

Original Article

The Effect of Individual Differences and Manipulated Life Expectancies on the Willingness to Engage in Sexual Coercion

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Abstract: The role of the individual difference variables of mate value, short-term and long-term mating preferences, and life history strategy along with the manipulated variable of life expectancy were used to predict differences in the willingness to engage in sexually coercive behaviors. Short-term preferences and long-term preferences were correlated with the willingness to engage in sexual coercion at all life expectancies. Life history strategy was correlated with the willingness to engage in sexual coercion at only the shortest and longest life expectancies. Most importantly short-term and long-term mating preferences interacted with life expectancy to predict the willingness to engage in sexually coercive behaviors. Short life expectancies increased willingness in individuals with high short-term and low long-term preferences. The results are discussed in terms of the varying theories of sexual coercion with emphasis put on a life history approach.

Keywords: sexual coercion, life history theory, life expectancy

Introduction

Although there have certainly been advances in our understanding of individual differences in sexual coercion, the research has lacked a theoretical foundation which goes beyond the proximal to the ultimate causes for these individual differences (Thornhill and Palmer, 2000). Evolutionary psychology offers benefits over traditional psychological perspectives by positing both proximal and ultimate causes for behavior, including sexually coercive behaviors. As it stands now, there are three contending evolutionary-based theories of individual differences in sexual coercion that have been put forth. These three theories are Competitively Disadvantaged Male theory (CDM), Sexual Coercion as a By-product theory (SCB), and Life History theory (LH), and they are subsequently described.

The foundations for CDM and SCB are both based on the evolved sex differences in mating strategies. As stated in Sexual Strategies Theory (Buss and Schmitt, 1993), due to

differences in gamete production and parental investment, different reproductive strategies for the sexes evolved (Trivers, 1972). Men produce more sperm than women do eggs, and men invest less in offspring across the life of the offspring than do women.

The sex that invests more in reproduction is highly selective, and in turn the sex that invests less competes for reproductive opportunities (Trivers, 1972). In humans, women are more likely to choose selectively because they invest more in reproduction, and men are more likely to engage in competition because they invest less. This is the sex difference stressed in CDM theory; males engage in more competition for mates and females do more of the choosing of mates. CDM theory states that men with minimal mate value, who are at a competitive disadvantage, are more likely to resort to sexual coercion. That is, those who are unable to compete in the mainstream mating marketplace utilize deviant methods to secure mating opportunities. Support for CDM was found in an examination of adolescent males charged with a sex crime (Figueredo, Sales, Russell, Becker, and Kaplan, 2000). Using structured interviews of both the adolescent men and their guardians, they found that social and mental deficits were predictive of the degree or amount of sexual criminality engaged in.

Given the sex differences in the costs of reproduction, it follows that men should also favor a short-term mating strategy and show more interest in casual, no strings attached sex with minimal commitment or investment. Additionally, men can reap huge reproductive advantages from engaging in sex with multiple women, and therefore men should also show more interest in having a variety of sexual partners. For these reasons it is more adaptive for men to adopt a short-term, promiscuous, mating strategy. In SCB theory sexual coercion is seen as a by-product of the sex differences related to this short-term mating strategy (Palmer, 1991; Thornhill and Palmer, 2000).

Although acknowledging the existence of sex differences in reproductive strategies, LH theory puts more emphasis on individual differences. There is a great deal of variance in reproductive behaviors within the sexes (Sisco and Figueredo, 2008), and these intrasexual differences are seen as being part and parcel of different LH strategies. LH strategies refer to differences in the allocation of bioenergetic resources toward growth, maintenance, and reproduction (separated into mating and parenting effort). These individual differences fall along a continuum from *fast* to *slow*. The fast pole is defined by rapid growth, with the outlay of resources skewed toward mating. Reproduction is geared toward *quantity* coupled with minimal parental investment. As one moves toward the slow end of the continuum, investment in mating decreases and investment in parenting increases. This reflects more of a *quality* reproductive strategy. The LH strategies have been found to co-vary with a large assortment of psychological and behavioral variables (Figueredo, Vásquez, Brumbach, and Schneider, 2004), including many that are associated with sexual coercion (e.g., aggression, impulse control, sociosexuality).

Consistent with the LH theory of sexual coercion are the findings of Gladden, Sisco, and Figueredo (2008). In testing the alternative hypotheses of CDM theory, SCB theory, and LH theory, they found that the variables related to each theory were associated, producing what they labeled the “protective LH factor.” The protective LH factor mediated the relationship between participant sex and the self-reported sexually coercive behaviors. That is, there was a sex difference, but the sex difference was explained by differences in

LH strategy.

Life expectancy effects

Given that individual differences in LH strategies can be used to understand the relationship between a multitude of important psychological and behavioral variables, it is important to understand the ontogeny of the LH strategies. It has been found that life expectancy is a sort of hub characteristic around which other LH differences between species revolve (Promislow and Harvey, 1990, 1991). Chisholm (1993) bridged the gap from species differences to individual differences in suggesting that humans have the ability to adjust their LH strategies based on the perception of extrinsic cues concerning life expectancy. Support for this hypothesis, that humans adjust LH strategies based on life expectancy cues, has been found using both in-depth examinations of individuals' decisions concerning the timing of reproduction (Geronimus, 1996) and the analyses of large scale social trends (Wilson and Daly, 1997). For example, in Wilson and Daly's (1997) analysis of Chicago neighborhoods they found that life expectancy was a predictor of age at which a woman gives birth to her first child. In a more recent analysis looking across the U.S. at the county level, Griskevicius, Delton, Robertson, and Tybur (2011) found that the mortality cue of violent crime rates predicted age at reproduction even after controlling for differences in income. Hill, Ross, and Low (1997) found that the shorter lifespan estimates of young adults were predictive of risk-taking behavior.

The relationship between life expectancies and LH strategies has also been examined using experimental methods. While individuals exhibit dispositional differences in LH strategies across situations, situational cues (e.g., cues to life expectancy) could tilt immediate behaviors in a fast or slow direction. One set of studies used a priming method to experimentally manipulate life expectancy, while another set of studies presented participants with hypothetical vignettes. Griskevicius, Delton, Robertson, and Tybur (2011) found that when individuals who developed in relatively resource poor environments were primed with reminders of mortality, they responded by lowering the age at which they desired to have children. Similarly, Griskevicius, Tybur, Delton, and Robertson (2011) found that the same mortality prime also led participants who grew up poor to discount the future and make riskier financial decisions.

Using a more overt manipulation, Dunkel, Mathes, and Decker (2010) and Dunkel, Mathes, and Papini (2010) achieved similar results. In these studies participants were presented with hypothetical vignettes indicating that they had 5 months, 5 years, or at least 50 years left to live. Although they did not find the interaction effects found by Griskevicius and colleagues, their findings do suggest an additive effect in the relationship between LH behaviors and mortality cues. Shorter life expectancies were associated with behaviors representative of a faster life history strategy. Dunkel, Mathes, and Decker (2010) found that when participants imagined shorter life expectancies they exhibited increased interest in short-term mating and decreased interest in long-term mating. Dunkel, Mathes, and Papini (2010) found that when participants imagined shorter life expectancies they increased their inclination to express anger and behave aggressively, both verbally and physically. In a second study, they found that decreased life expectancies also decreased participants' inclination to act in an altruistic, generative fashion.

Hypotheses

Given past research on the effect of life expectancies on attitudes toward mating and aggression, it was predicted that shorter life expectancies would lead to an increased willingness to engage in sexually coercive behavior. There are three individual differences hypotheses derived from LH, CDM, and SCB theories. LH theory predicts that a fast LH strategy will be associated with the willingness to engage in sexually coercive behaviors. CDM theory predicts that mate value will be inversely associated with the willingness to engage in sexually coercive behaviors. SCB theory predicts that a short-term, as opposed to a long-term, mating preference will be associated with the willingness to engage in sexually coercive behaviors.

Additionally, because both CDM and SCB emphasize sex differences, the possible role of participant sex was explored. It could be that men with low mate value or high preferences in short-term mating should exhibit the highest proclivities toward sexually coercive behaviors, while the same interactions are not exhibited by women. Alternatively, while not denying that sex differences play a role, LH theory stresses the importance of individual differences in LH strategies.

Most interesting, but least clearly predicted, are the possible interactions between the dispositional variables of mating preference, mate value, and LH strategy and the manipulated variable of life expectancy. Previous research using the life expectancy manipulation has not resulted in interaction effects, but it could be that shorter life expectancies intensify the dispositional penchants predicted by CDM, LH, or SCB. It is also possible that support for more than one theory will be found because there are quite possibly an assortment of different types of individuals who are willing to engage in sexually coercive behaviors (Hunter, Figueredo, Malamuth, and Becker, 2003; McKibbin, Shackelford, Goetz, and Starratt, 2008).

Materials and Methods

Participants

Two hundred and nine students (114 female) participated in exchange for course credit. The mean age of participants was 20.20 ($SD = 3.12$). In response to the demographics question on ethnicity, there were 164 Whites, 28 Blacks, nine Hispanics, four Asian Americans, and four participants who responded "other."

Materials and procedure

Participants completed the questionnaires on-line.

Dispositional differences

Short-term mating. Short-term mating preference was measured using the 10 items Jackson and Kirkpatrick (2007) found loaded onto a factor associated with a short-term mating preference (e.g., "Sex without love is OK"). A five-point Likert-type scale was used to rate the items. The internal consistency for the scale was $\alpha = .93$.

Long-term mating. Long-term mating preference was measured using the seven items Jackson and Kirkpatrick (2007) found loaded onto a factor associated with a long-

term mating preference (e.g., “I hope to have a romantic relationship that lasts the rest of my life”). A five-point Likert-type scale was used to rate the items. The internal consistency for the scale was $\alpha = .87$.

LH strategy. The Mini-K (Figueredo et al. 2006) was designed to be a short measure of LH strategy. It originally included 20 items, but following Dunkel and Decker’s (2010) recommendations, given that we used a university convenience sample, two items (concerning closeness to children/regular sexual partner) were deleted. The items were rated using a seven-point Likert-type scale. A sample item is, “I often find the bright side of a bad situation.” The internal consistency for the Mini-K was $\alpha = .68$.

Mate value. Mate value was measured using the Views of Opposite Sex (e.g., “Members of the opposite sex are attracted to me”) and Fear of Failure (e.g., “I often worry about not having a date” [reverse scored]) subscales of the Components of the Mate Value Survey (Fisher, Cox, Bennett, and Gavric, 2008). Participants rated the eight items using a Likert-type scale. The internal consistency was $\alpha = .84$.

Life expectancy manipulation. Life expectancy was manipulated through the instructions presented to participants. Hypothetical vignettes have been used previously to examine the adjustment of LH behaviors to ecological conditions (Cohen and Belsky, 2008). There were three expectancies: five months left to live, five years left to live, and at least 50 years left to live. Each of the expectancies was presented to each participant for a within-subjects design. Participants were given the following instructions for the 5 months condition, and these were slightly modified in the other conditions to reflect the specific life expectancies:

Imagine that you have just been to the doctor for your annual checkup and find out that you are very ill and have *5 months* to live. You will be pain free, have no symptoms, and be able to do all the things you do now during those *5 months*. Please answer the following questions with the understanding that the doctor told you that you will have *5 months* to live.

Dependent variable: sexual coercion. Willingness to engage in sexually coercive behaviors was measured by a modified version of the Sexual Experiences Survey that included items involving the use of alcohol or drugs to incapacitate for purposes of sexual coercion and having sex with an individual who was already passed out or incapacitated (Testa, VanZile-Tamsen, and Livingston, 2007). To simplify the scale, items measuring attempted but failed intercourse were eliminated. Since our research required a state measure, items were reworded so that past reports of behaviors were changed to reflect future intentions. For example, the item “Have you ever had sexual intercourse with a person when the person didn’t want to because you used some degree of physical force (twisting the person’s arm, holding the person down, etc.)?” became “If I really want to have sex with a person, to get sex I would use some degree of physical force (twisting the person’s arm, holding the person down, etc.), even though the person doesn’t really want to have sexual intercourse.” The wording of the items did not ask participants for a moral judgment, that is, what they “should do” under the circumstances, but a prediction of what they “would do.” Although “would do” is a bit more speculative than the Sexual

Experiences Survey's "did do," it does not cross over into the realm of moral judgment. Participants responded to the items using a five-point Likert-type scale. The internal consistency reliabilities of the scale for the various experimental conditions were: 5 months, $\alpha = .89$; 5 years, $\alpha = .88$; and 50 plus years, $\alpha = .85$.

Results

Data preparation

Two "catch" or "lie" items were used to identify participants who may have responded in a random manner. If participants agreed with the item, "I have never lied," or disagreed with the item, "It is better to do good than bad," their data were deleted. The sample reported under *Participants* represents the sample characteristics after the culling.

Prior to conducting the analyses, descriptive statistics for the variables were calculated. The analysis of the distribution of scores for the variables showed that sexual coercion scores across each life expectancy were highly skewed and were high on indicators of kurtosis. To help address the issue of the distribution of scores, the values were log transformed. The analyses were performed with the log transformed scores.

Correlations

As seen in Table 1, the individual difference variables of short-term mating preference, long-term mating, and LH strategy were correlated in the predicted pattern. LH strategy was positively correlated with long-term mating and negatively correlated with short-term mating, while long-term mating and short-term mating were negatively correlated. Mating value showed only one significant relationship: Mating value was positively correlated with LH strategy.

The correlations between the individual differences variables and measures of sexual coercion at the different levels of life expectancies showed the following patterns: Short-term mating was positively associated with sexual coercion across each life expectancy, long-term mating was negatively correlated with sexual coercion across each life expectancy, LH strategy was negatively correlated with sexual coercion only at the 5 month and 50 year life expectancy, and mate value was not associated with sexual coercion at any of the life expectancies.

Table 1. Bivariate correlations between variables

	1	2	3	4	5	6
1. Short-term mating	---					
2. Long-term mating	-.41**	---				
3. Life history strategy	-.38**	.40**	---			
4. Mate value	.06	-.00	.17*	---		
5. Sexual coercion 5 months	.25**	-.31**	-.14*	-.09	---	
6. Sexual coercion 5 years	.14*	-.24**	-.07	-.04	.86**	---
7. Sexual coercion 50 years	.14*	-.17**	-.14*	-.04	.66**	.70**

Note: * $p < .05$, ** $p < .01$.

Repeated measures analyses

Mixed General Linear Models (GLMs) were used to test the hypotheses. When using SPSS, Thomas et al. (2009) suggest that one should first run an analysis of variance (ANOVA) to examine the main effects and then run a secondary analysis including the continuous variable as a covariate and look at the interaction between the repeated factor and the covariate. Therefore, initial repeated measures ANOVAs were performed with the three life expectancies as the three levels of the within factor and sex as the between factor. After the initial analyses, four mixed GLMs were run. In the follow-up mixed GLMs the individual differences variables (short-term mating, long-term mating, LH strategy, mate value) were included.

The first analysis was conducted to examine the main effect for life expectancy and the possible moderating effect of participant sex. To this end, a repeated measures ANOVA was conducted with sex as a between subjects factor. The assumption of sphericity was violated and therefore Greenhouse-Geisser estimates were used. The main effect of life expectancy was significant, $F(1.69, 349.91) = 12.57, p < .001, \eta^2 = .06$. Bonferroni corrected paired comparisons showed that scores for each life expectancy were significantly different (see Table 2), in that the values for the 5 month life expectancy were higher than the other two life expectancies, and the values of the 5 year life expectancy were higher than the 50 year life expectancy. The main effect of sex and the interaction term of life expectancy and sex were not significant.

For each mixed GLM, the assumption of sphericity was violated and therefore Greenhouse-Geisser estimates were used. Short-term mating was a significant moderator, $F(1.68, 346.69) = 3.31, p < .05, \eta^2 = .02$. Long-term mating was also a significant moderator, $F(1.70, 351.13) = 6.12, p < .01, \eta^2 = .03$. The interaction terms for LH strategy and mate value were not significant.

The interpretation of these interactions is aided by the descriptive statistics seen in

Table 2 and the correlational coefficients seen in Table 1. Not only does the mean for sexual coercion decrease as life expectancy increases, but the range and standard deviation of the scores decreases as well. Additionally, the correlations between short-term mating preference and the willingness to engage in sexual coercion and long-term preference mating and the willingness to engage in sexual coercion are strongest at the 5 month expectancy and weaken as life expectancy moves from 5 to 50 years. These findings indicate that individuals with high short-term and individuals with low long-term mating preferences are responding to cues to shorter life expectancies by increasing their willingness to engage in sexual coercion.

Table 2. Descriptive statistics for sexual coercion by life expectancy

	5 months	5 years	50 years
Mean	13.33	13.05	12.45
Range	11-46	11-48	11-33
Standard Deviation	4.53	4.23	3.13

Note. Presented values are those prior to log transformation.

Hierarchical linear regression

A series of hierarchical linear regressions were conducted to explore possible three-way interactions between the individual difference variables, sex, and life expectancy. The sexual coercion scores for each of the three life expectancies acted as the dependent variable. The predictor variables entered in Step 1 were participant sex (dummy coded) and an individual difference variable (short-term mating preference, long-term mating preference, mate value, or LH strategy). In Step 2, the product of participant sex and the individual difference variable being examined were entered. It was reasoned that if the three variables interacted so that there was a heightened response at shorter life expectancies, then the two-way interactions would be significant at shorter life expectancies, but not at the longer life expectancies. In total, 12 regressions were conducted (three life expectancies x four individual differences variables), and in all 12 regressions not a single interaction term was significant. Thus support was not found for the any three-way interactions.

Discussion

The research was undertaken to examine the role of life expectancy, individual differences in short-term mating preferences, long-term mating preferences, mate value, and LH strategy, and the interaction of life expectancy and the individual differences

variables on the willingness to engage in sexually coercive behaviors.

The results supported the hypothesis that imagining different life expectancies changes individuals' willingness to engage in sexually coercive behaviors. Shorter life expectancies resulted in an increased willingness to engage in coercive behaviors. These results are consistent with the belief that life expectancies act as LH cues and that individuals adjust their immediate LH strategies accordingly, and the results fit nicely with previous research on life expectancies.

Three evolutionary-based theories on individual differences in sexual coercion were examined. CDM theory states that low mate value is predictive of the willingness to engage in sexually coercive behaviors. In short, no support was found for CDM theory. There was not a significant main effect for mate value and its effect was not moderated by the life expectancy or participant sex. However, the use of a different measure than that used in previous research (e.g., Gladden, Sisco, and Figueredo, 2008) complicates that matter because results could be a function of the particular measure of mate value that is utilized.

SCB theory states that sexually coercive behaviors evolved as by-products of sex differences in mating strategies. Males take a more opportunistic and short-term strategy and therefore should also engage in more coercive behaviors. To the extent that SCB theory simply predicts sex differences, support for the theory was not found. There was not a main effect of participant sex on the willingness to engage in sexually coercive behaviors, participant sex did not interact with life expectancy to predict willingness, and the three-way interaction was not significant.

On the other hand, the prediction of simple sex differences may be too simplistic, with the direct measurement of mating preferences being more precise and, therefore, appropriate. Thus, to the extent that short-term mating and long-term mating preferences are important predictors of the willingness to engage in sexually coercive behaviors, there was support for SCB theory. There were main effects for short-term and long-term mating preferences, and each was moderated by life expectancy so that the individual differences were heightened under the shorter life expectancies.

The results are also supportive of LH theory. By increasing the scope of sexually coercive behaviors researched (e.g., Sisco and Figueredo, 2008) and broadening the scope of populations investigated (e.g., Struckman-Johnson and Struckman-Johnson, 2002) a more nuanced view of sex differences in sexually coercive behaviors emerged, showing that women engage in coercive behaviors as well. Consistent with this, we found no main effect of sex, and this null effect is more in line with LH theory than the alternative theories. Additionally, a slow LH strategy (as measured by the Mini-K) was negatively correlated with the willingness to engage in sexual coercion at the 5 month and 50 year life expectancies.

Although the significant negative correlations are in line with expectations, clearly there are inconsistencies. Curiously, LH strategy was not significantly correlated with the willingness to engage in sexually coercive behaviors at the 5 year life expectancy. An examination of the internal consistency of the Mini-K for this sample offers one explanation. The low internal consistency leaves more room for random measurement error and increases the likelihood of inconsistent results. It may be worthwhile to re-examine the relationship between LH strategy, life expectancy, and sexual coercion using measures that

should be more reliable (e.g., the full Arizona Life History Battery, Figueredo, 2007) or by combining the Mini-K (Dunkel and Decker, 2010) with other measures of LH strategy (Giosan, 2006).

The results support the idea that life expectancy acts as a condition dependent (Thornhill and Palmer, 2000) or LH (Dunkel, Mathes, and Papini, 2010) cue to engage in sexually coercive behaviors, at least for those with high short-term or low long-term mating preferences. The incremental increase in the willingness to engage in sexually coercive behaviors is consistent with the idea that a number of behaviors can be understood with a model accounting for the interaction of dispositional LH strategies and situational LH cues. Although the null result for the interaction between dispositional LH strategy and life expectancies is consistent with previous research (Dunkel, Mathes, and Decker, 2010; Dunkel, Mathes, and Papini, 2010), if short-term and long-term mating preferences reflect aspects of LH strategy then one should expect that the direct measure of LH strategy should interact with life expectancies as well. We speculate that mating preference is a component of a broader and more encompassing LH strategy that it is more closely tied to specific behaviors, and therefore, is more responsive to the immediate environment including cues to morality.

The results add to our understanding of the influences of sexually coercive behaviors. A real world example may be seen in wartime rape, where cues to shorter life expectancy abound. While there are certainly multiple factors influencing the historical and cross-cultural prevalence of wartime rape (Gottschall, 2004), shortened life expectancies could be one such influence, and individual differences in LH strategies may account for individual differences seen in those who do and those who do not engage in rape. Future research on the interaction between these factors could add to our understanding of both the dispositional and situational factors influencing sexual coercion.

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