When less is more: Psychometric properties of Norwegian short-forms of the Ambivalent Sexism Scales (ASI and AMI) and the Illinois Rape Myth Acceptance (IRMA) Scale

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Introduction

Proponents of ambivalent sexism theory (Glick & Fiske, 1996, 1999) maintain that people can hold both hostile and benevolent attitudes toward the same attitudinal object (i.e., toward women or men). This ambivalence is assumed to stem from the combination of men's greater power in a culture, which fosters hostility, and interdependence between the sexes, which promotes benevolence. Ambivalent sexism theory, with its corresponding scales, represents an alternative to measures that make a distinction between traditional and modern sexism (Ekehammar, Akrami, & Araya, 2000; Swim, Aikin, Hall, & Hunter, 1995). Gender differences in ambivalent sexism toward women are evident cross-culturally, characterized by men reporting more hostility toward women than do women, while gender differences in benevolence are small in magnitude (Glick et al., 2000). In comparison, women report more hostility toward men than do men, while men report more benevolence toward men in most cultures studied than do women (Glick et al., 2004). Glick and colleagues (2004) also reported that the level of sexism was clearly associated with a nation's level of gender inequality as measured with United Nations Gender Development Index (GDI) and Gender Empowerment Measure (GEM). In general, men and women from cultures ranking high on gender equality report lower levels of sexism, but the relative differences in men's and women's hostility and benevolence scores do not reflect levels of gender inequality cross-culturally. E.g., gender differences in hostility toward women are large and very similar for samples from Germany, Portugal, United States, Mexico and Turkey (Figure 3, Glick & Fiske, 2004).

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In discussing potential sources to ambivalent sexism toward women and gender differences in western modern cultures, Glick and Fiske (1996) mention the "backlash" against feminism (Faludi, 1991), and men's greater concerns with power relations between men and women. Besides men reporting more hostility than do women toward women, recent studies have shown that endorsing conservative ideology (characterized by social dominance orientation, right-wing authoritarianism, and protestant work ethics) is positively associated with hostile and benevolent attitudes toward women (Christopher & Mull, 2006). Further, higher level of educational attainment is associated with lower level of ambivalent sexism toward men and women (Glick, Lameiras, & Castro, 2002; Stevenson, 2014). Both individual differences in practicing religion (Glick et al., 2002) and high levels of religious fundamentalism (Stevenson, 2014) are associated with more benevolence, but not more hostility toward women. In addition, psychological entitlement in women (Grubbs, Exline, & Twenge, 2014) is found to be positively associated with benevolence. Finally, relationship experience among adolescents is found to be associated with greater benevolence toward women in boys and with greater hostility toward women in girls (de Lemus, Moya, & Glick, 2010).

Various measures of sexism are regularly included as predictors of stereotypical beliefs about women being raped (often referred to as 'rape myths') and sexual aggressive behavior toward women along with measures of hostility and acceptance of sexual aggression. Evidently, people holding traditional beliefs or hostility toward women are less dismissive of rape stereotypes or sexual violence (Abbey, Jacques-Tiura, & LeBreton, 2011; Abrams, Viki, Masser, & Bohner, 2003; Chapleau, Oswald, & Russel, 2007; Fitzpatrick,

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Salgado, Suvak, King, & King, 2004; Glick & Fiske, 2011; Lee, Fiske, & Glick,

2010). These findings are not limited to American samples, but are also reported

in Norway, one of the more secular and sexually liberal cultures with a stable

high ranking on international measures of gender equality over time (Bendixen,

Henriksen, & Nøstdahl, 2014). Moreover, individual differences in rape

stereotypes and sexism are consistently, strongly and positively associated with

attribution of responsibility to victims in rape scenarios (Abrams et al., 2003;

Bendixen et al., 2014; Frese, Moya, & Megías, 2004; Pollard, 1992).

To enhance the comprehension of any behavioral phenomena – sexism or

rape stereotypes included – the use of reliable and valid scales is crucial.

However, scale construction is both time-consuming and strenuous, and more

often results in lengthy scales than in short scales for use in surveys. This is

potentially costly with regard to response rates. The last decades have seen a

decreased willingness to participate in surveys, particularly polls (The Pew

Reseach Center, 2012). In addition, compared to paper-based surveys, online and

web-based surveys often report lower participation rates (Monroe & Adams,

2010; Nulty, 2008; Shih & Fan, 2008). This is unfortunate, as surveys are

gradually moving over to electronic platforms.

A number of factors are found to affect willingness to respond, and

measures have been suggested to increase response rates (Dillman, 2000;

Monroe & Adams, 2010; Nulty, 2008). Systematic reviews suggest that

questionnaire length has a negative effect on response rates (Edwards et al.,

2002; Rolstad, Adler, & Rydén, 2011), and that excessive length may have

particularly negative impact as it may create fatigue and loss of motivation.

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Participant's tend to feel time is a limited recourse. Hence, many researchers look for shorter versions of measures for use in surveys that are reliable and valid.

Study Aims

The current paper assesses the psychometric properties of a Norwegian translation of (1) the 22-item Ambivalence Sexism Inventory (ASI; Glick & Fiske, 1996), and (2) the 20-item Ambivalence Toward Men Inventory (AMI; Glick & Fiske, 1999) using samples of university students. We then report on the strategies for downscaling the ASI and AMI followed by assessment of the psychometric properties of our short form ASI (8 items) and AMI (8 items). Further, we examine the construct validity of our measures by providing analyses of the factor structures for the short forms in a community sample of high school students and briefly compare ours with existing shortened versions of ASI and AMI (Glick & Whitehead, 2010; Rollero, Glick, & Tartaglia, 2014).

Finally, we assess the psychometric properties of a Norwegian translation of the updated Illinois Rape Myth Acceptance Scale (IRMA). The 22 item IRMA scale was developed to measure more subtle beliefs about women being raped (McMahon & Farmer, 2011). This scale is equivalent to the 20-item IRMA-SF (Chapleau et al., 2007; Payne, Lonsway, & Fitzgerald, 1999). Following the same downscaling strategy as for the ASI/AMI inventories, we report on the psychometric properties of our short form (8 items) IRMA. The construct validity of the short forms of ASI, AMI and IRMA is further examined through (1) analyses of sex, educational program, and relationship experience effects on sexism and stereotypical beliefs about rapes among young respondents, and (2)

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analyses of predictors of rape stereotypes in high school students controlling for

social desirability responding.

Methods

Participants

Study 1: University samples.

Two separate student samples were combined for analysis. Participants

in the first sample comprised of 285 students enrolled in courses at the Faculty

of Natural Sciences and the Faculty of Social/humanistic Studies at the

Norwegian University of Science and Technology (NTNU) during fall semester

2008. The second sample comprised 227 students from the same faculties during

spring semester 2009. More than half (54.6%) of participants of the combined

sample were men, and the mean age for women and men were 21.0 (SD=1.6) and

21.3 (SD=1.9) respectively. More men (61.0%) than women (31.9%) were

enrolled in Natural science studies. Further sample details can be found in

Bendixen and Gabriel (2013).

Study 2: High school sample.

Students from 17 high schools participated in the study during 2013 and

2014. Students between the age 16 and age 21 were selected for analyses. The

data was screened for inconsistent, unlikely, monotonous and extreme

responding reflecting lack of motivation leaving 1381 subjects eligible for

analysis (59.1% women). Mean age for women and men was 17.8 (SD=1.0) and

17.7 (SD=0.9) respectively. Vocational studies were more common than general

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studies for men (51.6%) than for women (29.4%). More women (40.3%) than

men (28.4%) reported being partnered for three months or more.

Procedures

Research assistants informed university students about the study and

invited them to participate during a regular lecture break. Students were

informed that participation was voluntary and that any responses would remain

anonymous. They responded to the questionnaire as a group in the auditorium

during the break. In line with the university's regulations no incentives or course

credits were given for participation.

The high school students were invited to partake in a web-based survey.

The students, their parents and the school staff received written information

about the study, stating the purpose and content of the project. The school

administered the written information- and informed consent form, and students

received a login code in exchange for returning the consent form. Students could

respond to the questionnaire on their computer at home or a designated

computer in their classroom. Students were informed that the participation was

voluntary. Arrangements for group administration at school ensured anonymity

and confidentiality. Incentives were 10 randomly selected gift-cards (each NOK

1000≈USD 120≈GBP 90).

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Measurements

Sexism Toward Women and Men.

The university students completed a Norwegian translation of the original 22-items ASI and 20-items AMI scales (Glick & Fiske, 1996, 1999). Scaling was identical to the original measures (6-point Likert; 0=*strongly disagree* to 5=*strongly agree*). The AMI-items succeeded the ASI-items in the questionnaire. Internal consistencies (Cronbach's Alpha's) were acceptable and good: 11-item Hostility toward Women (HW)= .86, 11-item Benevolence toward Women (BW)[1]= .73, 10-item Hostility toward Men (HM)= .76, and 10-item Benevolence toward Men (BM)= .84.

The high school students completed shortened versions of the ASI and AMI as part of a large scale study on sexual harassment and sexual health (Bendixen, Daveronis, & Kennair, submitted; Bendixen & Kennair, 2017). The items were scrambled and presented together with questions on women and men in relationships. A 5-point Likert scale was applied for all items (1=*strongly disagree* to 5=*strongly agree*). To facilitate comparison of means across studies the scores were transformed to 0–5 values before analysis.[2]

Rape Stereotypes.

The high school students completed a Norwegian translation of the 22-item Illinois Rape Myth Acceptance (IRMA) Scale developed to measure more subtle beliefs about rape of women (McMahon & Farmer, 2011). The scale covers

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[1] These terms are equivalent to Glick and Fiske's (1996) 'Hostile Sexism' and 'Benevolent Sexism' and will be applied throughout the paper along with the terms Hostility toward Men and Benevolence toward Men.

[2] The following formula for scale conversion was applied: newvalue=(oldvalue-3) $\times$ (5/4) + 2.5. All item translations can be obtained from the corresponding author.

four of the seven dimensions of rape stereotypes from the original 45-item IRMA

scale (Payne et al., 1999). The four dimensions were 'She asked for it' (6 items),

'He didn't mean to' (6 items), 'It wasn't rape' (5 items), and 'She lied' (5 items). A

5-point response scale identical to the original was used (1=*strongly disagree*,

5=*strongly agree*). Internal consistency for the 22 items was excellent (α= .92)

and acceptable for each of the four dimensions: 'She asked for it' (α= .78), 'He

didn't mean to' (α= .69), 'It wasn't really rape' (α= .79), and 'She lied' (α= .87).

Acceptance of Derogatory Sexual Slurs.

The high school students also ~~completed~~ rated their level of acceptance of

sexual slurs on a 5-point Likert scale (1=*highly unacceptable*, 5=*highly

acceptable*). Items were constructed for the present study based on judgment of

slurs from a prior study (Bendixen & Gabriel, 2013). One category of slurs

reflected sexual promiscuity ("whore, slut, gigolo, man-whore, being loose, etc."),

the other non-heterosexual orientation ("gay, homo, fag, lesbian, dice, etc.") Each

item was posed twice (toward girls and boys). We constructed separate scales

for slurs toward girls (α= .78) and boys (α= .79).

Social Desirability.

Finally the high school students completed a Norwegian short-form (10

items) of the Marlowe-Crowne Social Desirability Scale (Rudmin, 1999). A 4-

point response scale was preferred for the original response scale (*yes/no*) in

this study (1=*strongly agree,* 2=*agree somewhat*, 3=*disagree somewhat*,

4=*strongly disagree*). Low item-rest correlations (r< .20) for two items suggested

removal. Internal consistency for the remaining eight items was α= .68 and

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slightly better than that reported by Rudmin (1999). High scores are associated with higher levels of desirability concerns.

All analyses were performed using Stata version 14.2 (StataCorp, 2015)

Results

Study 1: Factor Analyzing the ASI and AMI Sexism Inventories

Preliminary exploratory factor analysis (maximum likelihood extraction; oblimin rotation, two factors) of the 22 ASI items suggested the same two factors outlined in the original paper by Glick and Fiske (1996); one reflecting hostile beliefs (11 items), the other benevolent beliefs (11 items). Three items loaded lower than .30 in the pattern matrix, but cross-loadings were largely absent.

We next ran a confirmatory factor analysis testing a structural equation model assuming the two factors described in Glick and Fiske (1996). Common fit indexes as suggested by D. A. Kenny (http://davidakenny.net/cm/fit.htm) were applied. For comparative fit index (CFI) and Tucker-Lewis index (TLI) values above 0.95, and RMSEA values lower than .08 as the 90% CI upper range are considered satisfactory (Hu & Bentler, 1998, 1999). The 22 items representing the hostile and benevolent dimensions of ASI provided a less than satisfactory fit to the model, $\chi^2(208)= 641.68$, RMSEA= .069 [.063 – .075], CFI= 0.819, TLI= 0.799. Particularly the CFI and the TLI were below the criteria for good fit. Models with more variables tend to have relatively poor fit (Kenny & McCoach, 2003). Evidently, χ^2 is strongly contingent upon samples size, while RMSEA, CFI

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and TLI seem to be less sensitive to sample size (Fan, Thompson, & Wang, 1999; Marsh, Balla, & McDonald, 1988).

We next ran an exploratory factor analysis (maximum likelihood extraction; oblimin rotation, two factors) on the 20 AMI items. The factor structure for the model suggested by Glick and Fiske (1999) deviated markedly for several of the items. Four of the items loaded equally strong on both dimensions, and one benevolent item was misclassified as reflecting hostility ("Women ought to take care of their men at home, because men would fall apart if they had to fend for themselves").

We then ran a confirmatory factor analysis on the 20 AMI items testing a structural equation model assuming the two factors described in Glick and Fiske (1999). The 20 items representing the hostile and benevolent dimensions of AMI provided poor fit to the model, $\chi^2(208)=867.60$, RMSEA= .094 [.087 – .100], CFI= 0.755, TLI= 0.724. Not only were the CFI and the TLI far below the criteria for satisfactory fit, but also the upper range RMSEA 90% confidence interval exceeded the value of .08.

Downscaling strategy to attain short forms.

In our efforts to reduce the 22-item ASI and the 20-item AMI the following considerations were made: First, the shortened scales should mirror the psychometric properties and the concurrent validity of the full scales in every respect (acceptable internal consistency, group differences and correlations among the ASI/AMI scales). Second, high factor loadings in the exploratory factor analyses as well as high item-rest correlations in the analyses of reliability should weigh considerably in the selection of items for the short versions. Third,

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the various short scales should contain an equal number of items and the number of items should be kept to a minimum. Finally, most (or all) indicators of a good model fit should be met in a structural equation model assuming the two factors described in Glick and Fiske (1996, 1999).

For each of the dimensions of ASI and AMI (HW, BW, HM, BM) we considered the items that had the highest factor loadings (with no cross-loadings) that also correlated strongest with the remaining test items. For each dimension, we chose the *four* items that best reflected the full scales. Pattern matrix loadings were good for each of the dimensions (low to high for Hostility toward Women: .63– .67; Benevolence toward Women: .45– .61; Hostility toward Men: .52– .56; and Benevolence toward Men: .56– .68) and so were item-rest correlations (lowest to highest for HW: .57– .64; BW: .42– .49; HM: .47– .50; and BM: .57– .65).

We ran confirmatory factor analysis (SEM), modeling the two-factor structure outlined above on the eight ASI-items (toward women) and the eight AMI-items (toward men) for University students ~~and High school students~~. The ASI model for University students proved good to excellent fit, χ^2 (19)= 27.70, RMSEA= .031 (90% CI= .000 – .054), CFI= .987, TLI= .980, pclose= .907. This was also true for the AMI model, χ^2 (19)= 46.88, RMSEA= .055 (90% CI= .035 – .074), CFI= .971, TLI= .957, pclose= .324. ~~Further, the ASI model for High school students proved good fit, χ^2 (19)=109.16, RMSEA= .063 (90% CI= .052 – .075), CFI= .955, TLI= .934, pclose= .029, and excellent fit for the AMI model, χ^2 (19)=88.79, RMSEA= .056 (90% CI= .044 – .068), CFI= .973, TLI= .960, pclose= .193. A nonsignificant pclose value suggests the fit of the model is "close", i.e., RMSEA not higher than .05).~~

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The standardized factor loadings and error variances for the ASI and the AMI items are shown in Table 1 and Table 2.

Insert Tables 1 about here and 2 here

Given the limited number of items within each scale the internal consistencies were acceptable (HW: α= .74 BW: α= .63, HM: α= .67, and BM: α= .79). The correlations among the four short form scales (*r*'s ranging from .25 to .62) were equal to or slightly lower than for the full scales (*r*'s ranging from .31 to .62). The two benevolence scales correlated strongest. Compared with the existing six-item short forms of ASI and AMI (Rollero et al., 2014) our four-item scales demonstrated considerable conceptual overlap (three out of four items similarsee supplementary online material for item wording and translation).

Study 2: Reproducing the Short Form Factor Structure in the High School Sample

We re-ran the above confirmatory factor analysis (SEM) for The confirmatory factor analyses (SEM) for the eight ASI-items and the eight AMI-items both produced satisfactory model fit. the High school students. The two-factor structure model for proved good fit for the ASI items, $\chi^2(19)= 109.16$, RMSEA= .063 (90% CI: .052 – .075), CFI= .955, TLI= .934, pclose= .029, and excellent model fit for the AMI items, $\chi^2(19)= 88.79$, RMSEA= .056 (90% CI: .044 – .068), CFI= .973, TLI= .960, pclose= .193. A nonsignificant pclose value suggests the fit of the model is "close", i.e., RMSEA not higher than .05). TAs shown in the lower panel of Table 1, all fit indexes (CFI, TLI and RMSEA) suggest

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~~good to excellent fit. For the AMI items, the fit of the model was "close"~~

~~(nonsignificant pclose value), but the 90% CI upper range for the RMSEA was~~

~~lower than .08 for both ASI and AMI.~~

~~T~~he standardized factor loadings and error variances for the ASI and the

AMI items are shown in Table 2~~3 and Table 4~~.

Insert Table 2 about here~~s 3 and 4 here~~

Compared to the university sample, internal consistencies for the four-item

scales were higher in the current sample of high school students (HW: α= .75;

BW: α= .68; HM: α= .67; BM: α= .81).

Examining Known Group Differences in Sexism

    Study 1: University students.

To examine group differences in the four sexism scales (full scales versus

short forms), we applied two-way ANCOVA's with gender and educational

program (scientific vs. social/humanities studies) as between factors. Participant

age was included as covariate. Only significant main effects and interactions are

reported.

The full scales and the short forms produced very similar results. For

short form hostility toward women, men had markedly higher scores than

women, $F(1,497)=$ 116.40, $p<$ .001, $\eta_p^2=$ .219, $d=$ 1.06 (The corresponding gender

difference was $d=$ 1.17 for the full scale). The effect of the covariate (age) was

significant for hostility toward women, $F(1,497)=$ 4.86, $p<$ .05, $\eta_p^2=$ .010, $d=$ 0.20

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(similar effect for the full scale) with lower scores for older students. Men also reported moderately more benevolence toward women than did women, $F(1,499)=$ 39.40, $p<$ .001, $\eta_p{}^2=$ .084, $d=$ 0.60 ($d=$ 0.47 for the full scale). Women and men did not differ in their level hostility toward men. However, men showed more benevolence toward men than did women, $F(1,495)=$ 70.42, $p<$ .001, $\eta_p{}^2=$ .125, $d=$ 0.76 ($d=$ 0.90 for the full scale) older students reported less benevolence toward men, $F(1,495)=$ 5.70, $p<$ .05, $\eta_p{}^2=$ .012, $d=$ 0.22 ($d=$ 0.28 for the full scale). Educational program had no effect on the level of hostility or benevolence and did not moderate the gender effects reported above. The mean scores (short form) for women and men are shown in Figure 1.

Insert Figure 1 about here

Study 2: High school students.

Corresponding analyses on the short forms sample of high school students (adding current relationship status as a predictor) showed that men scored significantly higher than women on hostility toward women, $F(1,1241)=$ 105.05, $p<$ .001, $\eta_p{}^2=$ .078 ($d=$ 0.58, a moderate effect). Students in vocational studies reported slightly more hostility than those in general studies, $F(1,1241)=$ 7.75, $p<$ .001, $\eta_p{}^2=$ .006 ($d=$ 0.16). There was no effect of relationship status. For benevolence toward women, men's scores were slightly higher than women's, $F(1,1261)=$ 6.76, $p<$ .01, $\eta_p{}^2=$ .005 ($d=$ 0.14), and students in vocational studies reported more benevolence than those in general studies, $F(1,1261)=$ 43.04, $p<$ .001, $\eta_p{}^2=$ .033 ($d=$ 0.37). Again, there was no effect of relationship status. Women reported more hostility toward men than did men, $F(1,1248)=$ 33.71, $p<$

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.001, $\eta_p{}^2$= .026 (*d*= -0.33), and students in vocational studies reported slightly

more hostility than students in general studies, $F(1,1248)$= 18.48, *p*< .001, $\eta_p{}^2$=

.015 (*d*= 0.25). Being in a relationship did not affect the level of hostility toward

men. As can be seen from Figure 2, there was no difference between women's

and men's level of benevolence toward men. However, the level of benevolence

differed for the two educational programs, $F(1,1257)$= 53.57, *p*< .001, $\eta_p{}^2$= .041,

with students in vocational studies scoring moderately higher (*d*= 0.41). On this

scale partnered students scored slightly higher than singles, $F(1,1257)$= 4.84, *p*<

.05, $\eta_p{}^2$= .004 (*d*= 0.13).

Insert Figure 2 about here

In contrast to the samples of university students, age did not significantly

affect the scores on any of the sexism scales in the sample of high school

students. Also, none of the two- or three-way interactions were significant,

suggesting that the patterns of gender differences were similar across

educational programs and unaffected by relationship status. This also suggests

that across the four scales, male and female students in vocational studies

reported somewhat more sexism than students in general studies.

We finally compared the level of sexism for university and high school

students across the four sexism scales. Apart from hostility toward women, that

did not differ between student groups ($F(1,1760)$= 0.32), high school students

reported moderately more benevolence toward women ($F(1,1784)$= 100.13, p<

.001, $\eta_p{}^2$= .053), hostility toward men ($F(1,1764)$= 94.56, p< .001, $\eta_p{}^2$= .051), and

benevolence toward men ($F(1,1775)$= 102.60, p< .001, $\eta_p{}^2$= .051). Gender

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significantly moderated these effects, and as evident from Figure 1 and Figure 2, level of sexism was higher in high school women, and particularly so for the benevolence scales.

Study 2: Factor Analyzing and Downscaling Stereotypical Beliefs about Rape of Women in the High School Sample

We ran a confirmatory factor analysis (SEM), modeling the four-factor structure outlined by McMahon and Farmer (2011). The 22 items representing the dimensions of IRMA provided poor fit to the model, $\chi^2(203)=$ 2028.67, RMSEA= .081 [90% CI= .077 – .084], CFI= 0.856, TLI= 0.836.

For reducing the 22-item IRMA we applied the same considerations as used for downscaling the ASI and AMI scales in the university sample. For each of the four dimensions of rape stereotypes the two items with the highest item-rest correlations were selected. When we modeled the eight selected items, the model fit was satisfactory for all fit indexes, $\chi^2(14)=$ 81.15, RMSEA= .059 [90% CI= .047–.072], CFI= 0.983, TLI= 0.966. The model fit was "close" (pclose= 0.110). The standardized factor loadings and error variances for the eight items are shown in Table 35. Internal consistency for the eight items was good ($\alpha=$ .85), and the short-form scale correlated substantially with the 22-item scale ($r=$ .93).

Insert Table 35 about here

Group differences in rape stereotypes (full IRMA and short form IRMA).

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For the full IRMA, men (*M*=2.54, *SD*=0.58) reported having significantly more stereotypical beliefs about rapes than women (*M*=2.27, *SD*=0.56), $F(1,1324)=$ 56.55, *p*< .001, $\eta_p{}^2$= .041 (*d*= 0.41). Students in vocational studies (*M*=2.54, *SD*=0.61) reported more stereotypical beliefs than those in general studies (*M*=2.28, *SD*=0.55), $F(1,1324)=$ 42.40, *p*< .001, $\eta_p{}^2$= .031 (*d*= 0.36), and partnered students more than singles, $F(1,1324)=$ 6.38, *p*< .05, $\eta_p{}^2$= .005. Participant age did not affect the scores, and the effect of gender was not moderated by educational program or by relationship status.

The effects of gender and educational program were reproduced for the short form IRMA. Relative to women (*M*=1.96, *SD*=0.63), men (*M*=2.27, *SD*=0.69) reported significantly more stereotypical beliefs about rape, $F(1,1324)=$ 52.62 *p*< .001, $\eta_p{}^2$= .038 (*d*= 0.40). In addition, students in vocational studies (*M*=2.28, *SD*=0.72) reported significantly more stereotypical beliefs than those in general studies (*M*=1.96, *SD*=0.61), $F(1,1324)=$ 48.07, *p*< .001, $\eta_p{}^2$= .035 (*d*= 0.38), and partnered students slightly than singles, $F(1,1324)=$ 6.55, *p*< .05, $\eta_p{}^2$= .005, *d*= 0.14). As for the full scale, participant age did not affect the scores, and the effect of gender was not moderated by educational program or by relationship status.

Correlations among constructs and predictors~~ion~~ of rape stereotypes.

We first examined the zero-order correlations among the various dimensions of sexism, measures of acceptance of slurs and stereotypical beliefs about rape for female and male high school students. As evident from Table 4~~6~~, hostile sexism was moderately associated with stereotypical rape beliefs for women and men. Relative to men's benevolence toward women (*r*= .15),

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women's benevolence (r= .33) evinced stronger associated with rape beliefs. For both sexes, hostility and benevolence toward *men* was also positively associated with rape stereotypes. Acceptance of slurs was associated with rape beliefs for men (but not for women) and acceptance of slurs was relatively stronger associated with the hostility component of sexism for men (r's ranging from .16 to .26) than for women (r's ranging from .09 to .13). Students high on social desirability concerns reported lower levels of hostility toward women, acceptance of derogatory slurs, and male students also reported lower levels of rape stereotypes. The four dimensions of sexism correlated strongly for both sexes, except for the association between the hostility and benevolence components toward women for men (r= .20). The benevolence components toward women versus men were particularly strongly associated; r= .80$_{women}$ and r= .74$_{men}$.[3] Additional confirmatory factor analyses performed on benevolence toward women versus men strongly suggest that these items do *not* reflect discrete constructs, providing a poor fit, $\chi^2(19)$= 318.27, RMSEA = .114 [90% CI = .103 – .125], CFI= 0.919, TLI= 0.880, pclose < .001. The standardized covariance was ≈ 1.00, suggesting a perfect overlap. Apparently, the eight items reflect one underlying construct equally well, $\chi^2(20)$= 326.15, RMSEA= .113.

Insert Table 46 about here

A hierarchical regression analysis was performed on stereotypical beliefs about rape. Hostility and benevolence toward women, and acceptance of slurs

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[3] The corresponding correlations in the University sample were r= .63$_{women}$ and r= .55$_{men}$ (short forms) and r= .66$_{women}$ and r= .53$_{men}$ (full scales)

toward women were entered as independent variables in Model 1. Gender,

educational program, and relationship status were added in Model 2.

Interactions were entered in Model 3. These included Model 1 predictors and

their gender, educational program and relationship status. In Model 4 we added

social desirability to determine if social desirable responding affected the

associations between the predictors and the outcome. We applied the 'robust'

option in Stata because it offers more 'honest' standard errors in the face of

heteroscedasticity.

Insert Table 7 about here

The hierarchical regression analysis is presented in Table 57. In Model 1,

$F(3,1254)= 66.79$, $p< .001$, both sexism dimensions and acceptance of slurs

predicted rape stereotypes, accounting for 14.4% of the variance. In Model 2,

$F(6,1238)= 46.16$, $p< .001$, gender (male), educational program (vocational) and

relationship status (being partnered) all significantly predicted rape stereotypes

over and above the Model 1 factors, adding 4.5% to the explained variance.

Insert Table 5 about here

When adding interaction terms to Model 3, $F(8,1236)= 36.77$, $p< .001$, only two

reached significance and hence reported. Benevolence toward women was

significantly stronger associated with rape stereotypes for women $(r= .33)$ than

for men $(r= .15)$, and slurs toward women significantly stronger associated with

rape stereotypes for men $(r= .21)$ than for women $(r= .06)$. These interactions

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~~accounted for the above gender and acceptance of slurs effects, but~~ added less

than 1% to the explained overall variance over and above the Model 2 factors. In

Model 4, social desirability did not predict rape stereotypes over and above the

Model 3 factors (t= -0.09), nor did controlling for social desirability affect the

above findings (hence omitted from Table 5~~7~~).

Discussion

In summary, our short form ASI, AMI and IRMA scales all demonstrated

good to excellent psychometric properties in samples of emerging adults. Group

effects related to gender, type of education, and relationship status were all

closely reproduced using the short forms. Furthermore, the associations among

the variables were largely unaffected by the scale reductions. We do note,

however, that the internal consistencies for some of the short form sexism scales

were below the .70 threshold. On the other hand, the confirmatory factor

analyses all clearly demonstrated the advantages of applying shortened

measures with fewer, carefully selected items.

Furthermore, turning to the more substantive findings, we found that

male university students and high school students reported markedly more

hostility toward women than did female students. The analyses of the remaining

sexism scales indicate lower levels of sexism among university students than

among high school students. While the university students' sexism scores did not

differ across educational programs, high school students doing vocational

studies were slightly more hostile and moderately more benevolent toward

women and men than those doing general studies preparing for academic

studies. The vocational studies are the most gender differentiated educational

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programs, reflecting gender differences in occupational preferences (Lippa, 2010) and traditional sex roles. Male high school students also held moderately more stereotypical rape beliefs. Relative to singles, partnered high school students held slightly more benevolent attitudes toward men and stereotypical rape beliefs. In the final model of multiple regression analysis, rape stereotypes were predicted by both hostile and benevolent sexism as well as by educational program (vocational studies) and being partnered. The analysis also suggested that the effects of benevolent sexism on rape stereotypes was stronger for women and that the effect of slur acceptance on rape stereotypes was stronger for men.

Because our short forms largely retained the qualities of the full ASI and AMI inventories, we can make tentative comparisons of gender differences with the findings reported by Glick and colleagues (2000, 2004), of educational attainment differences (Glick et al., 2002; Stevenson, 2014), and of effects of relationship experience on sexism (de Lemus et al., 2010). There are moderately large gender differences in hostility toward women across 19 nations and all continents (Glick et al., 2000). Although the overall level of hostility toward women seems to be higher in less gender egalitarian countries, men report more of this form of hostility regardless of level of gender equality (Glick et al., 2000). Despite Norway being one of world's most gender egalitarian and secularized countries (Gallup, 2010; World Economic Forum, 2016), gender differences in hostility toward women are highly comparable of those in less egalitarian counties. This high cross-culture consistency suggest that one may need to seek predictors of gender differences in hostility beyond patriarchy, social structures, and culturally transmitted social norms. Evolutionary explanations for inter- and

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intra-sexual aggression would also merit consideration (Arnocky & Vaillancourt, 2014)

Further, although the effect of educational program was not large, our findings suggest that emerging adults of both sexes, in vocational education, hold both more benevolent attitudes toward men and women, and more stereotypical beliefs about rape. Similar findings were reported by Glick et al. (2002); Stevenson (2014). Bendixen et al. (2014) reported similar effects of education for rape stereotypes. On the one hand, the findings may reflect that vocational students have been socialized within more traditional environments regarding sex roles than general students, including the family, their peer groups and the current educational context (Glick et al., 2004). Alternatively, these attitudes may also tap into broader categories of attitudes such as religiousness, conservatism and traditionalism (Christopher & Mull, 2006; Glick et al., 2002).

One of the more intriguing findings from our regression analyses was that being partnered (as opposed to being single), and holding more benevolent sexist attitudes both were associated with *more* stereotypical rape beliefs. Apparently, partnered emerging adults who believe that women should be cherished and adored by their partner, and who are in a committed long-term relationship, are less inclined to refute beliefs such as women lying about being raped, that it is not men's intentions to rape, that rapes should be discounted unless there is use of force, and that women ask for it by sending mixed signals. Theories primarily addressing patriarchy and intersexual conflict, would suggest that this is a result of some form of misogyny (Bendixen et al., 2014) also adopted by women. Alternatively, partnered women's hostility towards other women may reflect some form of intrasexual competition (Arnocky &

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Vaillancourt, 2014). Specifically, this is revealed as derogation (e.g., slut

shaming) of women who act promiscuous or signal openness to casual sexual

relations (Vaillancourt & Sharma, 2011).

Implications, Limitations and Future Research

Both Rollero et al's (2014) and our short ASI/AMI versions evince good to

excellent psychometric properties in samples of emerging adults and are thus

likely to be applied in studies of sexism. However, our short forms of the ASI and

AMI are applicable for use with pre-university participants aged 16 and older

along with the short form IRMA. Further strengthening the validity of the

findings, the regression analyses showed that social desirability concerns did not

affect the predictors of rape stereotypes.

Similar to prior findings reported by Glick et al. (2004) and Rollero et al.

(2014), the associations between the two benevolence scales were substantial in

both our samples of high school and university students suggesting these are not

separate constructs. Importantly, the associations were similarly strong for the

full scales and short forms, hence not a result of the downscaling process.

Possibly, the way benevolence is operationalized by Glick and colleagues (1996,

1999) might not be sufficiently gender specific. Benevolence toward men and

women may both tap into a broader construct reflecting traditional views of sex

roles. Consequently, claiming that traditionalism is equivalent to benevolent

sexism may be an expression of ideological prejudice of the researchers.

Despite having two samples of university students and a large community

sample of high school students, our data share the limitations of all cross-

sectional designs; it does not permit inferences of causality or directionality of

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effects. Although rape stereotypes are treated as the outcome variable, and

sexism and acceptance of sexual slurs as predictors in the regression analyses,

we cannot determine if rape stereotypes are directly affected by the predictors.

The analyses only permit inferences on the relative contribution of predictors of

rape stereotypes for male and female high school students. Possibly, rape

stereotypes, sexism and acceptance of sexual slurs all reflect an unmeasured

common third variable. Previous findings suggest conservatism or traditionalism

would be likely candidates (Christopher & Mull, 2006). Researchers are advised

to measure and control for more global dispositional constructs and report on

the extent that these account for the associations between the more specific

constructs.

Conclusion

This study demonstrates that one may measure different aspects of

sexism toward men and women and stereotypical beliefs about women being

raped with far fewer items and without compromising the psychometric

properties of the original inventories. The short form scales are applicable in

samples of emerging adults aged 16 and older. In large-scale surveys, typically

covering a wide range of constructs, the use of short form scales might be

essential to avoid attrition. In this respect, our ASI/AMI/IRMA short forms have

the edge over existing short versions covering a total of 24 items. The study also

demonstrates that further research needs to consider the concept and

operationalization of benevolent sexism closer. Evidently, as shown in multiple

studies and regardless of using full scales or short forms, benevolence toward

women is conceptually not sufficiently different from benevolence toward men

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to advocate the use of separate constructs. In addition, if benevolence largely reflects traditionalistic or conservative beliefs that are not gendered, we should avoid labeling such attitudes as 'sexism.' Future studies will benefit from studying sexism, rape stereotypes and their predictors longitudinally, covering groups of adolescents and emerging adults. Finally, future studies will benefit from studying how family factors, peer groups, and educational environment influence these attitudes, along with individual differences in personality, and educational and occupational preferences.

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Table 1. *University Student Sample: Confirmatory Factor Analysis of the Short Form ASI*
(toward women) and Short Form AMI (toward men). Standardized Factor Loadings
and Error Variances.

#	ASI Items (N=484)	Hostility	Benevolence	Error variances
2	Many women are actually seeking special favors, such as hiring policies that favor them over men, under the guise of asking for "equality"	.63		.60
4	Most women interpret innocent remarks or acts as being sexist	.62		.61
11	Women seek to gain power by getting control over men	.68		.54
16	When women lose to men in a fair competition, they typically complain about being discriminated against	.65		.57
1	No matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman		.49	.76
9	Women should be cherished and protected by men		.59	.65
12	Every man ought to have a woman whom he adores		.49	.76
20	Men should be willing to sacrifice their own well being in order to provide financially for the women in their lives		.59	.65

#	AMI Items (N=493)	Hostility	Benevolence	Error variances
26	When men act to "help" women, they are often trying to prove they are better than women	.56		.68
37	Most men pay lip service to equality for women but can't handle having a woman as an equal	.54		.71
39	When it comes down to it, most men are really like children	.60		.64
41	Most men sexually harass women, even if only in subtle ways, once they are in a position of power over them	.64		.59
23	Even if both members of a couple work, the woman ought to be more attentive to taking care of her man at home		.61	.63
27	Every woman needs a male partner who will cherish her		.77	.41
29	A woman will never be truly fulfilled in life if she doesn't have a committed, long-term relationship with a man		.73	.46
34	Every woman ought to have a man she adores		.70	.51

Note. # = the item number as it appeared in the original questionnaire

Table 2. *High School Sample: Confirmatory Factor Analysis of the Short Form ASI (toward women) and Short Form AMI (toward men). Standardized Factor Loadings and Error Variances.*

ASI Items (N=1197)	Hostility	Benevolence	Error variances
– Many women are actually seeking special favors, such as hiring policies that favor them over men, under the guise of asking for "equality"	.66		.56
– Most women interpret innocent remarks or acts as being sexist	.75		.44
– Women seek to gain power by getting control over men	.56		.69
– When women lose to men in a fair competition, they typically complain about being discriminated against	.67		.55
– No matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman		.58	.66
– Women should be cherished and protected by men		.60	.64
– Every man ought to have a woman whom he adores		.63	.60
– Men should be willing to sacrifice their own well being in order to provide financially for the women in their lives		.53	.71

AMI Items (N=1180)	Hostility	Benevolence	Error variances
– When men act to "help" women, they are often trying to prove they are better than women	.72		.48
– Most men pay lip service to equality for women but can't handle having a woman as an equal	.58		.66
– When it comes down to it, most men are really like children	.56		.68
– Most men sexually harass women, even if only in subtle ways, once they are in a position of power over them	.46		.78
– Even if both members of a couple work, the woman ought to be more attentive to taking care of her man at home		.64	.59
– Every woman needs a male partner who will cherish her		.79	.38
– A woman will never be truly fulfilled in life if she doesn't have a committed, long-term relationship with a man		.71	.50
– Every woman ought to have a man she adores		.76	.42

Table 3. *Confirmatory Factor Analysis of the 8-item Short Form IRMA: Standardized Factor*
Loadings and Error Variances for the High School Sample (N=1.381)

Items	SAFI	HDMT	IWRR	SL	Error variances
– If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of hand	.67				.55
– When girls get raped, it's often because the way they said "no" was unclear.	.61				.62
– It shouldn't be considered rape if a guy is drunk and didn't realize what he was doing		.73			.46
– If both people are drunk, it can't be rape		.59			.65
– If a girl doesn't physically fight back, you can't really say it was rape			.78		.39
– A rape probably doesn't happen if a girl doesn't have any bruises or marks			.74		.45
– A lot of times, girls who say they were raped often led the guy on and then had regrets				.78	.39
– A lot of times, girls who claim they were raped have emotional problems				.80	.37

Note. IRMA = Illinois Rape Myth Acceptance Scale, SAFI = She asked for it, HDMT = He didn't mean to, IWRR = It wasn't really rape, SL = She lied

Table 4. *Zero-Order Correlations Among Short Form Sexism Scales, Short-Form Rape Stereotypes, Acceptance of Slurs, and Social Desirability for Women (above diagonal, N= 748) and Men (below diagonal, N= 490).*

	1	2	3	4	5	6	7	8
1. Hostility Toward W	–	.48	.13	.55	.49	.10	.31	-.21
2. Benevolence Toward W	.20	–	.06	.59	.80	.04	.33	-.00
3. Slurs Toward W	.19	.02	–	.11	.07	.85	.06	-.30
4. Hostility Toward M	.41	.48	.15	–	.52	.09	.31	-.18
5. Benevolence toward M	.39	.74	.07	.57	–	.03	.35	.03
6. Slurs Toward M	.25	.08	.64	.19	.10	–	.08	-.28
7. Rape Stereotypes	.30	.15	.22	.25	.22	.21	–	-.00
8. Social Desirability	-.31	.01	-.27	-.19	-.09	-.36	-.18	–

Note. W=Women, M=Men, Listwise deletion of cases

Table 5. *Predictors of Rape Stereotypes (n=1236).*

Predictor	B (S.E)	β	t
Model 1			
Hostility Toward W	.182 (.020)	.270	9.17***
Benevolence Toward W	.112 (.021)	.157	5.30***
Slurs Toward W	.069 (.025)	.083	2.77**
Model 2			
Hostility Toward W	.160 (.021)	.235	7.69***
Benevolence Toward W	.094 (.021)	.132	4.24***
Slurs Toward W	.074 (.025)	.088	3.00**
Gender	.163 (.040)	.116	4.05***
Educational Program	.209 (.038)	.147	5.29***
Relationship Status	.084 (.038)	.059	2.23*
Model 3			
Hostility Toward W	.152 (.021)	.224	7.37***
Benevolence Toward W	.133 (.024)	.186	5.53***
Slurs Toward W	.024 (.031)	.028	0.76
Gender	.162 (.109)	.116	1.48
Educational Program	.204 (.039)	.144	5.20***
Relationship Status	.082 (.038)	.058	2.18*
Gender × Benevolence	-.082 (.041)	-.146	-2.02*
Gender × Slurs	.106 (.048)	.151	2.20*

Note. Note. W=Women, Model 1 R^2= .144, Model 2 R^2= .189, Model 3 R^2= .196.

p < .05, **p* < .01, ***p* < .001
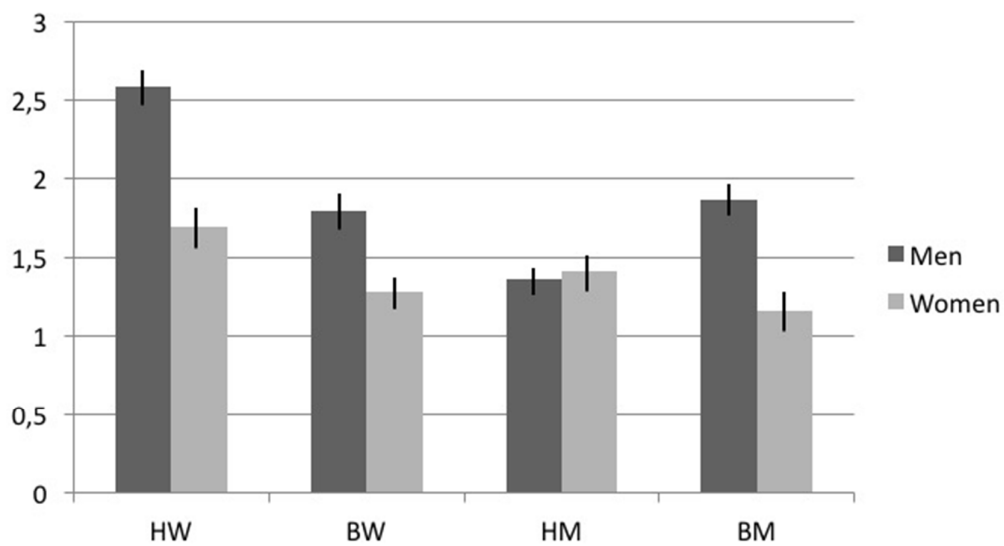
Figure 1. Mean short form scale scores for men and women. University students.

HW=Hostility toward Women, BW=Benevolence toward Women, HM=Hostility toward Men,
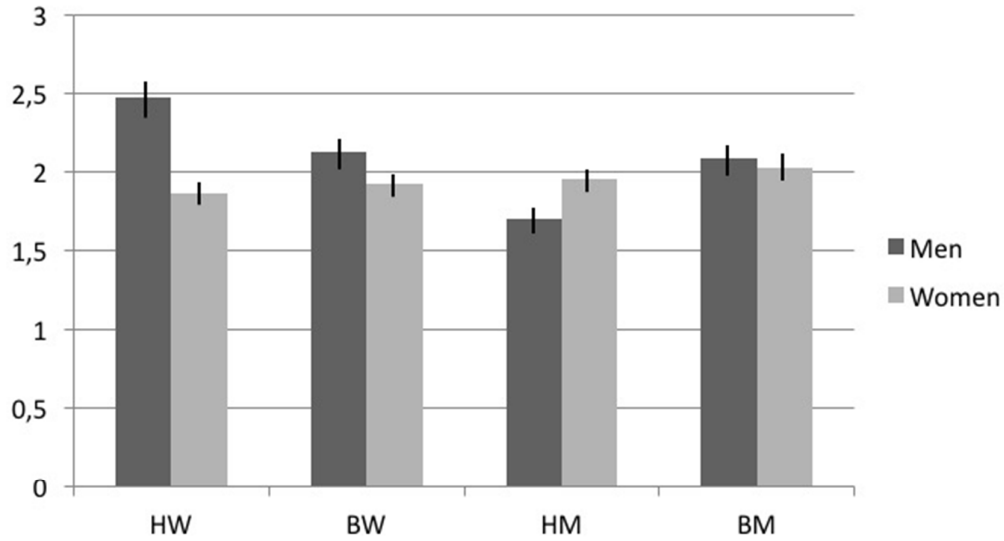
BM=Benevolence toward Men

Figure 2. Mean short form scale scores for men and women. High school students.

HW=Hostility toward Women, BW=Benevolence toward Women, HM=Hostility toward Men,

BM=Benevolence toward Men

Supplementary online material

The Short Form Ambivalence Sexism Inventory (ASI).
(Norwegian Translations in parentheses)

	0	1	2	3	4	5
Hostility						
Many women are actually seeking special favors, such as hiring policies that favor them over men, under the guise of asking for "equality" (Mange kvinner søker faktisk særfordeler, f.eks. kjønnskvotering som favoriserer dem fremfor menn under dekke av å kalle det for "likestilling")						
Most women interpret innocent remarks or acts as being sexist (De fleste kvinner tolker uskyldige bemerkninger eller handlinger som kjønnsdiskriminerende)						
*Women seek to gain power by getting control over men (Kvinner prøver å oppnå makt ved å få kontroll over menn)						
*When women lose to men in a fair competition, they typically complain about being discriminated against (Når kvinner taper i en rettferdig konkurranse med menn påstår de å ha blitt diskriminert)						
Benevolence						
No matter how accomplished he is, a man is not truly complete as a person unless he has the love of a woman (Samme hvor dyktig en mann er, er han ikke en fullstendig person uten at han er elsket av en kvinne)						
*Women should be cherished and protected by men (Kvinner burde vernes om og beskyttes av menn)						
*Every man ought to have a woman whom he adores (Enhver mann bør ha en kvinne han beundrer)						
*Men should be willing to sacrifice their own well being in order to provide financially for the women in their lives (Menn bør være villige til å ofre helsen sin for å kunne forsørge kvinnen i sitt liv)						

Note. * items covered by Glick & Whitehead (2010) and Rollero, Glick & Tartaglia (2014)

The Short Form Ambivalence Toward Men Inventory (AMI).
(Norwegian Translations in parentheses)

	0	1	2	3	4	5
Hostility						
*When men act to "help" women, they are often trying to prove they are better than women (Når menn "hjelper" kvinner er det oftest for å bevise at de er bedre enn dem)						
Most men pay lip service to equality for women but can't handle having a woman as an equal (De fleste menn snakker om at de er for likestilling, men takler ikke å ha en kvinne som er likestilt)						
*When it comes down to it, most men are really like children (I bunn og grunn er de fleste menn for barn å regne)						
*Most men sexually harass women, even if only in subtle ways, once they are in a position of power over them (Når de er i posisjon til det vil de fleste menn trakassere kvinner seksuelt, om enn bare på mindre åpenlyse måter)						
Benevolence						
*Even if both members of a couple work, the woman ought to be more attentive to taking care of her man at home (Selv om begge parter i et parforhold er i arbeid, bør kvinnen være mer oppmerksom på å ta vare på mannen sin hjemme						
*Every woman needs a male partner who will cherish her (Enhver kvinne trenger en mannlig partner som beskytter henne)						
*A woman will never be truly fulfilled in life if she doesn't have a committed, long-term relationship with a man (En kvinne vil aldri være tilfreds i livet hvis hun ikke har et forpliktende, langvarig forhold til en mann)						
Every woman ought to have a man she adores (Enhver kvinne burde ha en mann hun beundrer)						

Note. * items covered by Glick & Whitehead (2010) and Rollero, Glick & Tartaglia (2014)

The Short Form Illinois Rape Myth Acceptance Scale (IRMA).
(Norwegian Translations in parentheses)

	1	2	3	4	5
Subscale 1: She asked for it					
If a girl is raped while she is drunk, she is at least somewhat responsible for letting things get out of hand (Hvis ei jente blir voldtatt mens hun er full er hun i det minste litt ansvarlig for at ting kom ut av kontroll)					
When girls get raped, it's often because the way they said "no" was unclear (Når jenter blir voldtatt er det ofte fordi måten de sa "nei" på ikke var tydelig nok)					
Subscale 2: He didn't mean to					
It shouldn't be considered rape if a guy is drunk and didn't realize what he was doing (Det bør ikke regnes som voldtekt hvis en gutt er full og ikke visste hva han gjorde)					
If both people are drunk, it can't be rape (Det er ikke voldtekt hvis begge parter er fulle når det skjer)					
Subscale 3: It wasn't really rape					
If a girl doesn't physically fight back, you can't really say it was rape (Hvis ei jente ikke kjemper imot fysisk kan man ikke si at det var voldtekt)					
A rape probably doesn't happen if a girl doesn't have any bruises or marks (Hvis ei jente ikke har fysiske merker eller sår etter hendelsen har det trolig ikke skjedd en voldtekt)					
Subscale 4: She lied					
A lot of times, girls who say they were raped agreed to have sex and then regret it (Mange ganger når jenter sier de er blitt voldtatt har først villet ha sex og så angret på det etterpå)					
A lot of times, girls who claim they were raped have emotional problems (Mange ganger har jenter som påstår de er blitt voldtatt bare emosjonelle problemer)					

Note. Payne, Lonsway, & Fitzgerald (1999) and McMahon & Farmer (2011)

- Scoring: Scores range from 1 (strongly disagree) to 5 (strongly agree).
- Higher scores indicate greater acceptance of rape myths.