

**The Effect of School Rape-Supportive
Norms on Rape Proclivity**

BY

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THESIS

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LIST OF ABBREVIATIONS

RMA	Rape Myth Acceptance
SRMA	School-level Rape Myth Acceptance
HMS	Hostile Masculinity
SHMS	School-level Hostile Masculinity
LN	Likelihood of Not Stopping at No
LA	Likelihood of Alcohol-Precipitated Sex
LF	Likelihood of Using Force

SUMMARY

Rape prevention programs have recently begun using social norms interventions in addition to, or in lieu of, individual-level interventions. These programs assume that rape-supportive social norms influence the likelihood of rape. The current study tests that assumption by analyzing how school-level aggregates of men's rape myth acceptance (RMA) and hostile masculinity affect rape proclivity. Data for this study come from 1326 male students in 11 high schools throughout Illinois. At the individual level, risk and protective factors were similar to past studies: higher RMA and hostile masculinity were associated with increases in rape proclivity. Conversely, believing men have a responsibility to prevent rape, that they would personally intervene to prevent assault, and that there are negative consequences for perpetrating rape were all associated with decreased rape proclivity. After controlling for these individual factors, results indicate that higher school social norms for hostile masculinity increase the odds of reporting some likelihood of sexual assault. Against hypotheses, school social norms for RMA did not have a direct negative effect on proclivity; however, these results were partially qualified by interactions. School social norms for RMA appear to affect students differently depending on their own RMA. Results support efforts to target both individual and community-level factors. Implications for prevention programs are discussed.

I. INTRODUCTION

A. Background

Rape prevention programs have traditionally focused on individuals, using cognitive behavioral and empathy-based interventions (Anderson & Whiston, 2005, Casey & Lindhorst, 2009; Schewe, 2002). Primarily, interventions have targeted rape myths, “prejudicial, stereotyped, or false beliefs about rape, rape victims, and rapists” (Burt, 1980, p. 217), that are believed to have a causal role in rape proclivity and sexual assault (Bohner et al., 1998; Bohner, Jarvis Eyssel, & Siebler, 2005; Murnen, 2002). In support of these interventions, studies have shown decreases in rape-supportive attitudes, rape proclivity (Anderson & Whiston, 2005; Schewe, 2002) and, at least in one case, self-reported sexual assault (Foubert, Newberry, & Tatum, 2007). Yet, individual-centered programs have yielded mixed results with occasional iatrogenic effects, and the majority have reported rebound effects after a short time period (Anderson & Whiston, 2005; Breitenbecher, 2000).

In response to the limitations of individual-level interventions, researchers over the past decade have called for social norms approaches that take rape-supportive environments into consideration (Casey & Lindhorst, 2009). The logic of social norms interventions is the belief that rape-supportive environments are a cause of assault; therefore, interfering with this causal process will decrease the chances of assault. There are two levels at which social norms interventions are implemented: (1) Changing the actual social norms of a community through social marketing or diffusion of innovation (Cox, Lang, Townsend, & Campbell, 2010) or (2) Altering the perceptions individuals have of social norms (Berkowitz, 2002; Berkowitz, 2006;

Fabiano, Perkins, Berkowitz, Linkenbach, & Stark, 2003). Although these tactics may certainly be combined, the methods, theory, and measurement of the two approaches differ.

B. Evidence of Perception-Based Approaches

The social norm perception-based approach, called normative feedback, consists of correcting misperceptions individuals have concerning social norms. Researchers have found that most men over-estimate the amount of RMA their peers hold (Berkowitz, 2002; Kilmartin et al., 2008) and studies providing feedback of actual social norms have been successful at reducing men's (mis)perception of peer sexist attitudes (Kilmartin et al., 2008), which are predictive of RMA (Hockett, Saucier, Hoffman, Smith, & Craig, 2009). Normative feedback theorists believe that these inflated notions of peer support for rape may increase the likelihood that men will perpetrate assault and that correcting these estimates may lead to a reduction in assault (Bohner, Siebler, & Smelcher, 2006).

The evidence is mixed regarding the impact that perceptions of peer approval have on rape. Peers' attitudes towards the importance of sexual consent have been shown predictive of the importance of consent for the individual (Fabiano, Perkins, Berkowitz, Linkenbach, & Stark, 2003). Similarly, Abbey, Parkhill, Clinton-Sherrod and Zawacki (2007) found that rapists and verbal coercers perceived higher peer approval of forced sex than non-assaulters did (although those committing forced contact did not). In contrast, Abbey and McAuslen (2004) found no differences between non-assaulters, past assaulters, new assaulters, and repeat assaulters on their perceived peer approval for forced sex. Furthermore, Hillenbrand-Gunn, Heppner, Mauch, and Hyun-joo Park (2010) found that a feedback intervention successfully decreased RMA and

lowered student estimates of peer support for rape, but these changes were not associated with willingness either to coerce or to intervene to prevent assault.

Lastly, although two studies found an effect for normative feedback on individual RMA and to a lesser extent rape proclivity (Bohner, Siebler, & Smelcher, 2006; Eyssel, Bohner, & Siebler, 2006), Eyssel et al. (2006) pointed out that results from normative feedback may not reflect changes due to social norms, but to judgmental anchoring. Judgmental anchoring is a concept from cognitive psychology that states that under uncertainty, people “anchor” their estimations based on any salient information available (Tversky & Kahneman, 1974). In a follow-up study comparing normative feedback with judgmental anchoring, Eyssel et al. found that participants were just as likely to base their estimates on a number they are told represents what “average” (p. 95) men from their school answered, as they are to base estimates on a number they are told was “arbitrarily generated” (p. 95). The study does not rule out the possibility of effects for normative feedback; yet, it calls into question whether earlier studies adequately demonstrated the strength of the relationship between normative feedback and individual beliefs. Indeed, rape myths have been found so sensitive to cuing effects and social desirability that even a pre-test for RMA has been found to decrease scores on later measurement (Foubert, Newberry, & Tatum, 2007).

C. Evidence for Targeting Social Norms Directly

The evidence for impacting social-norms directly remains theoretical. If rape-supportive environments only affect behavior by causing rape-supportive attitudes in individuals, then programs should continue to focus on individual beliefs or perceptions of social norms. On the

other hand, if rape-supportive environments increase the chances of assault through pathways beyond the rape-supportive beliefs of individuals, interventionists should also target the environments themselves. Despite some evidence that social marketing tactics can increase willingness of individuals to prevent rape (Potter, Moynihan, & Stapleton, 2011; Potter, Moynihan, Stapleton, & Banyard, 2009), no studies have evaluated the success of community norm-changing interventions to prevent sexual assault (Cox, Lang, Townsend, & Campbell, 2010). In addition, although studies have shown societal levels of sexual assault are predicted by hostility towards women (Hines, 2007), no studies have assessed the relative contribution of local rape-supportive social norms and individual beliefs on sexual violence. Evidence from the aggression literature, however, has shown that in elementary school students, social norms have an impact on aggression beyond the mediation of individual normative beliefs (Henry et al., 2000). Rape-supportive social norms may also affect an individual's chance of assault beyond the mediation of rape-supportive beliefs. For instance, such social norms may create contexts that normalize assault such as impersonal sexual activity or dating norms that encourage men's control or aggression towards women.

D. Individual and Aggregate (Social Norm) RMA on Rape Proclivity

The current study seeks to answer whether rape-supportive social norms have direct effects on rape proclivity beyond the effects of individual rape-supportive beliefs and whether those social norms moderate the effects of individual beliefs. The primary questions are: (1) How much variance in rape proclivity is explained by individual RMA? (2) How much variance in rape proclivity is explained by school's level of RMA? (3) Does school RMA moderate the relationship between individual RMA and rape proclivity?

The following are hypothesized: (1) Both higher individual RMA and higher school RMA will be related to higher rape proclivity. (2) Social norms for RMA will remain positively related to rape proclivity, after controlling for individual beliefs. (3) Higher school RMA will produce a stronger relationship between individual RMA and rape proclivity.

II. METHODS

A. Participants

The Illinois Coalition Against Sexual Assault evaluated six sexual assault prevention curricula in 17 high schools throughout Illinois between 2005 and 2006 (Schewe, n.d.). Data for this study come from the evaluation's pre-intervention baseline measures. Although the curricula were delivered to both men and women, only data for men were included for this study as men commit the vast majority of sexual assaults.

1. Students

Participants consisted of 1326 men. The sample consisted of 55 Native American/Alaskan Native (4.30%), 58 Asian (4.50%), 157 Black or African-American (12.4%), 875 White (69.0%), and 123 of biracial or other (9.7%) students. By ethnicity, 147 were Hispanic/Latino (11.10%), 980 non-Hispanic/Latino (73.90%) and 199 of unknown or other ethnicity (15%). The distribution by year in school was 534 in grade 9 (40.3%), 308 in grade 10 (23.2%), 142 in grade 11 (10.7%), 125 in grade 12 (11.3%), and 217 unknown (16.4%).

2. Schools

Five schools did not complete rape proclivity measures and one school had only five students who completed such measures, disallowing analysis of aggregate school effects. As such, 11 schools were included in analyses (Appendix D).

B. Control Variables

1. Race/ethnicity

A number of studies have found race and ethnicity to affect attitudes toward rape and rape myths (Suarez, & Gadalla, 2010). Race was measured by a questionnaire that asked

participants to circle from choices of American Indian/Alaskan Native, Asian, Black or African American, White, or other or Biracial. Race was dummy coded with separate codes for each group with 0 as White and 1 as each independent group. Ethnicity (Hispanic or Latino or not) was not included in analysis due to high (15%) missingness.

2. **Dating history**

Impersonal sexual attitudes and the number of sexual partners are found to correlate with a higher risk of rape proclivity and RMA (Malamuth, Linz, Heavey, Barnes, & Acker, 1995; Senn, Desmarais, Verberg, & Wood, 2000). Questions concerning sexual activity were not explicitly asked; however, one question asked “*How many girlfriends or boyfriends have you had?*” Answers were given on a 5-point Likert scale (0 = “0”, 1 = “1-3”, 2 = “4-7”, 3 = “8-12”, 4 = “*more than 12*”).

3. **Hostile masculinity**

Multiple studies have found hostile masculinity to be related to rape proclivity and RMA (Dean & Malamuth, 1997; Lonsway & Fitzgerald, 1995; Malamuth, Linz, Heavey, Barnes, & Acker, 1995). Hostile masculinity consisted of seven items (Appendix A) that were part of a 17-item measure that rape crisis centers saw as potential outcomes of their programs. Questions were answered on a 5-point Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). Because items were not originally created to be one factor and may represent different outcomes, principle components analysis with promax rotation in SPSS 17 was run to delete items with low communalities (<.35) and components with fewer than three items. Seven of the 17 items loaded onto two components that explained 52% of the variance. All items loaded above .6, and each explained unique variance. Analysis of items revealed that one component related to hostility towards women and the other to men’s expectations to be sexually dominant,

constructs similar to the two proposed subfactors of hostile masculinity (Malamuth et al., 1995). A composite score was calculated by the average of the seven items. The measure was normally distributed and reached acceptable reliability of ($\alpha = .72$). School-level hostile masculinity was calculated by averaging the scores of students within schools.

4. **Negative consequences**

Some researchers have postulated that increasing awareness and belief of negative consequences of rape may reduce rape proclivity (Schewe, 2002) although the evidence is mixed (Schewe, 2007). One item directly assessed for negative outcomes associated with rape: *“If I rape someone, I will get in trouble for it.”* The question was answered on a 5-point Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*). This measure was heavily negatively skewed. An inverse transformation improved the skew.

5. **Responsibility and willingness to prevent rape**

Recent research has found that men’s willingness to take responsibility to prevent rape and intervene against assault are negatively correlated with RMA (Banyard, Moynihan, & Plante, 2007). One item measured personal responsibility on a 5-point Likert scale ranging from 1 (*Strongly Disagree*) to 5 (*Strongly Agree*): *“It is men’s responsibility to prevent rape.”* Another presented men with the scenario *“You are at a party and see a girl who is drinking a lot and appears very drunk. You see a guy approaching this girl who begins to lead her away from the party. Of the following, which one would you do?”* Men were presented with four options. Responses were coded as 1 for employing any effort to intervene and 0 for *“Do nothing; it’s none of my business.”*

C. **Predictor Variable for Primary Analysis**

1. **Rape myth acceptance**

Rape myth acceptance was assessed using the Illinois Rape Myth Acceptance Scale Short Form (IRMA-SF) (Payne, Lonsway, & Fitzgerald, 1999). The IRMA-SF is a twenty item scale that measures agreement with rape myths on a 5-point Likert scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Reliability is good with $\alpha = .87$ (Payne et al., 1999). In the current study, $\alpha = .86$ (Appendix B). School-level RMA was also calculated by averaging the scores of students within schools.

D. Criterion Variable for Primary Analysis

1. Rape proclivity

Rape proclivity was measured by three questions. One question was based on Briere and Malamuth's (1983) likelihood to force question (LF) but revised to read "*If you could be assured that no one would know, and that you could in no way be punished, how likely would you be to force a woman to have sex with you?*" The second question assessed the likelihood of having sex precipitated by alcohol (LA): "*You've wanted to have sex with your girlfriend for a long time, but she has always said 'no.' One night, you take her to a party where she gets very drunk. How likely are you to have sex with her on that night?*" The third question (LN) asked "*How likely are you to stop the first time a girl says 'no' to your sexual advances?*" Questions were answered on a 5-point Likert scale ranging from 1 (*Very likely*) to 5 (*Not at all likely*). Answers to the first two questions (LF and LA) were coded using Briere and Malamuth's coding of 0 = "*Not at all likely*" and 1 = all other responses. Because the third question (LN) was reverse coded, "*Very likely*" was coded as 0 and all other responses as 1. Analyses were run on the three questions separately.

III. RESULTS

A. Missing Data Analysis

Six schools used a shorter outcome assessment that only included RMA. Missing data analysis revealed that the schools not completing rape proclivity measures had significantly higher RMA ($M = 2.70$, $SD = .41$) than schools that completed all measures ($M = 2.43$, $SD = .09$), $t(15) = -2.21$, $p < .05$. Within the 11 schools that measured rape proclivity, all variables had less than 5% missingness. As imputation and listwise deletion are comparable with less than 5% missingness, only students with complete data on all measures were used for analysis.

Demographics and descriptive statistics for the 11 schools are listed in Table 1 (Appendix C).

Because a substantial number of students ($n = 217$) were missing information on grade level, grade was not entered in regression models. However, correlations revealed that grade level was not related to rape proclivity measures, RMA, or hostile masculinity. Higher grade levels were, on the other hand, associated with decreases in believing in consequences for rape, $r = -.09$, $p < .01$, and willingness to intervene, $r = -.11$, $p < .001$. Whereas 83.5% of ninth graders would act if they saw a man leading away an inebriated girl from a party, that percentage decreased each year until reaching 71.8% in 12th grade. Higher grade levels were also associated with a marginally significant decrease in believing it is men's responsibility to prevent rape, $r = -.05$, $p = .09$.

B. Descriptive Statistics

Descriptive statistics are displayed for individuals and schools in Table 2 (Appendix C). Slightly more than 90% of students reported previously dating, and the majority reported having

more than three previous dating partners. Men's attitudes towards preventing rape were complicated, with 80% reporting they would act if they saw a guy leading an inebriated girl away from a party but 35% disagreeing it was men's responsibility to prevent rape. Although most men (79%) believed they would get in trouble for committing rape, 8% did not, with the rest remaining neutral.

Results for rape proclivity measures are provided in Table 3. Some students overtly reported they would "likely" or "very likely" sexually aggress: 7% reported being likely to not stop at "no" (LN), 18% reported likeliness to engage in alcohol-precipitated sex (LA), and 9% reported being likely to use force if they would not get caught or punished (LF). Although these represent the most overt cases of likelihood, for the purpose of analyses, responses were categorized using Malamuth's (1981) rape proclivity coding system of those who reported "not at all likely" as 0 and combining all other responses as 1. Such coding is done under the theory that those who do not show the absolute lowest score are indicating some possible likelihood given some circumstance. Using this coding system, 50%, 70%, and 48% indicated some likelihood of LN, LA, and LF respectively. However, these seemingly high values should not be mistaken for predicting who will actually sexually aggress as the correlation between proclivity and assault is only around .15 (Malamuth, 1988).

Correlations between measures are displayed for individuals and schools in Tables 4 and 5, respectively (Appendix D). At the individual level, correlations operated generally as expected. All three protective factors (willingness to intervene, perceived consequences, and belief in responsibility to stop rape) were positively correlated, although correlations were small

($r < .2$). Also, protective factors were negatively correlated with risk and proclivity measures. Willingness to intervene negatively correlated with HMS, LA and LF. Belief in responsibility to stop rape was negatively correlated with LA and LF. Furthermore, belief in consequences was negatively associated with RMA, HMS and all three rape proclivity measures. The number of past dating partners was slightly positively correlated with RMA, HMS, and LA. As predicted, RMA and HMS were positively associated with all rape proclivity measures and moderately correlated with each other ($r = .52$). Lastly, all rape proclivity measures were correlated.

In contrast to correlations at the individual level, correlations at the school level revealed that school RMA (SRMA) was not associated with school HMS (SHMS), LN or LA. Also, SRMA was negatively associated with LF. School HMS, on the other hand, correlated positively with LA and moderately correlated with LN, yet was not related to LF. Lastly, all three school proclivity measures were correlated although the .57 between LA and LF was only marginally significant. As stated below, there was not significant variance between schools in rape proclivity. Therefore, correlations concerning school rape proclivity levels should only be considered hypothesis generating and interpreted with caution.

C. School-level Variance

To determine the amount of variance explainable by RMA, HMS or rape proclivity at the school level, intraclass correlation coefficients were calculated using HLM6. For RMA, 1.9% of variance was explainable at the school level, reliability = .66, $\chi^2 (10, N = 1310) = 30.39, p < .001$. For HMS, 1.43% of the variance was explainable at the school level, reliability = .60, $\chi^2 (10, N = 1304) = 28.06, p < .01$. To determine whether multi-level regression was appropriate for the outcome measures, intraclass correlation coefficients were calculated for rape proclivity.

For all three measures of rape proclivity, there was no significant school level variation.

Reliability estimates were .00 for LF, .18 for LA, and .38 for LN. Because there was no significant variation at the school level in proclivity, all variables were fixed and all models were run using single-level logistic regression.

D. HMS as Mediator

Some researchers believe that hostility towards women, one of the components of hostile masculinity, may be a partial mediator between RMA and sexual assault (Forbes, Adams-Curtis, and White, 2004; Hall, Sue, Narang, & Lilly, 2000) and others have called into question whether the constructs are confounded (Suarez & Gadalla, 2010). In the present sample, HMS and RMA have a moderate correlation at the individual level (.52). Conversely, at the school level, there was no correlation between HMS and RMA. If individual HMS is a mediator of RMA as suggested by prior research, HMS should not be included as a covariate. To test whether HMS should be included as predictor, all models were run with and without individual HMS. The effect of HMS was significant at the $p < .001$ level for all proclivity measures. After controlling for other variables in the model, HMS increased the odds of committing LN by 2.08, 95% CI [1.89, 2.32], LA by 3.14 [2.80, 3.52], and LF by 1.89 [1.69, 2.11]. Importantly, the inclusion of HMS changed the effect of RMA on LA from significant to nonsignificant, and decreased the strength of individual RMA for LN and LF. Similar to past research, HMS appears to at least partially mediate the effect of RMA and, as such, HMS was not entered at the individual level for the final models. However, as school levels of HMS and RMA did not correlate significantly, SHMS was retained as a predictor.

E. Logistic Regression

In order to determine the relative strength of school and individual level factors, logistic regressions were calculated using HLM6 for all three RP measures. In all models, individual level factors were group-mean centered and school-level factors were grand-mean centered. The interaction of SRMA and RMA was calculated by multiplying group-mean centered RMA and grand-mean centered SRMA. The results of all logistic regressions are shown in Table 6 (Appendix E). Odds ratios represent the relative increase in odds for reporting likelihood of assault for every 1-unit change in the centered predictors, controlling for other variables in the model. Because variables were mean-centered, odds ratios represent the increase for an average student within an average school. An odds ratio less than one indicates a protective effect for the predictor whereas an odds ratio greater than one indicates a risk effect.

F. Control Variables

Race entered as a control variable was significant. Because dummy codes were group-mean centered, the odds ratios do not represent the exact change in odds of proclivity for the various racial categories compared to the reference group (White students). Rather, odds ratios reflect the change in odds from adding one to group-mean centered dummy variables. Compared to White students, Asian American students had higher rates of all three forms of proclivity. Also, students who marked “Other or Biracial” had increased odds of LN. Native Americans had marginally lower odds of LN and LA but higher rates of LF. There were no significant differences between African American students and White students on any proclivity measures. Although the data show significant variance is explainable by race, specific group comparisons should not be considered generalizable as sample sizes were much smaller for Asian and Native

American students and race may have served as a proxy for several other indicators (SES, history of discrimination, contextual conditions, etc.) not available for analysis. Furthermore, comparing risk of racial groups may not be meaningful as the relationship between proclivity measures and the incidence of actual assault has not been assessed in the literature for separate racial groups.

The number of dating partners was used as a covariate; however, some proclivity questions may imply some familiarity with dating (e.g. LN references a “girlfriend”). Therefore, differences between students who have never dated and those who have were explored. Results showed no differences between those who had dated and those who hadn’t on LF, $\chi^2(1, N = 1203) = 2.15, ns$, or LA, $\chi^2(1, N = 1202) = .66, ns$. Dating status was marginally related to reporting stopping at LN, $\chi^2(1, N = 1202) = 3.07, p = .08$, with 52% of those who had dated reporting definitely stopping at no compared to 45% of those who had never dated.

G. Results of Rape Proclivity Measures

For likelihood of not stopping after a girl has said no (LN) to sexual advances, results were in partial support of the hypotheses. Personal RMA was a significant risk factor, increasing the odds of reporting some likelihood of proclivity by 3.10, controlling for other variables in the model. Against hypothesis, SRMA had no direct effect on proclivity and was in an unexpected direction (i.e. it was negatively related to LN). These effects were qualified by an interaction, such that school RMA decreased the relationship between individual RMA and proclivity. School HMS was a strong predictor of LN, increasing the odds of assault by 3.26. Although the odds ratio of SHMS was higher than the odds ratio of individual RMA, the confidence intervals of both predictors overlapped entirely, making the relative strength of the two predictors

unknown. Controlling for other variables in the model, there was no effect for the number of dating partners, and belief in consequences for rape was the only significant protective factor.

Simple slopes were performed to follow up the interaction between SRMA and RMA for LN. School RMA was nonsignificant for both men with high and low RMA. Regardless of school levels, men with high RMA had higher odds of not stopping the first time a girl says no to sexual advances whereas men with low RMA had higher odds of stopping. Although school effects were nonsignificant, there was a difference in the direction of the effects such that higher levels of SRMA had a slightly protective effect for men with high RMA, $B = -.70$, $t(1221) = -1.05$, *ns*, but a risk effect for men with low RMA, $B = .89$, $t(1221) = 1.56$, *ns* (see Figure 1).

Results for reporting likelihood to have sex with a girlfriend who has previously said no, but is very inebriated (LA), were again in support of the hypotheses at the individual level and against hypothesis at the school level. Rape myth acceptance was a significant risk factor at the individual level ($OR = 2.14$). At the school level, SRMA was in the expected (positive) direction, but not significant. Moreover, there was no interaction between school and individual RMA. School HMS was a strong predictor, increasing the odds of assault by 4.17. Once more, the overlap in confidence intervals for SHMS and RMA made the relative strength unknown. The number of previous dating partners increased risk of LA whereas both willingness to intervene and belief in consequences were significant protective factors.

For likelihood of forcing a girl to have sex (LF), results were in partial support of hypotheses but dissimilar to the results of the other assault measures. Similar to above, both

individual RMA and SHMS were significant risk factors and had overlapping confidence intervals. Unexpectedly, SRMA was significantly negatively associated with LF, after controlling for other variables in the model. However, these results were qualified by an interaction. In support of hypotheses, the interaction increased the relationship between individual RMA and LF. As noted in the table, the confidence interval for the interaction term odds ratio was very large (between 2.43 and 79.64). The wide interval may in part be due to the small number of schools as well as high correlations with other variables; therefore, the exact value of the odds ratio should be interpreted with some caution. Still, as the entire 95% confidence interval was above 2.43, results do indicate a significant positive effect for the interaction. A greater number of dating partners unexpectedly decreased risk of LF. Willingness to intervene, belief in responsibility to stop rape, and perceived consequences for rape were all protective factors for LF.

The significant interaction for LF was followed up with simple slopes analysis. For men with high levels of personal RMA, there was no effect of school RMA, $B = .83$, $t(1208) = 1.22$, ns , $OR = 2.30$, 95% CI [0.60, 8.76]. Controlling for other variables, men with high levels of RMA had a higher probability of reporting some likelihood to use force in both low and high RMA schools. In contrast and against expectations, for men with low levels of RMA, higher levels of school RMA decreased the chance of committing assault, $B = -2.33$, $t(1208) = -3.75$, $p < .001$, $OR = .10$, [0.03, 0.33]. Even so, men with low levels of RMA had lower odds of using force regardless of school RMA (see Figure 2).

H. School-level HMS

Given the strong effect of school HMS, follow-up analysis were conducted to determine whether school HMS was still significant controlling for individual HMS. Logistic regressions were again performed with the same predictors, once again including HMS. After controlling for individual HMS, SHMS remained significant at the $p < .001$ level for LN and LA and was significant at $p < .01$ level for LF. Controlling for HMS, SHMS increased the odds of committing LN by 3.30, 95% CI [1.75, 6.19], LA by 4.57 [2.38, 8.76], and LF by 2.56 [1.35, 4.86]. Comparatively, individual HMS increased the odds of LN by 2.08 [1.86, 2.32], LA by 3.14 [2.80, 3.52], and LF by 1.89 [1.69, 2.11]. Individual HMS was measured with greater precision than SHMS, as would be expected with a higher sample size, and therefore had smaller confidence intervals. The overlap in confidence intervals and decreased precision in SHMS made the relative strength of individual and school levels unknown. Even so, SHMS remained a strong predictor of rape proclivity even after controlling for individual HMS and RMA.

IV. DISCUSSION

Results indicate that school social norms, as calculated by aggregate levels of risk factors, are predictive of rape proclivity, even when controlling for individual beliefs. In support of past findings and hypotheses, personal RMA and HMS were predictive of all three proclivity measures. After controlling for these socio-cognitive factors, school HMS increased risk for reporting some likelihood of each type of assault. The hypothesis that higher levels of school RMA increased risk was not supported. School RMA was nonsignificant for two measures of proclivity and had a negative association with likelihood to use force. Yet, these results were partially qualified by interactions. For stopping the first time a girl said no to sexual advances, higher levels of school RMA increased risk for men with low RMA but decreased risk for men with high RMA, although neither effect was significant. School RMA had no interactive effects with personal RMA for likelihood to engage in alcohol-precipitated sex. Lastly, for likelihood to use force, school RMA had no effect for men with high levels of RMA and an apparent protective effect for those with low RMA.

A. **Rape-Supportive Social Norms**

Findings indicate that rape-supportive social norms are measurable at the school level. One criterion for showing the existence of school norm is evidence of clustering within schools as indicated by a significant intraclass correlation coefficient (Henry et al., 2000). For both RMA and hostile masculinity, this was the case. Promisingly, all schools had average scores for RMA and hostile masculinity just below 3, or “neutral.” Therefore, all schools seem to be slightly less supportive of rape than more so. However, it is important to note that these are averages. Norms may vary by peer groups, organizations, grades levels, and other factors. Interventionists trying

to affect norms within a school would need to understand where norms cluster, as well as how interventions affect higher risk groups.

B. Hostile Masculinity

A major finding is that school levels of HMS predict rape proclivity beyond the effect of individual socio-cognitive beliefs. This finding lends support to the hypothesis that social norms have ways of affecting the likelihood of rape beyond the mediating mechanism of an individual's socio-cognitive beliefs. As the perceptions of peer beliefs were not asked, findings cannot be explained by priming or judgmental anchoring. These results are similar to Henry et al.'s (2000) findings for social norms on aggression for elementary students. In Henry et al.'s study, only injunctive norms (norms regarding what is considered appropriate), and not descriptive norms (aggregates of actual behaviors), had an effect on aggression beyond the effect of an individual's normative beliefs. In the HMS measure, five questions tested injunctive norms (two overtly and three through expectations of social approval) and two questions assessed personal beliefs and thus aggregated would create descriptive norms. Future studies should confirm whether injunctive or descriptive norms for hostility are more predictive of sexual assault.

C. Rape Myth Acceptance

The findings that aggregate rape myths are nonsignificant or negatively related to rape proclivity have a few possible interpretations. Social norms for RMA may be confounded with, or one subset of beliefs for, social norms of hostility masculinity, although the lack of correlation between school RMA and HMS does not support this. Another possibility is that there is a larger stigma for stating rape-supportive beliefs openly than there is to make generally sexist remarks.

As such, even if many people at a site hold rape-supportive beliefs, there may be no “social norm” for such beliefs and any findings of aggregate RMA may be artifacts. On the other hand, given the one significant relationship between RMA and proclivity, a more likely possibility is that social norms for RMA, as a subset of stereotypical beliefs about rape, are more conceptually related to proclivity questions about more stereotypical and overt assault (i.e. likelihood of force) than questions about less stereotypical assault or about sexual activities that may not be interpreted as assault (i.e. not stopping the first time a girl says no or alcohol-precipitated sex). For instance, some students may see not stopping at no as implying persistence and further conversation, yet not perceive those situations as ending in assault.

If we assume social norms concerning RMA do exist, the negative relationship between school RMA and likelihood to force is unexpected. Even though a protective effect is conceivable as RMA correlates with benevolent sexism and protective paternalism (Chapleau, Oswald, & Russell, 2007; Suarez & Gadalla, 2010), protective paternalism at the individual level is negatively related to RMA after controlling for other forms of sexism (Chapleau, Oswald, & Russell, 2007). Still, the relationship between rape-supportive social norms and protective paternalism is unknown. Another possibility is that the relationship between RMA and proclivity is homeostatic. Social norms for rape myths may increase the likelihood of assault. Yet, as the rate of assault increases at a site, protective factors for rape myths such as “actual” knowledge about rape, awareness of consequences, or victim empathy may increase. This nonlinear relationship could be tested with a larger number of sites than the present study had. Alternatively, research could assess whether rape myths at the individual or aggregate levels decrease following awareness of assaults within a school. Such a relationship would not be a

surprise as prevention programs have long attempted to increase empathy and reduce RMA through survivor stories (Schewe, 2002). However, studies have been mixed on whether knowing a survivor is related to RMA (Lonsway & Fitzgerald, 1994).

The interactive effects of school RMA and personal RMA appear dependent on the context of the rape proclivity question. School RMA may have a negative, positive, or null effect on the relationship between personal RMA and proclivity. For alcohol-precipitated sex, school RMA appeared to have no significant effect on the relationship between RMA and proclivity. For not stopping at no, higher SRMA appears to slightly increase the strength of the relationship between personal RMA and proclivity for men with low RMA but decrease the relationship for men with high RMA. In support of hypothesis, higher levels of school RMA may foster risk for men with low RMA. Results would support findings that higher levels of peer support for rape may increase risk of acting sexually aggressive. Alternatively, among men with higher rape proclivity, RMA may be used to justify sexual coercion (Bohner, Jarvis, Eyssel, & Siebler, 2005). Such men may not feel it necessary to justify their rape proclivity in a more rape-supportive setting, yet may report higher RMA to justify their behaviors in a less rape-supportive setting. As these simple effects were both nonsignificant, the difference in direction may be an artifact. On the other hand, nonsignificance may simply be due to a limited range of schools and would need to be tested in future studies. Moreover, the nonsignificant findings for LA, along with the nonsignificant simple effects for LN, support the theory that RMA may be more related to more stereotypical assault.

For likelihood to use force, the interactive effects of school RMA and personal RMA yield some support to the homeostatic hypothesis. School RMA had no effect on proclivity on those with high levels of RMA. However, school RMA had a negative effect on proclivity for men with low RMA. These results make sense if greater awareness of rape-supportive norms or assault causes men with low levels of rape myths to feel more pressured to be against rape. The motivational interviewing literature shows that under conditions of ambivalence, more forcefully stating one side of an argument increases the chance of the other person taking the opposite side. Therefore, men who have lower rape-supportive beliefs may get more ardent in those beliefs in an environment that is more rape-supportive. Similarly, confrontation in rape prevention programs has been found to foster reactance (Fischer, 1986). This may seem to contrast with the finding that men with low RMA in high RMA schools had increased, though nonsignificant, risk of not stopping the first time a girl says no. Yet, the question of not stopping the first time at no did not state the outcome and may be more indicative of sexual persistence or aggression than indicative of rape. Thus, higher risk environments may foster norms for more sexual aggression among men with low RMA, but make the same men more ardent against more stereotypical rape.

D. Rape Proclivity

The students in this sample reported high rates of rape proclivity. However, likelihood to use force was in the range of previous research, which has found results as high as 59% (Briere & Malamuth, 1983). The high rate of likelihood to have alcohol-precipitated sex may imply that high school males have a higher risk for sexual aggression involving alcohol relative to other acts of sexual aggression. However, results may indicate that the LA question is less transparent as a sexual assault probe and thus provoked lower social desirability in responding. On a positive

note, despite self-reported likelihood for assault, most men (80%) reported they would intervene if they saw a guy taking away an inebriated girl from a bar. The seeming discrepancy between reporting both likelihood of assault and willingness to intervene to stop others from assault may indicate lack of awareness that the scenarios in the proclivity questions are assault.

The finding that there were no differences in rape proclivity between schools are similar to the results found by Schwartz and DeKeseredy (2000), who in a representative sample of Canadian community college and university students, found no differences in rates of sexual assault by region. Schwartz and DeKeseredy contended that similar rates of assault implied that cultural risk factors were constant. The current findings do show differences between schools for both RMA and HMS. The relative stability of proclivity may be due to measurement issues such as range effects or social desirability. Alternatively, stability in rape proclivity would also be expected given the homeostatic hypothesis stated earlier: as risk factors increase, protective factors may also increase and work in a homeostatic fashion to keep proclivity at an equal level. The single item measures for protective factors in the current sample did not permit analysis of such protective effects at the school level. Future research should continue to test whether likelihood of assault or actual rates of assault do vary.

Control variables generally acted as predicted. Similar to past research, racial identity was significant for explaining variance in proclivity. The simple demographic coding did not enable analysis of whether those effects have to do with cultural factors, socioeconomic status, history of discrimination, or other race-related variables. The number of previous dating partners appeared to increase risk of alcohol-precipitated sex and decrease risk of likelihood to force.

Mixed results may reveal that the assault risk of a high number of dating partners is context dependent. However, Hall, Sue, Narang, and Lilly (2000) found no relationship for European males between the number of consenting partners and sexual assault. We support their conclusion that the number of dating partners may not be a good indicator for the risks associated with attitudes toward impersonal sex.

E. Protective Factors for Rape Proclivity

Similar to past research, awareness of consequences and prosocial attitudes appear to be protective factors for assault. Notably, belief in consequences was negatively related to all three proclivity measures and both socio-cognitive risk factors. Higher HMS was related to lower willingness to intervene but was unrelated to men's responsibility to prevent rape. Efforts to preserve a masculine identity may create a barrier to intervening even in men who feel responsibility to prevent rape (Carlson, 2008). In contrast to Banyard, Moynihan, and Plante's (2007) findings, neither responsibility nor willingness to intervene were associated with RMA. Both, however, were associated with reduced likelihood of using force. Also, willingness to intervene was associated with less likelihood of having alcohol-precipitated sex. Neither, however, was associated with not stopping at no. This is the first study to look at associations between prosocial bystander constructs and rape proclivity. These relationships are tentative and would need to be explored in future studies, as bystander constructs also correlate with social desirability (Banyard, Moynihan, & Plante, 2007).

F. Limitations

This study had a number of limitations. Most importantly, schools that did not complete rape proclivity measures had higher rates of RMA. Inclusion of such schools may have produced larger or different relationships between school RMA and proclivity. However, given that school RMA was negatively related to two measures of proclivity (although only significantly so for one), it is unlikely that adding more schools would provide positive significant correlations for all three rape proclivity measures. Another potential limitation is that the measure of HMS was formed for this study and may not adequately represent HMS as defined elsewhere. Still, as both hostility towards women and sexual dominance were measured, the construct seems preserved. Moreover, the correlation with rape-supportive beliefs and mediation of RMA are similar to those reported with hostile masculinity elsewhere (Malamuth, Linz, Heavey, Barnes, Acker, 1995). As with all rape proclivity studies, measures of proclivity do not represent actual probability of committing rape; so, future tests should assess for aggregate effects of RMA and HMS on behavioral outcomes. Lastly, with a greater number of schools, the power to detect school effects, including interactions, would substantially increase. The low number of schools created larger confidence intervals for school-level variables that disallowed precise comparisons of relative risk for school and individual factors.

The present study has implication for the measurement and assessment of prevention programs. Findings indicate that the relationship between personal RMA and proclivity may depend on the levels of both individual RMA and school RMA. Such findings may explain the variance in correlation between RMA and proclivity in different samples (Murnen, 2002). Furthermore, findings support that the relationship between RMA and proclivity may be reciprocal and potentially homeostatic. Future research is needed to assess the potential

homeostatic mechanisms that may keep rape proclivity rates, or social norms for rape, fairly steady. As social norms are likely to vary between clusters of friends and organizations, studying how programs affect different clusters of students may be helpful in outcome assessment. Furthermore, qualitative assessment, particularly of groups originally scoring highly on risk factors, may provide more comprehensive assessment of normative beliefs.

Overall, results show that school social norms may influence rape proclivity beyond individual social-cognitive risk factors. Such findings provide potential direction for interventions. In particular, social norm interventions may need to move beyond a sole focus on changing individuals' perceptions of norms. Targeting only the perception of norms implies that it is only the belief in the norm that is harmful. The present study, however, reveals that aggregated beliefs, rather than perceptions of norms, may have an effect on rape proclivity even after controlling for individual beliefs. Also, it appears that targeting hostile masculinity norms, for instance by promoting alternative concepts of masculinity that promote gender equality, may be more effective than targeting norms for rape myth acceptance; yet, this would need to be tested empirically. Lastly, the protective effects of men's feelings of responsibility and willingness to intervene support continued use of bystander approaches. Such results are hopeful in that they indicate that the recent trends in sexual assault prevention toward multi-level programming targeting social norms, influencing masculinity, and engaging bystanders are promising.

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Appendix A – Items Included on the Hostile Masculinity Scale

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1) A man being raped by a man is worse than a woman being rape by a man.	1	2	3	4	5
2) It is OK to talk a girl into sex.	1	2	3	4	5
3) I enjoy jokes that make fun of women.	1	2	3	4	5
4) If a woman doesn't say 'no,' she is agreeing to have sex.	1	2	3	4	5
5) It is the man's responsibility to initiate sex.	1	2	3	4	5
6) Women like it when men are forceful about sex.	1	2	3	4	5
7) A man can expect to have sex with a woman after the second or third date.	1	2	3	4	5

Appendix B – The Illinois Rape Myth Acceptance Scale Short Form

IRMA	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1) A woman who is raped while she is drunk is at least somewhat responsible.	1	2	3	4	5
2) Although most women wouldn't admit it, they generally like being physically forced to have sex.	1	2	3	4	5
3) If a woman is willing to "make out" with a guy, then it's no big deal if he goes a little further and has sex with her.	1	2	3	4	5
4) Many women secretly desire to be raped.	1	2	3	4	5
5) If a woman doesn't physically fight back, you can't really say that it was rape.	1	2	3	4	5
6) Men from nice middle-class homes almost never rape.	1	2	3	4	5
7) Rape accusations are often used as a way of getting back at men.	1	2	3	4	5
8) Usually, only women who dress sexy are raped.	1	2	3	4	5
9) If the rapist doesn't have a weapon, you really can't call it a rape.	1	2	3	4	5
10) Rape is unlikely to happen in a woman's own neighborhood.	1	2	3	4	5
11) Women tend to exaggerate how much rape affects them.	1	2	3	4	5
12) A lot of women lead a man on and then they cry rape.	1	2	3	4	5
13) A woman who "teases" men deserves anything that might happen.	1	2	3	4	5
14) When women are raped, it's often because the way they said "no" was unclear.	1	2	3	4	5
15) Men don't usually intend to force sex on a woman, but sometimes they get too sexually carried away.	1	2	3	4	5
16) A woman who dresses in skimpy clothes should not be surprised if a man tries to force her to have	1	2	3	4	5

sex.					
17) Rape happens when a man's sex drive gets out of control.	1	2	3	4	5
18) Most rape and sexual assaults are committed by strangers.	1	2	3	4	5
19) In Illinois, a 15 year-old can give consent to have sex.	1	2	3	4	5
20) If someone came to me and claimed that they were raped, my first reaction would be to not believe them.	1	2	3	4	5

Appendix C – Descriptive Statistics

Table 1

School Descriptive Statistics

<u>Schools</u>	Demographics					School Norms		Rape Proclivity		
	WH	AFA	ASA	NA	OT	M (sd)		M (sd)		
1 (n = 89)	75.9	15.7	2.4	1.2	4.8	2.65 (.68)	2.66 (.51)	.41 (.50)	.63 (.49)	.36 (.48)
2 (n = 114)	85.3	4.6	1.8	3.7	4.6	2.32 (.51)	2.67 (.74)	.46 (.50)	.68 (.47)	.46 (.50)
3 (n = 42)	12.9	58.1	6.5	3.2	19.4	2.41 (.58)	2.84 (.51)	.60 (.50)	.86 (.35)	.52 (.51)
4 (n = 116)	13.6	53.4	1.9	2.9	28.2	2.49 (.51)	2.89 (.54)	.54 (.50)	.75 (.44)	.47 (.50)
5 (n = 98)	46.9	7.3	13.5	7.3	25.0	2.39 (.48)	2.66 (.55)	.55 (.50)	.69 (.46)	.52 (.50)
6 (n = 176)	84.9	4.1	4.7	1.7	4.7	2.34 (.60)	2.70 (.43)	.43 (.50)	.64 (.48)	.47 (.50)
7 (n = 163)	81.9	5.0	2.5	7.5	3.1	2.46 (.46)	2.64 (.53)	.53 (.50)	.71 (.46)	.48 (.50)
8 (n = 161)	58.8	9.8	3.9	8.5	19.0	2.44 (.50)	2.69 (.44)	.44 (.51)	.69 (.46)	.44 (.50)
9 (n = 30)	83.3	13.3	3.3	-	-	2.36 (.51)	2.64 (.50)	.50 (.50)	.67 (.48)	.50 (.51)
10 (n = 131)	87.8	2.3	5.3	3.1	1.5	2.39 (.50)	2.72 (.54)	.54 (.50)	.67 (.47)	.50 (.50)
11 (n = 206)	74.5	11.0	5.5	3.5	5.5	2.47 (.55)	2.89 (.56)	.56 (.50)	.74 (.44)	.52 (.50)

Note. WH= White, AFA = Black or African American, ASA = Asian American, NA = Native American/Alaskan Native, OT = Other or Biracial, RMA = Illinois Rape Myth Acceptance Scale (from 1 (*Strongly disagree*) to 5 (*Strongly agree*) with higher scores reflecting greater adherence to rape myths, HMS = Hostile Masculinity (from 1 (*Strongly disagree*) to 5 (*Strongly agree*) with higher scores reflecting greater hostility, LN = Likelihood of Not Stopping at No (with 0 equaling little to no likelihood and 1 meaning some likelihood), LA = Likelihood of Alcohol-Precipitated Sex, LF = Likelihood of Using Force

Table 2

Individual (Student) and Aggregate (School) Descriptive Statistics

	Students			Schools	
<u>History of Dating Partners</u>	<u>N</u>	<u>%</u>			
None	121	9.50			
1-3	381	29.90			
4-7	354	27.80			
8-12	172	13.50			
> than 12	246	19.3			
	<u>N</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
<u>Protective Factors</u>					
Will to intervene	1285	.80	.40		
Responsibility to stop rape	1310	2.88	1.13		
Perceived consequences ^a	1309	4.15	1.04		
<u>Risk Factors</u>					
Rape myth acceptance	1310	2.43	.54	2.43	.09
Hostile masculinity	1304	2.73	.64	2.73	.10
<u>Rape Proclivity Measures</u>					
Not stopping at no (LN)	1314	.50	.50	.51	.06
Alcohol-precipitated sex (LA)	1314	.70	.46	.70	.06
Would use force (LF) ^d	1315	.48	.50	.48	.05

Note. N = 11 Schools. ^aPresented in original metric. Transformed before entry.

Table 3

Frequencies of rape proclivity measures

	<u>LN</u> ^a	<u>LA</u>	<u>LF</u>
Not at all likely	49.77%	30.37%	52.32%
Not likely	26.41%	25.95%	21.06%
Not sure	17.20%	26.03%	17.49%
Likely	4.79%	10.96%	4.18%
Very Likely	1.83%	6.70%	4.94%
Report of Some Likelihood ^b	50.23%	69.63%	47.68%

Note: LN = Likelihood of Not Stopping at No LA = Likelihood of Alcohol-Precipitated Sex, LF = Likelihood of Using Force; ^aResults are presented for LN as reverse coded; ^bSome likelihood defined as all responses other than “*not at all likely.*”

Appendix D - Correlations

Table 4

Correlations of variables at student-level

	BYS	MNR	CON	HD	RMA	HMS	LN	LA	LF
BYS	—								
MNR	.12***	—							
CON	.06*	.14***	—						
HD	.00	-.04	.04	—					
RMA	-.04	-.01	-.19***	.09**	—				
HMS	-.17***	-.02	-.19***	.18**	.52***	—			
LN	-.01	-.04	-.23***	.02	.28***	.30***	—		
LA	-.12***	-.06*	-.22***	.08**	.21***	.35***	.30***	—	
LF	-.06*	-.08**	-.25***	-.02	.33***	.30***	.38***	.39***	—

Note. BYS = Bystander Willingness, MNR = Responsibility to Stop Rape, CON = Negative Consequences, HD = History of Dating, RMA = Illinois Rape Myth Acceptance Scale, HMS = Hostile Masculinity, LN = Likelihood of Not Stopping at No, LA = Likelihood of Alcohol-Precipitated sex, LF = Likelihood of Using Force. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 5

Correlations of variables at school level

	RMA	HMS	LN	LA	LF
RMA	—				
HMS	.16	—			
LN	-.15	.58 ^t	—		
LA	-.04	.72*	.79**	—	
LF	-.65*	.35	.82**	.57 ^t	—

Note. RMA = Illinois Rape Myth Acceptance Scale, HMS = Hostile Masculinity, LN = Likelihood of Not Stopping at No, LA = Likelihood of Alcohol-Precipitated sex, LF = Likelihood of Using Force. ^t $p < .10$, * $p < .05$, ** $p < .01$.

Appendix E - Regression

Table 6

Individual and school predictors of rape proclivity

	LN		LA		LF	
	OR	95% CI	OR	95% CI	OR	95% CI
<u>Demographic Variables</u>						
African American	.88	(0.71,1.09)	1.10	(0.88,1.38)	1.07	(0.86,1.32)
Asian American	2.39***	(1.75,3.26)	2.32***	(1.63,3.30)	1.68***	(1.26,2.24)
Native American	.76 ^t	(0.57,1.012)	.77 ^t	(0.58,1.03)	1.72***	(1.29,2.31)
Other Race	1.24*	(1.01,1.54)	1.01	(0.82,1.24)	1.09	(0.88,1.35)
Dating History	1.02	(0.97,1.07)	1.16***	(1.11,1.22)	.93**	(0.89,0.97)
<u>Protective Factors</u>						
Will to intervene	1.07	(0.92,1.23)	.48***	(0.41,0.56)	.81**	(0.70,0.94)
Responsibility to stop rape	1.00	(0.95,1.05)	.98	(0.93,1.03)	.89***	(0.84,0.93)
Perceived consequences	.29***	(0.24,0.36)	.25***	(0.21,0.31)	.29***	(0.24,0.36)
<u>Risk Factors</u>						
Rape myth acceptance	3.10***	(2.75,3.50)	2.14***	(1.91,2.41)	4.32***	(3.80,4.91)
<u>School-Level</u>						
SRMA	.88	(0.42,1.84)	1.51	(0.71,3.19)	.28**	(0.13,0.61)
SHMS	3.26***	(1.73,6.14)	4.17***	(2.17,7.99)	2.57**	(1.35,4.89)
<u>Interaction</u>						
SRMAxRMA	.18*	(0.04,0.89)	.48	(0.10,2.33)	13.92**	(2.43,79.64)

Note. OR = odds ratio, CI = confidence interval, SRMA = School Rape Myth Acceptance, SHMS = School Hostile Masculinity, LN = Likelihood of Not Stopping at No, LA = Likelihood of Alcohol-Precipitated sex, LF = Likelihood of Using Force . ^t $p < .10$, * $p < .05$, ** $p < .01$, *** $p < .001$

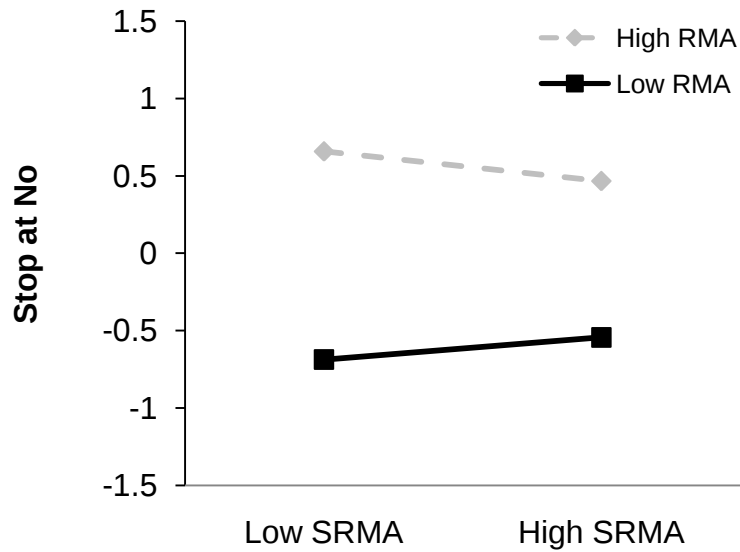


Figure 1. Self-reported likelihood of not stopping the first time a girl says no to sexual advances as a function of school rape myth acceptance (SRMA) and personal rape myth acceptance (RMA). Scores greater than zero indicate that a higher probability of reporting some likelihood to force, whereas scores less than zero indicate a greater probability of reporting no likelihood to force.

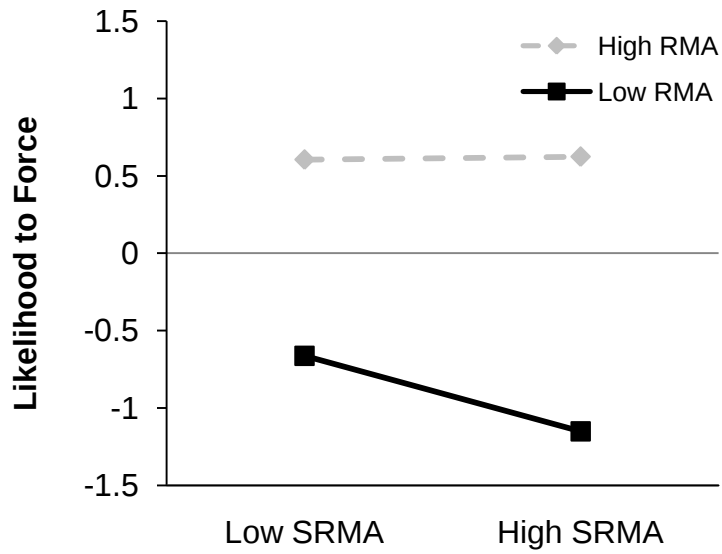


Figure 2. Self-reported likelihood to force a girl to have sex as a function of school rape myth acceptance (SRMA) and personal rape myth acceptance (RMA). Scores greater than zero indicate that a higher probability of reporting some likelihood to force, whereas scores less than zero indicate a greater probability of reporting no likelihood to force.

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

**Approval Notice
Amendment to Research Protocol – Expedited Review
UIC Amendment # 5**

April 9, 2010

Paul A. Schewe, PhD
Psychology
1007 W Harrison St
M/C 285
Chicago, IL 60612
Phone: (312) 413-2626

RE: **Protocol # 2000-0398**
“Developing and Dissemination Effective Interventions”

Dear Dr. Schewe:

Members of Institutional Review Board (IRB) #2 have reviewed this amendment to your research under expedited procedures for minor changes to previously approved research allowed by Federal regulations [45 CFR 46.110(b)(2)]. The amendment to your research was determined to be acceptable and may now be implemented.

Please note the following information about your approved amendment:

Please note that it is the policy of the Office of the Vice Chancellor for Research to retain PAF numbers and copies of the corresponding grants on file for all active, funded research protocols. Kindly submit the PAF number for this protocol with your next submission.

Amendment Approval Date: April 9, 2010

Amendment:

Summary: UIC Amendment #5, dated and submitted 1 April 2010, is an investigator-initiated amendment adding Mark Relyea, Michelle Weissman, and Heather Risser as key research personnel (Appendix P submitted).

Approved Subject Enrollment #: 16,000

Performance Sites: UIC, Illinois Coalition Against Sexual Assault

Sponsor: Illinois Department of Human Services

PAF#: Not available

Grant/Contract No: Not applicable

Grant/Contract Title:Developing and Dissemination Effective
Interventions**Please note the Review History of this submission:**

Receipt Date	Submission Type	Review Process	Review Date	Review Action
04/01/2010	Amendment	Expedited	04/09/2010	Approved

Please be sure to:

→ Use your research protocol number (2000-0398) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure,
"UIC Investigator Responsibilities, Protection of Human Research Subjects"

Please note that the UIC IRB #2 has the right to ask further questions, seek additional information, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact the OPRS at (312) 996-1711 or me at (312) 996-2014. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,



Sandra Costello
Assistant Director, IRB # 2
Office for the Protection of Research Subjects

Enclosure: **UIC Investigator Responsibilities, Protection of Human Research Subjects**

cc: Gary E. Raney, Psychology, M/C 285

Curriculum Vita: Mark Relyea

Education

- | | |
|------|--|
| 2009 | University of Illinois at Chicago, Chicago, IL <ul style="list-style-type: none"> • Community and Prevention Research graduate program • M.A. anticipated November, 2012 • Ph.D. anticipated November, 2015 |
| 2001 | University of Connecticut, Storrs, CT <ul style="list-style-type: none"> • B.A., Psychology |

Honors and Awards

- New England Scholar, 2001
- Phi Beta Kappa, 2001
- Magna Cum Laude, 2001
- Psi Chi National Honor Society in Psychology, 2000

Teaching Experience

- Education Chair for Men Against Sexual Violence organization, 2012
- Teaching Assistant for Introduction to Research in Psychology, 2009-2010

Evaluation Experience

- *Evaluation Consultant* - (2011) Analyzed outcome evaluation data for Safe Futures (Formerly the Women's Center of Southeastern Connecticut) Violence is Preventable and Healthy Relationships Programs to prepare for United Way reports
- *Evaluation Consultant* - (2012) Generated family and patient satisfaction reports for El Valor, a community agency serving people with developmental disabilities in Chicago, IL.
- *Evaluation Consultant* - (2011) Developed logic model and evaluation plan for a residential and day program for El Valor, a community agency serving people with developmental disabilities in Chicago, IL
- *Research Associate* - (2002-2009) - Conducted formative and summative valuations of substance abuse and mental health programs at Hartford Dispensary, an opiate treatment program, in Hartford, CT.

Research Experience

- Managed substance abuse behavioral, pharmacotherapy, and survey research protocols
- Performed psychosocial and substance abuse assessments
- Rated videotapes to assess participant adherence to infectious disease risk reduction methods
- Supervised research associates to meet recruitment, retention and follow-up targets as well as to ensure data completeness, cleanliness and quality assurance
- Trained research assistants in cultural diversity, violence against women, motivational interviewing, ethics, confidentiality, recruitment and retention
- Created participant recruitment and retention plans
- Recruited and tracked participants

Statistical and Computer Experience

- Applied data analysis using univariate and multivariate statistics, multilevel modeling, factor analysis, structural equation modeling, social network analysis
- Applied qualitative data collection and analysis
- Database management, quality assurance, and data entry
- Proficiency with MS Word, Excel, and SPSS, AMOS, R, HLM6, UCINET

Professional Experience

Research Assistant	2010-current
<i>Women's Stress and Support Study</i> - University of Illinois at Chicago, Chicago, IL	
Senior Research Associate	2006-2009
Research Associate	2002-2006
<i>Hartford Dispensary</i> (Opiate Treatment Program), Hartford, CT	
Research Assistant	Summers 2002-2001
<i>APT Foundation/Yale University</i> - Harm Reduction Unit, Mother's Project, New Haven, CT	

Publications

Journal Articles

Ullman, S.E., Peter-Hagene, L., & **Relyea, M.** (2012). Mediators of child sexual abuse severity, trauma history, and psychological symptoms in sexual assault victims. Manuscript submitted for publication.

Ullman, S.E., **Relyea, M.**, Peter-Hagene, L., Vasquez, A., & Bhat, M. (2012). Trauma histories, substance abuse coping, PTSD, and substance abuse among sexual assault victims. Manuscript submitted for publication.

Scoboria, A., Mazzoni, G., Kirsch I., & **Relyea, M.** (2005). Plausibility and belief in autobiographical memory. *Applied Cognitive Psychology*, 18, 791-807.

Book Chapters

Schewe, P., **Relyea, M.**, & Kaufmann, N. (in press). The prevention of sexual assault among adolescents and young adults. In T. P. Gullotta & M. Bloom (Eds.), *Encyclopedia of primary prevention and health promotion* (2nd ed.).

Newsletters, Columns

Poff, M., **Relyea, M.**, Christensen, C., Coleman, B., Rowe, H., & Mart, A. (2010). Updates from the 2009 Midwest Eco-Conference. *The Community Psychologist*, 43(1), 27.

Conference Presentations

Watson, E., & **Relyea, M.** (2012, October). *Using complexity theories to guide the design and implementation of community interventions*. Symposium presented at the annual Midwest Ecological-Community Psychology Conference, Hickory Corners, MI.

Relyea, M. (2012, July). *Causal models of bystander intervention: Applying theory and evaluating success*. Poster session presented at the International Family Violence Research Conference, Portsmouth, NH.

Relyea, M. (2012, June). *Examining the effect of school social norms on rape proclivity*. Poster session presented at the annual IV International Conference of Community Psychology, Barcelona, Spain.

Ullman, S.E., **Relyea, M.**, Peter-Hagene, L., Vasquez, A., & Bhat, M. (2012). *Problem drinking and drug abuse in women sexual assault survivors. Role of trauma history, coping, and PTSD*. Presented at the 35th Annual Scientific Meeting of the Research Society on Alcoholism. San Francisco, CA.

Relyea, M. (2011, October). *Causal models of bystander intervention: Assumptions, assessment, and warnings*. Poster session presented at the annual Midwest Ecological-Community Psychology Conference, Chicago, IL.

Relyea, M. (2011, June). *Rape proclivity among diverse high school students*. Poster session presented at the Society for Community Research and Action 13th Biennial Conference, Chicago, IL.

Rowe, H. L., Christensen, C., Coleman, B., Gauvin, R., Gur, O., Mart, A., & **Relyea, M.** (2009, October). *Community research: Looking back, moving forward*. Poster session presented at the annual Midwest Ecological-Community Psychology Conference, Chicago, IL.

McGovern, M., Richmond, P., **Relyea, M.**, Strong, P., Castro, A., Daigle, K., Dougherty, S. (2007, October). *Integrating mental health services in community methadone practice*. Presented at the annual American Association for the Treatment of Opiate Dependence, AATOD National Conference San Diego, CA.

Professional Affiliations

Society for Community Research and Action (Division 27 of the American Psychological Association)
American Society for Criminology

Professional Service

Reviewer for the Journal of Interpersonal Violence
Reviewer for Violence and Victims
Reviewer for Sex Roles