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**Sexual Jealousy and Intimate
Partner Violence in Urban China: A Population-Based Survey**

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Abstract

This paper examines the links between sexual jealousy and intimate partner violence, with data from a nationally representative survey of China completed in 2000. Among urban respondents age 20-64 during the previous year, 6% of women and 4% of men were hit by their partner without retaliation, and another 2% of couples experienced mutual hitting. Women's empowerment reduces their risk of being hit, even though those with a laid-off or unemployed husband face a higher risk. The results demonstrate that women are jealous as much as or more so than men and share similar triggers of jealousy with men. Jealousy exacerbates hitting for both men and women in a reactive pattern – the jealous partner gets hit.

Sexual Jealousy and Intimate

Partner Violence in Urban China: A Population-Based Survey

Intimate partner violence is pervasive in much of the world (Heise, Ellsberg & Gottemoeller, 1999; Jewkes, 2002; Krug, 2002; Summers & Hoffman, 2002). Low income, stress, male loss of income, young age, alcohol consumption, and, for women, absence of family and community support are all common risk factors. In addition, a socio-cultural line of explanation emphasizes learned beliefs about male control of women, particularly in reaction to women's actual or imagined sexual infidelity (Brownridge, 2002; Dobash & Dobash, 1979, 1992; Lenton, 1995; Tjaden & Thoennies, 2000; Wilson, Johnson, & Daly, 1995). This socio-cultural, learning view is supported by links between childhood violent experiences and later violence and by cross-societal links between beliefs about male control of women and observed levels of slapping and hitting (e.g., Krug 2002; CEPEP, 1999; KIIS, 2001). Low empowerment of women is a related issue (e.g., Malhotra & Mather, 1997; Presser & Sen, 2000; Schuler, Hashemi, Riley, & Akhter, 1996). Much of the control effort includes high levels of sexual jealousy as part of the syndrome. For scholars coming out of the evolutionary tradition, however, this jealousy is not unique to males but instead common to both genders (Buss, 1994, 2000; Dijkstra & Buunk, 2002; Townsend, 1998).

This paper engages debates on the sources of intimate partner violence with new national data from China. We report national prevalence of urban and rural sexual jealousy, recent partner hitting, and the correlates of this hitting. Our emphasis is on both the determinants and the consequences of sexual jealousy. We examine both mutual and unidirectional hitting. In an effort to distinguish between situational couple violence and violence fueled by premeditated attempt to control, we also investigate the determinants of hitting with and without jealousy involved (Johnson 1995, 2003; Johnson & Ferraro, 2000; Kimmel, 2002; Saunders, 2002).

Literature Review

The correlates of intimate partner violence are well-known – and include a mix of individual and societal risk factors that have emerged in studies around the world (for recent reviews, Kantor & Jasinski,

1998; Jewkes, 2002; Johnson & Ferraro, 2000; Krug, 2002). While we include many of the standard determinants in our models, we focus on the role of sexual jealousy. We treat jealousy as an important intervening variable that is both influenced by other factors and itself a major factor shaping violence between intimate partners.

Correlates of Sexual Jealousy

Discussions about sexual jealousy center on two major issues.

Gender triggers. The first issue is whether different triggers elicit a jealous response in men and women. Based on a host of small-sample studies of college students, clinic attendees, and others, a commonplace generalization is that women fear the loss of male support while they are raising their children. Hence, they respond more to their partner's competing romantic attachments (emotional infidelity) than to simple sexual infidelity. In contrast, conditioned by long evolutionary processes to the potential loss of their contribution to the gene pool, men respond jealously to any sexual infidelity by their partner (Buss, 1994, 2000; Dijkstra & Buunk, 2002; Townsend, 1998). Some authors question whether this relationship applies in the general adult population, particularly when adults are responding not to hypothetical situations in classroom exercises but instead to real transgressions by long-term partners (Grice & Seely, 2000; Harris, 2003).

If a man's contribution to the gene pool is threatened, then we would expect him to be more jealous when partnered with young, sexually attractive females and when mate guarding is compromised by the absence of a marital contract or knowledge of her extra-relationship affairs. These same men should be indifferent to their partner's economic resources. Conversely, women threatened by loss of resources should not be especially jealous of their partner's youth, sexual attractiveness, or even his short-term sexual liaisons, absent emotional involvement with other partners. Within financial limits, commercial sex, one might infer, should not be a major threat or a major trigger for jealousy. Instead, women should be most jealous of men with high incomes, including both absolute income and income relative to their's. Much as with men, they should also be jealous of men who are not closely tied to them through marriage or love.

Gender parity. The second issue is whether men and women are equally jealous. The typical social-cultural explanation emphasizes male learning of control patterns (e.g., Dobash & Dobash, 1979, 1992). In this perspective, women's jealousy of men is downplayed. A friendly amendment to this perspective might be that women are jealous because society provides them with so few resources that they are threatened by the loss of a resource-rich male partner – the disempowered female syndrome (Buss, 1996; Smuts, 1995). Nevertheless, in most of the recent literature, this theme is not emphasized. If it were, the socio-cultural perspective might also expect female jealousy and partner control efforts to be common.

Two other sets of authors emphasize a similarity in volume of men's jealousy and women's jealousy. First, the evolutionary perspective suggests that while they respond to different triggers, men and women are equally anxious about partner loss. Second, a "power" or "compensatory" perspective suggests that individuals with little power to control the partner resort to jealous outbursts in a frustrated attempt to control real or imagined partner behavior (White & Mullen, 1989). If one partner is less attractive, loves the partner more, has less income, or fails to get the partner to move from a casual (e.g., cohabiting) to a marital relationship, then, s/he has less hold over the partner. Jealous outbursts compensate for a shortage of other resources that might help control the partner.

Correlates of Partner Violence

One descriptive task is to note the volume of hitting in each direction, once one distinguishes types of hitting. In the existing literature, female-to-male hitting continues to be puzzling. Some suggest that if one distinguishes types of hitting, men are more likely to use hitting as a generalized control effort that includes limiting the woman's movements, psychological control, and repeat hitting – a pattern that some label "intimate terrorism." Women are more likely to engage in episodic slapping and hitting in the middle of escalating disputes. Typically, this "situational violence" (or, "common couple violence") does not lead to serious injury, does not involve systematic efforts to control the partner, and is restricted primarily to the young (Johnson 1995, 2003; Johnson & Ferraro 2000; Kimmel, 2002; Saunders, 2002).

Sexual Jealousy and Violence. Much of the work on the jealousy - violence connection has been with college students and with victims in clinics and battered women's shelters (e.g., Buss, 1994, 2000;

Dobash & Dobash, 1979, 1992). Recently, however, large population-based social surveys have collected data on jealousy and violence -- both for the developed West (Lenton, 1995; Medina-Ariza, 2003; Tjaden & Thoennies, 2000; Wilson, Johnson, & Daly, 1995; Buntin et al., 2003; Paik et al., 2003) and developing countries (e.g., Diop-Sidibé, 2001; Ellsberg, Pena, Herrera, Liljestrand, & Winkvist, 1999). Since the middle 1990s, major Demographic and Health Surveys (DHS) and Reproductive Health Surveys (RHS) have interview modules on male possessiveness of women, accusations of sexual infidelity, and partner violence (e.g., MSPP, 2000; PROFAMILIA, 2000; NIS, 2001).

These surveys share the socio-cultural assumption that jealousy is learned, and that its most significant manifestations are in man-to-woman violence. This position has considerable face validity. Slapping and hitting levels vary widely from society to society, but seems linked to agreement with statements that women should be hit for various transgressions (e.g., failing to properly take care of the house or children, sexual infidelity, see Koenig, et. al., 2003; Krug, 2002). The assumption here is that most male-to-female hitting is part of a single control syndrome, with men using both jealousy and hitting to limit women's actions (Dobash & Dobash, 1979, 1992). This effort to control is learned both generally from societal norms that women must be controlled and specifically in families as both boys and girls watch their father hitting their mother.

The patterns need not be so simple, however. If either the evolutionary school or the societal resources school is right, women might lash out at partners who threaten to abandon them for another woman (e.g., Buss, 1994, 2000; White & Mullen 1989). Moreover, the woman's and the man's jealousy might not lead to much direct hitting from the jealous to the non-jealous partner. Instead, nagging from the jealous partner might cause the partner suspected of sexual infidelity to silence the nagging partner with hitting (Heise, Ellsberg, & Gottmoeller, 2002). If so, we will not find the usual pattern of the jealous person hitting the partner but the inverse of the jealous partner being the object of hitting.

Women's empowerment. With an added boost from the 1994 Cairo Population Meetings, considerable research has emphasized the empowerment of women as critical for reproductive health outcomes, including freedom from intimate partner violence (Jewkes, 2002; Presser & Sen, 2000).

Female disempowerment can occur when women earn no income of their own, when they are much younger than their spouse or sexual partner, and when they are physically much smaller.

Economic empowerment. Fewer economic resources for women encourages hitting by males, in part because women with few resources can not afford to leave violent relationships (Bograd 1988; Diop-Sidibé, 2001; Jewkes, 2002; Schuler, Hashemi, Riley, & Akhter 1996; Tang, 1999a, 1999b; ICRW 2000). Simple income alone, the literature warns us, is not sufficient (e.g., Mason, 1986; Malhotra & Mather, 1997). Women must control the income that they earn. Fortunately for studies using income as a measure of potential empowerment in China, urban women, to a large extent, control their income (except for the largest purchases) (IPS, 1994; Shen, Yang, & Li, 1999). One indicator of this potential influence is that for household chores. Chinese women's rising income share increases their husband's household chore work to an unusual degree (Tang & Parish, 2000).

There is, of course, a limit to the advantages that relative resources bring to women. Another literature notes that men with few resources – particularly unemployed males – are prone to violence (Anderson, 1997; Macmillan & Gartner, 1999; Fox et al., 2002). This suggests that when a woman's income approaches equality, male-to-female hitting might decrease; however, as she becomes the main income earner in the family, hitting might increase. With increased unemployment and under-employment of males from failing state-owned enterprises, this could be an increasing problem in China.

Sexual dimorphism. The evolutionary literature notes that among species with males considerably larger than females, females are at higher risk of male aggression (e.g., Dixon, 1998; Townsend, 1998).

Age gap. The literature on some developing countries suggests that young women, often only in adolescence, are at particular risk when partnered with much older men (e.g., ICRW, 2000)

Stress/Lifestyle. Exacerbated by values such as men's propensity to hide emotions (Umberson, 2003), stress increases levels of violence for both men and women (Gelles, 1993; Straus & Smith, 1990). Examples of common stresses that are correlated with hitting include having time-intensive young children and having low education and occupation status and income.

Lifestyles also matter. Heavy alcohol consumption diminishes personal control and exacerbates hitting (Brecklin, 2002; Gelles, 1993; Koenig, et. al., 2003). However, in one Canadian study heavy alcohol consumption was unimportant after attitudes about the control of women were included (Johnson, H., 2001). Cohabitation without marriage, also typically exacerbates violence (Brownridge & Halli, 2002; Tjaden and Thoennies, 2000).

Social Support. A large literature suggests that women isolated from family and friends are more likely to be attacked, and that this problem may be more common in modern societies (Smuts 1992, 1995; Dobash & Dobash, 1979; Levinson, 1989). In the rapid house building of the last two decades, some urban families have become more isolated from family and neighbors (Tang & Parish, 2000). Nevertheless, many young couples continue to live with an elderly parent, and even when this is the husband's parent, this parent might dampen spousal hitting.

Other factors. Young age increases violence in most studies (for reviews, see Gelles, 1993; Kantor and Jasinski, 1998). Consistent with the socio-cultural tradition, urban/rural, ethnic, and regional differences are frequently important (e.g., Tjaden & Thoennies, 2000; ICRW, 2000).

Research on China

There has been little systematic research on spousal violence in China. Though official recognition of the question of spousal violence is growing only slowly, non-government consulting centers to help battered wives have emerged and scattered media and study reports of violence are appearing (Liu & Chan, 1999; IPS, 1994; Xü, 1997; Shen, Yang, & Li, 1999). Sexual jealousy has a long history in China (Paderni 2002). In a comparison of focus group responses in Beijing, Hong Kong, and Taiwan, Tang, Cheung, Chen, & Sun (2002) note that the Beijing participants were among the most likely to blame women for the start of violence in the home. Detailed work on Hong Kong suggests that women's empowerment significantly reduces violence against women (Tang, 1999a, 1999b).

Data and Methods

The data in this paper are from a sample survey completed in 2000. With the exclusion of Tibet and Hong Kong, the survey is representative of China's adult population ages 20-64. Drawn probabilistically based on extrapolations from the 1990 census, respondents came from 14 strata and 48

primary sampling units with known weights. For the hour-long interview, respondents came to a neighborhood facility away from their family. The first half of the computerized interview had an interviewer in control and the last half on sexual behavior typically had the respondent in control of the computer. Except for questions about concurrent (extramarital) sexual relations, the material in this paper come from the first half of the interview. After losses due to respondents not being at home or refusing to participate, 76% of the initial sample completed the interview used in this paper. This paper uses reports on intimate jealousy and partner hitting from 2,661 urban and 704 rural respondents who had a steady sexual partner. This partner included both spouse (97%) and other steady partner (3%). More details on the sample design and the questionnaire used in the survey are available at the following web site (url to be supplied).

Throughout, we weight all results by population weights known from the sample design. Moreover, in the multivariate analyses of jealousy and hitting we also use a Huber-White sandwich estimator in computing standard errors (Skinner, Holt, & Smith, 1989). Using svy methods in STATA 8.0, we adjust standard errors for sample stratification (sampling strata independently) and clustering (sampling individuals within each primary sampling unit). The logistic regression results are presented as percent changes (for the journal reviewer's reference, we append odds ratios tables which will be available on a web page). Derived from the logistic results, the percent changes indicate what would occur were an individual to have the level of jealousy or hitting characteristics of someone age 30, with all other variables were at mean values, and the variable of interest shifted from a minimum to a maximum value (Long & Freese, 2001). For variables previously recoded to a 0-to-1 range, the odds ratios and the minimum-to-maximum proportion change values give parallel results.

Men's and women's reports of hitting often disagree. In the developed West, men report less hitting than their female partner (e.g., Anderson 1997; Caetano, Shafer, Field, & Nelson, 2002). To deal with the potential problems these tendencies might cause, we include gender as a control variable in all multivariate tables. We also ran separate multivariate analyses for men's and women's reports. Though we do not show those separate multivariate analyses in tables, we do report any sharp difference in results in the text.

Dependent Variables

Both the jealousy and hitting questions were for the current spouse or other long-term sexual partner. For jealousy, the question was, first, “How often do you feel jealous or quite insecure about your partner?” Then, in turn, the respondent answered how often the partner felt jealous or insecure about the respondent. Or, more literally, the questions asked, “have you felt insecure (*bu fangxin*) or not, “swallowing vinegar” (*chicu*, or, perhaps, in our vernacular, “green eyed”), or even jealous (*jidu*).” The responses to these two questions were recoded as 0 (never, rarely) and 1 (sometimes, often).

For hitting, the question was, “For whatever reason, has your partner ever hit you (not including in a joking or playful way)?” And, conversely, “... have you ever hit your partner?” More literally, the question was whether your partner has “moved his hand to hit (*da*) you,” which could include slapping, hitting, or beating. The possible response categories were, “yes, in last 12 months,” “yes, but more than 12 months ago,” and “never.” This paper analyzes the response of “yes, in the last 12 months,” compared to all other responses. Because hitting may have been mutual during the past 12 months, we distinguish unidirectional and mutual hitting.

The recent literature suggests that the dynamics of hitting may well differ depending on whether hitting was situational (spur-of-the-moment, unpremeditated) or done as part of a long-term, premeditated attempt to control one’s partner (Johnson, 1995, 2003; Johnson & Ferraro, 2000). We can only imperfectly model that distinction. However, we do know whether jealousy, a type of control effort, was present. Using that information, we distinguish hitting with or without jealousy being involved.

Independent Variables

Jealousy. We have six sets of independent variables (Table 1). In the final analysis of hitting, jealousy becomes an independent variable coded as “present” when jealousy occurs often or sometimes. We distinguish male jealousy (the man is jealous of the woman and not vice versa), female jealousy (the woman of the man and not vice versa), and mutual jealousy.

[Table 1 about here]

Sexual Dynamics. We examine four sets of conditions that are likely to increase jealousy and hitting:

- Youthfulness, indexed by reversing the value of age.
- Sexual attractiveness, on a four-point scale from “not attractive at all” to “very attractive,” as reported either by the respondent or the spouse / partner (coded 0.00, .33, .67, 1.00).
- Concurrent partner(s) during the lifetime of the relationship – either as reported by the potential target of hitting or as suspected or known by the target’s partner.
- Cohabiting status, whether living together though unmarried.

Empowerment for women. Relative resources (and their potential for bargaining) are indexed by five items:

- Income as indexed by monthly income in Chinese yuan in logged form.
- Woman’s income share as measured by the woman’s income as a percentage of the husband’s and wife’s combined income. Including both working and retired women, women’s income averages 36.2% of the couple’s joint income. For the analysis of hitting, the income-share scale is split into two continuous scales – one running from 0 to 50% and the other from 51 to 100%. If a woman’s bargaining power increases with her income share, then, the 0-50% portion of the income share scale should reduce hitting. Earlier research typically finds that men who earn little or none of the couple’s income are more likely to hit their female partner. Tendencies of this sort should lead to increased male-to-female hitting in the second, 51-100% portion of the income scale.
- The man’s height as a percent of the woman’s height. The relative height ranges from 92% to 122%.
- Age gap. Men range from 4 years younger to a maximum of 11 years older than his wife / partner.
- Relative affection. The respondents and their partners indicated how much each loved the other on a three-point scale running from “love is absent” to “loves deeply.” The difference produced a 5-point scale that is collapsed into a 0 through 1 range. Based on the direction of

discrepancy in love, we have a man-to-woman and woman-to-man discrepancy in love between the partners. The hypothesis is that a person who loves more deeply than his or her partner is at a bargaining disadvantage.

Stress/Life Style. Three items index stress and lifestyle patterns that could contribute to jealousy and couple hitting:

- Low socioeconomic status of partner. Status is a summary index based on the sum of education and current or former occupation, with both education and occupation converted into standardized scores before summing. Consistent with previous research, the hypothesis is that people are more at risk when they have a lower status spouse / partner.
- Pre-school child. The hypothesis is that families with children age 0-6 are more prone to hitting.
- Alcohol consumption. Logged prior to being constrained to a 0 through 1 range, this scale combines frequency of drinking with frequency of drunkenness. Men are much more likely to be heavy alcohol consumers.

Social Support. Absence of other adult(s) in the household refers to no adults other than the couple living in the home. The other adults could be the husband's parents (common), the wife's parents (uncommon), adult children (common), other adult in-laws, or other adult relatives.

Controls. Four additional items are relevant to either jealousy or hitting:

- "Liberal sex values" is a summary index of approval of premarital sex, extramarital sex, and sex for pleasure. The supposition is that people are more likely to be suspicious of their partner's sexual behavior (and, thus, more jealous) if they are more aware of the possibility of a new lifestyle with additional sexual partners.
- "Belief that men should dominate sexual activity" is a dummy variable indicating whether the respondent agrees with the statement, "During sex, men should take the lead and women should follow."
- Relationship all of last year indicates whether a respondent lived with his / her spouse or partner for the entire year. It controls for the risk period for hitting.

- North / Northeast Region is distinguished from the rest of China. Inductively, respondents in northern and northeastern cities and towns report more hitting.
- Male respondent. Either male or female could under- or over-report hitting. A “male” variable controls for that possibility.

Results

Descriptive Patterns

Jealousy. Although women are more likely to be jealous, the overall pattern for men and women is remarkably similar (Figure 1). Jealousy is most likely among the young. While only 10% of men and women are jealous of older partners, as many as 50% are jealous of young partners. Across all ages, and combining urban men and urban women’s reports, 22% of men and 27% of women are jealous of their partner. Delving more deeply into the reports, the target of the jealousy is the partner more likely to report jealousy. For example, in men’s jealousy of women, women (the target) report 26% and men (the “perpetrator”) report only 18%, a difference that is statistically significant at $p < .001$. Conversely, for women’s jealousy of men, men (the target) report 33% and women (the “perpetrator”) report 22%, with $p < .001$. These tendencies are repeated in the countryside, where the combined male-female reports of jealousy are 10% for male-to-female and 13% for female-to-male jealousy and where significant male and female report differences appear in all types of jealousy. In short, urban areas elicit more jealous responses, and the targets of jealousy report more jealousy in urban and rural areas.

[Figure 1 about here]

Hitting. Hitting patterns parallel those for jealousy, with hitting in either direction most common among the young (Figure 2). While only 5% of the oldest couples report hitting, a full 27% of the young report hitting last year. Across all ages, 6% of the women were hit by their partner without retaliating, 4% of men by their female partner without retaliating, and another 2% experienced mutual hitting.

These percentages are based on combined reports from both men and women. We expect that the partner who is more sensitive to issues of social disapproval would under-report hitting. In China, the targets of the hitting report less hitting than the perpetrators. For example, for urban male-to-female hitting, 11% of men report hitting while only 5% of women report being hit last year ($p=.06$). For urban

female-to-male hitting, the difference is statistically non-significant, but still in the same direction of perpetrator high, victim low. While 7% of the women say they hit their partner, only 5% of the men say they were hit. Rural patterns are similar. Thus, being a victim, one might infer, is the socially disapproved condition in China.

[Figure 2 about here]

Comparisons to other societies. Despite problems with differences in question wording and samples, comparisons to other societies provide a useful context for the Chinese findings. In most other studies, women are limited to those below age 50 and women provide the reports of male jealousy. Using this same set of sample restrictions for the Chinese sample, 31% of Chinese urban men and 13% of rural men are jealous of their partner. For six societies, including China, the median percentage of male jealousy is 17% (Johnson, 1995; Tajden & Thoennes, 2000; MSPP, 2000; PROFAMILIA, 2000; NIS, 2001). The Chinese rural and urban figures bracket this median figure -- Chinese rural men are below average and Chinese urban men above average in jealousy.

In the 20-49 age range and using both men's and women's reports, 10% of the urban and 8% of the rural Chinese women were hit last year. The median for male-to-female hitting in 44 countries is 11 percent (Heise, 1999, table 1; with additions from CEPEP, 1999; MSPP, 2000; INEC, 1999; PROFAMILIA, 2000; NIS, 2001; CEPAR, 2001; KIIS, 2001). Or, more specifically, Chinese urban hitting figures are at about the 36th percentile among studies from diverse societies. Chinese rural figures are at similar levels. If we used only the women's reports, which is the standard source of reports in other societies, Chinese hitting would be at even lower levels of hitting.

Correlates of Jealousy

With a partner age 30, 30% of men and 41% of women are jealous (Table 2). At these levels of jealousy, each proportion change in the table indicates how the percent jealous would change were a respondent to take the maximum value rather than the minimum value of each independent variable -- while all the other variables remained at their mean value. The central issue in this exercise is whether there are distinct men's and women's patterns of sexual jealousy. As suggested in evolutionary psychology, men and women should have gender-specific triggers for jealousy, with men being

concerned with their partners' sexual transgression *per se* and women with partners' emotional diversion to other women and resource loss.

[Table 2 about here]

Sexual Dynamics. Young age, sexual attractiveness, having an extra sex partner, and cohabiting relationships are all risk factors for jealousy. Expressed as proportion changes, all these risk factors increase jealousy by at least 16 percentage points. The surprise here, of course, is how similar the patterns are for men and women. Instead of men being worried about the sexual attractiveness of their partner, and women being worried about partners of high income and status, both genders are jealous over the sexual attractiveness of their partner. Also, instead of men being worried about young, fecund partners and women being concerned about much older, established men, both are concerned about young partners. This concern is particularly great for women, because some of the women are married to much older men in their 60s. When the oldest husband, for which there is little jealous concern, is compared to a husband age 20, towards whom jealousy is common, the gap in jealousy between the oldest and youngest husband/partner is a full 36.9 percentage points.

The models in table 2 are not completely satisfactory, however. Model 2 in this table fails to distinguish between long- and short-term, and between non-commercial and commercial sex relationships. If evolutionary models are correct, then, women should be troubled more by long-term emotional investment than by short-term, commercial sex relationships. In a separate (unreported) equation, we tested this idea by repeating the analysis in column 2 of table 2. Only this time, using the men's report, we examined the woman's jealousy of her partner when he had ever had commercial sex and when he had other long-term sexual relationship(s). The proportion change coefficients were 26.8 percentage points ($z = 4.02$) for commercial sex relationships and 18.1 percentage points ($z = 2.05$) for long-term non-commercial relationships. Although the former has a larger proportional change figure, it did not statistically differ from the latter. In other words, both types of relationships were equally troubling to women. Again, this is not what would be expected from a simple, evolutionary model.

Bargaining and Dependence. Men's and women's responses to their relative resource positions are only slightly more differentiated. Some of the patterns are consistent with what one expects from the

existing literature. Women are more jealous when their husbands / partners have high incomes and are older as well as when their husbands love them less than they love their husbands (column 2). Because husband's income goes to a much higher level than the wife's income, the jealousy consequences of a minimum-to-maximum change in his income is a full 30 percentage points. Her minimum-to-maximum change is only 13 percentage points. These are all as one might expect.

However, unexpectedly, women are more jealous when they contribute a higher share to their joint income. Separate (unreported) analyses suggest that this is, in part, because women with higher income shares are more educated, and possibly more sensitive to the possible extramarital activities of their husbands and partners.

Controls. As expected, people with more liberal (permissive) sex values are more jealous of their partners. However, those who believe that men should lead in sex do not express jealousy differently (details not shown). Also, the male coefficients are consistent with gender-reporting biases. Men more often report that women are jealous of them. Men also frequently deny that they are jealous of their partners. As a further check on potential gender-reporting biases, we ran table 2 separately for male and female respondents. One noteworthy difference was that men with liberal values were more likely to be jealous than were women with similar values. Nevertheless, all the other results paralleled those in the combined reports of table 2 (details not shown).

Profiles. Profiles of typical individuals provides another way to get an intuitive sense of the results in table 2, column 1. From that table we derive predicted male-to-female jealousy levels for three types of couples. First, take a couple that is average in all the risk factors of table 2 except that the woman has no concurrent partners, she is age 30, and her partner is the respondent. In this situation, 16% of men would be jealous of their partner. Second, the percentage jealous increases to 29% if the same conditions hold except that the woman is "advantaged" in bargaining by high income and relative affection (she loves him less than conversely). Third, the jealousy level rises to 77%, if the couple is average (type 1) and the sexual dynamics shift to high risk (the woman is sexually attractive, had concurrent partner(s), and they are cohabiting). Or, among the risk factors studied, sexual dynamics have among the largest consequences for jealousy.

Correlates of Hitting

The correlates of hitting have several possible patterns. If sexual jealousy is a major determinant of hitting, then, once it is included in the equation, many other competing determinants (e.g., stress, alcohol consumption) should shrink to near insignificance. If socio-cultural values are important, then, men should be more likely to hit when they believe that women should take a subordinate role sexually. If women's empowerment ameliorates hitting, then, women with higher income shares, physical stature, and support networks should experience less hitting. At age 30, 11.8% of women and 9.9% of men were hit last year (Table 3). Or, by distinguishing direction of hitting, 5.6% of men were targets of unidirectional hitting, 7.5% of women were targets of unidirectional hitting, and 4.3% of couples experienced mutual hitting. It is around these percentages that proportion change coefficients were calculated.

[Table 3 about here]

Jealousy. Jealousy exacerbated hitting for both men and women. The pattern was not a simple one of the jealous partner hitting more. Instead, the partner who was jealous induced more hitting by the other partner. For example, a woman jealous of her husband / partner was more likely to be hit – by 8.5 percentage points (including mutual hitting, column 4) or 7.1 percentage points of unidirectional hitting (column 2). And, unsurprisingly, when both genders were jealous, hitting increased by similar amounts. These are all large effects, averaging 4.3 to 10.5 percentage points – which is in the same range as most of the large risk factors for hitting (columns 4 & 5). These are the results for the urban population. In the rural population, one might expect more direct links between men's jealousy and his hitting his spouse or partner. In (unreported) rural results that repeated the analysis of table 3, this indeed occurred. In the countryside, a jealous man was 32 percentage points more likely to hit his partner ($p < .05$). Nevertheless, even in the countryside, the backlash type of hitting, with men hitting the wife who nagged him about his infidelity, was also common (15 and 12 points for unidirectional and mutual jealousy, $p < .05$ for both). But given our smaller rural samples, these size effects were statistically indistinguishable from one another. More generally, both the urban and rural results suggest that jealousy is indeed important -- even

as much or more for eliciting rather than producing hitting and for female-to-male as much as for male-to-female hitting.

Bargaining / dependency. The issue in this analysis is whether empowered women avoid being hit. Except for couples where the man earns little or no income, do women earning a larger share of the couple's income avoid being hit? Similarly, when women are similar to their partner in height and age, do they avoid being hit? The answer is a qualified "Yes."

The results for unidirectional male-to-female hitting provide one cut at the evidence. When the woman earns almost all the couple's income and the man earns very little, she is 6.1 percentage points more likely to be hit. More encouraging, even though only marginally significant at $p = 0.07$ ($z = 1.85$), women who earn close to half of the couple's income rather than none of the couple's income are -1.2 percentage points less likely to be hit. Moreover, when she approaches her partner in height, she not only is less likely to be hit but also is more likely to return his hitting. Conversely, when the man is much taller than the woman, he is 14.9 percentage points more likely to hit her and she is 5.5 percentage points less likely to resist. These are all as one might expect from standard bargaining / empowerment models. The only figure that is out-of-line with those models is that when the man is much older than his partner, she is not more, but less likely to be hit. The pattern, it would appear, is the result of his absolute age being more important than his relative age. His greater absolute age makes him less aggressive, overwhelming any possible effects of his greater relative age. In short, setting aside the age effects and the effects of hitting by men with little or no income contribution, the empirical results are at least partially consistent with bargaining / empowerment models.

Stress / lifestyle. One additional issue is whether stress (low socio-economic status, young children) and lifestyle (alcohol consumption, cohabitation) issues are unimportant when included in the analysis along with jealousy and other factors. In separate (unshown) analyses by gender, alcohol consumption is a risk factor for women as well as men – women are much less likely to drink heavily, but when they do, they have risk levels similar to those for the men hitting them. Given the small cell sizes, cohabitation is not statistically important – though it is in the expected direction of increasing hitting.

The other stress / lifestyle factors increase hitting, particularly unidirectional male-to-female hitting – and, to a lesser extent, even unidirectional female-to-male hitting.

Other risk factors. Many of the other factors perform as expected. Though statistically significant for only one relationship, the absence of another adult in the household increases all types of hitting. Consistent with a socio-cultural account, beliefs that men should take the lead in sexual matters exacerbate unidirectional male-to-female hitting while they inhibit female-to-male hitting. Mutual hitting is common among the young. Men report less hitting by their female partner.

In additional (unreported) analyses using the separate men's and women's reports, the results largely parallel those presented in table 3, columns 4 and 5. The few differences in male and female patterns were as follows: In male-to-female hitting, taller men report more hitting than do women (21 percentage points vs. 2 percentage points, $p = 0.02$). In female-to-male hitting, male jealousy has a larger effect when men provide the report (20 points vs. 9 points, $p = 0.02$).

Profiles. Profiles of different types of couples provide an additional sense of the risks that exacerbate male-to-female hitting. First, a moderately low risk woman would be one with the following characteristics: no jealousy in her relationship, average bargaining position (income, height, age gap), little stress (average male income and alcohol consumption, no preschool child or cohabitation), belief that male should be dominant in sexual matters, not northeast region, relationship all of year, woman's report, and an age of 30. Including mutual hitting, 6% of women of this type would be slapped or hit during the previous year. Second, to this baseline woman we can add three sets of risks, one at a time. With each of these additions, we get the following hitting levels: 18% with the added risk of her being jealous of her male spouse or partner; 21% she is in a weak bargaining position (no income, short stature); and 67% if she is at risk from stress and lifestyle factors (low socioeconomic status of partner, preschool child, high alcohol consumption, and cohabiting). Again, these new percentages are all on the basis of adding the additional risks one at a time. The resulting percentages suggest that while all the sets of risks have major influences, the stress and lifestyle risks produce the highest levels of hitting.

Correlates of Jealous Hitting

One of the reasons stress and lifestyle remain so important in the analysis above is that we failed to distinguish situational hitting from possessive hitting. One way to begin to do that is to distinguish non-jealous and jealous hitting (Table 4). The question here is whether each type of hitting has sharply different determinants and, in particular, whether stress and lifestyle recede in importance while women's empowerment grows in importance once jealous (possessive) hitting is involved. A related issue is whether the patterns differ radically between male and female victims of hitting.

On the first issue of whether empowerment issues are uniquely important for jealous hitting, the answer is a partial "Yes." Much more so than for non-jealous hitting, jealous hitting of women decreases when her income share approaches 50% and when the women more nearly approximate the men's height. Also, having a low status partner, a stress item, is important only for non-jealous hitting. That said, pre-school children as a stressor remain important for both types of hitting of women, as does alcohol consumption. The lifestyle issue of cohabitation is particularly important for jealous hitting.

As for distinctions in patterns when men and women are victims, men are hit by jealous partners at least as often as women (row 1). Relative height, cohabitation, preschool children, and the man's low income and unemployment are important, regardless of the gender of the victim. Thus, at least on some dimensions, gender differences are in parallel.

In other (unreported) tables using the separate men and women's data, cohabitation produces woman jealous hitting more often among women than among men. Otherwise, the analysis based on separate men's reports and women's reports gives results that parallel those reported here.

Our analysis is limited in many ways, of course. Other than through jealousy, we have no information on attempts by one partner to control the other. We have no information on repeat hitting or on the severity of hitting last year. Thus, we can only crudely distinguish situational violence from the cycle-of-violence intimate terrorism that is typically a part of spousal abuse. We included too few questions about community and family support and our rural sample is too small for detailed analysis.

Discussion

Even with many qualifications, several risk factors for intimate partner violence emerge as important in China:

- Sexual jealousy; This study adds to a growing list of national surveys showing a strong connection between jealousy and hitting.
- Women's empowerment. Women who more closely approximate their partner in income and height are less likely to be hit. And, if they approximate their partner in height, once hit, they are more likely to hit back.
- Belief that men should be dominant in sexual activities: Such beliefs exacerbate male-to-female hitting while dampening hitting in the opposite direction.
- Stress. Stress and other standard risk factors also apply in China, including youth, low socioeconomic status of partner, young children, alcohol consumption, husband contributes little income, and absence of other adults in the home. At least for the types of hitting measured here, these stress, lifestyle, and social support items remain important net of jealousy, women's empowerment, and beliefs about male dominance in sexual matters.

Jealousy patterns. In contrast to these relatively straight-forward findings, several other findings are more perplexing. To begin with jealousy, the usual socio-cultural, men-control-women model emphasizes male-to-female jealousy. In contrast, evolutionary and resource imbalance models imply that jealousy can as easily flow in the opposite direction. This paper finds support for the latter pattern. In urban China, female-to-male jealousy is even more common than male-to-female jealousy. The high levels of jealousy for women relative to men repeat patterns found in the U.S. (based on reanalysis of the data used in Tjaden & Thoennies, 2000; also Paik et al., 2003), suggesting that the Chinese pattern may be general and that future studies must attend to jealousy in both directions in accounting for intimate-partner hitting.

Another issue was whether the triggers for jealousy differ for men and women. Evolutionary accounts expect men to be concerned about their partner's youth, attractiveness, and sexual infidelities of any sort. Conversely, evolutionary accounts expect women to be concerned less about short-term sexual

affairs and more about emotional infidelity by high status men who provide ample resources. Some question these assertions, suggesting that the patterns will not hold in adult populations responding to questions about actual behavior (e.g., Harris, 2002, 2003).

The Chinese urban data reveal similarities in male and female jealousy patterns rather than dissimilarities. Women are more concerned when their man is older than her, which fits the “anxiety about status and support” hypothesis. But on all other dimensions, the concern is shared. Both men and women are concerned when their partner is young, attractive, has high income, loves less, and only cohabits without marriage. Moreover, both are jealous when the partner has had concurrent partner(s), irrespective of whether the concurrent partner was only a commercial sex-worker involving no emotional commitment. In short, the data call into question the evolutionary, “different strokes for different genders” approach.

Simpler socio-cultural explanations do not fare much better. Men who believe that men should lead in sex are not more likely to be jealous and, in the countryside, where “men should lead” values are common, jealousy is not more but less common. It is in towns and cities, where males are more likely to have extra-relational affairs that jealousy is more common. When men are free to have additional partners, while women are not, women are prone to jealousy. This is women’s rather than men’s jealousy that is being raised to high levels by new sexual values.

Hitting patterns. Hitting patterns in urban China also have complexities that fit uneasily with current scholarship. For example, it is not the jealous partner who hits more. On the contrary, it is the partner who expresses jealousy who is hit. The link between sexual jealousy and partner hitting is reactive rather than proactive. That is, hitting is not just a manifestation of “mate guarding” (as in evolutionary psychology), learned behavior such as in “I own you” (the socio-cultural perspective), or “Less resourceful partners want control” (the power or, more precisely, the compensatory perspective). Instead, jealousy of the other evokes an opposite response, which is to slap or otherwise attack the jealous partner. In urban China, no gender difference is present in the reactive pattern of the jealous partner being hit. In urban China, then, female jealousy, even more than male jealousy, is a risk factor for her being hit. Rural China may more closely approximate the classic assumption that male jealousy promotes hitting of

females. But even there, a considerable proportion of hitting of women is in response to her expression of jealousy. All this suggests that, in future research, we need more attention to female as well as male jealousy in promoting violence.

One of the recurrent puzzles in work on hitting is how often women hit men, whether in self-defense or with no attack by men. We find the same in urban China. In addition, by examining her unidirectional hitting in the previous year, we find that with one exception, she reacts to many of the same risk factors as men do (table 3). She too hits more often when she is provoked by his jealousy and when she is subject to the stresses of raising a preschool child or when either she or he consumes substantial amount of alcohol. The exception to the parallelism in men's and women's patterns is suggestive, however. In contrast to men's hitting, which is shaped by her bargaining power – their relative income, her physical height – her hitting is not shaped by these factors. This is consistent with an account emphasizing female empowerment and men's hitting. That account does not explain women's unidirectional hitting, suggesting that while there is much that is parallel in men's and women's hitting patterns, in this one domain they are different.

Conclusion

To repeat the central lesson of this paper, jealousy is indeed important in accounting for hitting behavior -- though in a much more complex fashion than implied in much of the existing literature. Jealousy can provoke hitting either directly, by causing the jealous partner to hit (e.g., in rural China), or indirectly, by causing reactive hitting from the partner accused of infidelity (in both rural and urban China). Women get jealous as much as or more often than men. Jealousy is not merely part of a culturally learned male control tactic that is unshared by women. Particularly in “backlash hitting,” it may be not the man's but the woman's jealousy that exacerbates hitting. These patterns suggest that future research needs to pay particular attention to both men's and women's jealousy when examining risk factors for hitting.

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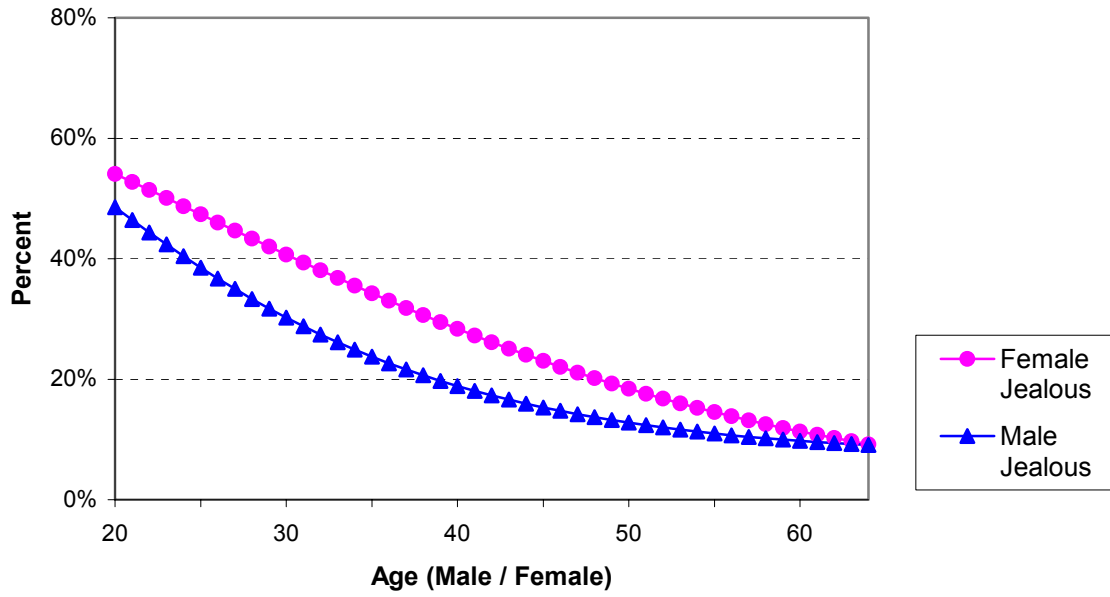


Figure 1. Male and Female Jealousy by Partner's Age

Note: Based on 2,661 reports of male jealousy and 2,659 reports of female jealousy by both women and men. Estimated from weighted logit equations with age and its squared term.

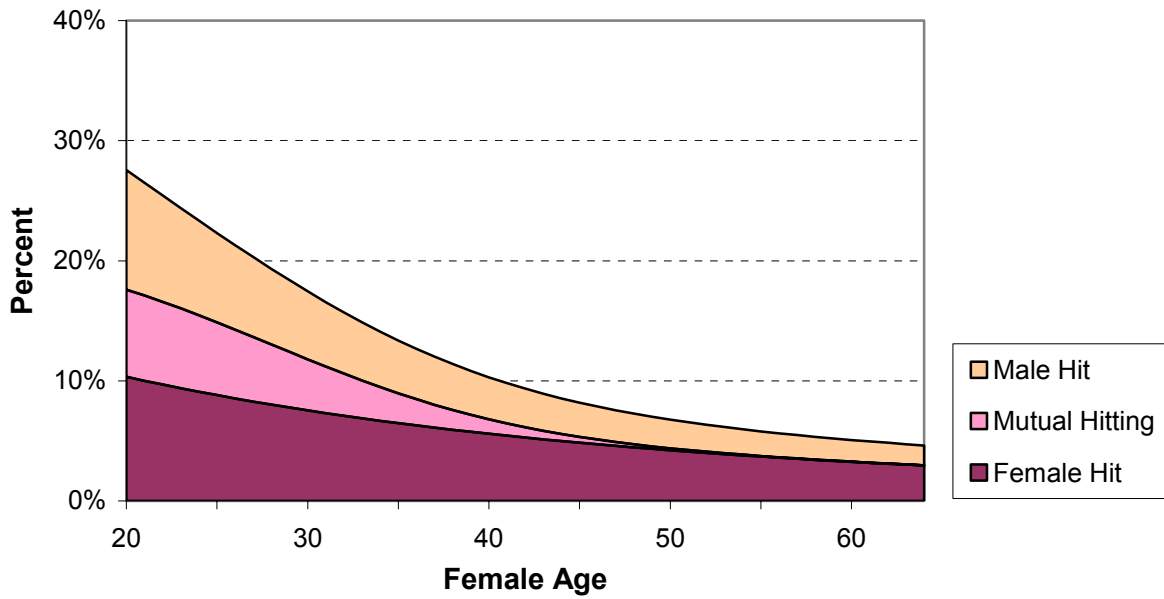


Figure 2. Hitting Last Year by Direction of Hitting

Note: Based on 2,661 reports by women and men. Estimated from weighted logit equations with female age and its squared term.

Table 1: Descriptive Statistics for Independent Variables

Variable	Mean	S.E.	Min	Max	Points ^a
Jealousy					
men jealous	0.07	0.01	0	1	d
women jealous	0.13	0.01	0	1	d
both jealous	0.14	0.01	0	1	d
Sexual Dynamics					
<u>Attractiveness:</u>					
<i>youthfulness</i> (reverse of age, 64 - age): ^c					
women	24.4	0.45	0	44	c
men	22.6	0.49	0	44	c
sexual attractiveness:					
women	0.47	0.01	0	1	4
men	0.48	0.01	0	1	4
<u>Monitoring:</u>					
had concurrent partner(s)					
women	0.10	0.01	0	1	d
men	0.21	0.01	0	1	d
<u>Marital Status</u>					
cohabiting	0.02	0.004	0	1	d
Social Support					
absence of other adults in home	0.62	0.02	0	1	d
Bargaining/Dependency					
income (logged):					
women	5.31	0.12	0	9.2	c
men	6.46	0.06	0	11.3	c
woman's income share (%):					
full range	36.2	0.79	0	100	c
≤ 50% ^b	33.4	0.87	0	50	c
> 50% ^b	2.74	0.48	0	50	c
relative height (%; man/woman)	106.7	0.11	91.7	122.4	c
age gap in years (man - woman)	2.13	0.07	-4	11	c
relative affection					
woman target (man - woman)	0.50	0.002	0	1	5
man target (woman - man)	0.50	0.002	0	1	5
Stress/Life Style					
<i>low socioeconomic status</i> (high to low) ^{e, f}					
potential woman perpetrator	0.63	0.01	0	1	c
potential man perpetrator	0.55	0.02	0	1	c
has pre-school child	0.20	0.02	0	1	d
alcohol consumption					
female respondent	0.12	0.01	0	1	c
male respondent	0.51	0.01	0	1	c
Controls					
liberal sex values					
female respondent	0.28	0.01	0	1	c
male respondent	0.44	0.01	0	1	c
belief in men should dominate in sexual activity					
female respondent	0.18	0.03	0	1	d
male respondent	0.11	0.02	0	1	d
relationship all last year	0.84	0.02	0	1	d
north/northeast (region)	0.51	0.11	0	1	d
male respondent	0.51	0.01	0	1	d

Notes: Weighted urban sample with average of 1332 men and 1328 women.

^a Total data "points" for items with 3-9 categories.

^b Transformation of women % of joint income into two linear splines with a break at 51%.

^c Continuous variables with more than 10 data points.

^d Dummy variables.

^e Reverse of the original scale so as to be a risk factor.

^f Standardized index combining education and current/previous occupation.

Table 2: Correlates of Jealousy (percent changes)^a

	<u>M→F Jealousy</u> (1)	<u>F→M Jealousy</u> (2)
<i>Percent Jealous (at age 30)^c</i>	30.2	40.1
Sexual Dynamics		
<u>Attractiveness:</u>		
target's youthfulness	26.3* (4.65)	36.9* (8.49)
target's sexual attractiveness	21.2* (3.61)	18.5* (3.75)
<u>Monitoring:</u>		
target had concurrent partner(s)	23.0* (5.16)	26.1* (8.89)
<u>Marital Status</u>		
cohabiting	17.4* (3.32)	16.8 (1.23)
Bargaining/Dependency		
target's income (logged)	13.1* (2.95)	29.9* (3.00)
woman's income share	-9.6 [†] (1.73)	14.0* [^] (2.24)
age gap (man - woman)	-3.4 (0.35)	14.4* [^] (2.39)
relative affection (partner - target)	11.9 (1.37)	29.1* (2.06)
Controls		
respondent's liberal sex values	16.9* (5.13)	18.5* (3.65)
male respondent ^c	-14.6* (8.10)	8.7* [^] (4.17)
Log-likelihood	-1214.11	-1287.97
Pseudo-R ²	0.12	0.17
Observations	2642	2640

Notes:

^a Percent changes derived from binomial logit analyses. The percent changes indicate the consequences of minimum-to-maximum changes in each independent variable for a person with the average jealousy levels of a person age 30. The outcome variable is (1) "sometimes" or "often" jealous versus (0) "never" or "rarely" jealous.

^b Data are combined female and male reports. For example, column 1 includes both the woman's report of his jealousy of her and the man's reports of his jealousy of his partner. The male respondent control variable indicates the degree to which men report more or less of each type of jealousy.

^c Estimated from a simple logit regression model controlling for age and its squared term.

z-values in parentheses. Standard errors adjusted for sample design.

[†] significant at 0.10 level; * significant at 0.05 level; ^ indicates proportional changes significantly larger than for the opposite gender at $p < 0.05$.

Table 3: Correlates of Hitting during Past 12 Months (percent changes) ^a

	<u>Multinomial Logit</u>			<u>Logit</u>	<u>Logit</u>
	F → M (1)	M → F (2)	M ↔ F (3)	M hit F (4)	F hit M (5)
Percent hit (at age 30)	5.6	7.5	4.3	11.8	9.9
Jealousy (vs. not jealous)					
man jealous	11.8* (4.26)	2.3 (1.42)	-0.3 (0.01)	2.4 (0.81)	10.5* (4.51)
woman jealous	0.2 (0.52)	7.1* (3.32)	1.7† (1.69)	8.5* (4.78)	1.6 (1.35)
both jealous	3.3* (2.31)	4.6* (6.77)	2.5* (3.17)	6.4* (5.53)	4.3* (3.76)
Bargaining/Dependency					
woman's income share (≤ 50%)	-1.5 (0.71)	-1.2† (1.85)	0.5 -(0.63)	-1.1 (0.85)	-0.4 (0.21)
woman's income share (> 50%)	-0.5 (0.06)	6.1* (3.23)	0.6 (0.30)	6.6* (3.08)	-0.5 (0.13)
relative height (man/woman)	-0.2 (0.02)	14.8* (3.80)	-5.5† (1.82)	12.4†^ (1.88)	-3.8 (0.79)
age gap (man - woman)	-0.1 (0.15)	-3.5 (1.31)	-5.7* (2.63)	-6.8* (2.07)	-2.8 (0.97)
Stress / Life Style					
men low socioeconomic status	1.4 (0.66)	3.5* (2.63)	1.7 (1.04)	5.0* (2.37)	4.5*(2.49) ^b
has pre-school child	4.4* (3.46)	4.0* (2.84)	1.0 (1.15)	4.8* (5.56)	4.2* (2.39)
respondent's alcohol consumption	3.1* (2.58)	5.4* (4.25)	3.0* (3.05)	7.5* (5.35)	4.6* (3.17)
cohabiting	2.1 (0.95)	4.3 (1.28)	1.5 (1.09)	7.4* (2.18)	4.1† (1.91)
Social Support					
absence of other adult(s) in home	0.7 (0.86)	1.7 (1.53)	1.2† (1.68)	2.4* (2.39)	1.3 (1.03)
Other Factors					
woman's youthfulness	1.2 (0.63)	-0.1 (0.14)	9.6* (3.72)	4.1† (1.88)	6.4† (1.95)
belief in men should dominate in sex					
male respondent	-2.7* (2.03)	3.6* (3.74)	-0.2 (0.19)	4.0*^ (4.47)	-2.7* (2.02)
female respondent	0.2 (0.20)	-1.1 (0.72)	1.5 (0.67)	0.2 (0.09)	0.8 (0.38)
north/northeast city (vs.others)	1.9 (1.63)	0.4 (0.82)	2.1* (2.53)	1.4* (2.22)	3.1* (2.95)
relationship all of last year	1.0 (1.47)	0.9 (0.75)	0.2 (0.21)	0.9 (0.56)	0.9 (1.22)
male respondent	-1.4 (1.00)	0.5 (0.24)	-1.3 (1.48)	-0.3 (0.15)	-2.3* (2.17)
Log-likelihood		-1081.06		-616.39	-519.87
Pseudo-R ²		0.17		0.16	0.17
Observations		2643		2643	2644

Notes:

^a Percent changes derived from multinomial and binomial logit analyses. In the outcome variables, "absence of hitting" is the reference category.

^b indicates woman's low SES status.

Also see notes to Table 2.

Table 4: Correlates of Jealous and Non-Jealous Hitting during Last Year ^a

	Male Hit Female		Female Hit Male	
	non-jealous (1)	jealous (2)	non-jealous (3)	jealous (4)
<i>Percent hit (at age 30)</i>	8.1	3.8	5.4	4.2
Bargaining/Dependency				
woman's income share (≤ 50%)	1.9 [^] (1.58)	-1.9* (2.89)	0.3 (0.24)	-1.1 (1.00)
woman's income share (> 50%)	2.3 (0.84)	4.1* [^] (5.65)	-6.6 (1.64)	3.9 [†] [^] (1.82)
relative height (man/woman)	3.5 (0.76)	8.8* [^] (2.78)	-0.4 (0.15)	-5.4* (2.44)
age gap (man - woman)	-10.5 [†] (1.82)	0.1 (0.10)	-1.5 (0.89)	-2.6 (1.18)
Stress / Life Style				
partner low socioeconomic status	7.0* (1.96)	-0.9 (0.76)	2.9* (2.26)	1.1 (1.06)
has pre-school child	2.8* (1.99)	2.0* (3.16)	3.4* [^] (3.46)	1.1 (0.93)
respondent's alcohol consumption	6.1* (2.49)	3.4* (4.11)	2.0* (3.00)	4.4* (3.10)
cohabiting	-4.0 (1.04)	13.8* [^] (3.47)	-3.2* (48.81)	6.8* [^] (3.01)
Social Support				
absence of other adult(s) in home	2.7* (2.12)	0.4 (0.91)	0.6 (0.90)	1.4 (1.25)
Other Factors				
woman's youthfulness	9.7* (3.40)	0.7 (0.56)	2.0 (1.05)	10.0* (2.47)
belief in men should dominate in sex				
male respondent	3.1* (2.14)	1.9* (5.49)	-1.0 (0.92)	-2.3* (2.07)
female respondent	-1.4 (0.64)	0.7 (1.17)	0.1 (0.17)	1.2 (0.64)
north/northeast city (vs. others)	1.7* (2.28)	0.3 (0.98)	1.6 [†] (1.84)	2.0* (2.65)
relationship all of last year	0.3 (0.13)	0.1 (0.30)	1.0 (1.57)	-0.5 (0.38)
male respondent	1.5 (0.81)	-0.8 (1.05)	-1.9* (2.28)	-1.5 [†] (1.71)
Log-likelihood	-739.70		-625.41	
Pseudo-R ²	0.16		0.15	
Observations	2646		2645	

Notes:

^a Percent changes derived from multinomial logit analyses. In the outcome variable for both equations, "absence of hitting" is the reference category.

Also see notes to Table 2.

Table A2: Correlates of Jealousy ^a

	<u>Male Jealousy</u>	<u>Female Jealousy</u>
	(1)	(2)
<i>Proportion Jealous (at age 30)^c</i>	30.2	40.1
Sexual Dynamics		
<u>Attractiveness:</u>		
target's youthfulness / 10	1.50*** (4.65)	1.61*** (8.49)
target's sexual attractiveness	4.23*** (3.61)	2.86*** (3.75)
<u>Monitoring:</u>		
target had concurrent partner(s)	3.32*** (5.13)	3.54*** (8.89)
<u>Marital Status</u>		
cohabiting	2.52** (3.32)	2.23 (1.23)
Bargaining/Dependency		
target's income (logged)	1.10** (2.95)	1.16** (3.00)
woman's income share (% / 10)	0.94 [†] (1.73)	1.08* [^] (2.24)
age gap (man - woman)	0.79 (0.35)	2.27* [^] (2.39)
relative affection (partner - target)	2.25 (1.37)	5.23* (2.06)
Controls		
respondent's liberal sex values	3.17*** (5.13)	2.86*** (3.65)
male respondent ^c	0.37*** (8.10)	1.65*** [^] (4.17)
Log-likelihood	-1213.97	-1287.69
Pseudo-R ²	0.12	0.17
Observations	2642	2640

Notes:

^a Odds ratios based on single unit changes (see table 1).

Also see notes to Table 1.

Table A3: Correlates of Hitting during Last 12 Months^a

	<u>Multinomial Logit</u>			<u>Logit</u>	<u>Logit</u>
	F → M (1)	M → F (2)	M ↔ F (3)	M hit F (4)	F hit M (5)
Proportion hit (at age 30)	5.6	7.5	4.3	11.8	9.9
Jealousy (reference: none jealous)					
man jealous	6.51*** (4.26)	1.96 (1.24)	1.01 (0.01)	1.55 (0.81)	4.63** (4.51)
woman jealous	1.18 (0.52)	3.68** (3.32)	2.23† (1.69)	3.29*** (4.78)	1.47 (1.35)
both jealous	2.54* (2.31)	2.77*** (6.77)	2.81** (3.17)	2.64*** (5.53)	2.41*** (3.76)
Bargaining/Dependency					
woman's income share (≤ 50%) /10	0.90 (0.71)	0.93† (1.85)	1.05 (0.63)	0.96 (0.85)	0.98 (0.21)
woman's income share (> 50%)/10	0.98 (0.06)	1.42** (3.23)	1.08 (0.30)	1.32** (3.08)	0.97 (0.13)
relative height (%; man/woman)	1.01 (0.02)	4.04*** (3.80)	0.39† (1.82)	2.38† (1.88)	0.70 (0.79)
age gap (man - woman)	0.88 (0.15)	0.34 (1.31)	0.04** (2.63)	0.23* (2.07)	0.46 (0.97)
Stress / Life Style					
man low socioeconomic status	1.70 (0.66)	2.82** (2.63)	2.63 (1.04)	2.91* (2.37)	3.53* ^b (2.49)
has pre-school child	3.25** (3.46)	2.65** (2.84)	1.78 (1.15)	2.28*** (5.56)	2.51* (2.39)
respondent's alcohol consumption	3.25* (2.58)	5.08*** (4.25)	5.69** (3.05)	4.95*** (5.35)	3.59** (3.17)
cohabiting	1.85 (0.95)	2.40 (1.28)	2.00 (1.09)	2.72* (2.18)	2.20† (1.91)
Social Support					
absence of other adult(s) in home	1.35 (0.86)	1.74 (1.53)	2.09† (1.68)	1.70* (2.39)	1.44 (1.03)
Other Factors					
women's youthfulness / 10	1.13 (0.63)	1.02 (0.14)	3.27*** (3.72)	1.22† (1.88)	1.49† (1.95)
belief men should dominate in sex					
male respondent	0.23* (2.03)	2.10** (3.74)	0.91 (0.19)	1.94*** (4.47)	0.34* (2.02)
female respondent	1.09 (0.20)	0.72 (0.72)	1.92 (0.67)	0.97 (0.09)	1.22 (0.38)
north/northeast city (vs.others)	1.95 (1.63)	1.16 (0.82)	3.01* (2.53)	1.36* (2.22)	2.32** (2.95)
relationship all of last year	1.49 (1.47)	1.32 (0.75)	1.12 (0.21)	1.22 (0.56)	1.31 (1.22)
male respondent	0.62 (1.00)	1.13 (0.24)	0.49 (1.48)	0.95 (0.15)	0.53* (2.17)
Log-likelihood		-1081.06		-616.34	-519.89
Pseudo-R ²		0.17		0.16	0.17
Observations		2643		2643	2644

Notes:

^a Odds ratios based on single unit changes (see table 1).

^b indicates woman's low SES status.

Also see notes to Table 3.

Table A4: Correlates of Jealousy and Non-Jealous Hitting During Last Year^a

	<u>Male Hit Female</u>		<u>Female Hit Male</u>	
	non-jealous	jealous	non-jealous	jealous
<i>Proportion hit (at age 30)</i>	8.1	3.8	5.4	4.2
Bargaining/Dependency				
woman's income share ($\leq 50\%$) / 10	1.07 [^] (1.58)	0.76** (-2.89)	1.03 (0.24)	0.91 (-1.00)
woman's income share ($> 50\%$) / 10	1.10 (0.84)	1.86*** [^] (5.65)	0.52 (-1.64)	1.35 [†] [^] (1.82)
relative height (%; man/woman)	1.30 (0.76)	9.14*** [^] (2.78)	0.91 (-0.15)	0.49* (-2.44)
age gap (man - woman)	0.12 [†] (-1.82)	0.94 (-0.10)	0.46 (-0.89)	0.35 (-1.18)
Stress / Life Style				
partner low SES status	3.97* (1.96)	0.54 (-0.76)	4.41* (2.26)	1.61 (1.06)
has pre-school child	1.68* (1.99)	3.09** (3.16)	3.39*** [^] (3.46)	1.52 (0.93)
respondent's alcohol consumption	3.53* (2.49)	13.93*** (4.11)	2.92** (3.00)	5.88** (3.10)
cohabiting	0.29 (-1.04)	13.14*** [^] (3.47)	0.00*** (-48.81)	3.90*** [^] (3.01)
Social Support				
absence of other adult(s) in home	1.77* (2.12)	1.42 (0.91)	1.42 (0.90)	1.87 (1.25)
Other Factors				
Woman's youthfulness / 10	1.56** (3.40)	1.15 (0.56)	1.28 (1.05)	2.51* (2.47)
belief in men should dominate in sex				
male respondent	1.70* (2.14)	2.68*** (5.49)	0.51 (-0.92)	0.23* (-2.07)
female respondent	0.74 (-0.64)	1.55 (1.17)	1.08 (0.17)	1.54 (0.64)
north/northeast city (vs.others)	1.41* (2.28)	1.31 (0.98)	2.28 [†] (1.84)	2.19* (2.65)
relationship all of last year	1.07 (0.13)	1.13 (0.30)	1.85 (1.57)	0.85 (-0.38)
male respondent	1.34 (0.81)	0.55 (-1.05)	0.39* (-2.28)	0.54 [†] (-1.71)
Log-likelihood	-739.70		-625.41	
Pseudo-R ²	0.16		0.15	
Observations	2646		2645	

Notes:

^a Odds ratios based on single unit changes (see table 1)

Also see notes to Table 4.