

January 2014

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## Recommended Citation

Genter, Elizabeth Nicole, "The Association Of Masculinity Themes In Social Network Images And Sexual Risk Behavior" (2014).  
*Public Health Theses*. 1101.  
<http://elischolar.library.yale.edu/ysphtdl/1101>

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The Association of Masculinity Themes in Social Network Images and Sexual Risk Behavior

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May 1, 2014

## MASCULINITY THEMES IN SOCIAL NETWORK IMAGES

**Abstract**

In spite of the high prevalence of active users on social networking sites (SNSs), research examining the ways in which online social network interactions are associated with health have been limited (Morgan, et al., 2010). The primary aim of this study was to understand the context in which emerging adult men post masculine themed images and videos on their SNS's and its relationship to sexual risk behavior (e.g. number of sexual partners, concurrency, and condom use) and offline communication about sex with friends (e.g. talking about sex, HIV/STDs, and relationships), by examining the relationship between 902 images and videos posted on Instagram and Twitter that depict themes of masculinity (e.g. misogyny, sex, coolness, toughness, material status, and social status) and self-reported sexual risk behavior among 40 minority emerging adult males. Results indicated that themes of misogyny, sex, and coolness were correlated with a number of sexual risk behaviors and offline communication about sex. Positive correlations were found between current number of sexual partners and themes of misogyny ( $r=.40$ ,  $p=.014$ ) and coolness ( $r=.35$ ,  $p=.037$ ); concurrent partners and themes of misogyny ( $r=-.45$ ,  $p=.006$ ) and sex ( $r=.36$ ,  $p=.031$ ); offline communication with friends about sex and themes of misogyny ( $r=.46$ ,  $p=.003$ ) and sex ( $r=.39$ ,  $p=.011$ ); offline communication with friends about relationships and themes of misogyny ( $r=.50$ ,  $p=.001$ ), sex ( $r=.44$ ,  $p=.005$ ), and coolness ( $r=.31$ ,  $p=.055$ ); and offline communication with friends about HIV/STDs and themes of coolness ( $r=.52$ ,  $p=.001$ ). Negative correlations between condom use with a non-steady partner and misogyny ( $r=-.45$ ,  $p=.031$ ) and sex ( $r=-.61$ ,  $p=.002$ ) and were also found. In conclusion, the results of this study suggest that images posted on social networking sites are associated with risky sexual behavior and may serve to identify high risk individuals.

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Social networking sites (SNSs), like Instagram and Twitter, provide emerging adults a platform to distribute external representations of their internal identities through images and videos – and then “follow” (subscribe to) other users’ profiles in turn. Instagram and Twitter have been identified as two of the largest online social networking platforms utilized around the world, and their adoption has been particularly high among younger adults and African Americans (Duggan & Smith, 2014). In early 2014, Instagram reported 200 million active monthly users, 1.6 billion “likes” daily, and an average of 60 million photos shared daily. Similarly, Twitter reported 230 million users that contributed to 500 million tweets per day. SNSs are deeply embedded in their users’ daily lives by providing opportunities for individuals to strengthen their offline social networks by connecting online when face-to-face interactions are not feasible (Boyd & Ellison, 2007; Ellison et al., 2007; Subrahmanyam et al., 2008). In spite of the high prevalence of active users, research examining the ways in which online social network interactions are associated with health have been limited (Morgan, et al., 2010). Previous research that has assessed attitudes, beliefs, and behaviors that individuals post online rely on self-reported online activity, which is subject to reporting and recall bias. Furthermore, key psychosocial factors related to sexual risk behavior, such as masculinity, have not yet been examined.

### **Masculinity and Sexual Risk**

Young adults ages 15-25 account for half of the 20 million new sexually transmitted infections (STIs) that occur in the United States each year (Centers for Disease Control [CDC], 2013), and make up a large proportion of membership on SNSs (Duggan & Smith, 2014). African Americans are also disproportionately affected by STIs, and are twice as likely to have an Instagram or Twitter account compared to Whites (Duggan & Smith, 2014). The overall

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incidence rate of HIV in the United States was 15.8 per 100,000, and was 60.4 among African Americans. Additionally, rates of gonorrhea are 22.2 times higher among African American males compared to White males, and rates of Chlamydia are almost 11 times as high (CDC, 2014).

Although men have many privileges that provide them with a social advantage compared to that of women, traditional masculine ideologies result in negative health outcomes for males (Bruch, Berko, & Hasse, 1996). The sociobiological perspective on masculinity states that traditional masculinity's preoccupation with risk taking behaviors is an evolved aspect of male psychology as a result of sexual selection (Wilson & Daly, 1985). Research has shown a strong relationship between masculinity and sexual risk behaviors, such as negative attitudes towards condom use, inconsistent condom use, multiple and concurrent sex partners (Noar & Morokoff, 2002; Peck et al., 1993; Santana et al., 2006; Seal & Ehrhardt, 2004). Consequently, social norms of male behavior in the United States involve the promotion of unhealthy attitudes and behaviors that signify masculinity and demote positive health behaviors that represent femininity. There is a collective effort to reinforce gender roles through differential treatment of girls and boys from birth, social transactions, and institutional influences (Courtenay, 2000a). Research has indicated that men experience greater social pressure to adhere to their gender roles than women; however, they exercise the flexibility to actively construct and reconstruct masculine norms through various shared attitudes and behaviors (Courtenay, 2000b). Traditional masculine ideology among men is developed when cultural norms and expectations about appropriate male behavior from family, peers, and society are internalized (Hall et al., 2012). Although there are slight variations in masculine ideologies among sub populations, there are

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common standards and expectations that are associated with the traditional male role in Western societies that center around upholding patriarchy (Levant et al., 2007).

It is important to note that although traditional masculine ideology and the tools used in research to assess it are applicable to most American men, gender roles are exhibited differently depending on the context (Courtenay, 2000a). Specifically, levels of masculine ideology and gender roles differ based on race, class, gender, and age (Hall et al., 2012). For young low income African American males, masculine ideologies are very much interconnected with race and class (Bowleg, 2004). African American males are described as hypersexual and hypermasculine (Hall et al., 2012), and they endorse traditional masculine ideology to a greater degree compared to African American females and Whites (Levant et al. 2007). African American racial identity, racial socialization, and cultural mistrust may be factors that influence men's attitudes and behaviors related to health (Wade, 1998). Researchers have theorized that African American males feel the need to compensate for traditional male roles they are less likely to achieve compared to other races/ethnicities, as a result of both historical and sociocultural experiences. The effects of systematic racism and discrimination have made it difficult for African American men to achieve traditional masculine norms through conventional routes, like employment, and results in hypermasculinity (Wade, 1998). Hypermasculinity among African American men has been found to increase risky sexual behaviors such as multiple sexual partners and a strong aversion to condom use (Hall et al., 2012; Wolfe, 2003). In addition, there is a significant subpopulation of African American males who adopt attitudes towards women that are manipulative and exploitative in regards to sex (Wolfe, 2003).

### **The Present Study**

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Images are especially important both as data and a source of knowledge. They are understood not as mere reproductions of reality but as presentations of reality (Flick, 2014). Themes of masculinity such as misogyny, sex, coolness, toughness, material status, and social status depicted in images and videos posted on SNSs are ubiquitous, however, they have yet to be examined. Investigators assessed participant's realities by collecting and coding images and videos posted on their SNS, which allowed them to draw conclusions about participants' presentations of their everyday lives. The primary aim of this study was to understand the context in which emerging adult men post masculine themed images and videos on their SNS's, and its relationship to sexual risk behavior and offline communication within social networks about sex.

### **Methods**

#### **Participants**

The sample consisted of 40 emerging adult men participating in a longitudinal study examining social networks, health behaviors, and health outcomes. Utilizing snowball sampling, initial participants were recruited by trained outreach coordinators using a venue-based sampling design to target locations (e.g. barbershops and parks) in three low income areas within New Haven, CT. Subsequent participants were referred by their close friends, who in turn recruited their friends. Participants were eligible for the study if they were: (a) male (b) 18-25 years of age (c) English-speaking (d) identified as heterosexual (e) had an Instagram or Twitter account. The majority of the sample identified as African American (83%), and the mean age of the sample was 20.6 (SD=1.83).

#### **Procedures**

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All participants were screened for eligibility in person or over the phone by a research assistant, and were then scheduled for an initial baseline interview. During the interview participants were provided a consent form, which they reviewed with the research assistant and signed at their discretion. Participants were asked to accept a “follow” request from a dummy profile account on their personal SNS profile(s). Individual dummy accounts were generated by the study investigators for each study participant to ensure confidentiality. Dummy accounts were assigned a unique pseudonym unrelated to the study (e.g. Johnny B), and did not include any profile text or images which ensured that the generated account could not be associated with the study by persons other than the participant and study investigators.

Participants then completed an Audio Computer-Assisted Self Interview (ACASI) structured survey that collected self-reported data on sexual behaviors, offline communication within their social network, and general demographic characteristics. Participants were compensated \$75 for completing the computer interview and accepting a “follow” request on their SNS profile(s). All procedures were approved by the Yale University Human Investigation committee.

A few months following the initial baseline interview, two trained research assistants concurrently coded one month of images and videos posted after the participant’s consent date. An image-video codebook was developed by a research team in consult with an expert in the field to clearly define themes of interest, including the following masculinity themes: misogyny, sex, coolness, toughness, material status, and social status. Additionally, coders recorded the number of “likes” and comments, and noted if the post was an attempt at humor, an internet meme, or if the participant was present in the image or video. Posts that appeared in both a participant’s Twitter and Instagram account were only coded once. Image and post captions

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were used to code the images, but comments were not. If there were any discrepancies between the two coders, the entire 9-person research team evaluated the image/video to provide a consensus. To assess the validity of the coding, 10% of the images/videos were assessed by a third independent coder. Across all codes, overall agreement between coders was high (95.25% agreement), as was the average correlation of the continuous measures ( $r=.94$ ), indicating reliability of the coding procedures.

### Measures

**Images and videos.** Images and videos depicting misogyny, sex, coolness, toughness, material status, and social status as a central focus were defined in the image-video codebook, and were coded by trained research assistants. To obtain an overall score for each masculinity code the number of codes across all images/videos were summed for each participant over a one month period following enrollment in the study. Therefore, each masculinity code could range from 0 to the total number of images/video posted for that participant.

- Misogyny was identified as any image objectifying women and/or referring to women in a demining or hateful manner (e.g. hostility or violence towards women) (see *Figure 1*).
- Sex was coded as any depiction of sexual acts (e.g. fondling, vaginal, anal, or oral sex) (see *Figure 2*).
- Coolness was defined as presenting an image of being confident or hip while having an aloof attitude.
- Toughness was coded as showing physical strength and/or aggressiveness (e.g. flexing muscles, giving the middle finger, or using gang signals).

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- Material status was defined as depicting objects to promote status (e.g. money or expensive shoes) (see *Figure 3*).
- Social status was defined as depicting something that positively promotes an individual's social status (e.g. receiving an award, job).

**Sexual risk behavior.** Sexual risk behavior was assessed using data from ACASI interviews. Number of sexual partners was assessed for lifetime and past 3 months. Sexual partner concurrency was assessed by a single question that asked participants if they had sex with someone else in the past 3 months. Condom use was assessed by the following question, “of the times you had sex in the last 3 months with (steady partner/non-steady partner) how often did you use condoms?” Responses were reported as a percentage.

**Offline communication with social network.** Offline communication with social network was assessed using participant responses to the following three statements in ACASI: “With my closest friends I talk about sex”; “With my closest friends I talk about relationships”; and “With my closest friends I talk about HIV/STDs.” Participants responded using a 5-point scale ranging from 1 (Never) to 5 (Very Often).

### Data Analysis

Descriptive statistics were computed for image coding information as well as sexual risk and offline communication with social network variables from the ACASI interviews. Next, Generalized Estimating Equations (GEE) were used for images nested within individuals to assess characteristics of the image (number of likes, comments, whether the image was an attempt at humor, and whether the participant was present in the image) and the participant (number of followers) that were associated with the presence or absence of masculine themes for a particular image. GEE is similar to multi-level modeling in that it corrects for clustered and

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correlated data. In this analysis, images were the unit of analysis, therefore  $n=902$ . Lastly, correlations were conducted to assess the relationship of the frequency of masculine themed images, sexual risk, and offline communication with friends (point biserial for dichotomous outcomes and Pearson correlations for continuous outcomes). Multivariate techniques were not used during the analysis given the small sample size ( $n=40$ ).

### Results

Participants posted a total of 902 images and videos over the one month period of data collection. Individual participants posted an average of 23 images/videos ( $SD=25$ ) over the one month period, ranging of 2 to 117. On average, participants had a large virtual social network, with an average of 855 followers ( $SD=752$ ) ranging from 51 to 2,682.

Descriptive statistics for general demographic characteristics can be seen in *Table 1*. In order to understand SNS posting behavior, the proportion of masculine themed postings among the 902 images and videos that were coded was assessed (see *Figure 4*). Although the overall prevalence of the presence of these themes is somewhat low, many of the participants posted at least one masculine themed image from each category. Of the total 902 images and videos, coolness was the most prevalent posted masculine theme. 12.5% of posts depicted coolness and 67.5% of participants posted this theme at least once. The total prevalence for sex themed posts was 6.8%, and 42% of participants posted at least one sex themed image/video. The total prevalence of misogyny posts was 6.4%, it was 6.1% for material status, 5% for toughness, and 4.7% for social status; however, 37.5% posted at least one image/video of misogyny, material status, and social status and 45% of the participants posted at least one image/video of toughness.

GEE characteristics of image type and online social network interactions were examined. The number of “followers,” comments, and “likes” in response to a masculine themed

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image/video was used to examine online social network interaction. Participants with an increased number of “followers” were more likely to post themes of misogyny ( $B=.001$ ,  $SE=.0003$ ,  $p=.003$ ) and toughness ( $B=.001$ ,  $SE=.003$ ,  $p=.025$ ). Images with misogyny themes were more likely to be attempts at humor ( $B=1.71$ ,  $SE=.60$ ,  $p=.004$ ) and internet memes ( $B=1.79$ ,  $SE=.49$ ,  $p<.001$ ). Images with themes of sex were more likely to be attempts at humor ( $B=1.21$ ,  $SE=.482$ ,  $p=.020$ ) and be internet memes ( $B=1.90$ ,  $SE=.462$ ,  $p<.001$ ). Images of coolness were more likely to have the participant in the image ( $B=2.33$ ,  $SE=.34$ ,  $p<.001$ ). Images with toughness had less “likes” ( $B=-.034$ ,  $SE=.007$ ,  $p<.000$ ) and were more likely to have the participant in the image ( $B=1.43$ ,  $SE=.43$ ,  $p=.001$ ). Images with material status had more comments ( $B=.038$ ,  $SE=.02$ ,  $p=.055$ ) and were less likely to be attempts at humor ( $B=-1.85$ ,  $SE=.884$ ,  $p=.036$ ).

Correlational analysis was used to examine any relationships among the various SNS themes of interest (sex, misogyny, coolness, toughness, material status, and social status) (see *Table 2*). There were very strong positive correlations between misogyny and sex ( $r=.85$ ,  $p<.001$ ) and material status and social status ( $r=.70$ ,  $p<.001$ ). There were also strong positive correlations between coolness and material status ( $r=.56$ ,  $p<.001$ ), toughness and material status ( $r=.49$ ,  $p=.001$ ), and coolness and toughness ( $r=.45$ ,  $p=.004$ ). Moderate correlations were observed between misogyny and coolness ( $r=.37$ ,  $p=.019$ ), coolness and social status ( $r=.31$ ,  $p=.055$ ), and toughness and social status ( $r=.36$ ,  $p=.021$ ).

Correlational analysis was also used to examine the relationship of the image themes of masculinity posted on social media and sexual risk behavior (see *Table 3*) and offline communication with friends (see *Table 4*). Participants with more misogyny themes had a higher number of current sexual partners ( $r=.40$ ,  $p=.014$ ), more sexual concurrency ( $r=.45$ ,

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$p=.006$ ), less condom use with non-steady partners ( $r=-.45$ ,  $p=.031$ ), and communicated more with their friends offline about sex ( $r=.46$ ,  $p=.003$ ), relationships ( $r=.50$ ,  $p=.001$ ), HIV/STDs ( $r=.31$ ,  $p=.055$ ). Participants who had more sex themes had a higher number current sexual partners ( $r=.30$ ,  $p=.073$ ), sexual concurrency ( $r=.36$ ,  $p=.031$ ), less condom use with non-steady partners ( $r=-.61$ ,  $p=.002$ ), and communicated more with their friends about sex ( $r=.40$ ,  $p=.011$ ) and relationships ( $r=.44$ ,  $p=.005$ ). Participants with more themes of coolness had a higher number of sexual partners ( $r=.35$ ,  $p=.037$ ), and talked more with their friends about relationships ( $r=.31$ ,  $p=.055$ ) and HIV/STDs ( $r=.52$ ,  $p=.001$ ). Themes of toughness, material status, and social status were not related to sexual risk behavior or offline communication with friends about sex, relationships, or HIV/STDs.

### **Discussion**

This study revealed that emerging adult minority males post masculine themes on SNSs, and that they are associated with sexual risk behavior and with offline communication about sex. Although the prevalence of masculine themed posts was low across the sample of images posted, the majority of participants posted at least one image of each masculine theme within a one month period. This illustrates that masculinity themes are a part of minority emerging adult males' identities. Emerging adulthood is characterized as a time of identity change, exploration, and formation. As relationships among emerging adults become more intimate (emotionally and physically) and serious, sexual risk peaks (Arnett, 2000). This study indicates that themes of misogyny, sex, and coolness are associated with more sexual risk behavior among emerging adult men, and suggests that the images posted on their Instagram and Twitter accounts are consistent with their sexual risk and may serve to identify high risk individuals.

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Utilizing social media as a method of data collection has a wide range of implications for research. It provides valuable insights into an individual's reality, without reporting or recall bias. Additionally, it provides a tool to understanding the ways in which members of social networks interact with each other online, and the diffusion of attitudes and beliefs throughout social networks. The current study explored the interaction within social networks by examining the relationship between specific themes of masculinity posts and the number of comments and "likes" from members of the participant's online social network. "Likes" and comments left by members of an individual's social network may act as positive reinforcement which in turn influences the frequency and/or magnitude of masculine themed images. Additionally, members of an individual's vast social network may replicate posting behaviors.

Previous research has found that attitudes, beliefs, and behaviors related to health (e.g. sexual risk behaviors and substance use) are diffused throughout social networks through transfer of information, social support, social norms, and direct influence (e.g. sharing images that promote misogyny on an individual's SNS profile feed) (Fowler & Christakis, 2008). Emerging adult users on Instagram typically have hundreds to thousands of individuals who they "follow," which exposes them to considerable amount of attitudes and behaviors. This digital interaction has the potential for influencing individual attitudes and behaviors on a large scale, including those related to masculinity and sexual risk. Emerging adult men are particularly influenced by members of their peer groups (Gardner & Steinberg, 2005), therefore comments, "likes", frequently posted themes, and memes assist in governing and defining masculinity. Understanding characteristics and interactions within social networks, and an individual's role within the network can assist in the development of effective health interventions. Future

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research should continue focus on further understanding how interactions within networks relate to risky behavior.

### **Strengths and Limitations**

A major strength of this study was the reliability of the coding procedures. Requiring two independent coders to code images simultaneously and having a large research team provide a consensus for discrepancies between them may have resulted in the high agreement (95.25% agreement) across 10% of all images and videos between the two primary coders and the third independent coder. Additionally, the two primary coders, third independent coder, and research team all were diverse in regards to race, gender, and age. However, in spite of this diversity, the codes may not accurately reflect the participant's interpretations of their posting.

Observing participants in their natural environment was another major strength of the study, and eliminated recall bias and social desirability. During the exit interview, 93% of participants stated that they did not modify their SNS posting behavior as a result of being in the study. However, variables assessed in the ACASI survey (sexual risk behavior and offline communication with friends about sex) may have been subject to these biases.

Although snow ball sampling is a common recruitment strategy for social network studies, using it negatively impacts the generalizability of the study to other emerging adult African Americans, as does the small sample size. The small sample size also prevented investigators from performing sophisticated statistical analysis that control for confounders, like multivariate regression models. Lastly, a major challenge SNS studies like this one face is the rapid changes in technology. The popularity and ways in which individuals use SNS is not constant, and should be taken into account when conducting future research.

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*Table 1.* General Demographic Characteristics of the Sample

<b>Characteristic</b>	<b>N (%)*</b>
Race/ethnicity	
African American	33 (82.5)
Hispanic	7 (17.5)
Age (years), mean $\pm$ SD	20.55 $\pm$ 1.83
Education Level (completed)	
Less than high school	4 (10.0)
High school graduate	12 (30.0)
Some college	20 (50.0)
Graduated College	3 (7.5)
Completed graduate or professional school	1 (2.5)
Current Employment	
Not working	18 (45.0)
Working part time	12 (30.0)
Working full time	10 (25.0)
Household Income	
\$0-4,999	7 (17.5)
5,000-9,999	6 (15.0)
10,000-14,999	4 (10.0)
25,000-34,999	6 (15.0)
35,000-49,999	5 (12.5)
50,000+	7 (17.5)
In a current relationship	
Yes	26 (65.0)
No	14 (35.0)
Religiosity	
Not religious	7 (17.5)
Not so religious	11 (27.5)
Religious	18 (45.0)
Very religious	4 (10.0)

\* Numbers may not sum to 40 due to missing data

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*Table 2.* Correlations among Masculinity Themes

<b>Masculinity Theme</b>	<b>Misogyny</b>	<b>Sex</b>	<b>Coolness</b>	<b>Toughness</b>	<b>Material Status</b>	<b>Social Status</b>
Misogyny	-	<b>.85***</b>	<b>.37*</b>	.08	.20	.10
Sex	-	-	.23	.04	.10	.06
Coolness	-	-	-	<b>.45**</b>	<b>.56***</b>	<b>.31*</b>
Toughness	-	-	-	-	<b>.49***</b>	<b>.36*</b>
Material Status	-	-	-	-	-	<b>.70***</b>
Social Status	-	-	-	-	-	-

\*  $p \leq .055$ \*\*  $p \leq .01$ \*\*\*  $p \leq .001$

## MASCULINITY THEMES IN SOCIAL NETWORK IMAGES

*Table 3.* Correlations between Masculinity Themes and Sexual Risk

Masculinity Theme	Lifetime # of Sexual Partners	Current # of Sexual Partners	Current Concurrent Sexual Partners	Condom Use with Steady Partner	Condom Use with Non-Steady Partner
Misogyny	.036	<b>.400**</b>	<b>.447**</b>	-.118	<b>-.450*</b>
Sex	.028	.298	<b>.355*</b>	-.292	<b>-.613**</b>
Coolness	.108	<b>.345*</b>	.164	.006	-.122
Toughness	.235	-.002	-.007	-.176	-.032
Material Status	-.002	.130	-.083	-.177	-.309
Social Status	-.031	.053	-.190	.058	-.193

\*  $p \leq .05$ \*\*  $p \leq .01$

## MASCULINITY THEMES IN SOCIAL NETWORK IMAGES

*Table 4.* Correlations between Masculinity Themes and Offline Communication with Friends

<b>Masculinity Theme</b>	<b>Communication with Social Network about Sex</b>	<b>Communication with Social Network about Relationships</b>	<b>Communication with Social Network about HIV/STDs</b>
Misogyny	<b>.458**</b>	<b>.495***</b>	<b>.305*</b>
Sex	<b>.389**</b>	<b>.436**</b>	.075
Coolness	.086	<b>.305*</b>	<b>.517***</b>
Toughness	.222	.182	.247
Material Status	-.013	.170	.218
Social Status	-.020	.106	.037

\*  $p \leq .055$ \*\*  $p \leq .01$ \*\*\*  $p \leq .001$

## MASCULINITY THEMES IN SOCIAL NETWORK IMAGES

Figure 1. Example of Misogyny



## MASCULINITY THEMES IN SOCIAL NETWORK IMAGES

Figure 2. Example of Sex



## MASCULINITY THEMES IN SOCIAL NETWORK IMAGES

*Figure 3.* Example of Material Status



# MASCULINITY THEMES IN SOCIAL NETWORK IMAGES

Figure 4. SNS theme prevalence

