Psicothema 2006. Vol. 18, nº 3, pp. 384-391
www.psicothema.com

ISSN 0214 - 9915 CODEN PSOTEG

«I find you to be very attractive…» Biases in compliance estimates to sexual offers

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The classic experiments by Clark and Hatfield on sex differences in compliance to offers of dates, apartment visits, and casual sex, and the related informal project of Molzer served as the foundation for the present study. However, whereas individuals in these previous investigations directly approached opposite-sex participants, our research employed surveys to gauge compliance. A sample of 195 male and 179 female Austrian adults were provided with written forms of the Clark and Hatfield scenarios and asked to predict the rates of compliance on a thermometer scale ranging from 0% to 100%. Results indicated that compliance estimates are largely effected by the sex of the receiver to these offers, and to a lesser degree, participants' age and relationship status. The sex of the participant did not significantly effect the results. Relative to the previous work, the compliance rate of males was overestimated, while that of females was underestimated. We offer explanations for the differences in findings between the original investigations and our research, discuss the importance of contextual factors as well as the generality of the Clark-Hatfield findings, especially with respect to females' near-zero receptivity to explicit sexual offers, and point out the relevance of the current findings for health psychology.

«Te encuentro muy atractivo/a…» Disposición de aceptación ante ofertas sexuales. Los clasicos experimentos de Clark y Hatfield sobre las diferencias del sexo de acuerdo a las proposiciones de citas, visitas a departamentos, sexo casual, y la relación informal al proyecto de Molzer sirvió como base para el estudio presente, mas, sin embargo, las personas que en estas investigaciones previas tuvieron acceso directo con participantes del sexo opuesto, hemos empleado encuestas para medir niveles de aceptación. Un ejemplo de 195 varones y 179 mujeres austriacos adultos, les fueron entregados formas escritas con argumentos de Clark y Hatfield, a las cuales se les preguntó predecir los niveles de aceptación en una escala termométrica del 0 al 100%. Los resultados indicaron que, de acuerdo a las estimaciones, éstas son altamente causadas por el sexo del recipiente de estos ofrecimientos y a un menor grado por la edad de los participantes y su manera de relacionarse. El sexo de los participantes no tuvo causa significativa en el resultado en relación a la investigación anterior. La evaluación del consentimiento de los varones fue exagerado, mientras que aquella de las mujeres fue subestimado. Ofrecemos explicaciones por las diferencias de lo descubierto entre las investigaciones originales y nuestras propias investigaciones, discutir la importancia de los factores del contexto, así como la generalidad de los descubrimientos de Clark-Hatfield, especialmente con respecto a las mujeres con casi cero receptividad a los ofrecimientos explícitos de sexo, y subrayar la relevancia de los descubrimientos comunes para la salud psicológica.

Common knowledge suggests that males and females react very differently to sexual offers, especially when the individuals making the offer are unfamiliar. These sex differences in compliance to sexual offers have been documented in a classic series of naturalistic experiments conducted by Clark and Hatfield (1989) and Clark (1990). Although these studies are well-known and are frequently cited (see recollections in Clark and Hatfield, 2003), we have been unable to find any documentation of their scientific replication. Our search produced only one account, a rather happenstance, «real-life» informal project conducted by an Austrian magazine (Molzer, 2003; see Voracek, Hofhansl and Fisher, 2005). In addition to the lack of replication, there has been no examination of people's predictions of compliance rates to sexual offers. Therefore, the goal of the current study was to further investigate sex differences in hypothesized reactions to sexual offers using the scenarios employed in the Clark and Hatfield studies. Using a written survey method, we asked male and female participants to estimate the rate of consent of a typical man or a typical woman to sexual offers.

We begin this paper by reviewing the necessary background for the present research; namely, the accounts of Clark and Hatfield

Fecha recepción: 3-9-04 • Fecha aceptación: 12-1-06
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(1989) and Clark (1990). Then, we present an analysis of the procedures used in these investigations, and review the evidence from the informal project of Molzer (2003), followed by the presentation of the current study.

The Clark and Hatfield experiments: sex differences in compliance to sexual offers

In their series of three identically designed naturalistic field experiments that were performed on a college campus site, Clark and Hatfield (1989, Studies 1 and 2) and Clark (1990, Study 1) documented a consistent rate of zero receptivity of females to offers of casual sex by male strangers. In these studies, confederates («lures») approached opposite-sex subjects of a similar age and, after a standard introduction text, «I have been noticing you around campus. I find you to be very attractive», randomly asked them one of three questions: «Would you go out with me tonight?» (Date Condition), «Would you come over to my apartment tonight?» (Apartment Visit Condition), and «Would you go to bed with me tonight?» (Casual Sex Condition). The three experimental conditions are thus located on a continuum of increasing sexual explicitness, with the Date Condition being the least explicit, the Casual Sex Condition being the most explicit, and the Apartment Visit Condition ranging intermediate.

In Studies 1 and 2 of Clark and Hatfield (1989), the authors tested the research question of how receptive males versus females were to sexual invitations. Outcomes could be envisioned which would have been in accord with one of two hypotheses, namely the «traditional hypothesis» versus the «androgyny hypothesis» (Clark and Hatfield, 1989, p. 48). According to the first hypothesis (being grounded in sociobiological as well as in cultural contigency and social stereotype theories), sex differences in receptivity to sexual offers were expected, with males readily agreeing to sexual encounters, while females not agreeing. According to the second hypothesis (being grounded in sociological and sex-role theories of increasing androgyny of males and females in present-day Western civiliations), no sex differences in receptivity were expected, and it could have turned out that either males as well as females both readily agree to sexual propositions or that males as well as females mostly refrain from such propositions.

The three experiments yielded unambiguously strong sex differences in receptivity to sexual offers, thereby supporting the traditional hypothesis, while refuting the androgyny hypothesis. Importantly, the results of the third experiment (Clark, 1990, Study 1), identically designed, but conducted about a decade later (in the late 1980s) than Studies 1 and 2 of Clark and Hatfield (1989), suggested that the emerging AIDS epidemic had little, if any, influence on the sex-differentiated patterns in willingness to engage in casual sexual encounters.

In addition, a fourth experiment (Clark, 1990, Study 2) tested whether females' low receptivity could be due to concerns for personal safety in casual sexual encounters with male strangers. This further hypothesis was not supported by the data, because a large sex difference in receptivity to sexual offers emerged again. We emphasize that this fourth experiment was differently designed than the three previous experiments and thus comparisons might be difficult or even not appropriate. Further, the 5% acceptance figure for females in the fourth experiment was based on only one female (out of 22 females in this experimental condition) who accepted the sexual invitation. And finally, as admitted by the author (Clark, 1990, p. 780), one referee of his paper disbelieved that the personal safety concerns of female study subjects were truly addressed and resolved by the experimental manipulation. Therefore, for clarity, Study 2 of Clark (1990) is here omitted from further discussion, and we now turn to a summarizing overview of the findings of Studies 1 and 2 of Clark and Hatfield (1989) and Study 1 of Clark (1990).

When male subjects were approached by female lures in the three Clark and Hatfield studies (with total N= 288, counterbalanced by sex), the average rate of compliance across the experiments was 56.3% for the Date Condition, 62.7% for the Apartment Visit Condition, and 71.0% for the Casual Sex Condition. These compliance rates demonstrate that male subjects became increasingly interested as the offers by the female lures became more sexually explicit. The authors also noted that a large portion of males approached in the Casual Sex Condition that refused the offer, did so apologetically. This finding indicated that they might have accepted this invitation had they not currently been in a relationship. It is possible that if female lures had approached only single heterosexual males, acceptance rates to Casual Sex offers would have been very close to 100% (as suggested by Okami & Shackelford, 2001).

In contrast, only a few females accepted the offer for an Apartment Visit (6.7%), and not a single woman reacted positively to the offer for Casual Sex (0.0%), although 50% agreed to the Date Condition. In other words, there was very low (in fact, zero) receptivity of female subjects to explicit offers of casual sex. Further, unlike male subjects, females did not appear apologetic when declining the offer for Casual Sex, suggesting that that their relationship status was not a salient factor in their refusal.

The Clark and Hatfield findings are in accord with evolved psychological differences between the sexes with respect to short-term mating and the desire for sexual variety. These differences are emphasized in Sexual Strategies Theory (Buss and Schmitt, 1993), and have been documented in numerous cross-cultural comparisons (Schmitt and 118 Members of the International Sexuality Description Project, 2003). In essence, these comparisons and Sexual Strategies Theory reveal that the majority of males find the idea of sex with a complete stranger appealing, whereas most females find this idea unappealing.

Converting the aggregate percentages of affirmative reactions from the Clark and Hatfield studies into an effect-size metric demonstrates the magnitude of this sex difference (Voracek et al, 2005). The statistically insignificant difference in compliance rates for males (56.3%) and females (50.0%) in the Date Condition can be converted to an odds ratio of OR= 1.29, which, as per expectation, is a modest figure. Based on the assumption that the dichotomous outcome variable (affirmative or negative reaction) must emerge from an underlying trait that is continuous in nature, such as receptivity to sexual offers, yields d_1= 0.14 (see Hasselblad and Hedges, 1995, for computational details of this effect-size estimator; and see Voracek, 2001, for the rationale underlying d_1 metric usage). The d_1 estimator is analogous to the standardized mean group difference (Cohen's d measure) that is used for continuously scaled variables, as it is an effect-size metric for fourfold-table data. Therefore, conventional benchmarks established for effect-size evaluation in terms of the d measure also apply for the d_1 measure. Consequently, the sex difference in the Date Condition outcomes must be regarded as a small effect, which is the conventional interpretation for d or d_1 values smaller than 0.20 (Cohen, 1988). However, the 62.7% versus 6.7% sex

difference in outcome for the Apartment Visit Condition converts to *OR*= 22.3 (d_1= 1.71), and the 71.0% versus 0.0% sex difference in the Casual Sex Condition transforms to *OR*= 697 (d_1= 3.61; allowing for a 0.5 count added to each fourfold-table cell to circumvent the zero-frequency cell). These latter two sex differences are 12 times (Apartment Visit Condition) and 26 times (Casual Sex Condition) the one found for the Date Condition. Values for Cohen's *d* or Hasselblad-Hedges d_1 of approximately 0.80 are typically considered as large effects (Cohen, 1988); therefore, these sex differences are extremely large effects. For illustration, they are larger than the magnitude of sex differences on most physical traits, such as weight, height, and physical strength. As a second example, differences as large as 1.71 and 3.61 standard deviation units in intelligence, as measured on the IQ scale (with *SD*= 15), would equal differences of approximately 26 and 54 IQ points, respectively. Thus, there is little room left for doubt in the assertion that the sex differences in compliance to sexual offers, as unveiled by the Clark and Hatfield experiments, are among the largest sex differences ever found in psychological research (Geary, 1998; Mealey, 2000).

Over the past decade, the two papers by Clark and Hatfield have achieved the status of «citation classics» in the fields of evolutionary psychology (e.g., Buss, 1994, p. 73; 1999, p. 161; 2003, p. 73; 2004, p. 163; Buss and Kenrick, 1998, pp. 983, 993, 1010; Campbell, 2002, p. 42; Gaulin and McBurney, 2001, p. 199; Larsen and Buss, 2002, pp. 152-153; Miller and Fiskin, 1997) and sexuality research (e.g., Okami and Shackelford, 2001; Salmon and Symons, 2001, pp. 44-47; Wiederman, 2001). Furthermore, a hypothetical form of the Casual Sex Condition, designated as the Sexual Proposition Question, has been used in research on short-term sexual strategies (Mathes, King, Miller and Reed, 2002). Sex differences on this paper-pencil measure of desire for promiscuous sex were also extremely large in this study (*d*= 8.63), but they tended to narrow with increasing participant age, and this trend was due to a decreasing propensity of more mature males to endorse this item, with *d* values being 10.43 for study participants in their teens, 7.16 in their twenties, and 1.12 in their thirties (our calculations, from summary data given in Mathes et al., 2002, table 1). Parenthetically, we note that the introduction used by the lures to approach participants in the Clark and Hatfield experiments («I have been noticing you around campus. I find you to be very attractive»), is, to our knowledge, the only experimental stimulus in the history of psychology to become lyrics in a popular song (these lines appear in «Would you…?», a dance club classic, by Touch and Go, 1999).

A happenstance reiteration of the Clark and Hatfield experiments: evidence for female non-zero receptivity to a male stranger's offer of casual sex

Given the high citation rate of Clark and Hatfield (1989) and Clark (1990), we find it amazing that there are no scientific replications or extensions of the original research in existence. In fact, the only reiteration we found occurred by mere happenstance (Molzer, 2003) and was initiated by an Austrian magazine. In this real-life test of the Clark and Hatfield findings, a male journalist approached 100 females in various public, urban locations within the German cities of Berlin, Hamburg, and Munich, and simply asked «Do you want to sleep with me?». Therefore, he unwittingly implemented the third (Casual Sex) condition of the Clark and Hatfield experiments. As the reporter subsequently had sex with willing participants, the experiment provided an important verification of the initial response. The requestor was in his late twenties and apparently with above-average attractiveness. The resulting magazine article was comprised of 100 single-paragraph vignettes, documenting the contextual and outcome details of each approach. One woman was excluded from the analysis as she identified herself as a lesbian, bringing the participant total to 99.

The general findings of Molzer's informal project were as follows (see Voracek et al., 2005, for a detailed analysis). Firstly, whereas male lures in the Clark and Hatfield study encountered a zero rate of receptivity from females in the Casual Sex Condition, the advances of the reporter were accepted by 6 out of 99 heterosexual females, yielding an acceptance rate of 6.1% (95% confidence interval: 2.8–12.6%; Wilson's method; cf. Altman, Machin, Bryant and Gardner, 2000). Secondly, most (five out of six) successful advances were made in indoor locations and four out of six occurred during the evening. Thirdly, as the reporter did not restrict himself to females within his own age group but instead approached females spanning a wide age range (from 16 years to 50 years or older), an interesting age effect was evidenced. On average, females who rejected his offer were approximately five years younger than females who accepted his offer. Fourthly, unlike the Clark and Hatfield studies, ten females were inclined to make closer acquaintance (e.g., offered to meet for a drink or a date with the reporter) despite initially refusing his offer, and three additional females exchanged phone numbers for future contact. Finally, eight females reacted apologetically, referring to their relationship status (partnered or married) as the reason for declining his offer, and, in five further cases, current time pressure was given as the reason for declining the offer.

The present research

Although informative, the findings of Molzer (2003) cannot in and of themselves discredit the findings of Clark and Hatfield, as it was a limited and happenstance exploration of the topic. However, it highlights the importance of contextual variables such as the

Table 1
Correlations of compliance estimates to sexual offers with demographic information (participants' age and relationship status)

	Date	**Apartment visit**	**Casual sex**
Participants' age			
Male requestor, female receiver	-.01 (-.25**)	-.12 (-.25**)	-.09 (-.21**)
Female requestor, male receiver	-.07 (-.32***)	-.18* (-.24**)	-.11 (-.20**)
Participants' relationship status			
Male requestor, female receiver	-.11 (-.06)	-.09 (-.12)	-.11 (-.09)
Female requestor, male receiver	-.12 (-.18*)	-.20** (-.21**)	-.18* (-.18*)

Table entries are Pearson correlation coefficients (*r*). First-line table entries are for males, second-line entries (in parentheses) for females. Date, Apartment Visit, Casual Sex= the Date, Apartment Visit, and Casual Sex Items. Participants' relationship status was coded with 0= no partner and = partnered. See text for further details.
* p<.05; ** p<.01; *** p<.001 (two-tailed).

effects of location, age of lures versus participants, attractiveness of lures versus participants, as well as the level of sexual experience and relationship status of females, on compliance rates to sexual offers. Molzer's (2003) evidence is in accord with evolutionarily informed psychological theorizing on female sexuality. Most notably, it is congruent with evidence for sex differences in preferred mate age (Kenrick and Keefe, 1992), female strategies and preferences in regard to extra-pair matings (Greiling and Buss, 2000), and with a thirties peak in female sexual desire (Schmitt, Shackelford, Duntley, Tooke, Buss, Fisher et al., 2002).

Scientific replications of the Clark and Hatfield studies on compliance to sexual offers, as conducted in 1978 and 1982 (Clark and Hatfield, Studies 1 and 2) and circa 1988 (Clark, 1990), are certainly overdue. Such replications would be of great benefit since they would augment our knowledge of compliance, particularly when the above-mentioned characteristics, study features, and contextual variables are systematically investigated. In conjunction with the necessity of scientific replication, apart from exact replications of the Clark and Hatfield experiments, novel approaches could also be implemented. For instance, sexual compliance rates have not been previously researched through the use of a survey-based format.

Therefore, our goal was to investigate hypothesized sex differences in predictions of compliance using a written version of the three scenarios employed in the Clark and Hatfield studies. This novel approach is both interesting and legitimate, because extremely large sex differences in receptivity to sexual offers have not only been convergently evidenced by behavioral reactions (the Clark and Hatfield experiments), but also through responses on a questionnaire item (as employed in the Mathes et al., 2002, study).

Methods

Participants and procedure

Three hundred and seventy-four Austrian adults, of which 195 were males (52.1%) and 179 were females (47.9%), volunteered to participate in this study. All of the participants were heterosexually oriented and Caucasian. Participants ranged in age from 17 to 79 years (*M*= 32.1, *Md*= 24, and *SD*= 17.2 years), and 176 (47.1%) participants were currently in a romantic relationship, while the remaining 198 (52.9%) were currently single. There was a significant sex difference in relationship status, $\chi^2(1)= 8.15$, $p= .004$, with more females (98 out of 179, or 54.7%) than males (78 out of 195, or 40.0%) being partnered.

Data collectors solicited participants for this study in various public locations, including shopping malls, bus stations, restaurant patios, and parks, in Vienna. Psychology students were not eligible for participation, and campus areas and vicinities of Viennese universities were generally avoided in subject recruitment to ensure naiveté regarding the research topic. Therefore, the resulting sample, although it was by chance arguably not representative, was a community-based sample from the urban population at large. Participants completed an anonymous, one-page questionnaire and were subsequently thanked and debriefed.

Materials

Eligible participants (i.e., heterosexual, non-psychology students) provided demographic information pertaining to their sex, age, and relationship status. Then, they completed a survey comprised of the three scenarios (Date, Apartment Visit, and Casual Sex) from the Clark and Hatfield experiments. The three conditions were written with a female requestor and a male receiver, and with a male requestor and a female receiver, resulting in six items that were counterbalanced for order. Participants provided their answers by making pencil marks on thermometer (visual analogue) scales of 100 mm length, with endpoints ranging from «0%» to «100%».

The vignette-like introduction to the items, appropriate for the sex of the requestor and receiver, read as follows (here the text for female study subjects is given): «Please imagine the following scenario. On a nice sunny day, an average (»typical«) woman in her mid-twenties of ordinary looks, neatly dressed, strolls through Vienna's largest and most vivid pedestrian area. She is approached by a man of similar age, with ordinary looks, who is also neatly dressed. He tells her he has noticed her around and finds her to be very attractive. Then, he propositions her with the following questions: *Would you go out with me tonight*? [Date Item]; *Would you come over to my apartment tonight*? [Apartment Visit Item]; *Would go you to bed with me tonight*? [Casual Sex Item]. How likely do you think she is to comply with his offer? Please provide your estimate on this scale, ranging from 0% to 100%, by placing a pencil mark at the place you deem most appropriate.»

By the end of the study, the participants had judged the likelihood of compliance for the six items and marked six scales. Participants' marks on each of the six thermometer-scale items were measured and rounded to the nearest millimeter.

Results

For clarity, we begin by presenting an overview of the data analyses. Firstly, we checked the dimensionality of the six items by calculating Cronbach's alpha coefficient and submitting them to separate factor analyses for males and females. Secondly, we investigated whether participant responses on the six items correlated with their demographic information of age and relationship status. Thirdly, we analyzed whether there were sex, relationship status, and age effects in subjects' estimates for each of the three types of request (Date, Apartment Visit and Casual Sex Item). We also determined whether there were differences for the three conditions with regard to the two sex of requestor and receiver combinations. To accomplish this task, we performed a series of mixed three-way factorial analyses of covariance, with participants' age as the covariate, participants' sex and relationship status as the two between-subjects factors, and the requestor-receiver combination as the within-subjects factor. And fourthly, using a series of one-sample *t* tests, we compared our participants' mean and median estimates for the six items with the aggregate outcomes, in terms of the percentage of affirmatives to each condition, presented in Clark and Hatfield (1989) and Clark (1990).

Dimensionality of compliance estimates

Cronbach's alpha coefficient, for the composite of the six compliance estimates, was .83 for male participants and .87 for female participants. For the three-item composite with the male requestor and female receiver, the alpha coefficient was .75 for males and .80 for females; for the corresponding three-item

composite with a female requestor and a male receiver, it was .81 for males and .83 for females.

A factor analysis of the six compliance estimates provided by male subjects via the principal-components method resulted in a two-factor solution, with eigenvalues λ (and percent variance explained) of 3.34 (55.6%) for the first factor and 1.01 (16.9%) for the second factor. Only the Apartment Visit and the Casual Sex Items, both times with the requestor being male and the receiver being female, loaded substantially on the second factor, whereas the other four items had substantial loadings on only the first factor. When we factor-analyzed the six compliance estimates for the female subjects, a single factor was extracted (λ= 3.68, explaining 61.4% of the variance).

Correlations of compliance estimates with demographic information

The sex-specific associations of compliance estimates with demographic information (participants' age and relationship status) are given in Table 1. For male participants, age was negatively related to all compliance estimates, but statistically significantly only for the Apartment Visit Item with female requestor and male receiver. Conversely, for female participants, age was significantly negatively related to all compliance estimates.

Males' relationship status (coding: 0= not partner, 1= partnered) was negatively related to all compliance estimates (statistically significant for two estimates). Therefore, partnered individuals generally provided lower compliance estimates than single individuals. Females' relationship status also was negatively related to all compliance estimates (statistically significantly so for three of them). Both participants' age and relationship status were therefore included in further analyses.

Effects of participants' sex, age, and relationship status, and sex of requestor and receiver, on compliance estimates

For the Date Item, we obtained the following results from the three-way factorial analysis of covariance, accounting for the between-subjects factors of participants' sex and relationship status, the within-subjects factor of requestor-receiver combination, and adjusted for participants' age. There was a significant effect for the requestor-receiver combination, $F(1, 369)= 66.16$, $p<.001$, $\eta^2= .152$, with higher compliance estimates provided when the requestor was female and the receiver was male than when the requestor was male and the receiver was female. This effect was not qualified by any significant two-way interactions of the within-subjects factor with the other design factors (sex, or age, or relationship status) or with the three-way interaction term with sex and relationship status. Further, there was a significant effect of participants' age, $F(1, 369)= 12.89$, $p<.001$, $\eta^2= .034$, whereas no significant effect of participants' sex, relationship status, or the sex-relationship interaction.

For the Apartment Visit Item, there was a significant effect for requestor-receiver combination, $F(1, 369)= 117.37$, $p<.001$, $\eta^2= .241$, with higher compliance estimates provided for the female requestor and male receiver than in the reversed scenario. This effect was qualified by a significant two-way interaction of requestor-receiver combination and participants' relationship status, $F(1, 369)= 6.38$, $p= .01$, $\eta^2= .017$. Single individuals generally stated higher compliance estimates for both requestor-receiver combinations of the Apartment Visit Item than partnered individuals, but the difference between these two groups was more pronounced when the requestor was female and the receiver was male than for the reverse. The two other two-way interaction terms of the within-subjects factor (age or sex) and its three-way interaction (with sex and relationship status) were insignificant. In addition, there were significant effects of participants' age, $F(1, 369)= 13.57$, $p<.001$, $\eta^2= .035$, and relationship status, $F(1, 369)= 5.83$, $p= .02$, $\eta^2= .016$, with single individuals stating higher compliance estimates than partnered individuals, whereas the effects for participants' sex and the sex-relationship interaction were both statistically insignificant.

For the Casual Sex Item, there was a significant effect of requestor-receiver combination, $F(1, 369)= 90.75$, $p<.001$, $\eta^2= .197$, with higher compliance estimates provided for the female requestor and male receiver scenario than for the reverse. This effect was qualified by a significant two-way interaction of requestor-receiver combination and participants' relationship status, $F(1, 369)= 5.92$, $p= .02$, $\eta^2= .016$. This effect was again due to single individuals generally providing higher compliance estimates on both requestor-receiver combinations of the Casual Sex Item than partnered individuals, but this group difference was larger with the female requestor and male receiver than for the reverse. The two further two-way interaction terms of the within-subjects factor (age or sex) and its three-way interaction (with sex and relationship status) were insignificant. Additionally, there were significant effects of participants' age, $F(1, 369)= 6.96$, $p= .009$, $\eta^2= .019$, and relationship status, $F(1, 369)= 6.91$, $p= .009$, $\eta^2= .018$, as single individuals provided higher compliance estimates than attached individuals, whereas the effects for participants' sex and the sex-relationship interaction both were statistically insignificant. Age-adjusted mean compliance estimates for the total sample, following these analyses of covariance, for the Date, Apartment Visit and Casual Sex Items, are given in Table 2.

Differences between estimated compliance and behavioral compliance

In the Date Condition of the Clark and Hatfield experiments, 50.0% of the female receivers reacted affirmatively to the male requestor, and 56.3% of the male receivers reacted affirmatively to the female requestor. This sex difference in compliance was statistically insignificant and of small effect size ($d_1= 0.14$). The sex-specific descriptive statistics (*M*, *Mdn*, and *SD*), along with a test for sex-of-participant differences on the compliance rates for the Date Item (as well as for the Apartment Visit and the Casual Sex Item) in our data are set out in Table 3. Sex-of-participant differences on the Date Item were statistically not significant

Table 2
Age-adjusted mean compliance estimates to sexual offers

	Date	Apartment visit	Casual sex
Male requestor, female receiver	52.8	25.5	11.6
Female requestor, male receiver	69.7	53.6	40.0

Table entries are age-adjusted mean compliance estimates (with score range 0% to 100%) for the total sample, following analyses of covariance. Date, Apartment Visit, Casual Sex = the Date, Apartment Visit, and Casual Sex Items. See text and Table 3 for further details

(neither for the scenario with male requestor and female receiver nor for the reversed scenario with female requestor and male receiver). We then conducted a series of one-sample *t* tests, using the compliance rates from the Clark and Hatfield experiments as the «true» population parameter (μ) for the mean and evaluating our sample's mean estimates. We found that the male participants of our sample significantly overestimated female receivers' compliance on the Date Item, $t(194)= 2.52$, $p= .01$, whereas the female participants did not differ in their estimates of female receivers' compliance, $t(178) < 1$ (*ns*). Both males and females significantly overestimated male receivers' compliance on the Date Item; $t(194) = 8.67$ for male participants and $t(178)= 6.28$ for female participants (both *p*s < .001).

In the Apartment Visit Condition, 6.2% of female receivers in the Clark and Hatfield experiments reacted affirmatively to the male requestor, whereas 62.7% male receivers reacted affirmatively to the female requestor. This sex difference in compliance is statistically significant and equals a very large effect size ($d_1= 1.71$). There was a significant sex-of-participant difference on the Apartment Visit Item when the receiver was male and the requestor was female (but not on the reversed scenario; table 3). Both males and females significantly overestimated female receivers' compliance on the Apartment Visit Item, $t(194)= 13.79$ for males and $t(178)= 10.97$ for females (both *p*s < .001). On the other hand, both males and females significantly underestimated male receivers' compliance, $t(194)= -3.24$, $p= .001$ for males and $t(178)= -5.82$, $p<.001$ for females.

In the Casual Sex Condition of the Clark and Hatfield experiments, 0.0% of female receivers reacted affirmatively to the male requestor, whereas 71.0% of male receivers reacted affirmatively to the female requestor. This sex difference in compliance is statistically highly significant and equals an extremely large effect size ($d_1= 3.61$). Again, there was a significant sex-of-participant difference on the Casual Sex Item when the receiver was male and the requestor was female (but not on the reversed scenario; table 3). Both males and females significantly overestimated female receivers' compliance on the Casual Sex Item; $t(194)= 11.42$ for males and $t(178)= 8.92$ for females (both *p*s < .001). Likewise, both males and females significantly underestimated male receivers' compliance; $t(194)= -12.09$ for males and $t(178)= -16.10$ for females (both *p*s < .001).

Table 3
Descriptive statistics and sex-of-participant differences for estimated compliance to sexual offers

	Date	Apartment visit	Casual sex
Male participants			
Male requestor, female receiver	54.4[a] (60.0) ± 24.6	26.9[c] (23.0) ± 20.5	12.8[e] (7.0) ± 15.6
Female requestor, male receiver	70.6[b] (77.0) ± 23.1	56.7[d] (62.0) ± 26.0	43.8[f] (41.0) ± 31.4
Female participants			
Male requestor, female receiver	51.2[a] (51.5) ± 27.8	23.9[c] (19.0) ± 21.0	10.5[e] (5.0) ± 15.7
Female requestor, male receiver	68.5[b] (75.0) ± 26.1	50.8[d] (54.0) ± 27.5	36.6[f] (33.0) ± 28.5

Table entries are *M* (*Mdn*) ± *SD*. Score range is 0% to 100%. Date, Apartment Visit, Casual Sex = the Date, Apartment Visit, and Casual Sex Items (see text for further details). [a,b,c,e]= Mean group differences (male versus female participants) statistically not significant (independent groups *t* test, *df*= 372, two-tailed *p*>.05). [d,f]= Significant mean group differences, $t(372)= 2.13$, $p= .03$, and $t(372)= 2.30$, $p= .02$, respectively.

Discussion

In the present study, we extended the classic work of Clark and Hatfield (1989) and Clark (1990) on sex differences in sexual compliance to the domain of compliance prediction using survey techniques. We asked participants to predict the consent rates of male and female receivers of offers employed in the three conditions (Date, Apartment Visit and Casual Sex) of the original Clark and Hatfield experiments. There are five main points of interest in the results that will now be discussed.

Firstly, the reliability figures for the composite of all six items, as well as for each of the two receiver-requestor orderings collapsed across the three items, were satisfactory for males and females. This reliability indicates that participants provided sensible, orderly compliance estimates on the thermometer ratings. Without exception, the reliability coefficients were slightly higher for females than for males, indicating that female participants, relative to male participants, responded in a more systematic manner, resulting in highly intercorrelated compliance estimates. These figures provide supportive evidence for the feasibility of the approach employed in this study.

Secondly, the results of the factor analysis suggested that, regardless of the sex of the requestor or receiver, female participants perceived all three conditions as a single entity. That is to say, these items were factorially unidimensional. Conversely, male participants responded as if the Apartment Visit and the Casual Sex Items, with a male requestor and female receiver, were more closely associated to another latent dimension distinct from the other four items. This finding is interesting in itself because it hints at important sex differences in the structure of the items, as perceived by respondents. Female respondents did not perceive a difference across requests, whereas male respondents perceived females' requests for the Apartment Visit or Causal Sex Items as different to the Date Item. It remains to be seen whether this sex effect related to the perceived dimensionality of compliance estimates to sexual offers can be replicated in other samples or was due to factors unique to the sample described here. We are aware that the second factor, found for males only, accounted for less than one-third of variance than the first factor and therefore appears to represent a latent dimension that might be of minor importance. Notwithstanding this, we think we are left with the impression that this specific finding merits further investigation.

Thirdly, compliance estimates provided by the respondents turned out to be consistently, albeit weakly, related to their demographic information. Specifically, age was negatively related to compliance estimates, such that older participants provided lower rates of compliance. Since this finding was more apparent for females than males, it is tempting to link this observed pattern to the declines in sexual desire and sexual activity over the life-span, which in general are steeper for females than for males. However, due to the cross-sectional nature of our data, it is impossible to determine whether the correlations are due to age or mere cohort effects. Cross-sequential or longitudinal designs would be needed to further elucidate these correlational patterns. In addition, compliance estimates were related to relationship status, with subjects who were currently single arriving at higher

compliance estimates than subjects who were currently involved in a romantic relationship. This pattern, seen for both males and females, may well be related to a variety of traits contingent to a successful relationship, such as expectations of partner fidelity.

Fourthly, the findings revealed that the sex of the receiver and requestor was highly important. Across all three items, the sex of requestor by the sex of receiver factor produced large and statistically significant effects, explaining between 15% and 24% of the variance in compliance estimates. Higher estimates were produced when the requestor was female and the receiver was male than in the reversed situation. Age effects were also statistically significant, although of smaller size, explaining between 2% and 3.5% of variance, with older respondents producing lower estimates. Relationship status did not yield statistically significant effects, explaining less than 2% of variance in the compliance estimates, with currently single participants producing somewhat higher estimates than partnered participants. Interaction effects between these design factors did not reliably appear and since they accounted for little variance in the compliance estimates, they should thus be ignored. Most importantly, there was no statistically significant effect of participants' sex on compliance estimates for any condition. Male and female participants made comparable compliance estimates on the Date, Apartment Visit and Casual Sex Items, regardless of whether the receiver was male and the requestor was female, or the receiver was female and the requestor was male.

And fifthly, there was a conspicuous overall deviation in the pattern of compliance estimates in the present study, as compared with those obtained in the Clark and Hatfield experiments. Recall that in the original experiments, the compliance rates showed evidence for a strong interaction between the explicitness of the sexual offer and the sex of the receiver. For male receivers, increasing the explicitness of the sexual offer resulted in a linear increase in the rate of compliance from 56.3% in the Date Condition to 71.0% in the Casual Sex Condition. In contrast, for female receivers, there was a nonlinear decrease, dropping to zero in the Casual Sex Condition. This interaction is absent in the compliance estimates of the present research, which show the following fourfold pattern. *(i)* Sex-specific compliance estimates, like in the Clark and Hatfield studies, are clearly reproduced by both male and female respondents. (*ii*) At the same time, respondents' sex does not influence these estimates. (*iii*) Male participants overestimate the actual compliance rate of female receivers of the more sexually explicit offers (i.e., Apartment Visit and Casual Sex Conditions), as provided by the aggregate compliance rate of female receivers across the three experiments of Clark and Hatfield. Similarly, female participants overestimate actual female compliance rates to the more sexually explicit offers, too, but to a lesser degree than males. (*iv*) Relatedly, female participants' responses underestimate the actual compliance rate of male receivers of sexually more explicit offers. Likewise, male participants' also underestimate actual male compliance rates to the more sexually explicit offers, but to a lesser degree than females. This fourfold pattern in the data remains stable, regardless of whether mean, age-adjusted mean, or median compliance estimates are taken for the comparisons.

To summarize, relative to the compliance rates of the Clark and Hatfield studies, the current compliance estimates provided by both males and females overestimated female receivers' consent rate to explicit sexual requests, and underestimated male receivers' consent rate to explicit sexual requests. This finding is partly in accordance with Error Management Theory (EMT; Haselton and Buss, 2000), an evolutionarily informed theory that states that biases in cognition are not irrational or random («errors in design»), but rather that certain biases are meaningful and adaptive («errors by design»). In EMT, it is proposed that cognitive biases of the latter type predictably occur when the cost versus benefit consequences, in terms of false positives or negatives, were asymmetrical between the sexes over evolutionary time. EMT predicts and explains such observations like males' overperception of females' sexual desire and females' overperception of males' commitment with obvious asymmetries in cost-benefit consequences that are ancestrally rooted, and over evolutionary time have sculpted males' and females' minds differently. The current findings of males' overestimation of females' compliance to sexual offers and females' underestimation of males' compliance to sexual offers are in good keeping with previous empirical evidence for males' overperception bias of females' sexual desire and females' underperception bias of males' sexual desire (Haselton and Buss, 2000). However, our additional findings, namely that females overestimate female compliance to sexual offers, and that males underestimate male compliance to sexual offers, are less in keeping with EMT.

There are several differences in contextual features between the classic work of Clark and Hatfield and the present approach that may, at least partly, account for the observed differences in findings. Among these are temporal trends (1980s versus 2000s), cultural differences (American versus European culture), differences in setting (university campus versus public urban location), and sample characteristics (undergraduates versus community sample). Additionally, as we investigated predicted compliance rather than actual compliance, the studies are methodologically distinct. One objection to the design and the findings of the present research could be that it remains unclear to which degree predicted compliance (as assessed in the present study) should mirror actual compliance rates to sexual offers (i.e., the behavioral outcomes of the Clark and Hatfield experiments and of the informal project of Molzer, 2003). However, we think this objection is invalid, because sex differences in receptivity to sexual offers have been shown to be generalizable across different data domains. These marked sex differences have not only been consistently found with behavioral reactions in the Clark and Hatfield experiments, but also emerged in a commensurate manner on a paper-pencil measure (the Sexual Proposition Question of Mathes et al., 2002).

It is beyond the scope of the present research to determine whether any of these aforementioned contextual factors account for the discrepant findings. However, future research could easily and systematically address these factors while attempting to determine the most accurate compliance rate. Based on the findings of our current investigation, we surmise that the results of the Clark and Hatfield study are not as readily generalized as they have been widely treated in the literature. This hypothesis is most obvious for the compliance rate of female receivers of a male's request for casual sex. Contrary to the results of the three experiments of Clark and Hatfield, in which no female out of 144 female subjects reacted affirmatively to the request for casual sex, the mean (and median) compliance estimates provided by males and females in our sample were 12.8% (7%) and 10.5% (5%), respectively. These figures nicely dovetail with the acceptance rate of 6.1% obtained by

Molzer (2003), and with recent findings from a Canadian university survey (Weaver & Herold, 2000), in which 13% of females, aged 19 to 27 years, reported that they had, at some point, experienced sexual intercourse with someone they just had met.

The findings of the present research are further interesting in the light of the evidence obtained by Navarro-Pertusa, Heredia, and Ferrer (2003), who studied sex differences related to reasons to maintain sexual intercourse in a large sample of Spanish teenagers, with a focus on sexual risk prevention. Using fictious vignettes presented to their study participants, these authors analyzed specific intentions in sexual behavior and in attributed motives of the character of boys or girls to either maintain or not to maintain sexual intercourse. Therefore dealing with issues broadly similar to those discussed in the present work, it is of note that Navarro-Pertusa et al. (2003) basically obtained results along similar lines than those reported here. These converging lines of evidence therefore cast some doubt on the supposed low (namely, zero or near-zero) receptivity of females to sexual offers, as evidenced by the experiments of Clark and Hatfield, and, as has already been concluded elsewhere in related research (Voracek *et al*., 2005), suggest that the topic deserves further scrutiny. In particular, these issues may be of relevance not only for evolutionary psychology and research into human sexuality, but also for topics reaching into the domain of health psychology. Knowledge about the logic of sexual behavior definitely is an important factor for the design of prevention programs and policies aiming to reduce risky sexual behavior in the population. In conclusion, we believe that future research, based on the current evidence, will benefit from proceeding further along these lines suggested here.

Acknowledgements

We thank Andrea Angel, Bettina Bauer, Barbara Benes, Nicole Grünberger, Kristina Lumesberger, Martina Preiß, Susanne Steinkellner, and Barbara Zottl for their assistance with this research.

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