lounge room in front of a fireplace using minimal lighting.

Materials

Prior to the commencement of the film presentation, participants were asked to read
one of two sets of testing instructions.

Spectator-oriented: Participants in this condition were given a brief explanation of
the purpose of the study and were asked to watch the erotic tape alone, with the
sound turned off. Participants were also directed to view the film as an impartial
observer, critically evaluating the sexual interactions depicted (Appendix E).

Participant-oriented: Participants in this condition were given a brief explanation of
the purpose of the study and were asked to watch the erotic tape alone, with the
sound muted. In addition, participants were instructed to immerse themselves in the
erotic excerpt. Participants were asked to absorb themselves in the scene, picturing
themselves and their sexual partner in the erotic excerpt, experiencing the sensual
and romantic acts depicted (Appendix F).

Following the presentation of the erotic film excerpts participants were also
administered a brief questionnaire related to the film (Appendix B). The
questionnaire, based on that utilised by Koukounas and McCabe (1997), incorporated two sections:

Section A: Required participants to assess their overall response to the erotic film excerpt by rating the degree to which they experienced 10 emotions. These emotions, adapted from research by Laan et al. (1994), included curiosity, interest, disgust, distress, shame, guilt, entertainment, fear, enjoyment and anger. In addition, participants were also asked to report their absorption and subjective sexual arousal. Participants were asked to rate the overall degree to which they experienced each of these emotions, on a 5-point Likert scale. Responses ranged from “1 = not at all” to “5 = extremely”.

Section B: The sexual information checklist required participants to record a number of demographic features including their age, occupation, marital status and any previous exposure to erotic materials.

Procedure

Participants were initially recruited via advertisements placed on notice boards at Deakin University. Potential volunteers were given a Plain Language Statement, informing them that the study aimed to investigate the influence of women’s thoughts and feelings on their responses to erotic film (Appendix G). Those agreeing to participate were asked to sign consent forms and were then randomly allocated to one of two conditions. The low absorption condition required participants to adopt the role of a spectator during the erotic tape presentation. The high absorption
condition required participants to adopt the role of an active participant during the erotic tape presentation. As such, participants were asked to absorb themselves in the erotic film and the acts depicted.

After reading the test session instructions, participants in the two conditions watched the erotic film excerpt in an isolated room, with the sound muted to prevent participants from being distracted by verbal cues, which were not the focus of the present study. Following the film presentation participants completed a short questionnaire assessing their responses to the film.

To ensure that all responses remained anonymous participants were asked to place completed questionnaires and consent forms in separate envelopes. Both documents were stored at separate locations. This procedure was approved by the Deakin University Human Research Ethics Committee (Appendix D).

Results

A Multivariate Analysis of Variance (MANOVA) was performed to investigate the influence of high and low degrees of absorption in response to erotica, on women’s attentional, emotional and sexual processing. The independent variable in this study, absorption, had two levels (high vs. low absorption). There were three primary dependent variables of interest in the present study—subjective sexual arousal, positive affect and negative affect. An additional dependent variable, absorption, was included to act as an independent assessment of the efficacy of the test session instructions in eliciting either high or low degrees of absorption in participants. Each
of the dependent variables was assessed on a 5-point Likert scale, with high scores indicating participants experienced a higher degree of that construct. All analyses were conducted using the computer package SPSS: Version 10.0 (SPSS Inc, 1999). Statistical significance was determined using a preselected alpha level of .05, as recommended by Gravetter and Wallnau (1992).

Assumption Testing

Prior to the analysis, the data were screened for violations of the assumptions of multivariate analyses. The data were initially screened for missing values and univariate and multivariate outliers. There were no missing values present. There were however, two univariate outliers identified within the data set, with values exceeding ± 3SD’s from the mean. Tabachnick and Fidell (2001) recommend that the exclusion of cases with values exceeding ± 3SD’s from the mean should be considered. One of the univariate outliers was identified within the dependent variable positive affect and the other within the dependent variable negative affect. While omission of these cases was considered, MANOVA is generally robust to violations of this assumption. As such, these cases were retained. The data were also screened for multivariate outliers, using Mahalanobis’ Distance values available in the Regression submenu. One multivariate outlier was found (exceeding $\chi^2 [4] = 18.476, p < .001$). As MANOVA is robust to minor violations of this assumption, this case was also retained.

The assumption of univariate normality was assessed through the use of histograms with normal curves and the skewness to standard error of skewness statistic. This
assumption was assessed on a cell-by-cell basis. Examination of the data indicated that the assumption of normality was violated in both of the cells analysed. In both cases, the dependent variable negative affect had a strong positive skew. The skewness statistics for the dependent variable negative affect, in both the high and low absorption cells, was equal to 6.69 and 7.80 respectively, exceeding the upper skewness value of 4 recommended by Tabachnick and Fidell (2001). The kurtosis values for these cells also exceeded recommended values. While transformation was considered, it is beneficial to retain the natural shape of a distribution where possible. Moreover, MANOVA is reasonably robust to violations of this assumption. As such, it was decided that transformation of the data was unnecessary. It is important that these results be taken into account however, when evaluating further data related to the dependent variable, negative affect.

Analyses of the assumption of homogeneity of variance, tested using Levene’s Test for Homogeneity of Variances were satisfactory, absorption [F(1,60) = 3.338, p = 0.073], subjective sexual arousal [F(1,60) = 0.135, p = 0.715], positive affect [F(1,60) = 0.041, p = 0.841], negative affect [F(1,60) = .211, p = 0.648], indicating that this assumption was not violated. Evaluations of the assumptions of homogeneity of variance-covariance matrices, linearity and multicollinearity were also satisfactory.

MANOVA

A Multivariate Analysis of Variance (MANOVA) with reported absorption, subjective sexual arousal, positive affect and negative affect as dependent variables, was conducted with absorption (high vs. low absorption) as an independent variable.
Multivariate analysis indicated that *absorption* had a differential effect on the four dependent variables when they were combined, \( F(4,57) = 4.41, p = .004 \).

Specifically, the combined mean scores for the high absorption group were higher than the combined mean scores for the low absorption group. The partial eta squared value for the multivariate analysis was \( \eta^2 = .236 \), indicating that, when combined, the four dependent variables accounted for 23.6% of variance in the data.

**Univariate analyses**

*The effects of absorption instructions on women's absorption*

To ensure that the test session instructions fulfilled their primary objective, namely, to increase participants' absorption in response to the erotic stimulus, participants were asked to report their subjective absorption subsequent to the erotic film presentation. Univariate tests indicated that the test session instructions received by participants had a significant influence on *absorption*, \( F(1,60) = 14.025, p < .001 \).

Examination of the means presented in Table 4 below, indicates that participants reported absorption was higher in response to the participant-oriented test session instructions (high absorption condition), relative to the spectator-oriented test session instructions (low absorption condition), which elicited lower levels of absorption from participants. The partial eta squared value for this dependent variable was \( \eta^2 = .189 \), indicating that the dependent variable *absorption* accounted for 18.9% variance.
Table 4

Mean values of women's reported absorption, subjective sexual arousal, positive affect and negative affect in response to two types of test session instructions

<table>
<thead>
<tr>
<th>Absorption</th>
<th>Low absorption M (SD)</th>
<th>High absorption M (SD)</th>
<th>Total M (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absorption</td>
<td>2.26 (0.73)</td>
<td>3.10 (1.01)</td>
<td>2.68 (0.97)</td>
</tr>
<tr>
<td>Sexual Arousal</td>
<td>2.13 (1.02)</td>
<td>3.03 (1.08)</td>
<td>2.58 (1.14)</td>
</tr>
<tr>
<td>Positive affect</td>
<td>2.25 (0.76)</td>
<td>2.72 (0.75)</td>
<td>2.48 (0.79)</td>
</tr>
<tr>
<td>Negative affect</td>
<td>1.04 (0.11)</td>
<td>1.03 (0.00)</td>
<td>1.03 (0.10)</td>
</tr>
</tbody>
</table>

Note: Mean (M) and Standard Deviation (SD)

The effects of absorption on women's subjective sexual arousal

The test session instructions given to participants had a significant impact on participants' subjective sexual arousal, [F(1,60) = 11.417, p = .001], η²=.160. It was noted that the dependent variable subjective sexual arousal, accounted for 16.0% of variance. Examination of the means presented in Table 4 indicates that women reported greater subjective sexual arousal in response to the participant-oriented test session instructions (high absorption) compared to the spectator-oriented test session instructions (low absorption).
The effects of absorption on women's positive affect

The test session instructions given to participants also had a significant effect on women's emotional processing of the erotic stimulus, \( F(1, 60) = 5.925, p = .018 \), \( \eta^2 = .09 \). It was noted that the dependent variable positive affect accounted for 9% of variance in the data. Examination of Table 4 indicates that women responded more favourably to the erotic film if they received the participant-oriented test session instructions (high absorption), reporting higher degrees of positive affect, than if they received the spectator-oriented test session instructions (low absorption), reporting low degrees of positive affect.

The effects of absorption on women's negative affect

The test session instructions given to participants did not have a significant effect on participants' reported negative affect, \( F(1, 60) = .043, p = .836 \), \( \eta^2 = .001 \).

Attentional and emotional factors as correlates of women’s subjective sexual arousal

Table 5, presented below, reports the extent to which levels of subjective sexual arousal, absorption, positive affect and negative affect correlated with one another. Subjective sexual arousal correlated +0.63 (\( p < .001 \)) with positive affect, +0.63 (\( p < .001 \)) with absorption and −0.35 (\( p < .01 \)) with negative affect. A strong positive correlation of +0.73 (\( p < .001 \)) was also noted between absorption and positive affect in response to the erotic film excerpt.
Table 5

**Intercorrelations between absorption, subjective sexual arousal, positive affect and negative affect**

<table>
<thead>
<tr>
<th></th>
<th>Absorption</th>
<th>Sexual arousal</th>
<th>Positive affect</th>
<th>Negative affect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absorption</td>
<td>1.00</td>
<td>0.63***</td>
<td>0.73***</td>
<td>-0.22</td>
</tr>
<tr>
<td>Sexual arousal</td>
<td></td>
<td>1.00</td>
<td>0.63***</td>
<td>-0.35**</td>
</tr>
<tr>
<td>Positive affect</td>
<td></td>
<td></td>
<td>1.00</td>
<td>-0.22</td>
</tr>
<tr>
<td>Negative affect</td>
<td></td>
<td></td>
<td></td>
<td>1.00</td>
</tr>
</tbody>
</table>

** **p<0.01, ***p<0.001

A simultaneous regression analysis was then conducted to determine the relative contributions of attentional and emotional variables to subjective sexual arousal. Positive affect, negative affective and absorption were entered simultaneously as independent variables into the regression analysis, with subjective sexual arousal entered as the dependent variable. Over 46% of the variance in subjective sexual arousal was explained by the relative contribution of the combined independent variables.

**Discussion**

The present study examined the effects of varying degrees of absorption on women's emotional and cognitive processing of erotic film. In order to do so participants' absorption was experimentally manipulated using two different sets of test session instructions. The first, participant-oriented instruction set, directed participants to absorb themselves in the erotic film presentation, imagining that they were active
participants in the sexual activities depicted. The second, spectator-oriented
instruction set, directed participants to observe and assess the erotic film excerpt as
impartial spectators. Based on previous research, it was expected that these two sets
of test session instructions would elicit different levels of absorption (Koukounas &
Over, 2001). Specifically, it was predicted that the participant-oriented instruction set
would elicit higher degrees of absorption than the spectator-oriented instruction set.

To ensure that the test session instructions achieved their primary objective by
experimentally manipulating absorption, participants were asked to report their
subjective absorption at the conclusion of the erotic tape presentation. Consistent
with reports by Koukounas and Over (2001), the participant-oriented instruction set
was found to elicit greater absorption in women than the spectator-oriented
instruction set. Thus, the results reported herein should provide a fairly reliable
estimate of the effects of differing degrees of absorption on women’s emotional and
cognitive processing of erotic film. These results also provide some support for the
use of specific test session instructions when attempting to direct women’s allocation
of attentional resources in response to erotic film.

The results of the present study extended earlier demonstrations that attentional focus
facilitates subjective sexual arousal, as participants’ subjective sexual arousal was
found to relate directly to the degree to which they became absorbed in the erotic
stimulus materials. Specifically, women in the study reported greater subjective
sexual arousal after reading the participant-oriented instruction set, compared with
the spectator-oriented instruction set. Thus, it appears that the degree to which a
woman becomes absorbed in an erotic stimulus may have a substantial impact on her subsequent subjective sexual arousal.

The degree to which participants became absorbed in the erotic stimulus materials also had an effect on their emotional processing of the stimulus. Consistent with predictions, women in the study reported greater degrees of positive affect when they took a participant-oriented perspective than when they viewed the erotic materials as impartial spectators. Thus, participants who were highly absorbed in the erotic film excerpt were more likely to view the stimulus favourably. By contrast, the degree to which women became absorbed in the stimulus materials had no effect on their reported negative affect. Participants in both conditions reported little to no negative affect in response to the erotic film excerpt.

The interrelationships between the four dependent variables were investigated via correlations. The results indicated strong positive correlations between participants' subjective sexual arousal, their absorption and positive emotions such as interest and enjoyment. By contrast, participants' negative emotions, such as anger and disgust, correlated negatively with subjective sexual arousal. Thus, there was a high correlation between the experience of subjective sexual arousal, intent focus on the erotic excerpts and the positive feelings associated with this experience. When women were not aroused however, they were more likely to report that the erotic film excerpt elicited negative feelings such as disgust and guilt. These correlations are indicative of the complex dynamic between each of the variables assessed, and the difficulties posed when attempting to examine these relationships from a causative perspective.
The multidimensional nature of female sexual arousal was further demonstrated by the fact that the magnitude of subjective sexual arousal reported by participants was predicted, to a certain extent, by state assessed appetitive, attentional and emotional variables (such as absorption, entertainment and enjoyment). It is important to note however, that the magnitude of the findings reported within this research are far less impressive than those reported by Koulkounas and McCabe (1997). The state assessed appetitive, attentional and aversive factors included in our analyses accounted for almost half of the variance in participants' subjective sexual arousal. By adding trait and demographic variables however, Koulkounas and McCabe were able to account for over 94% of variance in participants' subjective sexual arousal. While trait measures have often been poorly correlated with state assessed measures (Koulkounas & McCabe, 1997; Tokatidis & Over, 1995), the predictive utility of trait measures warrants their inclusion.

The relationship between absorption and subjective sexual arousal warrants further consideration. The design of the current study was premised on the notion that attentional focus (absorption) facilitates subjective sexual arousal (Rosen & Beck, 1988). Thus, the degree to which women became absorbed in the erotic film, by taking either a participant or a spectator oriented perspective, was expected to effect their subsequent arousal by focusing and directing their cognitive and emotional processing (Masters & Johnson, 1970). Simply, it was predicted that the degree to which women became aroused in response to a sexual stimulus would vary as a function of the degree to which they become absorbed in the stimulus. The role of
attentional focus in facilitating arousal was discussed first by Masters and Johnson (1970).

Based on their clinical practice, Masters and Johnson (1970) reported that individuals who were actively absorbed and immersed in a sexual stimulus reported more functional sexual responses than those who were not actively engaged. These results were explained in terms of the role that attentional commitment may play in facilitating arousal. According to Masters and Johnson, individuals who are adequately absorbed in a sexual exchange are focused on their own and their partner's sexual responses and the enjoyment associated with the experience. Individuals who are poorly absorbed however, are more likely to engage in the distracting pattern known as spectating, wherein the individual becomes fixated by an internal critique of their own and their partner's sexual performance (Cranston-Cuebas & Barlow, 1990). This internal monologue often has a detrimental impact on sexual responsivity, as the cognitive load required to maintain the critique impairs the individual's ability to immerse him or herself in the sexual exchange, decreasing enjoyment of the experience. As a result, these individuals commonly report experiencing less sexual arousal overall than their functional, absorbed counterparts (Masters & Johnson, 1970). In short, low absorption is associated with an increase in distraction, which has a detrimental impact on sexual responsivity. Based on these reports Masters and Johnson concluded that absorption is a necessary component of the human sexual response, directly influencing and facilitating sexual arousal responses.
While Masters and Johnson (1970) raised some interesting discussion regarding the role of absorption during sexual arousal, their research was largely based on anecdotal case reports gathered via their clinical work. As such, the present study attempted to empirically evaluate the effects of absorption on subjective sexual arousal by experimentally manipulating participant's absorption.

Consistent with predictions, the findings of the present study indicated that women's subjective sexual arousal was facilitated by absorption, so that women who were actively engaged and immersed in the stimulus materials reported greater subjective sexual arousal than those who were not as absorbed or immersed. These results may be understood by the application of the spectatoring theory to the laboratory study of female sexual arousal. According to this theory, women who are not absorbed in an erotic stimulus may be open to distracting thoughts, increasing the probability that they will become fixated on a critique of the unappealing aspects of the erotic film excerpt (Masters & Johnson, 1970). This critique in turn decreases the likelihood that the participant will focus on the pleasurable feelings associated with the experience of arousal (Cranston-Cuebas & Barlow, 1990). The cognitive load required to maintain this critique has a detrimental impact on sexual responsivity, resulting in the low levels of subjective sexual arousal associated with the spectatoring (low absorption) condition. Alternatively, participants who were highly absorbed in the erotic film excerpt were open to the experience of sexual arousal, thereby increasing their subjective sexual arousal in response to erotic film.

The reported relationship between absorption and positive affect may also be understood in this context. Basson's (2002) model of female sexual arousal places
emotional processing of an erotic stimulus at par with sexual processing. While Basson suggests that these processes may diverge at times, particularly at low levels of arousal, the correlation between these variables is likely to increase at higher levels of arousal. Given the strong association between women’s emotional and cognitive processing of sexual stimuli, it stands to reason that absorption would have a similar impact on both processes (Koukounas & McCabe, 1997). In short, women who are actively absorbed and immersed in an erotic film should be more likely to respond to the film favourably, as they are less likely to become distracted by other, competing stimuli. Moreover, absorbed individuals are likely to be more aware of their feelings in response to the erotic stimulus, as their attention is focused and directed on their experiences in relation to the erotic film.

Due to the dearth of literature pertaining to the effects of absorption on women’s cognitive and emotional processing during sexual arousal, the present study explored the nature of the relationship between these variables. It is important to note however, that the present study acted only as a pilot, providing a framework for further research. As such, there a number of limitations associated with the exploratory nature of this research.

The present study compared and contrasted the effects of high and low absorption on women’s subjective sexual arousal and positive and negative affect in response to erotic film. While the findings reported have merit in a laboratory context, it is difficult to predict the impact that differing degrees of absorption may have in other contexts. Moreover, the results reported were specific to erotic film. As sexual arousal may occur in a number of situations, in response to a number of different
erotic genres, it is important that future research examine the impact that absorption has on sexual arousal elicited in response to various genres, such as erotic fantasy.

The generalisability of the findings are also limited due to the small sample size used. The present study examined the responses of 62 women. While a small sample such as this is acceptable for pilot research, further research incorporating a larger sample of women is recommended in order to increase the generalisability of the findings and substantiate the results reported.

Aside from recruiting a larger sample of women, future research may also wish to employ a distraction task to assess participants' absorption in response to the two sets of test session instructions. As this approach provides an objective assessment of absorption, it reduces the effects of response bias that may complicate the interpretation of participants' subjective reports (Adams, Haynes, & Brayer, 1985).

Distracter or secondary tasks have been used throughout the literature as an objective measure of attentional commitment and absorption (Adams et al., 1985; Farkas, Sine, & Evans, 1979). This approach is grounded in the theory that humans have a limited capacity to process information (Koukounas & Over, 1999). While two tasks can be performed concurrently without interference when the combined demands are within attentional resource limits, when this limit is exceeded, the tasks are processed in accordance with the level of priority each has been accorded (Posner & Boies, 1971). Thus, researchers may assess the degree to which participants have absorbed themselves in an erotic stimulus by incorporating an additional task designed to
distract attention from the erotic or ‘primary’ stimulus, exceeding the participants’ attentional resource limits.

Theoretically, women who receive the participant-oriented instruction set will be highly absorbed in the erotic stimulus. As such, they would have fewer resources to allocate to the additional ‘distractor’ task, resulting in a poor performance.

Alternatively, women who receive the spectator-oriented instructions may be more susceptible to the distractor task, as they may not be highly engaged in the primary erotic stimulus. Thus, these participants will be expected to record a more impressive performance on the secondary task.

While researchers such as Koukounas and Over (1999) have utilised the secondary task technique to objectively assess participants’ absorption and subjective sexual arousal in response to erotic stimuli, few researchers have employed this technique with women subjects. Moreover, the few studies that have examined the responses of females have assessed participants’ baseline absorption, without experimentally manipulating this variable to compare and contrast the effects of low and high absorption (Adams et al., 1985). As such, future research examining the effects of high and low absorption on women’s cognitive and emotional processing of erotica may wish to employ additional measures of absorption, providing an objective and subjective assessment of this construct. Given Rosen and Beck’s (1988) recommendation that the sexual information processing approach to erotic stimulation incorporates physiological indices of attention, the secondary task technique appears to be an appropriate measure.
In conclusion, Study Two examined the effects of differing degrees of absorption on women’s cognitive and emotional processing of erotic film. The degree to which participants absorbed themselves in the erotic film was manipulated at two levels (high vs. low), using different sets of test session instructions. The results indicated that women who were highly absorbed in the erotic film reported more favourable responses to the film overall, including greater subjective sexual arousal and greater positive affect. A high correlation between participants’ absorption, subjective sexual arousal and positive affect in response to the erotic film excerpt was also noted, providing further evidence of the multidimensional nature of female sexual arousal.
CHAPTER TEN: IMPLICATIONS OF THE PRESENT STUDIES AND RECOMMENDATIONS FOR FUTURE RESEARCH

The primary objective of the present thesis was to examine women’s cognitive and emotional processing of erotic film during sexual arousal. The thesis also aimed to investigate the nature of the relationship between women’s cognitive, affective and subjective experiences of arousal. In order to do so, two integrated empirical investigations were conducted. Study One examined the effects of two film specific variables – foreplay and erotic context – on women’s cognitive and emotional processing of erotica. This study also examined the relationship between women’s cognitions, emotions and their feelings of subjective sexual arousal in response to erotica. Study Two examined the role that absorption may play in facilitating women’s subjective sexual arousal and their cognitive and emotional processing of erotic film. Specifically, Study Two examined the effects of high and low degrees of absorption on these variables. The results of these studies have significant implications for current conceptualisations of female sexual arousal.

The effects of film specific variables on women’s cognitive and emotional processing during sexual arousal

In order to ascertain the influence that film specific variables have on women’s cognitive and emotional processing of erotica, Study One examined the effects of two film specific variables - foreplay and erotic context - on women’s sexual information processing. Consistent with predictions, the amount of foreplay shown within the four erotic film excerpts and the context in which the sexual activities took
place, both had a significant impact on women's subjective sexual arousal.

Specifically, the high foreplay, novel context erotic films were rated as the most subjectively arousing by participants. The amount of erotic foreplay depicted had a significant impact on women's cognitive and emotional processing. Specifically, women in the study reported greater degrees of positive affect and absorption in response to the high foreplay erotic film excerpts, compared with the low foreplay erotic film excerpts. Based on these results, it may be tempting to surmise that the integration of a longer period of foreplay and a novel erotic context will assist in the creation of highly appealing and arousing erotic films. While the women sampled in this research found the high foreplay, novel context excerpts arousing, it would be erroneous to draw such a broad conclusion based on the results presented, as there is a number of variables that may influence the interpretation and appraisal of film specific variables.

One factor identified within the literature, which may influence women's interpretation and appraisal of film specific variables, is individual preference. Many authors in the field assert that female sexual arousal is a highly complex and dynamic process which is initiated by the presentation of sexual stimuli, but mediated by the woman's own sexual preferences (Mosher & Maclan, 1994). Factors that may influence individual preferences include gender, age, ethnicity, personality and previous sexual experiences (Byrne & Schulte, 1990; Laan, Everaerd, van der Velde, et al., 1995; Mosher & Maclan, 1994). As an illustration, while some women may find erotic films in which the man 'takes charge' of the sexual encounter appealing, women who have had a coercive sexual encounter may find such materials distasteful.
The notion that individual preference may play a role in mediating women's interpretation and appraisal of erotic stimuli was supported by the large variation in the responses of the women sampled in Study One. While the majority of participants found the high foreplay erotic film excerpts sexually arousing and emotionally appealing, there were other participants who found the low foreplay erotic excerpts similarly appealing. In a similar manner, some participants in the study experienced little to no subjective sexual arousal or positive affect in response to the high foreplay, novel context excerpt, highlighting the role that individual preferences may play in the cognitive interpretation and appraisal of an erotic stimulus.

Another factor that may have influenced the interpretation and appraisal of the erotic films presented within this thesis are other film specific confounding variables. As noted previously, while every effort was made to match the erotic film excerpts as closely as possible, with the exception of the independent variables under consideration, this is impossible to do without producing erotic materials specifically for research purposes. Thus, there are a number of factors that may have influenced women's interpretation and appraisal of the excerpts, aside from the foreplay and erotic contexts depicted. These include aesthetic variables such as the attractiveness of the actors and the attire worn, and technical variables such as the camera angles used (Laan et al., 1994). To study the effects of each variable would be futile, as the integration of several film specific variables may again act to either enhance or reduce the effects of the specific variable under investigation. What may be
concluded from the results reported within Study One, is that film specific variables have the potential to significantly influence women’s sexual information processing.

One final variable identified within the literature as having a significant impact on women’ sexual information processing during an erotic presentation is the environment in which the erotic stimulus is shown (Laan, Everaerd, van der Velde, et al., 1995). Basson (2002) asserts that the context in which an erotic stimulus is presented may influence the interpretation and appraisal of that stimulus. In the present study participants understood that they were participating in a study examining the sexual arousal patterns of women. As such, sexual responses were not only permitted, they were expected. This expectation may have mediated women’s responses to the films by priming them to respond sexually, subsequently increasing their arousal in response to the films. How relevant such laboratory findings are to women outside of a laboratory environment however, remains unclear. In other settings, visual cues are often less relevant, whereas sexual stimuli associated with emotional intimacy are relevant (Basson, 2000, 2002; Schultz, van de Wiel, & Hahn, 1992; Tiefer, 1991).

In sum, the results of Study One suggest that the intrinsic qualities of an external sexual stimulus have the potential to directly influence women’s subjective arousal responses. This relationship appears to be complex however, and is potentially influenced by other mediating variables such as individual preferences, the context in which the stimulus is presented and other film specific, confounding variables such as the attractiveness of the actors used (Laan et al., 1994; Laan, Everaerd, van der Velde, et al., 1995; Mosher & Maclan, 1994). Thus, while future researchers should
be mindful of the potential effects that nonverbal cues such as foreplay and erotic context may have on subjective sexual arousal, these results are not definitive. Broadly, it may be concluded that researchers and clinicians working in the field need to consider the myriad of influences, both subtle and overt, that may influence women’s cognitive and emotional processing of erotic film.

*Empirical implications of the findings*

In order to overcome some of the limitations posed by individual preferences, erotic context and other film specific confounding variables, future researchers would be advised to conduct a pilot study examining the impact that their erotic films have on the specific sample under investigation. A pilot study taking a small sample of the population under investigation and using a broad range of potential erotic stimuli, would aid researchers in selecting the films that appeal the most to their specific sample.

Generally, the methodology used when conducting a pilot study varies depending on the specific aims of that study. Researchers wishing to examine women’s sexual arousal in response to erotic film would however, be advised to take some basic recommendations into account. First, researchers should attempt to find a broad range of erotic films made by different production companies for their research. This recommendation is particularly salient as erotic films vary measurably with regards to their quality, content and representation of the actresses used in the film (Mosher & Maclan, 1994). An additional advantage of this approach is that it increases the generalisability of the findings.
Secondly, researchers should conduct a quantitative study using a small sample taken from the population being studied. This approach is designed to highlight not only the role that individual preferences may play in the interpretation of erotic film, but also, the effects that additional variables, such as the room used during the study or the questionnaire format, have on participants’ responses.

**Clinical implications of the findings**

Aside from further empirical endeavours, the findings pertaining to the effects of stimulus specific variables on women’s cognitive and emotional processing during sexual arousal have important implications for clinical practice. Specifically, this finding implies that clinicians need to take external, stimulus specific factors into account when diagnosing and treating sexual dysfunctions, such as Female Sexual Arousal Disorder (FSAD) (American Psychiatric Association, 2000). FSAD may be defined as “the persistent or recurrent inability to attain or maintain sufficient sexual excitement causing personal distress” (Rosen, cited in Basson, 2000, p.58). Previous assessments of FSAD have focused predominantly on the symptoms of the dysfunction, such as the absence of arousal, without due consideration of the role that external factors may play in precipitating or at least maintaining the dysfunctional response. By identifying these factors and addressing them directly, changes in the dysfunctional response may follow. Take for example, a couple seeking treatment due to the woman’s apparent inability to achieve or sustain arousal. In the past treatment may have focused on her physiological responses during this scenario, emphasising the role of factors such as hormones (Masters & Johnson, 1970).
In many cases however, the dysfunction may be precipitated, not by a physiological inability to achieve or sustain arousal, but by difficulties initiated by the interpretation and appraisal of external sexual cues, or indeed the absence of such cues. There may in fact be a number of women diagnosed with FSAD who are capable of achieving adequate sexual arousal in response to different types or forms of sexual stimuli. When faced with unappealing erotic stimuli however, these women produce little to no evidence of physiological sexual arousal, resulting in the assumption that they are, in fact, incapable of such a response. Thus, stimulus specific variables may influence a woman’s ability to achieve and maintain an adequate arousal state.

Masters and Johnson (1966) were amongst the first researchers to highlight the influence that stimulus specific variables may have on sexual arousal and thus, on the diagnosis and treatment of FSAD. Masters and Johnson argued that FSAD could be better understood by drawing a distinction between what they called ‘total’ and ‘situational’ dysfunction. According to these authors, the term total dysfunction refers to women who are unable to achieve an arousal state under any circumstances, irrespective of the erotic cues presented. By contrast situational dysfunction refers to women who are able to achieve arousal in response to specific erotic cues that they find appealing, but not in response to other erotic cues or in the presence of their sexual partner.

If the results of the present thesis were interpreted using Masters and Johnson’s (1970) model of female sexual arousal disorder, it might be suggested that, in some
cases, situational dysfunctions are precipitated by subtle external variables such as the presentation of inadequate sexual cues. This theory would provide some support for the use of clinical treatment methods such as directed masturbation, which focuses on identifying the types of stimuli that the ‘sexually dysfunctional’ woman finds appealing, as opposed to those that focus on the physiological aspects of the dysfunction, namely, inadequate genital arousal (Heiman & Meston, 1997). As an illustration, a woman diagnosed with FSAD may not find her partner sexually appealing. When encouraged to explore other sexual avenues however, she may find that erotic films that place an emphasis on romance or the woman’s own sexual gratification are arousing for her. Clinicians treating the couple are therefore given avenues for further treatment recommendations, such as integrating some of these erotic films into the couple’s sexual encounters, or replicating the content and mood of these films as a part of their own sexual interactions.

The effects of absorption on women’s cognitive and emotional processing during sexual arousal

Study Two examined the role that absorption may play in facilitating women’s cognitive and emotional processing during sexual arousal. Specifically, this study examined the effects of low and high degrees of absorption on reported ratings of subjective sexual arousal, positive affect and negative affect. The results indicate that the degree to which a woman attends to and immerses herself in a sexual stimulus will have a significant impact on her subjective sexual arousal and positive affect in response to that stimulus, such that women who are highly absorbed in an erotic stimulus will experience greater subjective sexual arousal and positive affect than
women who are not absorbed in an erotic stimulus. Based on these results it may be concluded that absorption plays a key role in women's cognitive and emotional processing during sexual arousal. Consistent with the predictions of Bancroft (1989), absorption appears to have the potential to facilitate women's sexual responses.

Research and literature in the field of sexual dysfunctions suggests that distraction has the potential to inhibit sexual arousal, as women who are distracted by non-sexual stimuli are less focused on their own sexual responses and as such, less immersed in the experience of sexual arousal (Cranston-Cuebas & Barlow, 1990; Masters & Johnson, 1970). Based on this literature, Bancroft (1989) surmised that the reverse may also be true – women who are not distracted but are in fact absorbed by an erotic stimulus may therefore report greater feelings of subjective sexual arousal, as they are focused intently on the sexual stimulus and as such, likely to be open to and aware of the experience of arousal.

In support of this theory, the results of the present thesis indicate that the degree to which a woman attends to an erotic stimulus will have a direct impact on her cognitive processing of that stimulus, effectively overriding the efficacy of an arousing erotic film. Specifically, when participants in Study Two were poorly absorbed in the erotic stimulus they reported little to no subjective sexual arousal in response to the stimulus. These results were consistent across participants, despite the fact that the erotic film excerpt they were asked to watch was rated by a similar demographic sample as being arousing and appealing.
Thus, consistent with Bancroft's (1989) claims, women who are poorly absorbed in an erotic stimulus are more likely to be distracted by competing stimuli, less likely to focus on their own subjective arousal and as such, less open to the experience of sexual arousal. The cycle appears to exist irrespective of the appeal of the sexual cues presented. By contrast it appears that women who allocate adequate attentional resources to an erotic stimulus have a greater capacity to appraise that stimulus. If positive qualities are identified during this appraisal, the woman is more likely to respond favourably, initiating a cycle that results in the subjective experience of arousal. In sum, consistent with Bancroft's model of female sexual arousal, the results of Study Two indicate that the degree to which a woman attends to and immerses herself in an erotic stimulus will have an influence on her subsequent cognitive and emotional processing of that stimulus, as well as her subjective arousal state.

*Implications and recommendations for future research*

The role that attentional factors may play in the sexual information processing of women was also highlighted by Basson (2002). Basson did not however, assert that absorption may facilitate women's arousal responses. Rather, Basson claimed that the degree to which a woman is subjectively aroused by an erotic stimulus will mediate her motivation to attend to the stimulus and as such, the degree to which she pays attention to and immerses herself in the stimulus. While this may be the case, the results of Study Two did not focus on this interaction, highlighting instead the impact that absorption has on subjective sexual arousal, and not the reverse. Theoretically however, Basson's claims are plausible.
Based both on the results presented within the present thesis and Basson’s (2002) model, it is hypothesised that the relationship between subjective sexual arousal and absorption is bi-directional, with shifts in one state effecting changes in the other, and so forth. Some degree of attentional commitment is required however, to initiate this process, as women need to focus on a sexual stimulus before a state of subjective sexual arousal can be achieved. Testing this hypothesis empirically however, may prove difficult.

One way in which this theory may be empirically evaluated is by assessing shifts in attentional commitment and subjective sexual arousal over time. Shifts in participant’s subjective sexual arousal during the presentation of an erotic stimulus may be assessed using a continuous measure of subjective sexual arousal, such as a potentiometer (Wincze et al., 1977). Participants use a mechanical lever on this device to indicate any shifts that occur in their subjective sexual arousal during the course of the erotic presentation. The lever moves across ten scaled points and is linked directly to a light monitor linked below the television screen so that participants can reflect on their choices without distracting them from the erotic stimulus.

Researchers in this study may instruct participants to report their absorption in conjunction with changes that occur in their subjective arousal state, providing an evaluation of the shifts that occur in both of these processes and also, the degree to which these changes correlate with one another. Based on the results reported within
the present thesis it is hypothesised that there will be a high positive correlation between these measures.

Clinical implications of the findings

Given further empirical support, the data indicating that attentional allocation has the potential to moderate women's cognitive and emotional processing during sexual arousal may also have significant implications for clinical practice. These findings are particularly relevant to current conceptualisations of, and treatments for, sexual dysfunctions such as FSAD. While much of the current theory and practice associated with this disorder focuses on physiological arousal, FSAD may also be understood in terms of shifts in the women's attentional commitment during a sexual encounter. Rather than having a 'dysfunctional' arousal response, many women diagnosed with FSAD may in fact experience shifts in their attentional commitment when attending to a sexual stimulus, becoming poorly absorbed, distracted and as a result, no longer aroused. This effect may be evident irrespective of the type of sexual stimulus used, as the results reported within this thesis indicate that attentional allocation effectively overrides the cognitive appraisal of an erotic stimulus, decreasing the potential that an appealing erotic stimulus has to arouse a woman. Thus, if supported, the results reported within this research provide an alternate explanation for the aetiology of FSAD, relating to changes in attentional commitment over time.

If FSAD is precipitated or at least maintained by shifts in attentional focus during sexual stimulation, then these results may also have important implications for the
treatment of FSAD. The success of Sildenafil in treating male erectile dysfunction (thought to be the male equivalent of FSAD) has brought increasing attention from drug companies and other funding bodies to develop an effective pharmacological treatment for FSAD (Meston, 2000). The results of this and other research however, suggest that pharmacological treatments for FSAD may not be as effective as Sildenafil, as sexual arousal in women has equally important cognitive, emotional and attentional components that need to be addressed.

As opposed to pharmacological treatment, clinicians may find that Masters and Johnson’s (1970) 'sensate focus' represents a more effective approach in the treatment of FSAD. Sensate focus is based on a systematic desensitisation program, directing participants to focus and absorb themselves in simple, manageable sexual scenarios, all the while assessing the comfort of the participants. When a woman is able to immerse herself in an activity, for example, watching an erotic film, and experience pleasant emotions as a result, she is deemed to have completed that phase of the intervention and the next step in her personal arousal hierarchy is assessed. As the results of the present study emphasise the significant effect that attentional allocation and in particular, absorption, has on woman’s subsequent arousal, it may be hypothesised that a program aiming to increase absorption in response to individualised erotic cues would be highly effective.

The relationship between cognitive and emotional processing during sexual arousal

The results presented within the present thesis have important implications in terms of current conceptualisations of female sexual arousal. Historically, research
examining female sexual arousal has emphasised the peripheral physiological changes that occur during arousal, while neglecting the cognitive and affective components of this response (Rosen & Beck, 1988). Empirical evidence suggests however, that physiological changes alone are not sufficient to account for the range of changes that accompany sexual arousal in women (Heiman, 1977; Rosen & Beck, 1988).

In an attempt to encapsulate the complete range of experiences that coincide with female sexual arousal, recent multidimensional models have integrated the physiological, cognitive and affective components of this response (Bancroft, 1989; Basson, 2002; Masters et al., 1993). The manner in which these elements are incorporated however, and the hypothesised relationships between various elements, differ between models (Bancroft, 1989; Basson, 2002; Masters et al., 1993). This approach is far removed from unidimensional approaches, which propose that any cognitive or emotional changes that occur during arousal are simply by-products of the woman’s earlier, physiological response (Masters & Johnson, 1966).

When considered in unison, Studies One and Two provide empirical evidence supporting the integration of cognitions and emotions in multidimensional models of female sexual arousal. When the women sampled in this thesis were presented with erotic stimuli that they found appealing and arousing, a high correlation was noted between their feelings of subjective arousal and positive affect. Further examination of the results indicates that these variables generally increased and decreased in unison, indicating that some form of parallel processing may have been occurring. While multicollinearity is an issue that must be raised in cases where independent
variables are highly correlated, the magnitude of the correlations in this thesis is not high enough to suggest this problem, supporting their inclusion as separate elements in multidimensional models of female sexual arousal. These results are consistent with those reported by Heiman (1980), who studied women's physiological, affective and cognitive responses to different erotic stimuli.

Heiman (1980) reported that participant's subjective sexual arousal was highly correlated with a range of positive mood states, including ratings of liking, enjoying and being interested. Negative affect was significantly associated with physiological arousal, but not with subjective ratings of arousal. Based on these results Heiman concluded that subjective and physiological sexual arousal may operate somewhat independently, and may be influenced by separate emotional factors. Further support for multidimensional models of female sexual arousal has been provided in a range of empirical research, in response to erotic film (Koukounas & McCabe, 1997; Koukounas & McCabe, 2001), fantasy (Tokatlidis & Over, 1995), audiotape (Dekker et al., 1985) and literature (Herrell, 1975; Mosher & Greenberg, 1969).

In order to better understand the nature of sexual arousal in women, it may be useful to investigate how the results of the present thesis may be integrated into the multidimensional models of female sexual arousal proposed by Bancroft (1989) and Basson (2002).
Evaluation of Bancroft's model of female sexual arousal and its relevance to the findings of the present research

Bancroft (1989) identified two elements of sexual arousal that are relevant to the findings reported within the present thesis. These are sexual appetite and central arousal. According to Bancroft, sexual appetite is the result of complex interactions between cognitive processes, the neurophysiological processes involved in encoding and interpreting sexual stimuli, and the prevailing affect or mood of the moment. When presented with a sexual stimulus, Bancroft asserts that the stimulus is first processed and evaluated, producing thoughts of arousal. The results presented in Study One suggest that intrinsic, stimulus specific variables may influence this process. Thus, during the sexual appetite phase, stimulus specific variables are cognitively interpreted and evaluated. If this evaluation is favourable, as was the case in the high foreplay, novel context condition, an increase in sexual thoughts is likely to occur.

Bancroft (1989) asserts that the "mood of the moment" may also influence this interpretation. While this hypothesis was not addressed directly in this thesis, empirical research conducted by Laan, Everaerd, van Berlo and Rijs (1995) indicated that the induction of a positive mood state has no effect on subjective or physiological measures of sexual arousal. The results of the present research do suggest however, that stimulus specific variables have the potential to influence a woman's emotional state. In cases where the erotic stimulus is viewed as appealing or arousing, these results indicate that an increase in other, related positive emotions such as interest, enjoyment and entertainment occurs. In cases where the stimulus is
assessed as being aversive however, Koukounas and McCabe (1997) suggest that there will be a decline in subjective sexual arousal in women.

Within the sexual appetite phase outlined by Bancroft (1989), it is the combined influence of sexual thoughts and positive feelings derived from the evaluation of an erotic stimulus, which motivates a woman to seek out other sexual stimuli. In a laboratory context however, additional sexual stimuli may not be available. Under these circumstances, researchers may note an increase in the degree to which participants’ attend to the erotic stimulus presented, as it represents the only external sexual cue available.

Based on Bancroft’s model, two findings might be predicted when assessing the sexual appetite phase in a laboratory environment. Firstly, one would expect a high correlation between positive affect and subjective sexual arousal, as was the case in the two studies reported within this thesis. Secondly, one would expect moderate degrees of absorption during the presentation of erotic stimuli, as was the case in Study One, and the high absorption condition of Study Two.

The findings reported within the present thesis may also be integrated into the central arousal component of Bancroft’s (1989) model. Within this model, central arousal refers to the woman’s feelings of subjective sexual arousal, the nervous system activation initiated both by these feelings and by the sexual appetite component of arousal and the degree to which the woman continues to attend to the sexual stimulus. If distraction occurs during this process, Bancroft asserts that it will have a
detrimental impact on subjective sexual arousal, lowering or inhibiting the woman's overall feelings of arousal.

Based on this model, it may be hypothesised that exposure to arousing erotic stimuli presented within this thesis and the pleasurable thoughts and feelings associated with this exposure, increased participants' sexual thoughts and feelings. These processes are likely to have been positively reinforcing, encouraging participants to engage in other sexual thoughts and feelings, also motivating them to continue to attend to the erotic stimulus. At the same time, the increase in central nervous system activation associated with this phase is registered, either consciously or unconsciously, contributing to an overall sense of arousal.

Finally, Bancroft (1989) asserts that subjective sexual arousal, which occurs during the central arousal phase, is the product of an interaction between women's cognitive and emotional processing of sexual stimuli. This notion is again supported by the results presented within this thesis, as evidenced by the high correlations between participants' ratings of their subjective sexual arousal, absorption and positive affect. Specifically, these variables were found to increase and decrease in unison, suggesting some degree of parallel processing occurred. If subjective sexual arousal were indeed the product of an interaction between women's cognitive and emotional processing, as Bancroft suggests, one would expect to see evidence of a relationship between these variables, as suggested by the correlations reported within this thesis. It is however, important to reiterate that the results reported within this thesis are correlational, not causal. As such, future research assessing the nature of the
interaction between women's cognitive and emotional processing during central arousal is certainly warranted.

Bancroft (1989) outlines the role of two additional processes that occur during female sexual arousal – genital arousal and peripheral arousal. While physiological responses may have played a role in the arousal responses of the women assessed within this research, physiological sexual arousal was not evaluated directly in the present thesis. As such, these components will not be reviewed further.

Overall, the results of the present study appear to be reasonably consistent with Bancroft's (1989) model of female sexual arousal. While Bancroft does not highlight specifically the effects of stimulus specific variables on the cognitive interpretation and evaluation of erotic stimuli, he does note that the cognitive evaluation of erotic stimuli is important during the sexual appetite phase of arousal. Bancroft also notes that sexual thoughts and feelings both occur during the sexual appetite phase. If both components play an integral role in sexual appetite, one would expect a high correlation between them. This assertion was supported by the high correlation noted between participants' cognitive and emotional processing of erotic film. Finally, Bancroft asserts that attentional processes contribute to this process, effecting women's subjective experiences of arousal. Again, this assertion was supported by the results presented within this thesis, suggesting that this model may be relevant in the future study of female sexual arousal.
Evaluation of Basson's model of female sexual arousal and its relevance to the findings of the present research

According to Basson (2002), the process of arousal is initiated by a sexual stimulus. Basson then asserts that the intrinsic properties of the stimulus are cognitively appraised, as is the context in which the stimulus is presented. This component of Basson's model is consistent with the findings of Study One, which suggest that the cognitive evaluation of stimulus specific variables has a direct impact on women's subjective sexual arousal.

While not directly implicated in Basson's (2002) model, attentional factors also appear to contribute to this cycle, moderating women's cognitive interpretation of sexual stimuli and as such, their subjective arousal. This highlights one of the potential flaws in Basson's model. While Basson claims that subjective sexual arousal may influence a woman's motivation to remain focused on an erotic stimulus, she fails to account for the influence that absorption may have on subjective sexual arousal. As such, Basson may wish to consider the inclusion of a bi-directional relationship between absorption and subjective sexual arousal in future revisions of her model.

In terms of the emotional processing of erotic stimuli, Basson (2002) asserts that women's emotional responses during arousal may occur in direct response to changes in genital vasocongestion. She adds that subjective sexual arousal may also elicit an affective response, although in this case, the relationship is thought to be bi-directional. While these assertions were not assessed directly in the present thesis, it
should be noted that a high positive correlation was found to exist between participants’ reports of their subjective sexual arousal and positive affect. This finding was consistent in both of the studies reported, providing some support for Basson’s assertion that these variables are related. The precise nature of their relationship however, is unclear.

In sum, while the results of the present thesis provide support for the inclusion of some features of Basson’s (2002) model, the results are not entirely consistent with this model. As outlined by Basson, the results of this thesis suggest that stimulus specific variables have a significant influence on women’s sexual information processing of erotica. These results also suggest that women appraise the nature and content of an erotic stimulus before allowing the experience of subjective sexual arousal to occur. While Basson made a vague reference to the effects that subjective sexual arousal may have on women’s attentional capacity in response to erotic film, the results of Study Two suggest that the reverse is also true. Thus absorption also has a significant impact on women’s subjective sexual arousal state. As such, the inclusion of a bi-directional relationship between these variables should be considered in future revisions of Basson’s model. Finally, while Basson asserts that emotional responses during sexual arousal are generally mediated by either genital or subjective sexual arousal, the results reported in Study One suggest that women’s emotional responses during arousal may also be directly mediated by external stimulus specific variables. Thus, while many of the features of female sexual arousal identified by Basson are consistent with the present research, the direction and nature of the interrelationships asserted by this author do not appear to be entirely consistent with the findings reported within this thesis.
Overview of multidimensional models of female sexual arousal

The preceding material examined how the findings reported within the present thesis may be integrated into Bancroft (1989) and Basson’s (2002) models of female sexual arousal. As noted previously, the results reported within the present thesis are not entirely consistent with Basson’s model of female sexual arousal. The results presented within the present thesis also suggest that revisions to Bancroft’s model may be in order, placing a stronger emphasis on the role that attentional processes play during sexual arousal. In light of the limitations of the models reviewed, a revised model of female sexual arousal should be considered, integrating the findings reported within the present thesis with past research and theory. While it is beyond the scope of the present thesis to propose and empirically evaluate a revised model of female sexual arousal, the following recommendations are made for future researchers.

Based on the results of Study One, it is suggested that revised models of female sexual arousal take into account the effects that stimulus specific variables may have on women’s cognitive and emotional processing during sexual arousal. As seen in Study One, subtle nonverbal cues such as foreplay and erotic context, influence the manner in which women cognitively appraise and therefore respond to a sexual stimulus. Thus, stimulus specific variables play a significant role in women’s subsequent subjective sexual arousal. These results support those of other researchers, who found that women responded with high or low degrees of subjective and physiological sexual arousal depending on the content of the erotic stimuli presented (Koukounas & McCabe, 1997; Mosher & MacIan, 1994). The way in
which stimulus specific variables influence women’s subjective sexual arousal and positive affect in response to erotic film also suggests that some degree of cognitive processing must occur before women’s affective and sexual responses are generated. As such, cognitive processing should play a key role in the initial phases of revised models of female sexual arousal. For example, the present research indicates that the cognitive interpretation and appraisal of stimulus specific variables may occur prior to subjective sexual arousal, as this appraisal has the potential to influence a woman’s subsequent estimates of her subjective arousal state.

Another suggestion that should be made in light of the high correlation between women’s attentional allocation and their emotional and sexual responses to erotic film noted within this thesis, is that the role of attentional processes should be specifically identified in revised models of female sexual arousal. The results of the present thesis indicate that high and low degrees of absorption influence women’s positive affect and subjective sexual arousal in response to erotic film. As absorption appears to play a key role in female sexual arousal, its incorporation as a separate element in revised models should be considered. While Basson (2002) and Bancroft (1989) both mention the role that attention may play during arousal, this element of women’s sexual arousal does not play a key role in either of their theories, nor is it represented as a separate element of female sexual arousal.

Rosen and Beck (1988) suggest that attentional processing be incorporated into revised models of female sexual arousal. Specifically, these authors propose that female sexual arousal should be considered from sexual information processing perspective. The fundamental premise of the sexual information processing approach
is that attentional, cognitive, emotional, subjective and physiological responses play an integral role in the processing of sexual stimuli, and as such, the arousal response.

While researchers such as Koukounas and Over (2001) have adopted the information processing approach in their empirical research, concurrently measuring participants’ sexual arousal, absorption and affective responses, few formal models of female sexual arousal have done so. While the literature discusses, in-depth, the role of distraction in precipitating and maintaining sexual dysfunction (Barlow, 1986; Masters & Johnson, 1970), relatively little regard is given to the role of attentional processing in precipitating and maintaining functional arousal responses. Given the high positive correlations between women’s attentional, emotional and cognitive processing demonstrated by this and other research, a revision of current conceptualisations of female sexual arousal is recommended.

The data presented within this thesis also suggests that women experience a definite emotional response when processing sexual stimuli that is distinct from their subjective sexual arousal. The term subjective arousal relates directly to women’s feelings of arousal and their enjoyment of the experience of subjective sexual arousal. The present research indicates however, that other related emotional responses may also occur following the presentation of a sexual stimulus. In the present thesis these emotions were labelled as positive and negative affect and included general feeling states such as enjoyment, entertainment, anger and disgust. These emotional responses were again influenced by the degree to which the women tested were absorbed in the erotic films. Thus, it appears that the emotional component of women’s sexual arousal may be influenced by attentional processing,
but is not restricted to sexually specific feeling states. In sum, revised models of female sexual arousal should include both subjective sexual arousal and other emotional responses as separate elements of arousal.

While not examined directly in this thesis, other researchers in the field suggest that peripheral and genital changes are also a significant component of female sexual arousal (Bancroft, 1989; Basson, 2002; Heiman, 1977; Masters & Johnson, 1966). As such, revised models of female sexual arousal should also incorporate these components, examining specifically the effects that stimulus specific factors, absorption, emotional processing and subjective sexual arousal all have on these physiological responses. Based on the data obtained in the present thesis and previous models of female sexual arousal, it is hypothesised that a bi-directional relationship exists between these elements of female sexual arousal.

In sum, future models of female sexual arousal should incorporate six main elements – external stimulus specific factors, absorption, cognitions, emotions, subjective sexual arousal and physiological arousal. The process of female sexual arousal is thought to be initiated by a sexual stimulus. In order to be effective however, the woman must first focus on the stimulus. Thus some degree of absorption is required. In the case of physiological arousal it has been asserted that the sexual stimulus must at least be cognitively labelled as being “sexual” in nature (Basson, 2002). With reference to women’s subjective sexual arousal and emotional responses to sexual stimuli however, the stimuli are registered and then cognitively appraised prior to a response occurring (Zajonc, 1984). Thus, some degree of cognitive processing is also required prior to the initiation of the female sexual response. Once initiated however,
it is hypothesised that female sexual arousal is bi-directional, with changes in one
system effecting changes in the other. As an illustration, based on the results of the
present thesis and that of other research, it may be hypothesised that women's
emotional responses to erotic film (positive or negative) and their subjective sexual
arousal responses interact, potentially creating a positive feedback loop (Koukounas
& McCabe, 1997; Mosher & MacIan, 1994). Within this feedback loop, feelings of
subjective arousal are likely to enhance other positive emotional responses such as
interest and enjoyment. Alternatively, positive emotional responses may enhance the
woman's subjective experiences of arousal to create what Masters et al. (1993)
referred to as the “total” experience of arousal.

**Recommendations for future research**

The results of the present study provide some support for multidimensional models
of female sexual arousal, highlighting the complex and dynamic relationship that
exists between women's cognitive and emotional processing during sexual arousal
and their attentional allocation. These results however, should not be considered in
isolation. The interrelationships that exist between the components of female sexual
arousal are potentially complex; two empirical investigations cannot hope to
encompass the full contingent of changes that occur. Further research needs to be
conducted, examining the interrelationships between the physiological, cognitive,
subjective, emotional and attentional components of female sexual arousal.

To further the creation of a revised model of female sexual arousal, future research
may wish to incorporate the use of a physiological measure of arousal, such as a
vaginal plethysmograph or a labial clip. The vaginal plethysmograph is an internal measure of arousal, designed to detect the changes that occur in genital vasoengorgement as the woman becomes aroused (Laan, Everaerd & Evers, 1995; Rosen & Beck, 1988). Conversely, labial clips monitor changes that occur in labial temperature during sexual arousal (Poulin, 1992).

Having conducted a study focusing solely on women's subjective sexual arousal, it would be useful to integrate an additional measure of physiological arousal, such as the vaginal plethysmograph, into the methodology described in Study Two. The aim of a proposed study would be to investigate the effects of attentional allocation on women's physiological, emotional and cognitive responses to erotic film. In order to do so, participants might be asked to read one of two sets of test session instructions. The first participant-oriented instruction set would be similar to that described in Study Two. It would therefore instruct participants to watch the erotic film as if they were participants in the sexual activities depicted, becoming actively absorbed and immersed. The second spectator-oriented instruction set would direct participants to view the erotic film as if they were uninvolved spectators of the sexual exchange. These test session instructions are designed to direct participants' attentional allocation, creating high and low degrees of absorption, respectively, as Koukounas and Over (2001) did.

In the proposed study, participants' physiological responses would be assessed throughout the erotic tape presentation, with their mean level of physiological arousal established during data analysis. In a similar manner to the procedure described in Study Two, participants would also be asked to report their subjective
sexual arousal, absorption and positive and negative affect at the conclusion of the
tape presentation. This study would allow for further comparison to be made between
participants' physiological and subjective sexual arousal responses. It would also
allow for an assessment of the effects of differing degrees of absorption on women's
subjective and physiological sexual arousal, thus extending the data reported within
the present thesis.

Research examining the effects of differing degrees of absorption on women’s
subsequent subjective and physiological sexual arousal would be particularly
interesting given that theoretically, the mechanisms of subjective and physiological
sexual arousal differ (Bancroft, 1989; Basson, 2002). According to Basson (2002),
genital vasocongestion (physiological arousal) is a response that requires little
cognitive input, particularly when compared with subjective sexual arousal, a central
nervous system response that relies predominantly on cognitive processing.

Given the differences in cognitive processing required to precipitate genital and
subjective sexual arousal responses in women, it is hypothesised that absorption will
have a differential impact on these processes, with absorption playing a potentially
more important role in subjective sexual arousal than physiological arousal. As
attentional commitment is a conscious, voluntary process, it stands to reason that it
would have a greater impact on subjective arousal, which is also a conscious,
voluntary process, than on genital arousal which requires little cognitive input
(Basson, 2002). Future research examining the influence of absorption on women’s
physiological and subjective sexual arousal is certainly warranted. Combining
physiological and subjective measures of sexual arousal, absorption and emotional
processing in response to erotica in a single study will help obtain a better understanding of the way in which women process sexual stimuli.

It may also be useful to incorporate a physiological measure of emotional processing in future research, comparing the results with the subjective assessments of emotional arousal reported within the present thesis. The primary advantage of physiological measures of emotional processing is that, unlike subjective measures, they are not subject to the confounding influence of response bias (Meston, 2000). Physiological measures of emotional processing also reduce the possibility that women's emotional responses to erotic stimuli are a direct reflection of their feelings of subjective sexual arousal. One tool used to measure the nature of emotional processing during erotic stimulation is the startle reflex response (Koukounas & Over, 2000; Koukounas & McCabe, 2001).

Theoretically, emotional processing during erotic stimulation (primary task) can be assessed by evaluating the magnitude of participants' eyeblink startle response to an unexpected, intense, auditory stimulus (secondary probe) presented intermittently during the erotic stimulus presentation (Koukounas & Over, 2000; Koukounas & McCabe, 2001). Research indicates that the eyeblink startle response is augmented when the attended to (foreground) stimulus and the unexpected probe match in affective content, and diminish when they differ in emotional content (Lang, Bradley, et al., 1990; Lang, Greenwald, et al., 1993). Since startle stimuli are aversive in nature, it is expected that women's startle responses would be diminished when viewing a pleasing erotic excerpt and augmented when viewing a less appetitive erotic excerpt (Lang, Bradley, et al., 1990; Lang, Greenwald, et al., 1993).
While Koukounas and Over (1997) utilised eyeblink startle to assess the emotional processing of men, the application of this measurement device to the assessment of women’s emotional processing should be considered.

Thus, the aim of a proposed study would be to investigate women’s emotional and cognitive processing of erotic film, using both subjective and objective measures of emotional processing. This would allow for comparisons to be made between the two measures. As the eye blink startle response is considered to be a measure of emotional processing it is hypothesised that eye blink startle will correlate highly with participants’ reports of their positive affect. As noted within the present research, women’s emotional responses to erotic film are generally correlated with their subjective feeling of arousal. As such, it is also hypothesised that subjective sexual arousal will correlate with both objective (eye blink startle) and subjective (self report) measures of emotional processing. Specifically, it is predicted that participants in the high absorption (participant-oriented) condition, will report moderate to high degrees of subjective sexual arousal, absorption and positive affect, with a diminished startle response. Alternatively, participants in the low absorption (spectator-oriented) condition are expected to report little to no subjective sexual arousal, absorption and positive affect in response to the erotic film excerpt. Startle responses in this condition are expected to remain at baseline.

In conclusion, female sexual arousal is a dynamic and complex process. Multidimensional models of female sexual arousal tend to highlight the cognitive, affective and physiological components of this response. The results of the present thesis have argued for extensions to models, providing empirical support for
incorporation of cognitions, emotions and subjective feelings of arousal as separate elements of women's sexual arousal. The results reported within this thesis further suggest that there are a number of factors that may influence women's cognitive and emotional processing of erotic stimuli during sexual arousal. Among these, stimulus specific factors such as foreplay and erotic context play a role, influencing women's cognitive appraisal of sexual stimuli and as such, their emotional and subjective arousal responses. Absorption also plays a role in this process, directing the degree to which a woman attends to the sexual stimulus and as such, her ability to respond to the stimulus. While the present thesis examined the causal relationship between external erotic stimulation, absorption and female's cognitive and emotional processing of erotic film during sexual arousal, the relationship between these variables is likely to be bi-directional, with changes in one variable effecting changes in the other. Based on the results presented within the present thesis, it is suggested that multidimensional models specifically consider the importance of external, stimulus specific factors and attentional focus when conceptualising female sexual arousal.
REFERENCES


HELLO

Are you:

• 18 years of age or over?

• a heterosexual female?

• Interested in participating in research examining female sexuality?

If you answered yes to these questions we would like to hear from you!

My name is Jade Sheen and I am seeking heterosexual women to volunteer for a study investigating female sexual arousal. The research, which has been approved by the Deakin University Human Research Ethics Committee, involves watching a brief sexually-explicit film clip, classified as Non-violent Erotica by the Australian Board of Film and Literature Classification. Upon completion of the film you will be asked to complete an anonymous questionnaire. The anonymous questionnaire is designed to assess your reactions to the film, and also asks you to provide some demographic information and information about your own sexual behaviours. You will not have to commit yourself to participation before discussing the procedures involved in the research with the experimenter. This research is being conducted in partial fulfilment of the requirements of the Doctor of Psychology (Health), under the supervision of Dr. Eric Koukounas. If you are interested in obtaining further information please contact myself on 0408030639 or Dr Eric Koukounas on (03) 9244 6855.

APPENDIX B
Strictly confidential

Assessment of emotional responses to erotica

It is very important when conducting research into sexual arousal to obtain detailed descriptions of the subject sample. For this reason, some of the questions asked in this booklet are personal in nature. Some demographic information about you will be collected, along with information regarding previous sexual behaviours. This booklet contains a number of questionnaires, which will elicit this information. These are:

1) **Scale A:** assesses your emotional responses to the film excerpt across 12 predetermined factors.

2) **Scale B:** the subject information questionnaire which will collect demographic information

This study is completely anonymous so nobody will know how you have responded to any of the questionnaires. Therefore, when filling out this booklet, do not put your name on it. It is important to fill out questionnaires without going back and changing your answers. Try to be as accurate and honest as you can when answering the questions in this booklet. Once completed, please place the questionnaire back into its envelope and seal it.

Code Number: ______________________

Date: ______________________
Scale A

Using the scale below as a guide, please give each of the 12 emotions listed a rating from 1-5:

1---------2--------3--------4--------5
Not at all    Moderately    Extremely

Eg. If you were highly amused by the film you might put a rating of 5 (extremely amused) beside the term 'amused'.

Overall, when watching the film I felt:

1. Absorbed

2. Interested

3. Disgusted

4. Distressed

5. Ashamed

6. Guilty

7. Entertained

8. Fearful

9. Enjoyment

10. Angry

11. Curious

12. Sexually aroused
Scale B

1. What is your age? ____________________________

2. What is your occupation? Full-time ____________________________
Part-time ____________________________

3. What is your marital status?

- Single - living alone or with friends
- Single – living with parents
- Single – living with lover/sexual partner
- Married
- Separated/divorced/widowed – living without partner
- Separated/divorced/widowed – living with a partner
- Other – please specify

4. Do you currently have…

- No sexual partner?
- Casual sexual partner(s)?
- A steady sexual partner?

5. Have you previously been exposed to erotic materials (including magazines, photographs, erotic literature or film)? Please circle yes or no.

Yes / No

6. Have you previously been exposed to erotic film(s)? Please circle yes or no.

Yes / No

7. If you answered yes to question 6, when was the last time you watched an erotic film?

1-2 days ago
1-2 weeks ago
1-2 months ago
6+ months
APPENDIX C

DEAKIN UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE
PLAIN LANGUAGE STATEMENT

My name is Jade Sheen and I am enrolled in the Doctor of Psychology (Health) program at Deakin University. As part of my degree I am undertaking a research project under the supervision of Dr Eric Kourkounas, a lecturer in the School of Psychology, Deakin University.

The research project aims to investigate the thought processes that are associated with female sexual arousal. Our current understanding of female sexual arousal is extremely limited in scope as the majority of studies have been researched and written by males. There is a need to examine female sexual arousal from a female’s perspective, highlighting the importance of thoughts and feelings to the process of sexual arousal. Increased research in this area will allow women access to more accurate data concerning their sexuality and the unique elements of female sexual arousal. More specifically, this study will examine the influence of different types of erotic films on participant’s reports of sexual arousal and participant’s feelings towards the films.

I invite you to participate in this research study. If you agree you will be required to watch a 10 minute, sexually explicit film clip depicting a male and female couple engaging in sexual intercourse. After watching the film presentation you will be asked to fill out a questionnaire made up of four different sections. Section A asks you to rate your responses to the film clip, on a five point scale, across 10 different emotions. For example, if the film clip entertained you, you might give a response of 4, for ‘highly entertained’, on the rating scale given. This section will also rate your feelings of arousal during the film clip and how focused you are on the film clip. Section B asks you to state your age, occupation and other relevant demographic data.

The video will be presented in a private room. You will be the only person present in the room during the film presentation. Total completion time is expected to be approximately 25 minutes.

All participants will be required to state their full names on the Consent Forms signed prior to the video presentation. These will be stored in a locked cabinet and kept separately from the questionnaires; that is, it will not be possible to associate your signed Consent Form with the anonymous questionnaire you complete. These anonymous questionnaires will be allocated a code number for data analysis. In this way we can ensure appropriate data analysis and still ensure that all the responses you provide will remain anonymous. In reporting the research, no individual will be identified, and all records, questionnaires and consent forms will be stored in a secure place. A summary of the group findings will be made available to you upon request.

You are free to withdraw from the study at any time. In this event your participation in the research project will immediately cease and information already obtained will not be used. If you have any further questions regarding the study, please contact me at the School of Psychology on (03) 9244 6042.

Please note: Due to the sexually explicit nature of the film clips, all volunteers must be 18 years or older to participate.

Should you have any concerns about the conduct of this research project, please contact the Secretary, Ethics Committee, Research Services, Deakin University, 221 Burwood Highway, BURWOOD VIC 3125. Tel (03) 9251 7123 (International +61 3 9251 7123).
APPENDIX D

Research Services
Office of the Deputy Vice-Chancellor (Research) (Melbourne Campus)

MEMORANDUM

TO:       Ms Jade Sheen
          Psychology
          Melbourne

FROM:     Secretary, Deakin University Human Research Ethics Committee (DU-HREC)

DATE:     6 December 2002

SUBJECT:  PROJECT: EC 186-2002  (Please quote this project number in future communication.)
          AN EMPIRICAL INVESTIGATION OF THE COGNITIVE DETERMINANTS OF
          FEMALE SEXUAL AROUSAL

This application was considered at the DU-HREC meeting
held on 21 October 2002.

APPROVAL HAS BEEN GIVEN FOR MS JADE SHEEN, UNDER THE SUPERVISION OF DR
ERIC KOUKOUNAS, PSYCHOLOGY, TO UNDERTAKE THIS PROJECT FROM 6
DECEMBER 2002 TO 31 DECEMBER 2003.

The approval given by the Deakin University Human Research Ethics Committee is given only
for the project and for the period as stated in the application and approval. It is your
responsibility to contact the Secretary immediately should any of the following occur:
- Serious or unexpected adverse effects on the participants
- Any proposed changes in the protocol, including extensions of time.
- Any events which might affect the continuing ethical acceptability of the project.
- The project is discontinued before the expected date of completion.

In addition you will be required to report on the progress of your project at least once every
year and at the conclusion of the project. Failure to report as required will result in suspension
of your approval to proceed with the project.

M. Emery

Victoria Emery
Secretary, DU-HRBC
(03) 9251 7123
APPENDIX E

Test-session instructions

This experiment is a study of your emotional responses to erotic films. The whole experiment will take approximately 10 minutes. Please read these instructions and the attached plain language statement. Should you decide to continue, sign the consent form contained in this envelope. Once these documents have been completed, you may then watch the tape, alone, with the sound turned off.

During the tape presentation you are to act as an impartial observer, critically evaluating the scenes depicted. Following the tape presentation please complete the questionnaire in the second envelope. Do not write your name on the questionnaire at any time. Once completed please ensure that you place the completed questionnaire back in its original envelope and seal its contents. Do not write your name on the envelope.

Please begin
APPENDIX F

Test-session instructions

This experiment is a study of your emotional responses to romantic-erotic films. The whole experiment will take approximately 10 minutes. Please read these instructions and the attached pain language statement. Should you decide to continue, please sign the consent form contained in this envelope. Once these documents have been completed, you may then watch the tape, alone, with the sound turned off.

During the romantic film segment you are to try to imagine that you are actually there, experiencing the situation. Focus on the romance of the interaction portrayed. Don’t think about activities other than those in the film segment. You are engaging in the romantic, sensual acts depicted. Become absorbed into the situation. That is, immerse yourself in the situation portrayed. Concentrate not only on visualizing the scene but on your other senses as well.

Please begin the videotape
APPENDIX G

DEAKIN UNIVERSITY HUMAN RESEARCH ETHICS COMMITTEE
PLAIN LANGUAGE STATEMENT

My name is Jade Sheen and I am enrolled in the Doctor of Psychology (Health) program at Deakin University. As part of my degree I am undertaking a research project under the supervision of Dr Eric Koukounas, a lecturer in the School of Psychology, Deakin University.

The research project aims to investigate the thought processes that are associated with female sexual arousal. Our current understanding of female sexual arousal is extremely limited in scope as the majority of studies have been researched and written by males. There is a need to examine female sexual arousal from a woman’s perspective, highlighting the importance of thoughts and feelings to the process of sexual arousal. Increased research in this area will allow women access to more accurate data concerning their sexuality and the unique elements of female sexual arousal. More specifically, this study will examine the effect that attention has on women’s thoughts and feelings of arousal when watching erotic film.

I invite you to participate in this research study. If you agree, you will be required to watch a 4 minute, sexually explicit film clip depicting a male and female couple engaging in sexual intercourse. After watching the film presentation you will be asked to fill out a questionnaire made up of four different sections.

Section A asks you to rate your responses to the film clip, on a five point scale, across 10 different emotions. For example, if the film clip entertained you, you might give a response of 4, for ‘highly entertained’, on the rating scale given. This section will also rate your feelings of arousal during the film clip and how focused you are on the film clip.

Section B asks you to state your age, occupation and other relevant demographic data.

The video will be presented in a private room. You will be the only person present in the room during the film presentation. Total completion time is expected to be approximately 20 minutes.

All participants will be required to state their full names on the Consent Forms signed prior to the video presentation. These will be stored in a locked cabinet and kept separately from the questionnaires; that is, it will not be possible to associate your signed Consent Form with the anonymous questionnaire you complete. These anonymous questionnaires will be allocated a code number for data analysis. In this way we can ensure appropriate data analysis and still ensure that all the responses you provide will remain anonymous. In reporting the research, no individual will be identified, and all records, questionnaires and consent forms will be stored in a secure place. A summary of the group findings will be made available to you upon request.

You are free to withdraw from the study at any time. In this event your participation in the research project will immediately cease and information already obtained will not be used. If you have any further questions regarding the study, please contact me at the School of Psychology on (03) 92446042.

Please note: Due to the sexually explicit nature of the film clips, all volunteers must be 18 years or older to participate.

Should you have any concerns about the conduct of this research project, please contact the Secretary, Ethics Committee, Research Services, Deakin University, 221 Burwood Highway, BURWOOD VIC 3125. Tel (03) 9251 7123 (International +61 3 9251 7123).