SEXUAL MOTIVATION
AND THE DURATION OF PARTNERSHIP

Dietrich Klusmann, Dr. phil.

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Address for correspondence

Dr. Dietrich Klusmann
Klinik und Poliklinik für Innere Medizin
Abteilung für Medizinische Psychologie
Universitätsklinikum Hamburg-Eppendorf
Martinistr. 52
20246 Hamburg
Tel. +49 40 42803 4147
Sekr. +49 40 42803 2863
Fax +49 40 42803 4965
E-Mail: klusmann@uke.uni-hamburg.de
ABSTRACT

The variation of sexual motivation with duration of partnership is analyzed in data from a survey of German students. The sample of N=1865 includes only students aged 19-32 who reported to be heterosexual and to live in a steady partnership. Main results are: (1) sexual activity and sexual satisfaction decline in women and men as the duration of partnership increases; (2) sexual desire only declines in women; (3) desire for tenderness declines in men and rises in women. Since these results are based on cross-sectional data, a longitudinal explanation is precarious. Individual differences in mating strategy associated with the probability of having a partnership of shorter or longer duration at the time of the survey may account for some part of the findings. This possibility set aside, post hoc explanations for the results as reflecting a modal time course of partnership are evaluated with regard to habituation, routine, gender role prescriptions, and polarization of roles. In addition, an explanation from evolutionary psychology is offered, entailing the following ideas: The psychological mechanisms of attachment in an adult pair bond have evolved from the parent-child bond. Due to this non-sexual origin, a stable pair bond does not require high levels of sexual desire, after an initial phase of infatuation has passed. Nevertheless, male sexual desire should stay at a high level because it was selected for in evolutionary history as a precaution against the risk of sperm competition. The course of female sexual desire is assumed to reflect an adaptive function: to boost attachment in order to establish the bond.

Keywords: Sexual desire, partnership, gender differences, evolutionary psychology
INTRODUCTION

This article is part of a larger survey study aimed at the description of current sexual behavior in German students (Schmidt, 2000). The tabulation of variables reflecting sexual motivation by the duration of partnership revealed an unexpected association: With increasing duration of partnership, a marked decline in sexual motivation occurred in women but not in men. The aim of this article is to present this result, analyze it as far as possible with the data at hand, and discuss possible explanations. In order to do so, three sources of knowledge will be considered: (1) results from other surveys; (2) social psychology; (3) theories about the evolutionary origins of gender differences in sexual motivation.

Every continued relationship between two persons leaves a history of emotional and behavioral changes, including the history of sexual desire. Nevertheless, the interest in researching such changes seems to be small. Even in large studies with detailed breakdowns of many variables, the duration of partnership was seldom included, or if so, analyzed thoroughly as an independent variable. In a recent, large English survey (Johnson, Wadsworth, Wellings, & Field, 1994), which contains a highly differentiated body of tables, duration of partnership was investigated only in one analysis. It revealed a clear trend of reducing frequency of sexual intercourse with increasing duration of partnership, which was much stronger than the respective trend for age. There were no differences between men and women, but this has to be expected from logical considerations alone. If a sexual act requires the co-operation of a woman and a man in order to be performed, its frequency must be the same for both sexes in the population. Thus, actual sexual behavior cannot differ much between women and men as long as the sample is representative enough for the population of eligible partners. Sexual behavior often requires a compromise between the different proclivities of women and men.
(Symons, 1979), but sexual desire and other emotions, which are antecedent or contingent to sexual behavior are not restricted in this way. Thus, gender differences are expected mainly to appear in the frequency of emotions, not behaviors. In the survey by Johnson et al. (1994) the relation between duration of partnership and emotions is mentioned only with an attitudinal item: More than two-thirds of the sample agreed with the assertion that sexual satisfaction generally will increase with the duration of a relationship.

The American survey by Lauman et al. (1994) differentiated 4 groups: (1) short-term partnership of less than one month, (2) long-term partnership without cohabitation; (3) long-term partnership with cohabitation; (4) marriage. Physical and emotional satisfaction rose from about 10-16% in the first group (short term) to 40-50% in the last group (marriage), the other categories ranged in between. A lack of sexual interest was reported by 32% of women, but only by 15% of men (age range: 18–29 years). However, the relation of these gender differences to duration of partnership was not analyzed.

In an investigation of couples, who described themselves as happily married (Neiswender Reedy, Birren, & Schaie, 1981), emotional security was generally rated to be the most important quality of their relationship and this emphasis strongly increased with age, especially in women. In both genders, the importance attributed to sexual intimacy stayed at a constant level until middle age (45 years) and then decreased. Communication was given most emphasis by the younger couples (around 28 years).

A representative survey from Finland (Haavio-Mannila & Kontula, 1997) revealed gender differences in the relation between age and general sexual satisfaction. In women the general experience of intercourse as "very pleasant" was highest at around the age of 30 and then dropped steadily until the 6th decade. In men this measure stayed fairly constant throughout the age range. No measure of duration of partnership was reported.
Davies et al. (1999) measured the discrepancy in sexual desire between the two partners of a couple. An absolute measure was computed as the difference of self-reported levels of sexual desire of both partners. In addition, an ipsative measure was obtained by asking the respondents directly if they and their partners had the same levels of sexual desire. Even when desire levels differed in absolute terms, most respondents (75%) rated no difference to their partners in the ipsative measure. With the absolute measure, no gender differences occurred; gender differences in the ipsative measure were not reported. Women who rated their sexual desire as being lower than their partners’ gave lower ratings on sexual satisfaction and on satisfaction with the relationship compared with women who rated their sexual desire as being higher than their partners’. In men no such trend existed.

Gender differences in motivation are also investigated in human mating psychology from the perspective of evolutionary theory. Although this theoretical framework does not deal directly with the question at hand, some of its ideas might be useful to understand the findings. Therefore, a short account of evolutionary psychology is in place. Those of our ancestors who were equipped with mental features that gave them a reproductive advantage were able to spread these features in the gene pool. The evolution of the capacity for emotions and motives enabling the individual to act effectively in the social world, especially in matters pertaining directly to reproduction, was also driven by this logic. This includes the bond between parent and child, the bond between couples, discrimination in mate choice, and the situational fine-tuning of sexual motivation (Baker & Bellis, 1995; Buss, 1999; Geary, 1998; Mealey, 2000). In the discussion part of this article it will be argued, that gender differences in sexual desire as dependent on the duration of partnership may have evolutionary roots as well.
The typical or modal course of changes over time in a partnership should be ideally investigated with a longitudinal design where subjects are observed repeatedly as their partnership proceeds. However, it seems that this has not yet been done for the domain of sexual behavior and motivation. Therefore, an approximation with a second-best design may be interesting enough as a substitute. This second-best design is the cross-sectional study with information on the partnership at one single point in time. The natural variation in the length of time elapsed since the beginning of the partnership will be used to construct a pattern of the modal course. However, some precautions must be taken. Only when short-term partnerships have the same characteristics as long-term partnerships in their early stages, will the cross-sectional study provide the same results as a longitudinal study. As students differ in their willingness and their ability to form enduring relationships, different personality types are expected to characterize the short-term group compared with the long-term group. Thus, any results should be evaluated with the possibility of self-selection in mind.

METHOD

The survey from which data will be reported is the third in a series of surveys about the sexual behavior of German students (Schmidt, Klusmann, Dekker, & Matthiesen, 1998). In contrast to its predecessors from 1966 and 1981, it includes an elaborated section about partnership. In the summer of 1996, the questionnaire was sent to 7500 students from 15 German universities, selected for size and location in order to obtain a representative sample. The response rate of 41% was slightly higher in women than in men. The sample studied in this article includes only students aged 19-32 who reported to be heterosexual and were currently committed to a steady partner (71.4% of women and 63.7% of men). In women, the median duration of commitment was 33 months, in men it was 29 months (Table I). Female students were younger than male students, and they
started having sexual intercourse earlier. The median lifetime number of sexual partners was 3 in both genders, 57.4% of the women and 58.5% of the men lived in separate flats, 9.5% of the women and 9.4% of the men were married, 7.2% of the couples had children.

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Insert Table I about here

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RESULTS

Frequency of coitus

The median of the reported frequency of coitus in the last four weeks for the total group was 7. It was higher in men (8) than in women (6), but there was no difference in the mean. In both genders, the frequency of coitus declined as the duration of partnership increased (Table II), dropping from a median of 10 in the first year to 5 in the fifth year.

Satisfaction with sex life

With a longer duration of partnership, fewer respondents described themselves as "very satisfied with sex in the partnership" (Table II). This drop in sexual satisfaction was also revealed in two additional statements: "We have had passionate sex within the last week" and "Sex with my partner could not be better" (Table II). There was no difference between men and women, neither in the total proportion of yes-responses nor in how these responses decreased with duration of partnership.

Desire for sex

Desire for sex was assessed in several ways. The first measurement was included in a series of statements about the partnership, introduced by the question:
Which of the following behaviors and feelings are more characteristic of you and which are more characteristic of your partner?

The statement pertaining to sexual desire was: Wants to have sex often. Answer categories were: (a) more characteristic of me, (b) more characteristic of my partner, (c) characteristic of both of us, (d) characteristic of neither of us.

With this kind of question, the respondent’s desire for sex was assessed relative to the perceived desire of the partner. It did not reflect sexual desire in absolute terms. If the respondent "wanted to have sex often" with the same strength as his or her partner, this may have occurred on a higher or a lower level. Nevertheless, an absolute measure of desire could not have been very much at odds with the employed relative measure since it had to produce the observed intra-pair differences within partnerships. Moreover, a common standard of comparison for the strength of desire is hard to establish.

Nearly half of the respondents characterized themselves as different from their partners, and the other half used the "both of us" or "neither of us" category (Table II). If differences were acknowledged, these were highly gender-specific, with men predominantly attributing "wants to have sex often" to themselves and women attributing it to their male partners. With a longer duration of partnership, gender-specific characterizations increased and use of the "both of us" category decreased. If the statistical progression with time could be read as reflecting the modal course of a partnership, this would be a partnership that starts with a high level of sexual desire in both partners. Then, after about one year, sexual desire in the female partner would drop steadily, while it would stay at the same level in the male partner (Figure I).

Is this drop mediated by age? Age correlates with the duration of partnership (r=.32), but it has only a very small effect in a logistic regression to predict sexual desire. The course of sexual desire with duration of partnership is not modified when age is held
constant (Tab IV, model 2). Thus, the effect of duration cannot be attributed to age differences. Neither can it be attributed to the differences between living together in a flat or not (Tab IV, model 3), being married or not, and having children or not.

Desire for tenderness

The statement "just wants to be tender" had been presented the same way as the statement "wants to have sex often". With this item, gender differences were reversed: the desire "just to be tender" rose in women and sloped down in men (Figure II). Both partners tended to concur in their desire for tenderness when the partnership had been newly formed; at later stages women and men increasingly differed. As with the desire for sex, this trend was not confounded with age, cohabitational status, marital status or the presence of children.

Lack of sexual desire

Lack of sexual desire was experienced by 57.5% of the women "occasionally" and by 13.3% "often". With men, the respective percentages were 23.9% and 1.0%. In women, there was a marked tendency for lack of sexual desire to increase with duration of partnership, but not in men (Table II). In contrast to the results obtained so far, this relationship was modified by age. It was absent in women around age 22 and most pronounced in women around age 28.
Coitus not often enough

The respondents evaluated the frequency of sex in their partnerships by choosing from the category labels "too often", "in just the right frequency", or "not often enough". At the beginning stage (less than 1 year), the "not often enough" category was chosen by women and men in the same proportion (Table II). With a longer duration, the percentage rose in both genders, but more pronounced in men than in women.

Sex outside of the partnerships

The occurrence of sexual relations outside of the steady partnerships could be assessed from a section of the questionnaire where the last time a respondent had sex with a sexual partner was described (Table III). In 1.8% of the men and 3.1% of the women (difference not significant), the sexual partner at this occasion was not the steady partner. A currently ongoing sexual affair was acknowledged by 6.4% of the women and 5.5% of the men. These two measures of extra-pair sexual activity were not related to the duration of partnership. The stated desire to have a sexual affair significantly increased in men, whereas in women there was only a non-significant tendency.

Masturbation

The level of masturbatory behavior in men was not influenced by the duration of their partnerships (Table II). In women, a slight decrease could be observed. Both results still prevail after age is controlled.

Dissent about having sex

There are situations when one partner (in this case the respondent) does not like to have sex, but the other (his or her partner) does. This kind of dissent reportedly had happened at least once to 82% of the women and to 59% of the men during their recent partnership. Of course, the chance for dissent to occur grows with time spent in the partnership;
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however, it grew faster in women than in men. After being asked what they usually did after such a situation occurred, 68.3% of the women and 54.4% of the men said they did not have sex just for the sake of the partner. Stated conversely, more men than women reportedly consented to having sex in spite of an initial lack of desire. Similar results were obtained when the hypothetical situation was reversed (respondent likes to have sex and partner does not). Thus, men seemed to be more eager to accord to the sexual wishes of their female partners than vice versa - whether it is to have sex even when they are somehow not in the mood, or to refrain from having sex when the female partner does not want it. This gender difference remained constant, regardless of how long the couple had been together.

Sexual experience at the most recent occasion

Thus far, it has been shown that sexual satisfaction diminished with a longer duration of partnership and that sexual desire diminished too, specifically in women. Does this mean that the most recent sexual experience was less rewarding in long partnerships compared with short partnerships?

In 90.5% of the respondents, the most recent time they had sex involved coitus. Nearly half of the events included oral-genital stimulation. This kind of stimulation (active and passive) was reported in men but not in women with decreasing proportions in longer partnerships. Anal intercourse was performed seldom and did not vary with duration of partnership. For most respondents, the initiative to have sex had been equal on both sides. When one side was emphasized, both genders reported slightly more initiative for men, and this increased with duration of partnership.

The emotional experience of the sexual act was generally reported in very positive terms: "I was sexually satisfied", "It was a passionate experience and, "I was happy" applied to more than four out of five respondents. Orgasm was experienced by 92.1 % of
the men, rising with duration, and by 65.8% of the women, not rising. For most respondents both partners received the same amount of sexual pleasure. In those who made a distinction, women and men alike, attributed more sexual pleasure to the male partner. The duration of partnership did not affect this difference.

Further exploration of the results

To summarize the preceding results: (a) In longer partnerships, compared with shorter ones, sexual activity and sexual satisfaction declined in women and men. (b) Sexual desire only declined in women. (c) Desire for tenderness declined in men and increased in women. The first finding is not much of a surprise, but the second and third findings are intriguing. The decline of sexual desire in women was strongly revealed in the assessment of sexual desire relative to the partner and in an avowed lack of sexual desire. It was reflected more weakly in other variables, but not in all. For instance, the description of the most recent sexual act did not vary much with duration of partnership, but the few existing differences point towards less female motivation and pleasure in longer partnerships, compared with shorter ones.

Therefore, the results can be taken as convergent findings, deserving explanation - at least in the context of this study. Since these findings, especially (b) were not expected at the time the survey was planned, no explanatory hypothesis had been set up in advance. Nevertheless, the extensive data of the survey allow a post hoc exploration of other variables that may contribute to an explanation of the results. In the next sections, three steps will be taken: (1) A provisional investigation of the hypothesis: Declining sexual desire in women reflects a receding commitment in the male partner, (2) a search for confounding variables, (3) an investigation of the possibility of self-selection.
Commitment to the partner and sexual desire

Partners in a couple often differ in their commitment. One of them may exceed the other in (1) wishing the partnership to endure, (2) wanting to possess the partner for herself or for himself, (3) wanting to spend much time with the partner, (4) wanting to talk to the partner, (5) being jealous, and (6) being in love. Stated negatively, (7) fear of intimacy may be elicited more easily in one of the partners and (8) he or she may tend to withdraw emotionally. These 8 descriptions were used to build a scale. Each time a statement was marked as describing the respondent in contrast to his or her partner, a scale point was given for the commitment of the respondent (the negative items reversed).

Perceived commitment of the partner was scaled equivalently. The measure to be used was the computed difference of both scales. It reflects the relative excess or deficit of ego's commitment after alter's perceived commitment has been subtracted. A positive value means: My desire to be close to my partner is greater than his desire to be close to me. This variable, termed "imbalance of commitment", had a normal distribution with a larger mean for women than for men. Positive values carry a mixed message: (1) I feel drawn to my partner. (2) my partner withdraws from me.

How would "imbalance of commitment" relate to sexual desire? If part one of its meaning prevails (I feel drawn to my partner), there might be a positive relationship since sexual desire is just another aspect of feeling drawn to someone. If part two prevails (my partner withdraws from me), there might be a negative relationship since an uncommitted and perhaps unresponsive partner would not engage sexual feelings in the long run. In the first position, sexual desire would have the function of bridging a gap. In the second, it would be dampened because the emotional exchange is felt to be skewed. The correlations of "imbalance of commitment" with sexual desire, as meas-
ured in Figure I, were $r=.15^{**}$ in women and $r=.06$ (ns.) in men. Thus the first meaning seems to be operative to a larger extent than the second.

Can the variation of "imbalance of commitment" explain at least some part of the negative relation between sexual desire and duration of partnership that has been found in women? In order to do so, it should be negatively correlated with duration of partnership. Actually the correlation is positive, but close to zero, in women ($r=.08$, *) and absent in men ($r=−.06$, ns.). Thus, a lower commitment of the male partner cannot provide an explanation for the declining sexual desire in women. To the contrary, it would explain an increase in sexual desire, since it is positively related to sexual desire and at the same time slightly rises with duration of partnership.

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Insert Table IV about here

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Confounders and modifiers

If the relationship between sexual motivation (target) and duration of partnership (predictor) could be explained at least partly by a confounding variable, the B coefficient for duration of partnership should shrink significantly after the confounder had been introduced into the logistic regression equation (for details of technique see Hosmer & Lemeshow, 1989). In Table IV potential confounders are examined (age, living together or separate, imbalance of commitment, lifetime number of sexual partners, age at first coitus, church attendance, political orientation, approval for feminist views). The first model contains no confounder at all. Duration of partnership predicts a constant level of sexual motivation in men (B= .023) and a dropping level in women (B=−.628). The interesting coefficient is the B-coefficient for women. If one of the candidate variables
would reduce the magnitude of this coefficient beyond the upper limits of its confidence interval (-.773, -.483), then a confounding effect could be assumed. In fact none of the candidate variables showed such an effect. Even when all potential confounders were included simultaneously (Table IV, model 6), the regression coefficient for duration of partnership was not significantly diminished (from -.628 to -.613). If the variable “imbalance of commitment” was used alone (model 4) the B-coefficient even increased from .628 to .675. This increase was not significant, but it showed, that "imbalance of commitment" instead of “explaining” the relationship between sexual motivation and duration tended to obscure it, acting as a suppressor variable.

For brevity’s sake Table IV does not include the interaction terms of other predictors with duration of partnership. When these terms were included, no confounding effect appeared either. The gender-specificity of the relation between duration and sexual desire could also have been represented by the interaction duration x gender in a single logistic regression equation. Instead, two separate equations for each gender have been chosen, since this presentation is closer to the raw data and easier to understand. Analyzing the interaction instead of the separate main effects for men and women basically gave the same results.

In order to test how specific these results were for the chosen target variable ("wants to have sex often") as an expression of sexual motivation, a second measure of sexual motivation, the variable "lack of sexual desire" (Table II had been examined as a target variable with the set of predictors used in Table IV. The results were (inversely) in accordance with those obtained with "wants to have sex often". Using "just wants to be tender" (Table II) as a target variable yielded roughly a mirror image of the results obtained for "wants to have sex often" whereby the gender effect was exchanged.
Self-selection?

This is a cross-sectional study. An unknown proportion of the short-term partnerships would not evolve into long-term partnerships and therefore cannot be considered early stages of a longer course. These "true" short time partnerships may differ from the forerunners of longer courses in important respects and thus may undermine the assumption that a modal time course would show up in the cross-sectional data in the same way as it would in a longitudinal study. But even when a longitudinal interpretation will always be precarious, at least some probes can be made in order to assess the importance of factors that might be associated with self-selection. To clarify the idea, let us presume a simple model with two types of sexual strategy: (a) many short-term partnerships with different mates (b) one long term-partnership with one mate. These strategies can be thought to correspond to different sexual temperaments, as in the distinction of an unrestricted vs. restricted socio-sexual orientation (Gangestad & Simpson, 1990; Simpson & Gangestad, 1991). Every student's strategy comes more or less close to one of the extremes. Students who pursue a short-term strategy by definition will enter the study with a short duration of partnership. Students who pursue a long-term strategy typically, but not always, will enter the study with a long duration of partnership. Therefore sexual strategy and duration of partnership at the time of the study are related. If sexual strategy as a socio-sexual orientation were also related to sexual desire, it could play the role of a confounding variable: the relationship between duration of partnership and sexual desire would reflect differences in sexual strategy associated with both variables. How is it to be known which strategy a student pursues? The short-time strategy might be revealed by a large number of sexual partners and perhaps by a general proclivity to sexual activity, indicated by an early age of first sexual intercourse. If the relationship between duration of partnership and sexual desire would diminish after controlling for these indicators, a case could be made for self-selection according to sexual strategy.
The life time number of sexual partners encountered by the respondent correlated with the desire to have sex (as measured in Figure I) by $r=0.19^{**}$ in women and by $r=0.07$ (ns.) in men. The correlation with duration of partnership equaled $r=-0.25^{***}$ in both genders. Did the statistical control for the lifetime number of sexual partners alter the relationship between sexual desire and duration of partnership? The answer is no (Table IV, model 5). A similar result was obtained with age at first sexual intercourse. These results indicate that large effects due to self-selection may not be present, but they are still not fully appropriate to evaluate this matter.

DISCUSSION

The discussion will focus on the following questions:

- Why do sexual activity and satisfaction decline with time in a partnership?
- Why does sexual desire decline in women but not in men?

Habituation

Habituation is the process by which a reaction is weakened after repeated or prolonged exposure to the stimulus. In laboratory experiments on humans, arousal responses, elicited by sexually stimulating pictures or movies, habituate after repeated exposure and gain vigour with new stimuli. This effect is more pronounced in men than in women (Koukounas & Over, 1993; Laan & Everaerd, 1995; O’Donohue & Plaud, 1991). Can habituation be an explanation for declining sexual desire? It seems to works well in short-term situations encompassing minutes, hours or days - but does it also work in months or years? Maybe the reaction to a pattern of similarity builds up very slowly in a couple's sex life; but then our findings should be reversed: sexual desire should diminish more in men than in women. Even if our results could be considered an instance of habituation, the physiological mechanism of habituation would not explain much because
it can only elucidate how activation (if sexual desire can be called so) diminishes, but not why. The why-question pertains to possible adaptive functions of habituation in sexual responses, an issue that will be discussed later in the section on evolutionary psychology.

**Routine**

The decline of sexual activity and satisfaction is not surprising since most human activities are subject to surfeit when pursued too often and for too long. Long-term partnerships cannot escape some measure of routine, and this would "explain" a decline of sexual activity and satisfaction. But is routine really an explanation or just another way to put the question? There are many activities in life performed over and over again without ceasing to give pleasure. Why should routine have an effect in this case? And why should it affect women more than men?

**Receding commitment**

The measure "imbalance of commitment" reflects how partners differ in striving to be close to the other. With this measure, male commitment relative to the partner seems to recede with duration of partnership, whereas female commitment seems to grow. But this could not explain receding female sexual desire. A lack of commitment in the male partner does not seem to suppress sexual desire in a woman as long as she herself feels committed to him, or maybe as long as she sticks to her choice for this partner. Perhaps desire for sex can be conceived as part of a larger move to get close to the partner and to overcome his resistance.

**Gender roles**

Can the increasing gender-specific differentiation of sexual desire and desire for tenderness with duration of partnership be put down to gender role prescriptions? There surely
exists a general gender stereotype, attributing desire for sex to men and desire for ten-
derness and intimacy to women. Social construction theory (Hacking, 1999) postulates a
causal effect of social categories. More specifically, role models act as moulds for the
socialization of gender-specific ways to think to feel and to have motives, including
sexual desire. Any behavior or way of feeling will be reinforced if it is in accordance
with the role, and it will be ignored, discouraged, or punished if not. This basic idea has
been supplemented and refined by the concepts of sexual scenarios and scripts which
more intricately relate the societal level to the level of individual psychology
(DeLamater, 1987; Simon & Gagnon, 1987).

But there is one puzzling complication: the dependence of gender differences on the du-
ration of partnership. Gender stereotypes may well rule general propensities of women
and men, but why should gender differences in sexual desire be virtually absent in the
first months of a partnership and later intensify so markedly? Does the fine-tuning of
gender roles include an expectation of female sexual desire to be high when the couple
is just getting together, but not in later stages? This seems to be improbable in a modern
society, and even in a traditional society, it would be difficult to conceive. Students in
the ‘90s are far removed from submitting to traditional role models, at least in their
avowed attitudes. Women no longer devaluate themselves when they show sexual de-
sires. To the contrary, sexual desire is seen as a sign of vigor and personal assertion.
Students are generally liberal in their attitudes. But there is still some variation that can
be exploited in order to assess at least superficially whether there is a general effect of
normative orientations. The following three variables reflect to some extent how much
traditional vs. non-traditional gender-roles are embraced: political orientation (left to
right), affinity to feminist positions, and church attendance. None of these variables was
related to sexual desire or desire for tenderness, and consequently none could explain
the relation between these variables and duration of partnership (Table IV, model 6).
Polarisation of roles

The discrepancy between men and women in their desire for sex and for tenderness may have resulted from a polarization of roles whereby one partner assumed the demanding role and the other assumed the restrictive role. Role differentiation along this line easily evolves whenever people repeatedly interact and mutual expectations are shaped and reinforced by past experience. It can be observed in many contexts, e.g. in work groups, and it does not need to be gender-specific. Desires for sex and tenderness may have been shaped by positive feedback within the couple, reinforcing small initial differences, which eventually led to the sedimentation of complementary roles. Since role polarization is a general process independent of content it can only explain how roles are differentiated, but not why they do so along specific lines. To the extent in which such a process took place, the explanatory task is reduced to the question of why small seminal differences are related to gender. These differences could be considered as differences in gender-specific scripts acquired through a multitude of societal influences, suggesting to men that they should be eager for sex and to women that they should have a desire to obtain romance and assurance in a partnership with this cleft deepening during the course of sustained interaction in a partnership. But why should this polarization process be so overwhelming that it be maintained against all the equalizing forces that are present in student culture? And even more, as Buss (1995) stated, "culture", "learning" and "socialization" represent human phenomenon that "explain" only to a certain extent and then require explanations themselves (Buss, 1995).

Therefore, it may be fruitful to step back from the level of proximal causes considered so far and look at the results from a greater distance – as a reflection of gender-specific evolutionary adaptations, that may also be embodied in cultural scripts. In the following section, some ideas from evolutionary psychology will be evaluated in order to propose
an evolutionary account for the decline of female desire with duration of partnership and the concomitant constancy of male desire.

**Pair-bond**

According to Zeifman and Hazan (1997) the adult pair bond and the bond between parent and child has much in common: (a) a similar process of formation: close physical proximity, kindness, understanding, (b) similar reactions to separation and loss, (c) similar physiological processes of regulation. These similarities may be due to a co-optation of the mental system, regulating the bond between parent and child by the later evolving pair-bond system. As the time period of infant dependence was growing in our ancestors, a stable bond between parents probably has furthered reproductive success and thus has been favored by natural selection. The already existing attachment mechanism for the parent-child-bond could have been the template which was modified into a psychological mechanism for the purpose of keeping mates together, a mechanism to ensure the emotional locking of mate choice and stable co-operation at least for a sufficient time span. The first phase of pair bonding, called infatuation by Zeifman and Hazan, is dominated by elation and the desire to be close. In later stages, rash infatuation diminishes and, according to Zeifman and Hazan (1997), the non-sexual component of the bonding process, which most resembles the parent-child-bond, will take over. Declining interest in sexual activity would be an expected consequence of this later stage. As in the parent-child bond, the desire for physical proximity would *not* be at its highest when the bond is secure, but when it is in the making or when it is threatened. Thus, this theory predicts committed long-term partnership with a relatively low level of sexual desire, but no differences between women and men in this respect. Such differences must be accounted for by other mechanisms.
The Coolidge Effect

In many mammals, a selective elicitation of sexual urge can be observed, especially in species where males secure large harems (Symons, 1979, p. 208-213). In these species male sexual activity flags with repeated exposure to the same female, but can be revived many times by the introduction of a new female. This phenomenon is termed the "Coolidge Effect" (Bermant, 1976). In female animals, no equivalent effect has been reported. Although the Coolidge Effect cannot be investigated experimentally in humans, some evidence seems to support it: the habituation of sexual responses in human males when visual stimuli are often repeated, its invigoration with new stimuli, and anecdotal self-reports. For the task of explaining our results, the Coolidge effect makes exactly the wrong prediction since it should be the male partner, not the female, whose sexual desire should flag with time. Perhaps the Coolidge Effect works only short-term and mostly reflects a male motivation for sexual variety. It must be either absent in a long-term context, or trumped by other mechanisms.

Indiscriminating drive

Men are generally less discriminating than women in the choice of sexual partners (Oliver & Hyde, 1993; Symons & Ellis, 1989). More than women, they seem to experience sexual desire independent of context. Therefore, it might be argued that men are less sensitive than women to any influence that may impede sexual desire in longer partnerships. But such an interpretation would be opposed by the Coolidge Effect (should it exists in humans), since this effect most probably is an adaptation against indiscriminating sexual activity. It is an example of how fine-tuned the innate programming for sexual arousal can be. If it is still true that men choose sexual partners with less discrimination than women, this only attests to the different contingencies women
and men have experienced in the evolutionary past after they happened to make the wrong choice, but not necessarily to differences in a general "drive level".

At this point we have a proposition to explain why sexual desire should subside with time in both sexes (the non-sexual nature of the bond); but this proposition does not fit the prevailing male sexual desire. Could there be a specific evolutionary advantage for male desire to stay at a high level?

**Sperm competition**

Sperm competition would explain such an advantage. It can occur whenever different ejaculates meet in the female reproductive tract. When two males copulate with a female in succession, their chances of fathering an offspring depend on the interaction between order of copulation, the interval between two copulations, and the timing of the inseminations relative to when the female ovulates (Birkhead, 2000). In many animals, the frequency of copulation is closely associated with the male’s capacity for mate guarding. If a male cannot prevent other males from coming close to his female partner, he can still increase the probability of fathering her offspring by inseminating her frequently enough to establish a barrier against rival sperm. Thus, copulation as a regular routine can act as an equivalent for mate guarding behavior. The widespread occurrence of sperm competition in the animal kingdom and its many behavioral repercussions has been recognized by biological research only recently and only against much resistance (Birkhead, 2000). Then, in a surge of enthusiasm and sensationalism, some exaggerated claims have been made about the mechanisms of sperm competition in humans (Baker & Bellis, 1995), which were not supported by later research (Birkhead, Moore, & Bedford, 1997; Moore, Martin, & Birkhead, 1999). In humans, indicators like testes size, sperm number and sperm length point towards a relatively modest level of sperm competition, compared with other primates, and this indicates that our female ancestors must
have been relatively monandrous (Birkhead, 2000, p. 81-83; Gomendio, Harcourt, & Roldan, 1998; Smith, 1984) – but only relatively. The mentioned reviews indicate some measure of human sperm competition and, most important for the question at hand, an evolved disposition in the human male to cope with this threat to paternity. The results of the present study, which show male sexual desire to be high, regardless of the duration of partnership, might be explained by an emotional preparedness to keep a constant level of insemination in the female partner.

Safeguarding for sperm competition is solely a male concern - a female can always be sure of her paternity, regardless of whether the father of her offspring is her constant partner or not. Sexual infidelity can be a good strategy from a female’s point of view since it would broaden the genetic variety of her offspring and perhaps improve genetic quality. (Gangestad & Simpson, 2000). Helping instead her partner in his precautions against rival sperm would give no immediate advantage to a female. But still, securing male co-operation and resources must be vital whenever female reproductive success depends on male support. Thus, signals of sexual sincerity and co-operation with her male partner’s effort to insure his paternity should be an adaptive feature of female reproductive strategy in relatively monandrous species (Birkhead, 2000). Perhaps a low level of sexual desire communicated by the female may count as such a signal. But the opposite may be more straightforward: If it was important for a ancestral human female to keep her male partner, why should she have been reluctant to have sex anytime he wanted to? An evolved motivation for differential sexual restraint would only make sense if there were advantages to withholding or disadvantages to engaging in sexual activity (Thiessen, 1994). Advantages to withholding may be understood in the context of female mating strategy (Buss, 1999, p. 323), but they seem more plausible in the courtship phase than in a long-term partnership. A tangible disadvantage would be the risk of a sexually transmitted disease. Since these diseases often lead to infertility, a
trade-off between costs and benefits of copulation must be considered as a selective force working in evolutionary history (Baker & Bellis, 1995). When there was not too much at stake, perhaps a moderate level of sexual desire has been selected for as a compromise.

**Sex as instrumental for the promotion of attachment**

Sperm competition fits in quite logically as a hypothesis to explain a constant level of male sexual desire (Figure I), but it does not account for the course of female sexual desire. Most readers probably perceive the curve for females in figure I as depicting a drop and try to figure out why the numbers go down. But it could also be interesting to reverse the question: Why is female sexual desire so high in short (mostly beginning) partnerships? Why doesn’t it keep to the same level all over the time scale? There might be a factor exerting strong influence in the formative phase of a partnership and subsiding in later stages. Donald Symons (1979, p. 253-286) has assembled a multitude of findings suggesting the conclusion that women more than men use sex instrumentally for the achievement of other goals. Although women generally do not seem to experience less pleasure than men in sexual intercourse, in most cultures men, not women, are expected to offer gifts in exchange and to invest materially in courtship. In women more than in men, sexual motivation seems to be related to the desire to form an intimate relationship and to secure support. This instrumental nexus presumably builds upon a gender-specific psychological preparedness for having specific emotions in specific situations, which works spontaneously without the intervention of cognitive deliberation. In this view, female sexual motivation is seen as an adaptation to the way male motivation is designed. It helps to generate heat to establish the newly emerging pair bond, and it recedes when it is no longer needed at such a high level. This does not imply that there is a point in asking which gender is adapting more to the other, since the
motivational systems of males and females co-evolved from conflicting demands (Buss, 1999).

The reported results would make sense with these views from evolutionary psychology. Nevertheless, at the end of this discussion the question of how to account for the gender-specific relation between sexual desire and duration of partnership seems still open to me. If the evolutionary legacy of sperm competition were an explanation, this would be hard to prove. But cultural accounts have their difficulties as well. The causal nexus between mechanisms of gender role socialisation and the way sexual desire was related to the duration of partnership in this study may be conceived more convincingly, but at this point it looks tenuous. The gender-specific effect might have been the result of the unknown relation between sexual strategy or temperament and the probability of having entered the study with a specific duration of partnership. Still the effect seems to be strong enough to warrant further investigation in a longitudinal study.
ACKNOWLEDGEMENT

This survey was conducted by Gunter Schmidt, Dietrich Klusmann, Arne Dekker, Silja Matthiesen and Siegrid Schäfer. I am thankful to my colleagues for their support in the preparation of this article.
REFERENCES


### Table 1. Description of the sample

<table>
<thead>
<tr>
<th></th>
<th>Men (N=898)</th>
<th></th>
<th></th>
<th></th>
<th>Women (N=967)</th>
<th></th>
<th></th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Median</td>
<td>Mean</td>
<td>SD</td>
<td></td>
<td>Median</td>
<td>Mean</td>
<td>SD</td>
<td></td>
</tr>
<tr>
<td>Age (in years, range: 19-32)</td>
<td>26</td>
<td>25.7</td>
<td>3.0</td>
<td></td>
<td>24</td>
<td>24.8</td>
<td>3.3</td>
<td>.000&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Duration of partnership (months)</td>
<td>29</td>
<td>37.9</td>
<td>33.7</td>
<td></td>
<td>33</td>
<td>40.4</td>
<td>33.0</td>
<td>.030&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Lifetime number of sexual partners</td>
<td>3</td>
<td>5.9</td>
<td>7.5</td>
<td></td>
<td>3</td>
<td>5.5</td>
<td>6.3</td>
<td>.499&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Age at first coitus in years&lt;sup&gt;a&lt;/sup&gt;</td>
<td>18.9</td>
<td></td>
<td></td>
<td></td>
<td>18.2</td>
<td></td>
<td></td>
<td>.000&lt;sup&gt;c&lt;/sup&gt;</td>
</tr>
</tbody>
</table>

<sup>a</sup> Median from survival table.

<sup>b</sup> Mann Whitney U-test.

<sup>c</sup> Wilcoxon (Gehan) statistic for survival tables.
Table II. Changes in sexual experience and behavior with increasing duration of partnership

(Yes-responses in % and odds ratios from logistic regression*)

<table>
<thead>
<tr>
<th>Experience</th>
<th>Men Duration of partnership</th>
<th>Women Duration of partnership</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>&lt; 1</td>
<td>1-3</td>
</tr>
<tr>
<td>Coitus more than 7 times in last 4 weeks</td>
<td>67</td>
<td>49</td>
</tr>
<tr>
<td>Very satisfied with sex life</td>
<td>41</td>
<td>27</td>
</tr>
<tr>
<td>Passionate sex in last 4 weeks</td>
<td>91</td>
<td>89</td>
</tr>
<tr>
<td>Sex with partner could not be better</td>
<td>48</td>
<td>35</td>
</tr>
<tr>
<td>Wants to have Sex often</td>
<td>76</td>
<td>74</td>
</tr>
<tr>
<td>Just wants to be tender</td>
<td>70</td>
<td>55</td>
</tr>
<tr>
<td>Sex in partnership not often</td>
<td>27</td>
<td>51</td>
</tr>
<tr>
<td>Lack of sexual interest experienced often</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Extra-pair Sex</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Most recent coitus not with com-</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>mitted partner</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Currently ongoing sexual affair outside</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>partnership</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>--------------------------</td>
<td>----</td>
<td>----</td>
</tr>
<tr>
<td>Extra-pair sex at least once while in current partnership</td>
<td>22</td>
<td>30</td>
</tr>
</tbody>
</table>

Wants to have sex outside partnership\(^a\)

Masturbation

<table>
<thead>
<tr>
<th></th>
<th>82</th>
<th>84</th>
<th>87</th>
<th>1.11</th>
<th>ns.</th>
<th>61</th>
<th>63</th>
<th>55</th>
<th>.82</th>
<th>**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masturbation at least 1 time in the last 4 weeks</td>
<td>44</td>
<td>50</td>
<td>45</td>
<td>0.97</td>
<td>ns.</td>
<td>17</td>
<td>16</td>
<td>14</td>
<td>.89</td>
<td>ns.</td>
</tr>
</tbody>
</table>

Masturbation more than 4 times in the last 4 weeks

---

\(^a\) For use in logistic regression (Hosmer & Lemeshow, 1989), duration of partnership has been transformed by taking the square root. This reduces the effect of differences at the high end of the range and normalizes the distribution. Additionally the variable has been z-transformed in order to facilitate the interpretation of the odds ratios.

\(^b\) Exp(B) is the odds ratio from a logistic regression with duration of partnership (transformed as described above) as a predictor of the respective dichotomous row variable (target variable). It reflects the ratio of change in the odds for obtaining a yes-response when duration of partnership (transformed) changes 1 unit of standard deviation. If the odds ratio is < 1, yes-responses decrease with duration of partnership. If it is > 1, they increase. No covariate is introduced into the equation. When age is used as a covariate, results generally stay the same with few exceptions. Levels of significance: *sig. (.05), ** sig (.01), *** sig (.001).

\(^c\) This attribute is counted as a yes-response, if marked by the respondent as characteristic of self either in contrast, or in accordance with the partner.
Table III. The statement "Wants to have sex often" as characterizing me (respondent), partner, both, or neither. Changes with duration of partnership

<table>
<thead>
<tr>
<th>Duration of partnership</th>
<th>Men</th>
<th></th>
<th></th>
<th></th>
<th>Women</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>me</td>
<td>partner</td>
<td>both</td>
<td>neither</td>
<td>total</td>
<td>me</td>
<td>partner</td>
<td>both</td>
</tr>
<tr>
<td>1-6 months</td>
<td>16.2</td>
<td>6.9</td>
<td>58.8</td>
<td>18.5</td>
<td>100.0</td>
<td>6.1</td>
<td>16.5</td>
<td>64.3</td>
</tr>
<tr>
<td>7-18</td>
<td>27.9</td>
<td>8.7</td>
<td>52.5</td>
<td>10.9</td>
<td>100.0</td>
<td>10.8</td>
<td>28.1</td>
<td>43.8</td>
</tr>
<tr>
<td>19-36</td>
<td>37.9</td>
<td>11.7</td>
<td>34.0</td>
<td>16.5</td>
<td>100.0</td>
<td>12.5</td>
<td>33.0</td>
<td>39.3</td>
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<tr>
<td>37-72</td>
<td>47.8</td>
<td>10.8</td>
<td>25.7</td>
<td>15.7</td>
<td>100.0</td>
<td>7.6</td>
<td>47.8</td>
<td>23.0</td>
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<tr>
<td>73-212</td>
<td>53.8</td>
<td>5.1</td>
<td>23.1</td>
<td>17.9</td>
<td>100.0</td>
<td>4.7</td>
<td>53.0</td>
<td>22.1</td>
</tr>
<tr>
<td>Total</td>
<td>37.5</td>
<td>10.0</td>
<td>37.6</td>
<td>15.6</td>
<td>100.0</td>
<td>8.7</td>
<td>37.5</td>
<td>35.8</td>
</tr>
</tbody>
</table>
Table IV. Sexual motivation\(^a\) predicted by duration of partnership and other variables.

Examination of possible confounding effects. Logistic regression models\(^b\).

<table>
<thead>
<tr>
<th>Model</th>
<th>Duration of partnership</th>
<th>Men</th>
<th>Women</th>
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</thead>
<tbody>
<tr>
<td>Model 1</td>
<td></td>
<td>.023</td>
<td>-.628</td>
</tr>
<tr>
<td>Model 2</td>
<td></td>
<td>.047</td>
<td>-.626</td>
</tr>
<tr>
<td>Model 3</td>
<td></td>
<td>-.120</td>
<td>.006</td>
</tr>
<tr>
<td>Model 4</td>
<td></td>
<td>-.006</td>
<td>-.629</td>
</tr>
<tr>
<td>Model 5</td>
<td></td>
<td>-.075</td>
<td>.004</td>
</tr>
<tr>
<td>Model 6</td>
<td></td>
<td>.168</td>
<td>.239</td>
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</table>

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Duration of partnership</th>
<th>Men</th>
<th>Women</th>
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</thead>
<tbody>
<tr>
<td>Model 2</td>
<td></td>
<td>.047</td>
<td>-.626</td>
</tr>
<tr>
<td>Model 3</td>
<td></td>
<td>-.120</td>
<td>.006</td>
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<tr>
<td>Model 4</td>
<td></td>
<td>-.075</td>
<td>.004</td>
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<tr>
<td>Model 5</td>
<td></td>
<td>-.048</td>
<td>.081</td>
</tr>
<tr>
<td>Model 6</td>
<td></td>
<td>-.029</td>
<td>-.120</td>
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</tbody>
</table>

\(^a\)Sexual motivation
\(^b\)Logistic regression models

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Duration of partnership</th>
<th>Men</th>
<th>Women</th>
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<tbody>
<tr>
<td>Model 2</td>
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<td>.047</td>
<td>-.626</td>
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<td>Model 3</td>
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<td>Model 5</td>
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<td>-.048</td>
<td>.081</td>
</tr>
<tr>
<td>Model 6</td>
<td></td>
<td>-.029</td>
<td>-.120</td>
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<table>
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<tr>
<th>Model 1</th>
<th>Duration of partnership</th>
<th>Men</th>
<th>Women</th>
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<tbody>
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<tr>
<td>Model 5</td>
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<td>-.048</td>
<td>.081</td>
</tr>
<tr>
<td>Model 6</td>
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<td>-.029</td>
<td>-.120</td>
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</tbody>
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<table>
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<td>.081</td>
</tr>
<tr>
<td>Model 6</td>
<td></td>
<td>-.029</td>
<td>-.120</td>
</tr>
</tbody>
</table>
Target variable: "Wants to have sex often". A yes-response is counted, if the respondent marked this item as characteristic of self, either in contrast, or in accordance with the partner.

All continuous variables are z-transformed. For simplicity of presentation the constant of the logistic equation is omitted.

Wald-statistic.

Confidence interval for $B = -0.628$: $(a = -0.05, -0.773, -0.483)$.

Deviation coding: (+1) couple lives together; (-1) couple lives in separate flats.

Positive values indicate: own commitment exceeds commitment of partner.

Deviation coding church attendance: (+1) on a regular basis or sometimes; (-1) never or rarely.
Figure 1. "Wants to have sex often".

Percentage of yes-responses by duration of partnership. A yes-response is counted, if the respondent marked this statement as characteristic of himself or herself, either in contrast, or in accordance with the partner (see Table III) Estimation by logistic regression.
Figure II. “Just wants to be tender”.

Percentage of yes-responses by duration of partnership. A yes-response is counted, if the respondent marked this statement as characteristic of himself or herself, either in contrast, or in accordance with the partner. Estimation by logistic regression.