



Butler University Digital Commons @ Butler University

Undergraduate Honors Thesis Collection

Undergraduate Scholarship

4-29-2010

Memories for sexual encounters: Sexual attitudes, personality, gender, and evidence for personal flashbulb effects

Nicholas Ryan Comotto
Butler University

Follow this and additional works at: <http://digitalcommons.butler.edu/ugtheses>

 Part of the [Cognition and Perception Commons](#), and the [Social Psychology Commons](#)

Recommended Citation

Comotto, Nicholas Ryan, "Memories for sexual encounters: Sexual attitudes, personality, gender, and evidence for personal flashbulb effects" (2010). *Undergraduate Honors Thesis Collection*. Paper 68.

This Thesis is brought to you for free and open access by the Undergraduate Scholarship at Digital Commons @ Butler University. It has been accepted for inclusion in Undergraduate Honors Thesis Collection by an authorized administrator of Digital Commons @ Butler University. For more information, please contact fgaede@butler.edu.

BUTLER UNIVERSITY HONORS PROGRAM

Honors Thesis Certification

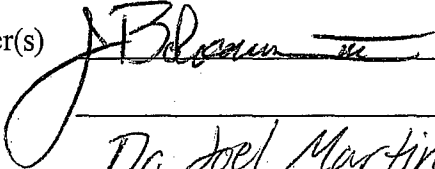
Please type all information in this section:

Applicant Nicholas Ryan Comotto
(Name as it is to appear on diploma)

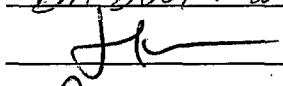
Thesis title Memories for sexual encounters: Sexual attitudes, personality,
gender, and evidence for personal flashbulb effects.

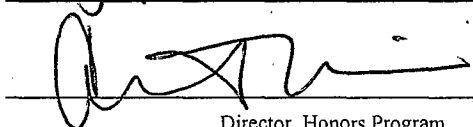
Intended date of commencement May 8th, 2010

Read, approved, and signed by:

Thesis adviser(s)  3/19/10
Date

Reader(s) Dr. Joel Martin 3/19/10
Date

 5/4/10
Date

Certified by  5/13/10
Date
Director, Honors Program

For Honors Program use:

Level of Honors conferred: University Cum Laude
Departmental Highest Honors in
Criminology and
Psychology

**Memories for sexual encounters: Sexual attitudes, personality, gender, and evidence
for personal flashbulb effects.**

A Thesis

Presented to the Department of Psychology

College of Liberal Arts and Sciences

and

The Honors Program

of

Butler University

In Partial Fulfillment

of the Requirements for Graduation Honors

Nicholas Ryan Comotto

April 29, 2010

Abstract

Recollections of first and most recent sex experiences were examined as personal flashback memories (FBM) using "open" narrative and probed recall estimates over the course of two studies. Furthermore, dimensions of gender, personality, and sexual attitudes were analyzed for their effects on sexual memory. Although both experiences were rated as equally arousing, the first sexual experience occurred with a longer delay to test and was talked about more than three times as much as the most recent experience. However, memories for most recent sexual experiences were rated as more vivid in study II. Yet, first sexual memories contained more narrative memory features than most recent memories. Personality and sexual attitudes did correlate with aspects of behavior and gender, but did not display an effect on memory. Finally, only minor effects of gender were found concerning memory. These results are discussed within the framework of FBM and human sexuality research.

Introduction

"Flashbulb" memories (FBM) are the personal details surrounding one's discovery of surprising, consequential, or emotionally arousing events (Brown & Kulik, 1977). First sexual interactions (or sex experiences) are such an event. They are personally significant, emotionally arousing, and biologically relevant. Some frequently recalled FBM elements are activity leading up to the event, emotional affect, location, source information, and aftermath. Furthermore, particular common memory functions, including delay to recall, confidence, arousal, vividness, and the number of recounts, also affect FBM (see Julian, Bohannon & Aue, 2008). This study examined memories of

sexual experience as an FBM because it had not yet been done.

Up to this point, sexual research has been mainly descriptive in nature. Due to this, there is little to no research examining sexual memories as an FBM, let alone the individual factors that affect encoding and retrieval. However, Alfred Kinsey, a pioneer in the field of sexual research, provided many ideas that influenced this study. In his descriptive works on the sexual behavior of males (1948) and females (1953), Kinsey discovered that certain groups showed variation in reported sexual behavior; including gender, ethnicity, socioeconomic class, etc. Still, this work was descriptive, taking recounts as fact without examining the recollections as memory phenomena. This led us to not only want to discover functions of sexual FBM encoding and retrieval, but to see what factors influence both the behavior and memory of sexual experiences.

Furthermore, being that first sex experiences receive so much attention, anticipation, and stigmatization by both individuals and larger social groups, memories of first sexual experiences seemed an appropriate starting point for the analysis of flashbulb effects. Moreover, memories of most recent sexual encounters should act as appropriate comparison memories, a common methodological procedure in FBM research. Three factors that have also been shown to vary with sexual reports are those of gender, personality, and sexual attitudes, which have all been shown to affect memory and sexual behavior.

Gender differences have been shown in sexual behavior. Eunjung, Kyunghie & Hyejin (2007) showed that males were three times more likely to report having sexual intercourse than females. Niedzwienska (2003) showed that gender had a significant effect on what aspects of autobiographical sexual memories were recalled. She showed

that whereas women and men did not differ in total memory, women gave significantly more information about emotions than men. Bloise and Johnson (2007) showed that women remember more emotional information even when tested in a laboratory setting. However, when measures of emotional sensitivity are controlled for, the difference is mediated by personality, suggesting that factors other than gender must be at work. However, past studies about “sexual” memories have focused on ongoing sexual activity (Catania et al. 2003), memories of rape or sexual violence (Tromp et al. 1995; Hunter & Andrews, 2002), or have been descriptive and qualitative in nature (Kinsey, Pomeroy & Martin, 1948). To diverge from these past trends, we assessed gender differences in memories of first and most recent sexual experiences, but still employed reliable and valid scoring procedures developed for investigation of FBM (Brown & Kulik, 1977).

Individual differences in personality have also been shown to affect sexual activity and memory (John, Donahue, & Kentle, 1991). We used the personality measures of openness, conscientiousness, agreeableness, extraversion, and neuroticism. These are the most common and reliable measures used in contemporary individual personality research and are known as the “Big-Five” (John, Donahue, & Kentle, 1991). Past studies show a convincing role of personality on sexual behavior and memory. Gute and Eshbaugh (2008) showed that high levels of extraversion and low levels of conscientiousness predicted higher amounts of casual sex among college students, and the opposite being true for students exhibiting high conscientiousness. Furthermore, Orzeck and Lung (2005) examined the role of personality in monogamous couples and infidelity. The study showed that high levels of extraversion and openness, with low levels of conscientiousness predicted adultery, whereas high levels of conscientiousness

predicted monogamous fidelity. On the issue of memory, Woike and her colleagues (Woike et al., 1999) examined the role of personality in determining motives for encoding and retrieving autobiographical memories. They showed that individuals were more likely to structure memories in ways that corresponded with their general orientations, or the noticeable presence of personality traits over others. In summary, these studies show that personality differences predict both sexual behavior and memory in a reciprocal fashion. Also, studies on personality have yet to examine memories of past sex experiences. The application of Woike's framework would be a step forward in research concerning human sexuality as well.

Attitude toward sexual behavior is the final factor we examined. The measurement of sexual attitudes was pioneered by Hendrick and Hendrick (1987) to provide a reliable multidimensional framework that was simple and easy to administer. Hendrick, Hendrick & Reich (2006) developed an even simpler scale dubbed "The Brief Sexual Attitudes Scale," which was empirically reliable and valid, $\chi^2(21,525) = 29.88$, $p < .001$. The scale measures sexual attitudes on four dimensions, being permissiveness, birth control (sexual practices), communion (investment in relationship), and instrumentality (pleasure-orientation to relationship). Certain aspects of sexual attitudes, i.e., high permissiveness in women and high instrumentality in men, have been shown to correlate with higher frequency of sexual activity (Hensley, 1996). Perceptions of desirability have also been shown to correlate with sexual attitudes. Men prefer high permissiveness and low communion in their partners, and women prefer low permissiveness and high communion (Oliver & Sedikides, 1992). However, attitudes measured by "The Brief Sexual Attitudes" scale have not been applied to studies of sex

memories. It is possible that sexual attitudes will act much like personality, in that memories will reflect one's attitudes and beliefs about the world.

In summary, sexual interaction is a fundamental component of human relations, and memories for first sex experiences should display unique properties. Moreover, individual factors, such as gender, sexual attitudes, and personality may affect sex behavior and memory recall. Based on prior research, FBM's of first sex experience should vary with the event's emotional relevance, personal significance, and biological implications (Brown and Kulik, 1977). It was also predicted that gender, certain personality traits, and sexual attitudes would correlate with sex behavior and memory (Kinsey, Pomeroy, and Martin, 1948; Bloise and Johnson, 2007; Woike et al., 1999). More precisely, following prior research and Woike's theoretical framework, women should display higher levels of affect and remember more emotional aspects of first sex memories than men. Furthermore, individuals with high levels of extraversion and openness were hypothesized to display significant differences in memory than those with high levels of conscientiousness. Lastly, it was surmised that individuals with high levels of instrumentality and permissiveness should display significant differences in memory than those with low permissiveness and high communion. All specific hypotheses are listed below.

- Hypothesis 1: Memories for first sex experiences will display features and effects seen in more common FBM's, such as high arousal and vividness, elaborate narratives, slowed decay with progressing delay, and more complete memories with higher recounts.
- Hypothesis 2: Women will have more elaborate narratives than men.

- Hypothesis 3: Those with low conscientiousness and high extraversion and openness will have more elaborate narratives.
- Hypothesis 4: Finally, individuals high in the sexual attitudes of instrumentality and permissiveness should have more elaborate narratives.

Methods

This study was done in two parts, both taking correlational approaches. Study I was undertaken to examine whether or not a first sex memory could be classified as a FBM, posed by hypothesis 1. Study II, however, was completed to understand the role of gender, personality, and sexual attitudes within sex memories, as seen in hypotheses 2, 3, and 4. Participants were gathered for both studies using a convenience sampling technique, and were recruited from introductory psychology courses at Butler University. Study I consisted of 90 students (not separated by gender) while study II consisted of 125 participants (76 female, 49 male).

Participants were recruited during class and completed the study in groups of 10 for 1-hour sessions. During each session, participants were supplied with their own Macintosh computer. The survey was already displayed when they opened the laptop, contained four sections and was completed in sequential order. Participants were able to take breaks if needed. For study I, only sections collecting data for memory were completed. Gender, personality, and sexual attitude portions were completed by participants, as well as coded, entered, and analyzed by the researchers for study II only. Furthermore, sexual experiences were not required to participate in the study, which allowed for a behavioral analysis across gender, personality, and sexual attitude variables.

The first section completed was the 44-item personality questionnaire based on

the Big Five Inventory (John, Donahue, and Kentle 1991) (i.e. Appendix A). The second section completed was the 23-item sexual attitude questionnaire modeled after The Brief Sexual Attitudes Scale (Hendrick, Hendrick, and Reich 2006) (i.e. Appendix B). The third section asked participants to type “open” narratives describing their first and most recent sex experiences. The fourth section was subdivided into sections IV-A and IV-B. At the beginning of section IV-A, for study II only, participants were asked to indicate their gender. In the rest of section IV-A, participants answered a set of questions about their first sex experience: including ratings of vividness, arousal, and embarrassment, sense-memory information, their total number of partners, level of intoxication, and an estimated time frame (i.e. Appendix C). In section IV-B, participants answered the same questions in section IV-A for their most recent sex experiences (i.e. Appendix C).

After the participants completed the survey, they printed it to a specified printer, and closed the document without saving. To ensure anonymity, the researcher present did not collect the papers until all participants had left. Participants that wished to leave early without completing the survey were allowed to do so without penalty, and throughout all the sessions approximately 2 were suspected of doing so. Once all participants had left the room of the study, the researcher collected the protocols, stapled each individual survey, and placed them in a secure folder within a locked laboratory room.

To analyze the data, we first coded each section of the protocol. The personality section was coded according to the scoring criteria set by John, Donahue, and Kentle (1991) for the 44-item “big five” inventory. Thus, each participant had a score on each of the five factors (openness, conscientiousness, extraversion, agreeableness, and

neuroticism). The sexual attitudes section was coded according to the scoring criteria set by Hendrick, Hendrick, and Reich (2006) for the 23-item brief sexual attitudes scale. This yielded four factor scores (permissiveness, birth control, communion, and instrumentality) per participant. The narratives and probed responses were coded, scored similar to Brown and Kulik's (1977) canonical feature development (Comotto & Bohannon, 2009a, 2009b). Scoring rules for open and probed responses were developed by the researcher, and the different features were scored on a scale ranging from 0-3 according to the absence, implied presence, or specified presence of said features (i.e. Appendix D). Once the rules were established, a 90% inter-rater agreement rate was reached. All other questions were coded according to the existing scales on the protocol.

Once all data were coded, Statview was used to perform multivariate analyses. We analyzed the features of first and most recent sex experiences through the use of repeated measures ANOVA's. These features included those of vividness, arousal, delay, recounts, confidence, activity, location, time, author's affect, other's affect, and aftermath. This was done for first and most recent sex narratives and probed recalls. The canonical features coded for in first and most recent sex narratives were further grouped into a composite memory feature. Through this procedure, we created a first sex memory composite score and a most recent sex memory composite score. Moreover, gender, being treated as an organismic categorical variable was analyzed for its correlational effect on all features of memory. For certain variables (i.e. arousal, vividness, amount partners, confidence, etc.), we created trichotomies for the purpose of using ANOVA's, by manually creating approximately equal groups. The groups were labeled high, medium, and low for all trichotomized variables, high including the higher numerical

values reported for that specific question. Lastly, personality and sexual attitudes measures were analyzed for the effect on gender, memory, and each other using repeated measures ANOVA's testing all effects as well.

Results and Discussion

Study I

By analyzing delay, in months, it was found that participants' first sex experiences occurred significantly earlier than their most recent, $F(1,83) = 116.939$, $p < .0001$. Furthermore, greater delay from first sex experience allowed more recounts, $F(1,80) = 9.447$, $p < .005$ (Table 1). However, amount of sex partners did not predict recounts, $F(2,80) = .839$, NS. These are both important predictive features found in FBM research (Julian, Bohannon, & Aue, 2009). So, first sex experiences occur earlier and are talked about more than most recent experiences, but having more or fewer partners does not predict how much an individual will talk about it.

Vividness is a qualitative, self-perceptive measure of memory, but can be quantified and scored on a 5-point Likert scale. The analysis of vividness revealed some interesting effects. Memories of first and most recent sex were equally vivid, $F(1,82) = .596$, NS (Table 1). Also, amount of sex partners did not predict vividness, $F(2,82) = .250$, NS. Finally, arousal was the only significant predictor of vividness for first, $F(2,87) = 11.086$, $p < .0001$, and most recent sex experiences, $F(2,78) = 19.838$, $p < .0001$. By performing post-hoc Tukey's HSD tests, we found that high arousal led to high vividness for both first and most recent sex memories, at the .05 level of significance ($M(sd) = 3.30 (.211)$, $3.786 (.153)$, $4.385 (1.73)$.; $M = 3.123 (.203)$, $3.912 (.303)$, $4.450 (.254)$). Accordingly, while first sex experiences occur significantly earlier, the resulting

memories are just as vivid as most recent memories, and the more vivid the memory, generally the more aroused an individual was. Moreover, amount of sex partners does not seem to affect how vivid an individual perceives his/her memory to be.

Through the analyses thus far, the amount of sex partners an individual reports has not had a significant effect on memories of first sex experiences. However, reported amount of sex partners did predict most recent memory features, $F(2, 76) = 3.594, p < .05$. Post-hoc Tukey's HSD tests showed that those who had few sex partners remembered significantly less than the average frequency group, at the .05 level of significance ($M(sd) = .421 (.154), .593 (.146), .610 (.067)$). This is an interesting effect, showing that having more or fewer partners may not affect memories for first sex experiences, but possibly will have an effect on most recent memories.

While vividness is an important component of memory, arousal has been shown to be just as or even more integral in the formation of lasting FBM's. Arousal was measured and analyzed the same way as vividness. By examining arousal, it was found that first and most recent sex experiences were rated as equally arousing, $F(1,82) = 2.151, NS$ (Table 1). Furthermore, amount of sex partners did not affect arousal ratings, $F(2,82) = 1.384, NS$. Arousal ratings did, however, predict probe memory features for most recent sex encounters as well, $F(2,78) = 8.870, p < .0005$ (Fig 1). A post-hoc Tukey's HSD test showed that higher arousal led to more features in probed memory in a linear fashion, at the .05 level of significance ($M = .688 (.047), .732 (.043), .785 (.025)$). Arousal also predicted most recent confidence ratings for first sex memories in a linear fashion, $F(2, 67) = 7.220, p < .005$. A post-hoc Tukey's HSD test showed a linear relationship with higher arousal leading to higher confidence ratings, at the .05 level of

significance ($M = .900$ (1.023), 2.324 (, 4.012). However, the arousal by recounts interaction was significant in first sex memories as well, $F(2,80) = 3.594$, $p < .05$ (Fig 2). A post-hoc Tukey's HSD test showed that this was due to the effects of arousal occurring exclusively in the few recounts condition, with many recounts erasing the arousal effect, at the .05 level of significance ($M = .3652$ (.021), .3610 (.026), .4913 (.079)). Once again, an interesting memory effect is seen, with first sex memories being just as arousing as most recent, even though first sex encounters occur significantly earlier. Furthermore, amount of sex partners failed to have an effect on this component of memory.

Lastly, the effect of delay was expected to fit common forgetting patterns, where most of the details should be lost within the first few days or weeks following the event. This was reflected in our data where delay affected confidence for the most recent sex event, $F(2, 65) = 6.11$, $p < .004$, with memory confidence declining after a few days with no further decline out to several years, $F(2,69) = 2.06$, NS.

Through the analyses in study I, we believed we had found significant evidence supporting our first hypothesis that memories for first sex experience could be classified as an FBM. This conclusion was reached with the support of vividness, arousal, recount, delay, and confidence effects on the memory. However, the picture is somewhat convoluted, with some effects not seen in first sex memories being found in most recent sex memories. Even though we did not surmise this weakened the result that first sex memories can be classified as an FBM, we found it necessary to refine and replicate the study. In response to this necessity, the existing protocol was modified slightly to be more in line with previous and current flashbulb questionnaires, adding more appropriate probe questions, more precise measures of delay, and incorporating more confidence

measures, but leaving the rest unchanged (Comotto & Bohannon, 2009a; Comotto & Bohannon, 2009b) (i.e. Appendices A, B & C).

Table 1

Means (sd) of components analyzed using repeated measures ANOVA's.

Variable	First Sex Experience	Most Recent Sex Experience	F-Value	P-Value
Delay (months)	33.747 (26.722)	2.177 (6.131)	116.939	< .0001
Recounts	2.771 (4.158)	1.157 (1.665)	9.447	< .005
Arousal	3.659 (.987)	3.882 (1.076)	2.151	NS
Vividness	3.553 (1.000)	3.729 (1.241)	0.596	NS

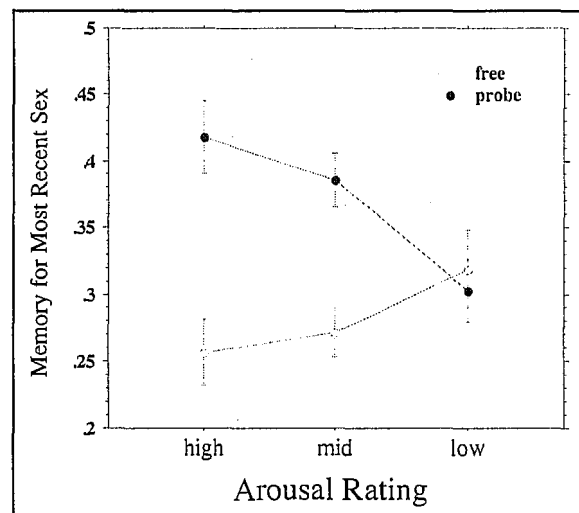


Fig 1. High arousal ratings in probed memory condition leading to more memory features, $F(2,78) = 8.870$, $p < .0005$ ($M = .688$ (.047), .732 (.043), .785 (.025)).

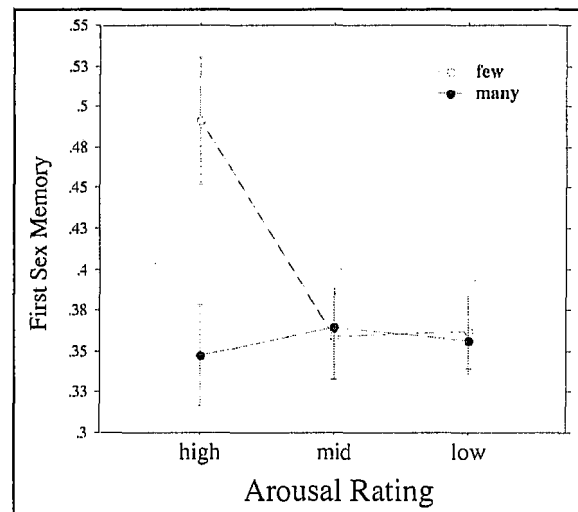


Fig 2. Interaction of arousal ratings and recounts, with high recounts mediating the effect of arousal, $F(2,80) = 3.594$, $p < .05$ ($M = .3652 (.021)$, $.3610 (.026)$, $.4913 (.079)$).

Study II

As previously stated, several analyses done in study I were replicated in study II. In concordance with study I, it was found that participants' first sex experiences occurred significantly earlier than their most recent, $F(1,81) = 59.223$, $p < .0001$ (Table 2). Also, greater delay from first sex experience allowed more recounts, $F(1,80) = 17.711$, $p < .0001$ (Table 2). Furthermore, memories for first and most recent sex were equally arousing, $F(1,81) = .181$, NS (Table 2). However, it was found that memories of most recent sex were more vivid, $F(1,82) = 13.790$, $p < .001$ (Table 2). This should not be seen as disconfirming because both memories scored high in vividness. Still, vividness has been shown to decay with significant passage of time (Julian, Bohannon, and Aue, 2009), so once again, it is an intuitive finding that should not discredit findings seen in study II. In all respects, the evidence for personal flashbulb effects in this study have

further validated the findings seen in study I. To expand on the results of study I, we also analyzed the “open” narratives, comparing first and most recent, finding that first sex memory narrations were more elaborate, $F(1,75) = 6.766$, $p < .05$, providing even further evidence that memories for first sex experiences can be classified as a flashbulb event (Fig 3).

To inspect hypotheses 2, 3, and 4, gender, personality, and sexual attitudes were analyzed to dissect other possible influences on sex encounter memories. Through examining gender, some interesting results were found. First, males recorded higher arousal for first sex memory, $F(1,80) = 8.196$, $p < .01$. This finding, while somewhat out of line with previous research and predictions, only accounts for a “perceived” aspect of the memory. However, it is still interesting to see males have a higher “emotional” rating on a rather emotion driven memory. Moving on, gender and amount of sex partners had a minor effect on most recent sex memories, $F(2,74) = 3.031$, $p = .0543$, with post-hoc tests, at the .05 significance level, showing males with higher arousal remembering significantly less than females recording high arousal in the high frequency group of sex partners ($M(sd) = .567 (.048)$, $.706 (.047)$) (Fig 4). While this does not create a case for or against first sex memories as an FBM, it is an interesting effect of arousal and behavior on memory that will be addressed in the conclusion.

Through the examination of sexual attitudes, no significant effects, whatsoever, were found on memory. However, participants that reported sex memories displayed higher permissiveness, birth control, communion, and instrumentality, $F(1,120) = 15.962$, $p < .0005$. This result is somewhat ambiguous, yet it is understandable that those who have engaged in sex behavior will have more developed sexual attitudes. The higher ratings

on the attitudes does not mean more or less optimal or moral, simply that these individuals have higher scores, with a positive valence, on issues pertaining to sex activity and concepts.

As with sexual attitudes, personality was not found to influence memory in any sense. Yet, gender did show an effect on personality, $F(1,120) 15.302, p < .0001$, with females displaying higher levels of openness, conscientiousness, extraversion, and neuroticism. Moreover, there was an interaction effect of gender and sex behavior with personality, $F(1, 120) 6.294, p < .05$, with higher levels of conscientiousness being found in women that did not have sex and higher levels of extraversion in men and women that did have sex. So, personality was found to be linked with behavior, as with sexual attitudes and in accordance with previous research, was found to be linked with gender. Yet, none of these results have to do with memory, but simply validate the measures used in this study based on past research.

Table 2

Means (sd) of components analyzed using repeated measures ANOVA's.

Variable	First Sex Experience	Most Recent Sex Experience	F-Value	P-Value
Delay (months)	17.709 (19.009)	2.148 (4.668)	59.223	< .0001
Arousal Rating	3.939 (1.010)	4.000 (1.018)	.181	NS
Vividness Rating	3.598 (.914)	4.122 (.961)	17.711	< .001
Recounts	4.457 (6.859)	1.383 (2.396)	17.711	< .0001
Free Recall	.516 (.171)	.469 (.190)	6.766	< .05
Probed Recall	.767 (.129)	.752 (.112)	.915	NS

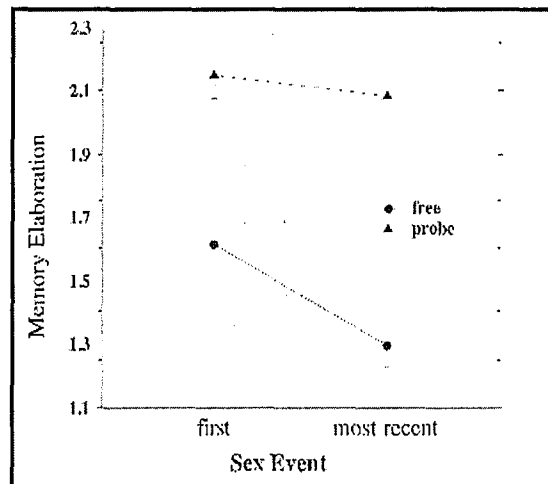


Fig 3. Participants reported more elaborate narratives for first sex memories $F(1,75) = 6.766, p < .05$.

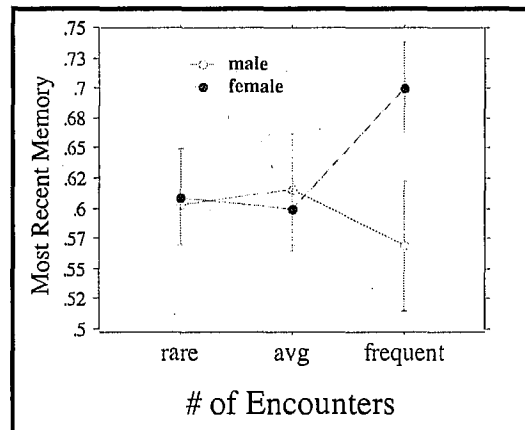


Fig 4. Male participants with higher numbers of sex partners tend to display less memory features than female participants within the same frequency group $F(2, 74) = 3.031, p = .0543 (M(sd) = .567 (.048), .706 (.047))$.

Conclusions

Through the results of studies 1 and 2, we sufficiently addressed the questions and predictions posed by all four hypotheses. Specifically, the hypotheses predicted that first sex memories would act as more common FBM's such as memories for the terrorist attacks on 9/11, and that personality, gender, and sexual attitudes would have unique effects on memory.

First, we found support for our first hypothesis across both studies. In study I, we found that even though first sex experiences occurred significantly earlier than most recent encounters, both sex experiences were equally arousing and vivid. Furthermore, the result for arousal but not vividness was replicated by study II. As stated in the results, however, the inability to reproduce the same vividness effect should not be seen as a case against the hypothesis, but an expected result of delay on memory. Also, there was a forgetting curve displaying an inverse exponential function.

First sex memories were also more elaborate than most recent memories. By elaborate, we mean that the "open" narratives provided by participants contained more canonical features and were more complete. This result helps make an even stronger case for the classification of first sex memories as FBM's, especially in light of research done by Julian, Bohannon, and Aue (2009). This research mainly focused on the recent dogma of accuracy and consistency being the only measures that could possibly show if recalled memories are true. They found, through the analysis of over 1,700 participants, that elaboration of memory in narratives acted significantly similar to both accuracy and consistency (Julian, Bohannon, & Aue, 2009). The result of their research and this study

show that first sex memories, being more elaborate than most recent, can be seen as complete, significant, and actual memories.

Another interesting finding was that having more partners or having sex more recently did not affect one's memory of first sex experiences, similar to the findings of Hirst (2004). In this particular study, the memories of AIDS patients were examined to see if elaboration, or completeness, was inhibited by increasing numbers of loved ones that have died from the illness. Findings indicated, similar to our study, that repeated exposure did not inhibit memory (Mahmood, Manier, & Hirst, 2004). These results were replicated by study II, however, a minor effect of gender was found concerning most recent sex memories, which will be discussed later.

Second, our other three hypotheses, addressed by study II, were not supported. Concerning gender, it was found the males qualitatively saw first sex memories as more arousing than females. This seems to contradict past research that suggests women remember emotional components of memory better than men. However, arousal ratings are qualitative measures based on the subjective experience of participants, not quantitative measures of memory features. So, it can be said that males may find the memory slightly more arousing, but do not have more elaborate memories. One must realize, however, that sex experiences are highly arousing events, both emotionally and biologically, and perhaps the implications of said event mediate the expected gender predictions. Yet, there was some evidence that males with higher numbers of sex partners remembered less about their most recent sex experience compared to women within the same frequency group. This, while supporting previous research, is not necessarily a finding entirely in line with our hypothesis, being that it is not for first sex

memory and is an interaction effect. The result is very compelling though, and deserves more attention in future studies. For personality and sexual attitudes, once again, we did not find any significant effects on memory.

While this study attempted to explore a phenomenon that has been relatively untouched, it was not without flaw. Due to the sampling procedure and population involved, there is always potential for decreased generalizability. However, being that individual factors such as gender, personality, and sexual attitudes had minor or no effects on memory, perhaps results can be generalized to a larger population.

Furthermore, experimental and human error can be seen as likely, even though agreed upon scoring rules and procedures were used. Moreover, testing effects, such as fatigue or nervousness could have played a role, but environmental, time, and rest conditions were all controlled to the best of the researchers' abilities to keep these effects at a minimum. In future studies, increased anonymity and privacy in a less threatening environment could be pursued to perhaps create a more conducive environment for such a private and emotional memory recall.

In reviewing the findings and discussion up to this point, it is fascinating to see the robustness of this memory phenomenon. More specifically, people seem to find their first sex experiences very arousing and vivid. They also understandably talk about it, in accordance with this importance. The memory for one's first sex experience is so salient, that more is actually recalled than for sex experiences that could have happened not only a week ago, with first sex experiences occurring significantly further in the past. What's more, is that it doesn't seem to matter whether an individual is a man, a women, extraverted, neurotic, instrumental, not permissive, or whatever the case may be, they

will most likely remember, with little decay over time, this significant and arousing life event. The end result is that we are human, and we seek reproductive opportunity for emotional, biological, personal and sometimes recreational reasons. The first time we have sex is significant, it is the first insight we have on how, when, where, and who to do it with. So, if we as biological organisms wish to procreate, assuming pregnancy does not result from our first experience, or as cognitive and social beings wish to feel continued satisfaction and connection, we remember our first sexual experiences to recreate and re-experience sexual connection, opportunity, and satisfaction.

References

- Bloise, S., & Johnson, M. (2007). Memory for emotional and neutral information: Gender and individual differences in emotional sensitivity. *Memory*, 15(2), 192-2.
- Brown, R. & Kulik, J. (1977). Flashbulb memories. *Cognition*, 5, 73-99.
- Christianson, S. (1992). Emotional stress and eyewitness memory: A critical review. *Psychological Bulletin*, 112(2), 284-309.
- Comotto, N. & Bohannon, J. (2009a, Feb.). Sex, arousal, focus and memory. Paper presented at SEPA, New Orleans, LA.
- Comotto, N. & Bohannon, J. (2009b, Apr.). Memories for Sexual Encounters: Evidence for Personal Flashbulb Effects. Paper presented at APS, San Francisco, CA.
- Cuttler, C., & Graf, P. (2007). Personality predicts prospective memory task performance: An adult lifespan study. *Scandinavian Journal of Psychology*, 48(3), 215-231.
- Graham, C., Catania, J., Brand, R., Duong, T., & Canchola, J. (2003). Recalling Sexual Behavior: A Methodological Analysis of Memory Recall Bias via Interview Using the Diary as the Gold Standard. *Journal of Sex Research*, 40(4), 325-332.
- Gute, G., & Eshbaugh, E. (2008). Personality as a Predictor of Hooking Up Among College Students. *Journal of Community Health Nursing*, 25(1), 26-43.
- Hendrick, C., Hendrick, S., & Reich, D. (2006, February). The Brief Sexual Attitudes Scale. *Journal of Sex Research*, 43(1), 76-86.

- Hendrick, C., Hendrick, S., & Reich, D. (2006). The Brief Sexual Attitudes Scale. *Journal of Sex Research*, 43(1), 76-86.
- Hendrick, S., & Hendrick, C. (1987). Multidimensionality of Sexual Attitudes. *Journal of Sex Research*, 23(4), 502.
- Hensley, W. (1996). The Effect of a Ludus Love Style on Sexual Experience. *Social Behavior & Personality: An International Journal*, 24(3), 205.
- Hofstee, W., De Raad, B., & Goldberg, L. (1992, July). Integration of the Big Five and Circumplex Approaches to Trait Structure. *Journal of Personality & Social Psychology*, 63(1), 146-163.
- Hunter, E., & Andrews, B. (2002). Memory for autobiographical facts and events: a comparison of women reporting childhood sexual abuse and non-abused controls. *Applied Cognitive Psychology*, 16(5), 575-588.
- John, O., Donahue, E., & Kentle, R. The 'Big Five' Inventory, versions 4a and 54. University of California, Institute of Personality and Social Research, Berkeley, CA, 1991.
- Julian, M., Bohannon, J. N., & Aue, W. (2009). Measures of flashbulb memory: Are elaborate memories consistently accurate? In *Flashbulb Memories: New Issues and New Perspectives*, Luminet O, Curci A (eds). Psychology Press: New York; 99-122.
- Kinsey, A., Pomeroy, W., & Martin, C. *Sexual Behavior in the Human Male*. W.B. Saunders Company: Philadelphia; 1948.
- Kinsey, A., Pomeroy, W., Martin, C., & Gebhard, P. *Sexual Behavior in the Human Female*. W.B. Saunders Company: Philadelphia; 1953.

- Mahmood, D., Manier, D., & Hirst, W. (2004). Memory for how one learned of multiple deaths from AIDS: Repeated exposure and distinctiveness. *Memory & Cognition*, 32(1), 125-134.
- Neisser, U. (1981). John Dean's memory: A case study. *Cognition*, 9(1), 1-22.
- Niedzwienska, A. (2003). Gender Differences in Vivid Memories. *Sex Roles*, 49(7/8), 321-331.
- Orzeck, T., & Lung, E. (2005). Big-Five Personality Differences of Cheaters and Non-Cheaters. *Current Psychology*, 24(4), 274-287.
- Ryu, E., Kim, K., & Kwon, H. (2007). Predictors of Sexual Intercourse Among Korean Adolescents. *Journal of School Health*, 77(9), 615-622.
- Tromp, S., Koss, M., Figueredo, A., & Tharan, M. (1995). Are Rape Memories Different? A Comparison of Rape, Other Unpleasant, and Pleasant Memories Among Employed Women. *Journal of Traumatic Stress*, 8(4), 607-627.
- Woike, B., Gershkovich, I., Piorkowski, R., & Polo, M. (1999). The Role of Motives in the Content and Structure of Autobiographical Memory. *Journal of Personality & Social Psychology*, 76(4), 600-612.

Appendix

A. Sample of personality questionnaire

0	1	2	3	4	5
don't wish to answer	strongly disagree	disagree	neither disagree nor agree	agree	strongly agree

Do you see yourself as someone who...

- | | |
|--|--------------------------|
| 1. Is talkative | 0 - don't wish to answer |
| 2. Tends to find fault with others | 0 - don't wish to answer |
| 3. Does a thorough job | 0 - don't wish to answer |
| 4. Is depressed, blue | 0 - don't wish to answer |
| 5. Is original, comes up with new ideas | 0 - don't wish to answer |
| 6. Is reserved | 0 - don't wish to answer |
| 7. Is helpful and unselfish with others | 0 - don't wish to answer |
| 8. Can be somewhat careless | 0 - don't wish to answer |
| 9. Is relaxed, handles stress well | 0 - don't wish to answer |
| 10. Is curious about many different things | 0 - don't wish to answer |

B. Sample of sexual attitude questionnaire

0	1	2	3	4	5
don't wish to answer	strongly disagree	disagree	neither disagree nor agree	agree	strongly agree

- | | |
|---|--------------------------|
| 1. I do not need to be committed to a person to have sex with him or her. | 0 - don't wish to answer |
| 2. Casual sex is acceptable. | 0 - don't wish to answer |

3. I would like to have sex with many people. 0 - don't wish to answer
4. One-night stands are sometimes very enjoyable. 0 - don't wish to answer
5. It is okay to have ongoing sexual relationships with more than one person at a time. 0 - don't wish to answer
6. Sex as a simple exchange of favors is okay if both people agree to it. 0 - don't wish to answer
7. The best sex is with no strings attached. 0 - don't wish to answer
8. Life would have fewer problems if people could have sex more freely. 0 - don't wish to answer
9. It is possible to enjoy sex with a person and not like that person very much. 0 - don't wish to answer
10. It is okay for sex to be just good physical release. 0 - don't wish to answer

C. Sex Memory component of protocol

**Part IIIA: Very First Sexual Intercourse
Open Recall**

1. Please write a detailed account of your first sexual intercourse. Include all vivid, memorable details surrounding the event. Please detail both internal thoughts and feelings as well as external events (i.e. things you saw and heard at the time). Be as inclusive and accurate as possible.

**Part IIIB: Most Recent Sexual Intercourse
Open Recall**

1. Please write a detailed account of your most recent sexual intercourse. Include all vivid, memorable details surrounding the event. Please detail both internal thoughts and

feelings as well as external events (i.e. things you saw and heard at the time). Be as inclusive and accurate as possible.

Part IVA: Very First Sexual Intercourse

What is your age?

How old were you at the time of your first sexual intercourse?

What is your gender?

Please answer the following questions as specifically as possible to the best of your recollection about your very first sexual intercourse. Use your answer above as your definition of sexual intercourse for the rest of the survey. Your answers can be as long as you like. Also, please rate your confidence in each answer according to the below scale.

If you have not experienced the event that this section refers to, you are now finished with the survey. Please click print and close out the program.

1	2	3	4	5
not sure at all	somewhat confident	moderately confident	very confident	extremely confident

1. In what location did your first sexual intercourse occur?

1 - not sure at all

2. What were you and your partner doing prior to the sexual intercourse?

1 - not sure at all

3. What happened immediately following the sexual intercourse?

1 - not sure at all

4. What internal feelings/emotions did you experience during the sexual intercourse?

1 - not sure at all

5. What do you believe your partner was feeling/thinking during the sexual intercourse?

1 - not sure at all

6. What was the exact date of the sexual intercourse? (If date not know, be as specific as possible)

1 - not sure at all

7. What day of the week did the sexual intercourse occur?

1 - not sure at all

8. What time of day did the sexual intercourse occur? (To the nearest hour)

1 - not sure at all

9. What was the weather like that day?

1 - not sure at all

10. What were you wearing before and at the time that the sexual intercourse occurred?

1 - not sure at all

11. Do you remember your partner's first name? (yes or no)

1 - not sure at all

12. Do you remember your partner's last name? (yes or no)

1 - not sure at all

13. What was your partner wearing at the time that the sexual intercourse occurred?

1 - not sure at all

14. How long (in months) were you involved with this person?

1 - not sure at all

15. Are you still in a relationship with this person?

1 - not sure at all

16. Approximately how many times have you related/told this story to another person?

1 - not sure at all

17. Approximately how many times have you thought about this event to yourself?

1 - not sure at all

18. Approximately how many times have you been reminded of this event by an outside source?

1 - not sure at all

19. Select what phrase best describes your level of *arousal* at the time of your first sexual intercourse from the sample chart below. *arousal is not limited to a sexual meaning, and can refer to general excitement or attention*

1	2	3	4	5
couldn't have cared less	somewhat aroused/ agitated	moderately aroused/ agitated	very aroused/agitated	absolutely ecstatic/ agitated

1 - couldn't have cared less

20. Select what phrase best describes the vividness of your memory regarding your first sexual intercourse from the sample chart below.

1	2	3	4	5
extremely vague/hazy	somewhat vague	moderately vivid	very vivid	extremely vivid

1 - extremely vague/hazy

21. How many sexual partners have you had?

1	2	3	4	5
few or one	a couple, two or three	average, four or five	many, six or seven	a lot, more than seven

1 - few or one

22. Please rate the level of intoxication (due to alcohol or other substances) during the time of sexual intercourse.

1	2	3	4	5
not taboo	slightly taboo	neutral	taboo	very taboo

1 - not intoxicated

23. How embarrassed do you feel about this event?

1	2	3	4	5
not at all embarrassed	slightly embarrassed	neutral	embarrassed	very embarrassed

1 - not at all embarrassed

Part IVB: Most Recent Sexual Intercourse

Please answer the following questions as specifically as possible to the best of your recollection about your most recent sexual intercourse. Your answers can be as long as you like. Also, please rate your confidence in each answer according to the below scale. If you have not experienced the event that this section refers to, or this event is the same event referred to in section IIIA, you are now finished with the survey. Please click save and close out the program.

1	2	3	4	5
not sure at all	somewhat confident	moderately confident	very confident	extremely confident

24. In what location did your most recent sexual intercourse occur?

1 - not sure at all

25. What were you and your partner doing prior to the sexual intercourse?

1 - not sure at all

26. What happened immediately following the sexual intercourse?

1 - not sure at all

27. What internal feelings/emotions did you experience during the sexual intercourse?

1 - not sure at all

28. What do you believe your partner was feeling/thinking during the sexual intercourse?

1 - not sure at all

29. What was the exact date of the sexual intercourse? (If date not know, be as specific as possible)

1 - not sure at all

30. What day of the week did the sexual intercourse occur?

1 - not sure at all

31. What time of day did the sexual intercourse occur? (To the nearest hour)

1 - not sure at all

32. What was the weather like that day?

1 - not sure at all

33. What were you wearing before and at the time that the sexual intercourse occurred?

1 - not sure at all

34. Do you remember your partner's first name? (yes or no)

1 - not sure at all

35. Do you remember your partner's last name? (yes or no)

1 - not sure at all

36. What was your partner wearing at the time that the sexual intercourse occurred?

1 - not sure at all

37. How long (in months) were you involved with this person?

1 - not sure at all

38. Are you still in a relationship with this person?

1 - not sure at all

39. Approximately how many times have you related/told this story to another person?

1 - not sure at all

40. Approximately how many times have you thought about this event to yourself?

1 - not sure at all

41. Approximately how many times have you been reminded of this event by an outside source?

1 - not sure at all

42. Select what phrase best describes your level of *arousal* at the time of your most recent sexual intercourse from the sample chart below. *arousal is not limited to a sexual meaning, and can refer to general excitement or attention*

1	2	3	4	5
couldn't have cared less	somewhat aroused/ agitated	moderately aroused/ agitated	very aroused/agitated	absolutely ecstatic/ agitated

1 - couldn't have cared less

43. Select what phrase best describes the vividness of your memory regarding your most recent sexual intercourse from the sample chart below.

1	2	3	4	5
extremely vague/hazy	somewhat vague	moderately vivid	very vivid	extremely vivid

1 - extremely vague/hazy

44. How many sexual partners have you had?

1	2	3	4	5
few or one	a couple, two or three	average, four or five	many, six or seven	a lot, more than seven

1 - few or one

45. Please rate the level of intoxication (due to alcohol or other substances) during the time of sexual intercourse.

1	2	3	4	5
not taboo	slightly taboo	neutral	taboo	very taboo

1 - not intoxicated

46. How embarrassed do you feel about this event?

1	2	3	4	5
not at all embarrassed	slightly embarrassed	neutral	embarrassed	very embarrassed

1 - not at all embarrassed

D. Sample of scoring rules of canonical features

Activity (The activity must be leading into/during the event and include the narrator)

0- There is no activity mentioned/implied

1- The activity is implied but not stated. There is a passive verb that allows you to infer what they were doing from what they write. ("I was on my way back from a party..." implies driving/walking).

2- Activity relating to the narrator is explicitly stated. Any action verb present before the event counts ('state of being' does not count). ("I was walking..." "we were talking..." "we were watching television...")

3- The activity is mentioned more than once, or more than one activity is mentioned.

Location (The location of the narrator during the sexual experience)

0- There is no location mentioned/implied

1- The location is implied but not stated ("I was taking a shower" implies the bathroom; "the sheets were rough" implies bed)

--states without city ("in Indiana")

2- The location is explicitly stated ("we were on the bed" "it happened in the kitchen")

--cities (Indianapolis)

3- Location is explicitly stated 2 or more times, or more than one location is stated during the sexual experience ("We were in the bed and then moved to the shower")

--city and state is **NOT** a 3

Time (The time when the sexual act first began to take place)

0- No time is stated/implied; **time mentioned in aftermath cannot count as implied time** ("continued to have sex all day" does **NOT** imply morning)

--time mentioned in aftermath cannot count as implied time ("All day I was happy")

1- Time is not identified directly but implied by naming of events that happen at universally known times. ("we were in the middle of lunch when it happened" implies afternoon; "we just woke up: implies morning; "it was winter" implies a range of months)

2- The time is explicitly stated ("it was just after noon" "10:47")

3- The time was explicitly mentioned more than once ("It was 7:45 in the morning"; "9:00 Sunday morning")

--We are NOT doing time-ordered events. The only way to get time is if they state some kind of time element that allows you to anchor when the event happened during the day in relation to the world, not the individual ("10 minutes after dancing" and "after I got back from the shower" do NOT count, but "after breakfast" would)

Aftermath (Any action of the narrator that occurred after the sexual intercourse)

0- There is no aftermath stated/implied

1- Activities after sexual intercourse are implied but not directly stated ("I remember the water being very cold" implies they took a shower; "It was very cold outside" implies going outside after the experience)

2- Activities after the sexual experience are explicitly stated ("Then I watched TV for hours"; "After that I sat in the chair"; "I couldn't stop crying")

3- There is more than one activity explicitly stated ("Then I called my mom... we ended up staying awake all night")

--it must be obvious that they occurred after the sexual intercourse; if you have doubt that it is part of discovery, don't count it.

--other people's actions cannot imply narrator action

--affect is not a part of this

Author's Affect (The emotional state of the narrator during/shortly after sexual intercourse → "I" statements)

0- No mention of emotional state given

1- An emotion is implied by behavior ("I cried..." implies being sad; "I will remember that day" implies high emotions)

--should be a statement relating to narrator's feelings, but an adjective describing the event counts ("it was an incredible moment" implies pleasure/awe; "It was terrifying" implies fear)

2- An emotion is explicitly stated ("I was happy"; "I was scared"; "I was shocked")

3- Two or more explicitly stated emotions are present in the narrative

Other's Affect (Emotional state of others during/shortly after the sexual experience)

0- No mention of emotional state given

1- An emotion is implied by behavior ("Mary cried" implies being sad)

2- An emotion is explicitly stated for a person other than the narrator or a collective group ("My boyfriend was happy"; "We were anxious to try again")

3- Two or more explicitly stated emotions are present for one person other than the narrator ("She was nervous and became very scared")

--one reaction is stated separately for two people/groups ("She was scared and the other girl looked very nervous..." but NOT "both girls were nervous")

Partner (Role and description of other individual involved in sexual experience)

0- No mention of partner

1- Implied presence and role of partner ("his hands..."; "her tongue" imply presence of partner)

2- Presence/Role of partner is explicitly stated ("It was with my boyfriend of 2 years"; "He went in the bathroom"; "She took off her clothes"; "It was with a girl I didn't know")

3- Presence/Role of partner is explicitly stated more than once or both descriptions are present ("It was with my girlfriend of 1 year... she wanted to surprise me"; "I didn't know the guy that well... he didn't have a condom")