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Child and Adult Recall of Generic and Proper Name Statements

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Abstract- Human beings have the flexibility to think and talk about entities as members of a category (e.g., “ducks”) or as individuals (e.g., “Daisy Duck”). Prior research has demonstrated that people often tend to generalize information broadly. When presented with facts about a specific category member (e.g., “this duck”) or about quantified sets (e.g., “some ducks”), people tend to generalize them to generic categories (e.g., “ducks”) and misremember the facts as being about generic categories. However, little attention has been paid to how language allows people to focus on individuals instead of categories. We hypothesized that hearing a proper name for an item may serve this function. The present study addresses this question with a language recall task. Adults and preschool aged children were presented with generic and proper name statements about well-known television and movie characters. The participants were asked to recall the labels (generic [e.g., princesses] or proper name [e.g., Cinderella]) after a delay. The results of the study showed that proper name statements were recalled in the correct form more often than sentences in the generic form. This result challenges the idea from previous research that people typically generalize information broadly when recalling facts.

Child and adult recall of generic and proper name statements

An important task for developing children is learning when and how to generalize information beyond what they immediately observe. For example, if children see a duck laying an egg, should they assume that other ducks lay eggs as
well, or should they assume that laying eggs is a property specific to only that duck? Language is a powerful tool for guiding children’s inferences in situations like this. All languages have devices to generalize entities into categories (e.g., “Ducks lay eggs.” or “All ducks lay eggs.”) as well as devices to restrict properties to an individual (e.g., “Daisy Duck lays eggs.” or “This duck lays eggs.”). This research examines when and how children and adults make use of these cues in recall.

Even though they do not realize it, people tend to generalize certain categories by using generic statements. A generic statement is a sentence that makes a claim about an entire category (Carlson & Pelletier, 1999). For example, the statement “Ducks lay eggs.” makes a claim about the entire “duck” category. People also use proper names to give people, places, and things an identity. A proper name statement is a statement that refers to a specific individual by giving that individual a name (Hall, 1999). For example, “Daisy Duck lays eggs.”. To our knowledge, there has not been any research comparing the recall for these two sentence types.

In response to previous research looking at the recall of generic and quantified or specific statements, this study focused on the recall of generic and proper name statements. Proper name statements may have a different effect on memory compared to generic, quantified, or specific statements because of the focus it places on individual characteristics.

**Generic Statements**

Although this study is the first to compare the recall of generic and proper name statements, past research has compared the recall of generic and quantified statements as well as generic and specific statements.

**Generic vs Quantified Statements**

A quantified statement, like a generic
statement, makes a claim about a category, but it quantifies the category that it refers to (Carlson & Pelletier, 1999). For example, the sentence “Most ducks lay eggs.” is a quantified statement that implies that more than 50% of ducks lay eggs, whereas “Ducks lay eggs.” does not specify what proportion of the category is involved. Children and adults tend to recall statements in the generic form more often than in quantified form during memory tasks. Leslie and Gelman (2012) showed participants pictures of animals and read a sentence about each of them. The sentences were in either generic or quantified form. After a delay, participants were asked to recall the sentences the researchers read. The sentences were typically recalled in generic form even though some of them were originally stated in quantified form. The results of the study also did not show the reverse effect of generic sentences being recalled in quantified form which shows an overall bias to recall sentences as generic (Leslie & Gelman, 2012).

**Generic vs. Specific Statements**

Specific statements make claims about a certain member of a category (Carlson & Pelletier, 1999). For example, the sentence “This duck lays eggs.” only refers to one duck, though it does not give the duck a name. Like with generic and quantified sentences, studies of generic and specific statements have found that generic sentences are recalled in the correct form more often compared to specific statements. In one study (Gulgoz & Gelman, 2015), researchers assessed children’s and adults’ recall of generic and specific statements. The participants heard sentences about a series of eight pictures of either animals or people. After reading each sentence (e.g., “Dogs like to play jim jam.”), the researcher asked the participant a question about what was stated (e.g., “What likes to play jim jam?”). The researchers found that participants had better
recall for sentences stated in generic form (e.g., “Dogs like to play jim jam.”) as opposed to specific form (e.g., “This dog likes to play jim jam.”). In addition, the researchers also found that sentences originally stated in the specific form were often recalled in generic form (e.g., “This dog likes to play jim jam.” was recalled as “Dogs like to play jim jam.”).

### Proper Name Statements

Research examining proper name statements has shown that individuals know and understand the difference between proper names and common nouns. One study used adult EEG readings in order to examine how the brain processes proper names and common nouns that are being read and found that these two types of words are processed with separate neural structures (Adorni, Manfredi, & Proverbio, 2014).

Other prior research has indicated that young children understand that proper names function differently from category labels. Hall (1999) found that children are likely to attribute a proper name to a novel noun if the proper name refers to one object, the object does not already have a proper name, the object is significant to the individual, and the individual knows the kind of the object. These conditions were tested in a variety of experiments that demonstrated that children are aware of proper names at ages as young as two years old (Hall, 1999).

Children also have the ability to judge whether or not something is a proper name within a species or kind. In an experiment done by Hall and Rhemtulla (2014), children were shown two stuffed animals, one of which was given a label. The children were more likely to interpret this label as a proper name if the other stuffed animal was the same kind as the labeled one (Hall & Rhemtulla, 2014).

### Present Study

...
In this study, we presented children and adults with different sentences, some of which were in the generic form and some of which were in the proper name form, to see which of the two sentence types were more often recalled in the correct form after a delay. Generic statements and proper name statements make up two separate bodies of research that, to our knowledge, have not been studied together. Therefore, it is possible that children and adults will recall generic statements in the correct form more often than proper name statements. This result would support the body of research that has studied the recall of generic statements compared with quantified or specific statements (Gulgoz & Gelman, 2015). However, we predict that children and adults will recall proper name statements in the correct form more often than statements in the generic form because past research has demonstrated that proper names individualize as well as signify the importance of a person or object (Hall, 1999).

**Method**

**Participants**

A total of 31 children participated in this study ($M_{\text{age}} = 4.5$, range 3.8-5.2, 13 females, 18 males). Race/ethnicity was not recorded. Four of the children were excluded from the analysis: two were not native English speakers, one failed the warm-up phase, and one withdrew assent halfway through the study, resulting in a sample of 27 children. Children were recruited from the Towsley Children’s House, a daycare center at the University of Michigan. The children’s parents provided written consent and children provided verbal assent to participate. The children were not compensated for participating, but a thank you letter was sent home to their parents.

A total of 30 adults participated in the study ($M_{\text{age}} = 19.5$, range 17.9-23.4, 16 females, 14 males). Race/ethnicity was not
recorded. One of the adults was excluded from the analysis because he was not a native English speaker, resulting in a sample of 29 adults. Adults were recruited through the Psychology Subject Pool at the University of Michigan, and they provided written consent to participate. Through the Subject Pool, the participants received partial credit in their introductory psychology course.

Materials

For all participants, eight photographs (8.5x11 in.) of individual Disney movie and television characters were used, including Cinderella, Ariel, Maleficent, Ursula, Captain Hook, Darth Vader, Woody, and Spiderman. The characters were chosen so that there were four female and four male characters as well as two heroes/heroines and two villains/villainesses within each gender group. Photographs were laminated, hole punched, and placed in a binder. A timer was used to time the distraction phase, and a recording device was used to record the experiment. For the children, a stuffed toy bear (referred to as “Mr. Bear”) was used for the warm-up phase, and Mega Bloks were used for the distraction phase. For adults, the stuffed toy bear was not used because the adult procedure did not include a warm-up phase. In addition, instead of Mega Bloks, the adults were given a series of “spot the difference” worksheets to work on during the distraction phase.

Procedure

All participants were tested individually in a quiet room. For child participants, the researcher began by introducing the participant to Mr. Bear. The children were told that Mr. Bear could see and hear everything that they could when he was on top of the table. However, when Mr. Bear was placed under the table, he could not see or hear the children anymore. The researcher then proceeded with the two-part
warm-up phase so that the children could practice interacting with Mr. Bear. The researcher did not use Mr. Bear for the adults, and the adults did not complete this warm-up phase.

After the warm-up phase, the researcher placed Mr. Bear under the table again and proceeded with the main task, beginning with the learning phase. This phase of the experiment consisted of eight trials. On each trial, the researcher presented a picture of a well-known television or movie character and read aloud a corresponding sentence (see Table 1). Four of the sentences were stated in generic form and four of the sentences were stated in proper name form. Each sentence introduced the character’s name and category (e.g., Cinderella/Princess) and then stated a novel property in either generic or proper name form. For example, the generic version of the Cinderella item was: “This is Cinderella. She is a Princess. Princesses love to worf.” whereas the proper name version of the Cinderella item was: “This is Cinderella. She is a Princess. Cinderella loves to worf.”. The novel property sentence was read twice in the experiment. The purpose of using novel properties was to have the participants focus on the sentence form (generic vs. proper name) during recall. The assignment of condition (generic vs. proper name) for each item was counterbalanced. For example, if the Cinderella sentence was in proper name form for one participant, the sentence was in generic form for the next participant. The researcher also created eight different sentence orders with no more than two of the same sentence type, character gender, or character valence placed in a row. Additionally, within each order, the researcher made sure that there was no alternating pattern of sentence type, character gender, or character valence.

After the learning phase, there was a distraction phase. The purpose of this phase
was to test the long-term recall of the sentences from the learning phase. The researcher set a timer for four minutes and had the children play with Mega Bloks until the timer went off. The adults worked on “spot the difference” worksheets instead of playing with Mega Bloks. After the distraction phase, there was a recall phase. For the children, the researcher placed Mr. Bear on the table and, for both adults and children, showed the binder pictures one at a time in the same order as before. The researcher gave recall prompts (see Table 1) for the participants to answer for each picture.

**Measures**

For the recall phase, we assessed the number of participant responses given in the generic form and the proper name. Responses were coded as Generic if participants’ responses were in the generic form (e.g., princesses, pirates, etc.). Responses were coded as Proper Name if participants’ responses were in the proper name form (e.g., Cinderella, Captain Hook, etc.). Responses were coded as Other if the participant gave a response that could not be coded as either Generic or Proper Name (e.g., “I can’t remember her name”, “her”, “the witch”, “witch”, “a witch”, “I don’t know”, etc.).

Responses were also coded for whether the response was in the “correct form” or “opposite form”. Responses coded for Correct Form were stated in the same form (generic or proper name) as the original statement given during the learning phase of the experiment. Researchers coded for Correct Form even if the participant used a different word from the original statement. For example, if the original statement included Cinderella, but the participant recalled it as “Belle”, the response would still be coded as Correct Form because the participant recalled the statement as a proper name, as in the original statement.
Responses coded for Opposite Form were stated in the opposite form from the original statement (a proper name statement recalled as a generic statement or a generic statement recalled as a proper name statement).

Inter-rater agreement was calculated for the generic and proper name recall coding. For children, the inter-rater agreement was .99 for the generic code and .99 for the proper name code. For adults, the inter-rater agreement was .95 for the generic code and .96 for the proper name code.

**Results**

The data were analyzed with a series of 2 (age group: children, adults) x 2 (sentence form: generic, proper name) analyses of variance (ANOVA). See Figure 1 for a summary of the results. The independent variable was the sentence type given (generic or proper name). The dependent variable was the number of correct recall responses, on a scale of 0-4, for generic and proper name trials separately. For example, if a participant recalled three of the four proper name statements in the correct form, they would receive a score of 3. There was a main effect for sentence form \( F(1,54) = 40.25, p < .001, \eta^2 = .45 \), which demonstrated that proper name sentences \( (M = 2.87, SE = .12) \) were recalled correctly more often than generic sentences \( (M = .97, SE = .21) \). There was also a main effect for age group \( F(1,54) = 8.72, p = .005, \eta^2 = .1 \), meaning that adults \( M = 2.17, SE = .12 \) recalled sentences correctly more often than children \( (M = 1.67, SE = .12) \). There was an interaction between sentence form and age group \( F(1,54) = 8.28, p = .01, \eta^2 = .13 \), which demonstrated that the effects of sentence type were larger for adults than for children. However, both adults and children recalled proper name sentences correctly \( (M_{adult} = 3.55, SE_{adult} = .17; M_{child} = 2.19, SE_{child} = .18) \) more often than generic
sentences ($M_{\text{adult}} = .79, SE_{\text{adult}} = .29; M_{\text{child}} = 1.15, SE_{\text{child}} = .30$).

**Discussion**

Previous studies regarding generic statements looked at how well the statements were recalled compared to either quantified statements (Gelman et al., 2015) or specific statements that are not proper names (Gulgoz & Gelman, 2015). Research on proper names has focused on how they are acquired in young children’s vocabulary compared to common nouns (Hall, 1999). This study brought together these different bodies of research to test the recall of generic and proper name statements for children and adults. Our hypothesis was that, contrary to prior work that focused on the recall of generic and quantified or specific statements, proper name statements would be recalled in the correct form more often than statements in the generic form. Based on the results, this hypothesis was supported. This is important because even though adults and children tend to generalize about different categories (e.g., social categories such as race or gender), the results of this study demonstrated that labeling someone or something as an individual can override these generalizations.

Results indicated that sentences originally stated in the proper name form (e.g., Cinderella loves to worf.) were recalled in the correct form more often than sentences originally stated in the generic form (e.g., Princesses love to worf.). Although these effects were stronger for adults than children, they were robust for both age groups. These results support our hypothesis and show that proper name statements are an exception to the previous research that demonstrated that sentences stated in the generic form are more often recalled in the correct form compared to sentences in the quantified form (Gelman et al., 2015) or specific form (Gulgoz &
Gelman, 2015). Because previous research has demonstrated that children learn the difference between common and proper nouns at a young age (Hall, 1999), these results hold true to the extent that children understood the difference in meaning between the two sentence types. In addition, the results also line up with Hall (1999) because the participants knew the proper names for the characters, marking them significant as individuals. However, future research would be needed to distinguish whether it is the language of the statements (proper name or generic) or the recognizability of the character names that bias the participants to recalling the proper names more easily.

**Limitations**

One limitation of the study was that all sentences began by stating the character’s name followed by the category (e.g., “This is Cinderella. She is a Princess. Princesses…”). The fact that the character name was always stated first may have affected the results of the study because it prompted the participant to focus on the character name and not the category. Future replications of this study should randomize the sentences so that some begin with the character name and some begin with the category name. Along similar lines, another limitation of the study is the fact that all of the recall prompts began with “who” (e.g., “Who loves to worf?”). Typically, the word “who” implies that one is referring to an individual, therefore prompting participants to answer with a proper name rather than a generic. Future research should use a different word for the recall prompt that could be answered more flexibly as either a proper name or a generic.

**Conclusion**

This study combined two different bodies of research including the study of generic and proper name phrases. Using pictures of different well-known movie and
television characters, we tested children’s and adults’ recall for generic and proper name sentences about these pictures. We found, for both the short and long-term tasks, that sentences stated in the proper name form were recalled in the correct form more often compared to sentences originally stated in the generic form. Despite the fact that previous research demonstrated that people tend to generalize about different categories, the results of this study represented an instance in which this was not the case. The fact that the participants attributed significance to the proper name statements likely accounted for this result. Future research can examine this even further by comparing the recall of different types of proper names with different pictures and different participants.

**References**


Table 1

*Learning phase sentences and recall prompts*

<table>
<thead>
<tr>
<th>Character Name</th>
<th>Category</th>
<th>Test Statement</th>
<th>Recall Prompt</th>
</tr>
</thead>
<tbody>
<tr>
<td>This is Cinderella</td>
<td>Princess</td>
<td>Cinderella loves to worf.</td>
<td>Who loves to worf?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Princesses love to worf.</td>
</tr>
<tr>
<td>This is Ariel</td>
<td>Mermaid</td>
<td>Ariel goes to dax.</td>
<td>Who goes to dax?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mermaids go to dax.</td>
</tr>
<tr>
<td>This is Ursula</td>
<td>Monster</td>
<td>Ursula does ziggies.</td>
<td>Who does ziggies?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Monsters do ziggies.</td>
</tr>
<tr>
<td>This is Maleficent</td>
<td>Witch</td>
<td>Maleficent likes gutches.</td>
<td>Who likes gutches?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Witches like gutches.</td>
</tr>
<tr>
<td>This is Spiderman</td>
<td>Superhero</td>
<td>Spiderman has blickets.</td>
<td>Who has blickets?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Superheroes have blickets.</td>
</tr>
<tr>
<td>This is Woody</td>
<td>Cowboy</td>
<td>Woody makes wugs.</td>
<td>Who makes wugs?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cowboys make wugs.</td>
</tr>
<tr>
<td>This is Captain</td>
<td>Pirate</td>
<td>Captain Hook tries tomas.</td>
<td>Who tries tomas?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pirates try tomas.</td>
</tr>
<tr>
<td>This is Darth Vader</td>
<td>Robot</td>
<td>Darth Vader works on spows.</td>
<td>Who works on spows?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Robots work on spows.</td>
</tr>
</tbody>
</table>
Figure 1. Mean number of responses recalled correctly or in opposite form as a function of condition and age group.
The Impact of Sex and Year in School on Millennial Job Factor Preferences

Apollo Awad

Monmouth University

Abstract - The aim of this study is to investigate the impact that a millennial’s sex and year in school has on which job factors they value the most. One hundred and three participants partook in this study. Each participant was given a demographics form, which identified their sex and year in school. Participants were also given a Job Factors Questionnaire that assessed the value they placed on 4 dependent variables, which were meaningful work experiences, work-life balance, rapid job advancement, and good pay. The questionnaire consisted of 12 hypotheses pertaining to differences in job factor preferences by millennials based on their sex and year in school. Only one of the hypotheses were supported: females were found to value the job factor of work-life balance significantly more than males. It was concluded that the results of this study might not have been significant due to the fact that the millennial generation may share the same desires in the workplace, with minute differences in preferences.

The Impact of Sex and Year in School on Millennial Job Factor Preferences

The millennial generation will soon account for over half of the United States workforce (Pew Research Center, 2010). This generation of workers has been exposed to several factors that the previous generations have not been. Every job opportunity is accompanied by several job factors; however, the millennial generation may not value the same job factors as the previous generation. For example, over the last twenty years the concern for health in the workplace has steadily increased (Catano & Hines, 2016). Due to their new found prevalence in the workplace, it is
important that the field of research further
ts its understanding of the millennial
generation, and which job factors they
consider most important. The aim of the
present study is to analyze how sex and year
in school can impact which job factors
millennials consider most valuable in the
workplace.

Differences Between Generation X and
Generation Y

The millennial generation, also
known as Generation Y, has been exposed to
economic, educational, social, and political
circumstances that previous generations
have not (Thompson & Gregory, 2012). The
millennial generation has been found to
exhibit different behaviors and preferences
in the workplace compared to previous
generations and exposure to unique factors
and circumstances may account for these
perceived differences in workplace
behavior. Millennials indicated to generation X (Becton, Walker, & James-Farmer, 2014). Millennials indicated
through a bio-data questionnaire that they
were not likely to stay with the same
employer throughout their careers, while
individuals from generation X indicated that
they would be more likely to remain with
the same employer throughout their careers.

In the same questionnaire, individuals from
generation X indicated that they were more
likely engage in compliance behaviors in
comparison to millennials. Here there are
clear distinctions between the generations in
terms of workplace behavior.

Different motivators in the
workplace appeal to generation Y, compared
to the previous generation. In a thematic
apperception test (TAT), generation X
scored higher on the motive of power in the
workplace (Borges, Manuel, Elam, & Jones,
2010). On the same test, generation Y
scored higher on the motives of achievement
and affiliation. The research suggests that
generation Y is not motivated by the same factors as generation X. Individuals from generation Y have a desire to be acknowledged and appreciated for their contributions in the workplace while the millennial generation is concerned with learning how their knowledge and capabilities can be utilized in an organization and still obtain recognition for it (Thompson & Gregory, 2012). The unique factors that the millennial generation has been exposed to may account for why they exhibit different behaviors and motivators in the workplace. Aside from different motivators and behaviors, the millennial generation may also exhibit different job expectations compared to the previous generation.

**Millennial Job Expectations**

Due to their distinct motivators and behaviors in the workplace, it is only natural that the millennial generation has unique job expectations as well. According to a survey, 68.5% of respondents indicated that they expected to be promoted within their first 18 months of working (Ng, Schweitzer, & Lyons, 2010). Millennials are expecting both recognition and advancement in the workplace. In that same study, 71% of respondents indicated that they were also willing to start out at a less than ideal job. The millennial generation is willing to work for what they want; however they are seeking recognition and advancement in return. Millennials are seeking more for their hard work than simply a paycheck (Ng et al., 2010).

In a similar study, survey results indicated that the top five career goals for millennials entailed work-life balance, pursuing more education, building a financial base, making a contribution to society, and working internationally (Ng & Gossett, 2013). In that survey, proper work-life balance was rated as the most desired job factor by millennials. Millennials value
their leisure time much more than previous generations. They are seeking to continually further their education while simultaneously gaining work experience. Millennials also aim to build a solid financial base as quickly and efficiently as possible.

**Present Study**

Scientific literature has focused on the differences between the millennial generation and the previous one, as well as the expectations of the millennial generation in the workplace (Ng et al., 2010). However, research has failed to take into account other characteristics, aside from the age of the millennial generation that may impact which job factors they consider important. The goal of the present study is to investigate how other characteristics, such as the sex and year in school of a millennial, impact which job factors they consider most valuable in the workplace. In the present study, the two independent variables are the sex (male or female) and year in school (upper or lower classmen) of the participant. The four dependent variables are the value placed on the job factors of rapid advancement, good pay, meaningful work experiences, and work-life balance. The value placed on the dependent variables will be measured through the Job Factors Questionnaire given to participants.

It is hypothesized that males will value the job factor of good pay more than females. Underclassmen will value the job factor of good pay more than upperclassmen. Males will value the job factor of good pay more than females, regardless of year in school. However, when year in school is low, females will value the job factor of good pay more, compared to when year in school is high. Females will value the job factor of rapid advancement more than males. Upperclassmen will value the job factor of rapid advancement more than underclassmen. Females will value the job factor of rapid advancement more than
males, regardless of year in school. However, when year in school is high, males will value the job factor of rapid advancement more, compared to when year in school is low. Females will value the job factor of work-life balance more than males do. Underclassmen will value the job factor of work-life balance more than upperclassmen. Females will value the job factor of work-life balance more than males, regardless of year in school. However, when year in school is low, males will value work-life balance more, compared to when year in school is high. Females will value the job factor of meaningful work-experiences more than males. Upperclassmen will value the job factor of meaningful work experiences more than underclassmen. Females will value the job factor of meaningful work experiences more than males, regardless of year in school. However, when year in school is high, males will value meaningful work experiences more, compared to when year in school is low.

Methods

Participants

Participants included 22 male and 81 female college students from Monmouth University, ranging in age from 18 to 29, with a mean age of 20. A majority of participants were Caucasian. 34% of the participants were first year students, 29.1% were sophomores, 32% were juniors, and 4.9% were seniors. Participants were obtained from a convenience sample through a research participation pool. Students were compensated for their participation with research credits.

Design

This study was a 2x2 between subjects non-experimental factorial design. The independent variable was year in school of the participant, consisting of two levels, upper (juniors, seniors) and lower classmen (first years, sophomores). The other
The independent variable was the sex of the participants, consisting of two levels, male and female. The dependent variables in this study consisted of the value placed on the job factors of good pay, work-life balance, meaningful work experience, and rapid advancement. The value placed on the dependent variables was measured through the Job Factors Questionnaire.

**Procedure**

Participants signed up for this study using an online web-based research participation pool. Participants then received two informed consent forms, one that was given to the researcher, and the other to be kept by the participant. Participants were told that the purpose of the study was to explore what job factors millennials valued. Participants were then given both a demographics questionnaire as well as the Job Factors Questionnaire to fill out. Afterwards, participants were received a debriefing form.

**Measures**

**Demographics questionnaire.** The demographics questionnaire consisted of questions that assessed participant sex, age, year in school, and ethnicity.

**Job Factors Questionnaire (JFQ).**

This questionnaire consisted of twelve items, such as “You are offered a prestigious job conveniently located next to your place of residence. However, you are told that this job does not offer parental leave for its employees. How likely are you to decline this job”? Answers for these questions were assessed through a seven point Likert scale ($1 = extremely unlikely, 7 = extremely likely$).

**Results**

**Work-Life Balance**

The influence of participants’ sex on how they value the job factor of work-life balance was examined. A two-way Analysis of Variance test (ANOVA) was conducted to analyze the results. As hypothesized, females placed a significantly higher value
on the job factor of work-life balance compared to males, $F (1, 99) = 5.08, p = .03$, partial $\eta^2 = .05$.

The influence of participants’ year in school on how they value the job factor of work-life balance was also examined. Contrary to the hypothesis, there was no significant difference in the value placed on work-life balance between underclassmen and upperclassmen, $F (1, 99) = .34, p = .56$, partial $\eta^2 = .003$.

The influence of the interaction between the participants’ year in school and sex was examined on how they value the job factor of work-life balance. There was no significant difference in the value placed on work-life, $F (1, 99) = .13, p = .72$, partial $\eta^2 = .001$.

**Good Pay**

The influence of participants’ sex on how they value the job factor of good pay was examined. Contrary to the hypothesis, there was no significant difference in the value placed on good pay between males and females, $F (1, 99) = 1.07, p = .30$, partial $\eta^2 = .01$.

The influence of participants’ year in school on how they value the job factor of good pay was examined. Contrary to the hypothesis, there was no significant difference in the value placed on good pay between underclassmen and upperclassmen, $F (1, 99) = 1.90, p = .17$, partial $\eta^2 = .02$.

The influence of the interaction between the participant’s year in school and sex was examined on how they value the job factor of good pay. There was no significant difference on the value placed on good pay, $F (1, 99) = .63, p = .43$, partial $\eta^2 = .006$.

**Rapid Advancement**

The influence of participants’ sex on how they value the job factor of rapid advancement was examined. Contrary to the hypothesis, there was no significant difference in the value placed on rapid advancement balance between males and
females, $F(1, 99) = 2.59, p = .11$, partial eta$^2 = .03$.

The influence of participants’ year in school on how they value the job factor of rapid advancement was examined. Contrary to the hypothesis, there was no significant difference on the value placed on rapid advancement between underclassmen and upperclassmen, $F(1, 99) = .07, p = .80$, partial eta$^2 = .001$.

The influence of the interaction between the participant’s year in school and sex was examined on how they value the job factor of rapid advancement. There was no significant difference in the value placed on rapid advancement, $F(1, 99) = .24, p = .63$, partial eta$^2 = .002$.

**Meaningful Work**

The influence of participants’ sex on how they value the job factor of meaningful work was examined. Contrary to the hypothesis, there was no significant difference on the value placed on meaningful work between males and females, $F(1, 99) = .27, p = .60$, partial eta$^2 = .003$.

The influence of participants’ year in school on how they value the job factor of meaningful work was examined. Contrary to the hypothesis, there was no significant difference in the value placed on meaningful work between underclassmen and upperclassmen, $F(1, 99) = .71, p = .40$, partial eta$^2 = .007$.

The influence of the interaction between the participant’s year in school and sex was examined on how they value the job factor of meaningful work. There was no significant difference in the value placed on meaningful work, $F(1, 99) = .20, p = .66$, partial eta$^2 = .002$.

**Discussion**

The present study examined the influence of a millennial’s sex and year in school on how they impacted their job factor preferences. Only one of the twelve
hypotheses was supported. There was a significant difference in the value placed on work-life balance between males and females. Females placed a significantly higher value for the job factor work-life balance, compared to males.

**Implications and Interpretations**

There has been little to no research conducted on how the sex and year in school of a millennial can impact which job factors they value most. Due to the previously stated notion, the quasi-independent variables in this study were implemented. However, the dependent variables of the current study were derived from a previous study that indicated the millennial generation valued meaningful work-experiences and good work-life balance (Thompson & Gregory, 2012). The dependent variables in the study were also derived from a previous study which indicated that millennials value good pay and rapid advancement in the workplace (Ng et al., 2010). Contrary to predictions, there was little to no significance connecting sex and year in school to the value placed on job factors. However, results supported the hypothesis that women would value the job factor of work-life balance more than men. Furthermore, results indicated that millennials tend to evenly value certain job factors for the most part. The job factors that millennials valued in the study matched those of previous ones (Ng & Gossett, 2013). It was concluded that the sex and year in school of a millennial do not significantly impact the value they place on job factors, due to the fact that millennials may value the same job factors overall.

**Limitations**

The present study administered the JFQ, in which participants indicated their job factor preferences through a Likert scale. Due to the design, the researchers were limited to solely interpreting quantitative data, leaving no room for any qualitative
results. Participants could have been hesitant to circle the two extremes (extremely unlikely, or extremely likely) on the Likert scale, leaving them prone to a central tendency bias. Participants may have also misunderstood any number of the twelve scenarios on the JFQ, which could have led to inaccurate responses. Additionally, the JFQ used in the study had not been used before; therefore, it was not proven to be a reliable scale and may not be an accurate measure of job factor preferences.

Despite these limitations, the study also had a number of strengths. The JFQ consisted of only twelve items, leaving no room for participants to experience any type of mental fatigue. Participants were not given a chance to interact with one another during the duration of the study, leaving no room for external influences on the answers of the participants. All of the participants took the study in the same room, with the same researcher, therefore reducing threats to internal validity.

**Future Directions**

In order to gain a deeper understanding of millennials and their job factor preferences, future research should incorporate personal interviews. By gaining further insight on the thoughts and feelings of participants, future researchers can better gauge how characteristics, such as the ones analyzed in this study, can impact which job factors millennials value most. Research may also want to increase the power of the study by increasing the number of participants. Future research may want to focus on other characteristics pertaining to the millennial generation, such socio-economic status and parenting styles, and how they can impact millennial job factor preferences.

**Conclusion**

This study set out to determine whether or not a millennial’s sex and year in
school could impact their job factor preferences. Of the 12 hypotheses, only the hypothesis that females would value the job factor of work-life balance more than males was supported. The results of the study indicated that there were minute differences on the value placed on certain job factors by the millennial generation. Millennials tend to value a majority of the same job factors in the workplace, with their sex and year in school having a minor impact on job factor preferences.

References


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Does Gustatory Disgust Influence Moral Judgment?

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Abstract

The present study is a replication plus study that previously investigated gustatory disgust and its influence on moral judgment (Eskine, Kacinik, & Prinz, 2011). The link between moral judgement and physical disgust was supported by research done by Huebner, Dwyer, and Hauser (2009). There were 63 participants (bitter condition: $n = 24$, sweet condition: $n = 18$, neutral condition: $n = 21$). The effect of taste condition on moral judgment was non-significant; in the original six moral vignettes, the participants in the bitter condition did not rate the moral vignettes more harshly than participants in the sweet condition or participants in the neutral condition. The effect of political orientation on moral judgment was non-significant. Political orientation also did not significantly interact with condition. The results from this study contradict those found by Eskine, Kacinik, & Prinz (2011). To expand and improve research in this area, future researchers should replicate this study and the Eskine, Kacinik, & Prinz (2011) study due to the differing results.

Moral Judgement and Disgust

Moral judgement is a cognitive process that most individuals perform everyday. According to Hume (2004), when an individual perceives something as morally wrong, it is followed by or paired with a form of physical disgust. Eskine, Kacinik, and Prinz (2011) also found a link between moral judgments and gustatory disgust. Inbar, Pizarro, and Bloom (2012) found that people judge gay men more
negatively when in a room with a bad odor as compared to a neutral odor. The findings from both studies prompt further inquiry. The results from Eskine and colleagues’ (2011) study could lead to the assumption that what a judge ate before a court may affect the sentencing of the defendant. Along with disgust, there could be other variables that could affect one’s moral judgment, such as mood and political views.

**Moral Judgment and Mood**

There is behavioral and neurological data that supports the claim that emotion is also necessary for moral judgment (Huebner, Dwyer, & Hauser, 2009). Research examining the relationship between mood state and altruistic behavior has shown that positive moods are correlated with a greater concern for others’ wellbeing (Pagano & Debono, 2011). Mood is simply defined as a general affective state that is not directed toward a specific object, situation, or event (Beedie et al., 2005; Whalen, Henker, King, Jamner, & Levine, 2004). Past research indicates that people may use their mood state when making various kinds of judgments, such as evaluating the quality of their lives, deciding if another person is attractive (Schwarz & Clore, 1983), or making various types of moral judgements (Blair, 1995; Haidt, 2001; Prinz, 2007; Turiel & Killen, 2010). In contrast, emotion can be defined as feelings that are directed towards a specific event or object (Beedie et al., 2005; Whalen, Henker, King, Jamner, & Levine, 2004). Despite the data supporting the connection between emotion and moral judgment, the study conducted by Huebner and colleagues (2009) concluded that the data is insufficient, alternatively suggesting that “our moral judgments are mediated by a fast, unconscious process that operates over causal-intentional representations” (Huebner et al., 2009). Therefore, moral judgment may not be significantly impacted by mood or sensory input such as gustation.
Factors Influencing Moral Judgment

A variety of different factors may influence moral judgement. Research on disgust sensitivity and meat consumption reveals a link between diet and moral judgment by exploring the judgments of vegetarians. Hussar and Harris (2009) and Neo (2014) found that that most people place meat restrictions on their diet or become vegetarians or vegans due to moral and ethical reasons. From this, we inquired if people who allow the ethical treatment of animals to affect their eating and buying habits would react differently to the bitter, neutral, or sweet conditions. Inbar and colleagues (2012) found a positive correlation between disgust sensitivity and conservatism. Due to this, we predict that conservatives will have a harsher reaction to the bitter condition than liberals. This reaction will be reflected in the moral vignettes ratings.

Eskine and colleagues (2011) demonstrated that gustation has an effect on an individual’s moral judgments. This study included 57 Brooklyn College undergraduate students who were randomly assigned to three conditions: sweet, bitter, or control. The sweet condition drank Minute Maid Berry Punch, the bitter condition was given Swedish Bitters, and the control condition received water. Swedish Bitters is a natural herbal supplement that promotes healthy digestion. However, none of the participants were told what they were drinking until the conclusion of the study. Each group completed six moral judgement tasks on a scale from not at all morally wrong to extremely morally wrong. The study found that the bitter condition rated the moral scenarios significantly harsher than both the control and sweet conditions. The second hypothesis of this study was that conservatives would react harsher to the bitter condition than the sweet and control
conditions. There was a significant difference in harshness between the conservative disgust group (bitter condition) and the conservative non-disgust group (sweet and water conditions). However, there was not a significant difference between the liberal disgust and liberal non-disgust groups. There were also no significant differences between the conservatives and liberals in each of the three conditions. This shows that physical disgust may help to establish moral disgust.

**The Present Study**

The present study is a replication of the Eskine and colleagues (2011) study, which had some limitations. For example, the study did not look at the mood of their participants before or during the study. The mood of the participants may have caused them to rate the moral scenarios harsher than if they had been in a different mood. From the original study’s limitations, we inquire if mood influences moral judgment. To test for this we gave participants a smiley face chart as a pre and post indicator of their mood.

Additionally, we inquire if dietary preference affects how harshly participants rate the moral scenarios. To address this, we asked participants to rate the fairness of the meat industry and how often this affects their eating and shopping habits. Two additional moral vignettes were added to better assess moral judgement (undergraduate student intentionally hits former lab partner with car, voter advocates for community programs on social media but votes against them).

**HYPOTHESIS 1:** Those in the bitter condition will rate the moral vignettes harsher than those in the sweet and neutral conditions.

**HYPOTHESIS 2:** Conservatives in the bitter condition will rate the moral vignettes harsher than conservatives in the sweet and neutral conditions.
HYPOTHESIS 3: Conservatives in all conditions will rate the moral vignettes harsher than liberals in all conditions.

HYPOTHESIS 4: Those who have a high sensitivity score will rate the moral vignettes harsher than those who with a low sensitivity score in the bitter condition.

HYPOTHESIS 5: The mood change of the participants in the bitter condition will have a greater influence on the rating of their moral judgements.

Methods

Design

The present study is a replication of Eskine and colleagues (2011). A 3 x 3 (Condition: bitter, neutral, sweet) x 3 (Political Orientation: conservative, liberals, moderates) between-subjects factorial design was conducted to fulfill the main hypotheses of the Eskine and colleagues (2011) study. The dependent variables include mood change and rating on moral vignettes scale.

Participants

67 undergraduate students from State University of New York at Fredonia participated in the present study for either extra credit or a small bag of M&M’s. Participants volunteered, yielding a convenience sample through an experiment management program for online research study participation called Sona. There were 51 females and 16 males with ages ranging from 18-28 (M = 20.19, SD = 1.99).

Measures

Moral judgments were assessed using Wheatley and Haidt’s (2005) moral vignettes, which portray various moral transgressions (Bob: second cousins engaging in consensual incest, Frank: a man eating his already-dead dog, a congressman accepting bribes, George: a lawyer prowling hospitals for victims, Robert: a person shoplifting, and Tim: a student stealing library books). Two of the six original moral vignettes were classified as being culturally-
defined moral issues as opposed to being universally-defined moral issues. To adjust this, two additional moral vignettes consisting of strictly universally moral contexts were created (Jill: undergraduate student intentionally hits former lab partner with car, Carter: voter advocates for community programs on social media but votes against them).

We conducted a pilot test consisting of nine undergraduate students which were conveniently sampled to rate (via online survey) the six original and the two additional moral vignettes on two dimensions using two different scales. Participants were first asked to rate the moral vignettes on how well the situations involved morality ("0" being not at all related to morality, and "9" being perfectly linked to morality). They were then asked to rate the moral vignettes on a scale of what they believed to be more universal moral truths than socially- or culturally-defined truths ("-4" being universal, and "+4" being cultural). From the pilot test we established that two of the original moral vignettes were culturally-defined moral issues. However, to keep the authenticity of the original study all six original moral vignettes were used during data collection, plus the two additional moral vignettes.

All participants received the same eight moral vignettes, in reverse partial counterbalanced order. After each vignette, participants were asked to rate "how morally wrong" the offense was on a 14-cm line scale representing a continuum from "not at all morally wrong" to "extremely morally wrong". Participants were asked to make a slash at the point on the 14-cm line corresponding to their impressions. Each mark was measured to the tenth so that the scores ranged from 0.0 to 14.0. Participant scores were not converted to a 0-100 scale, but kept as a 0.0-14.0 scale. Proceeding the moral-judgement task, a post-test smiley
face chart was given as well as a distractor task consisting of describing language background and rating sentences based on imageability. Participants rated beverages to ensure that they found the Swedish Bitters to be disgusting, the Minute Maid Berry Punch to be sweet, and the water to be neutral (Table 1). Participants were asked two questions about their views on the ethical concerns of the meat industry. The answers were on a scale from unfair (1) to fair (10) and not at all (1) to very often (10). The first question was reverse scored then added to the second answer to create the sensitivity score. The first questions asked participants about the treatment of animals in the meat industry while the second questions asked on the frequency that this affected their eating habits. The participants were also asked to provide some basic demographic information and indicate their political orientation as either conservative or liberal. They also rated how sweet, bitter, neutral, and disgusting they found their beverage, using a 7-point Likert scale ranging from not at all (1) to very much (7) (Eskine et al., 2011). These ratings were to check whether the taste manipulation was successful.

Finally, participants were asked to write down what they thought the study was about. This was done to minimize any possibility of participant bias by ensuring that participants had not guessed the goal of the study.

Procedures

Participants were systematically assigned to one of three beverage conditions: sweet, bitter, or control, in which they completed a moral-judgment task. Participants in the sweet condition were given Minute Maid Berry Punch, those in the bitter condition received Swedish Bitters, and the participants in the control group were given water. Swedish Bitters were used for the bitter condition to be consistent with the original study. None of
the participants were told the identity of the beverages placed before them, however an ingredients list was provided for them to check for potential allergies. At the beginning of the study each participant was told we were exploring the effects of motor movement (specifically the movement of “taking a shot”) on cognitive processing, and was instructed to drink a beverage before the first and second moral judgment tasks (Eskine et al., 2011). However, participants were given the option to refuse the second beverage due to the disgust reaction caused by the bitter drink. The option to refuse the second beverage was offered to all participants. Participants were also told that we were interested in how their mood may impact their cognitive processing.

Prior to the participants drinking 1 teaspoon of the liquid, they were given a smiley face chart and asked to circle the face that best represented their current mood (see Appendix). Once the participants had filled this out, they were directed to drink the liquid. After the first dose, participants completed the first four scenarios of moral-judgment tasks. Participants were directed to stop after the first four moral-judgment scenarios and at this time administered the second dose of their assigned beverage. The second dose at the halfway point (after four scenarios) was done to ensure the taste of the beverage would linger throughout the moral-judgment task (Eskine et al., 2011).

**Results**

Four of our 67 participants were excluded from data analysis because they correctly guessed the aim of our study. For the remaining 63 participants (bitter condition: \( n = 24 \), sweet condition: \( n = 18 \), neutral condition: \( n = 21 \)), an overall score for moral judgment was obtained by averaging the moral vignette ratings together. A reliability test was conducted between all eight moral vignettes. The
Cronbach’s alpha levels increased by deleting two moral vignettes: Carter, the added vignette, and Bob, the vignette from original study. Participants may have rated the Carter and Bob vignettes differently because they were not as clear cut as the other moral vignettes. Due to this, we analyzed the six vignettes from the original study and the six vignettes that had a higher internal consistency from the present study separately. The six vignettes with the higher internal consistency were renamed “revised vignettes”, as they contained Jill, an added vignette, and the five others used in the previous study.

Using the original six moral judgment vignettes, a one-way analysis of variance (ANOVA) was conducted with three levels of condition (bitter, sweet, neutral) acting as the independent variable, and the average of the original six moral vignettes scores as the dependent variable. It was found that the effect of condition on moral judgment was non-significant \((F(2,60) = 0.22, p = 0.80)\). For the original six moral vignettes, the participants in the bitter condition \((M = 9.63, SD = 1.60)\) did not rate the moral vignettes harsher than participants in the sweet condition \((M = 9.60, SD = 1.68)\) or participants in the neutral condition \((M = 9.63, SD = 2.70)\).

A one-way ANOVA was conducted with three levels of condition (bitter, sweet, neutral) as the independent variable and the average of revised six moral vignettes \((M = 10.05, SD = 0.38)\) as the dependent variable. It was found that the effect of condition on moral judgment was non-significant \((F(2,60) = 0.091, p = 0.914)\). For the revised six moral vignettes, the participants in the bitter condition \((M = 9.99, SD = 1.63)\) did not rate the moral vignettes harsher than participants in the sweet condition \((M = 9.96, SD = 1.39)\) or participants in the neutral condition \((M = 9.87, SD = 3.00)\).
A 3 (Condition: bitter, neural, sweet) x 3 (Political Orientation: conservative, liberal, moderates) ANOVA was conducted with political orientation and the three levels of taste condition as the independent variables, and the revised six moral vignettes as the dependent variable. We found that the effect of political orientation on moral judgment was non-significant ($F(2,42) = 0.12, \ p = 0.89$). Political orientation also did not significantly interact with condition ($F(4,42) = 0.26, \ p = 0.90$).

To test the fourth hypothesis, participants were separated into low and high groups using a split-half of the scores. The participants in the bitter condition with a high sensitivity score ($M = 10.46$) did not rate the moral vignettes significantly harsher than participants in the bitter condition with a low sensitivity score ($M = 9.56$), $F(1,18) = 1.37, \ p = 0.26$. Sensitivity score was correlated with mood change for participants in the sweet condition, but not for the neutral or bitter conditions. The higher the sensitivity score the more positive the mood change, $r = 0.484$.

To test the fifth hypothesis, a correlational analysis between mood change and the revised moral vignettes was conducted ($r = -0.03, \ p = .83$). This shows no significant relationship between moral judgment and mood change.

**Discussion**

In relation to the study conducted by Eskine and colleagues (2011), our research had a primary aim of determining whether gustatory disgust had an effect on moral reasoning. Based on evidence from Inbar and colleagues (2009), we also aimed to determine whether disgust would have a stronger effect on the moral reasoning of politically conservative individuals than on liberals. Finally, we wished to determine whether the current mood state of the participants and their feelings about the meat...
industry had an influence on moral judgment as well.

The six original moral vignettes showed no significant difference in morality ratings between taste conditions. The six revised moral vignettes also showed no significant difference in morality ratings between taste conditions. These findings contradict the Eskine and colleagues (2011) findings. There was no significant difference between conservatives in the bitter condition and conservatives in the sweet and neutral conditions and there was no significant difference between conservatives and liberals in the bitter condition found. The Eskine and colleagues (2011) study found that conservatives were more affected by disgust than liberals. However, the data in the present study does not support the Eskine and colleagues (2011) findings. The present study had a larger sample size than the original study and accounted the order by doing a partial counterbalancing which may have attributed to the difference in results between the present and original studies.

The fourth hypothesis was to determine whether participants with high sensitivity scores would rate the moral vignettes harsher than those with low sensitivity scores in the bitter condition. Participants with high sensitivity scores were those who viewed the treatment of animals in the meat industry as unfair and had this belief affect their shopping and eating habits. Results showed no significance between sensitivity score and moral judgment rating in the bitter condition. This indicates that those in the high sensitivity group did not rate the moral judgements harsher than those in the low sensitivity group in the bitter condition.

Previous research conducted by Hussar and Harris (2009) and Neo (2014) found that most individuals with voluntary diet restrictions, such as vegetarians and vegans,
did so for moral reasons. Since the main hypothesis of the present study also showed no significant difference between conditions, the present results do not contradict this previous research.

Our fifth hypothesis was to determine whether mood acted as a confounding variable that influenced the results of the original study. The mood change of the participants in the bitter condition will have a greater influence on the rating of their moral judgements. However, the results of our study found no significant change in mood in any condition or a significant relationship between mood change and the revised moral vignettes. This indicates that mood was not a confounding variable in the present or original study, and that our findings support Huebner and colleagues (2009) study suggesting that mood does not significantly impact moral judgment.

Limitations and Future Research

One limitation to the present research study was that more conservatives and liberals were in the bitter condition than moderates. This may have skewed the results causing the second and third hypotheses to be rejected.

Looking forward, due to the difference in results found in the present study and Eskine and colleagues (2011) study a replication of both studies should be conducted. To expand and improve research in this area, future researchers could investigate whether there is a relationship between mood, gustatory disgust, and moral judgement in supertasters. A supertaster is an individual who is highly sensitive to the bitter compound 6-n-propylthiouracil (PROP). Macht and Mueller (2006) found that those who were supertasters were more sensitive to emotions, one being disgust, than non-supertasters when exposed to an emotion-provoking film clip. Therefore, it would be interesting to test for this possible
relationship. Future researchers should also look at different age groups as both the present study and Eskine and colleagues (2011) were conducted with undergraduate students with a low mean age. Future researchers could also look at other taste groups, such as sour, savory, and salty, and their relationship between moral judgment.

Acknowledgements
We would like to thank Dr. Joseph McFall for his amazing help and large dedication to the success of this study. We’d also like to thank Allysa Gullo for her contributions.

References


Inbar, Y., Pizarro, D.A., & Bloom, P.


Appendix

Directions: Please circle the number that corresponds to how you currently feel.

1. What is your overall mood state?

Table I. Participants’ Mean Taste Ratings of the Three Drinks

<table>
<thead>
<tr>
<th>Rating</th>
<th>Bitter Drink</th>
<th>Sweet Drink</th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bitter Taste</td>
<td>6.88 (0.45)</td>
<td>1.72 (1.23)</td>
<td>1.77 (1.54)</td>
</tr>
<tr>
<td>Sweet Taste</td>
<td>6.88 (0.45)</td>
<td>6.00 (1.03)</td>
<td>1.64 (1.47)</td>
</tr>
<tr>
<td>Neutral Taste</td>
<td>1.67 (1.09)</td>
<td>2.61 (1.61)</td>
<td>5.86 (2.03)</td>
</tr>
<tr>
<td>Disgusting Taste</td>
<td>6.08 (1.64)</td>
<td>1.67 (1.24)</td>
<td>1.59 (1.33)</td>
</tr>
</tbody>
</table>

Note: Standard deviations are given in parentheses. Higher numbers indicate a stronger endorsement that the descriptor was appropriate.
The Rate of Decline of Working Memory in Schizophrenia across Lifespan

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Abstract- Cognitive deficits in schizophrenia, as opposed to positive symptoms, are more stable and more strongly correlated with functional outcomes such as occupation. These cognitive deficits in working memory and attention tend to be consistent over age, and even present before positive symptoms of schizophrenia, and decline more sharply than in healthy people over age. The purpose of this study is to determine whether cognitive deficits are effective in discriminating people with schizophrenia from healthy controls and to investigate how the cognitive deficits in schizophrenia evolve with age compared to healthy controls. 406 healthy controls with varying levels of IQ were compared to 46 people with schizophrenia on performance in sensitivity to the n-back neuropsychological task, measuring working memory. It was hypothesized that participants with schizophrenia would perform worse than the healthy control groups overall, and secondarily, that performance in participants with schizophrenia would decrease more sharply in late age. Results of an ANCOVA revealed that patients with schizophrenia performed significantly worse on the n-back than each of the healthy control groups and performed worse than the above average IQ and average IQ healthy control groups in late adulthood. These findings affirm the concept that cognitive aspects are consistent and stable in schizophrenia, and demonstrate a potential for prophylactic neuropsychological assessment to diagnose prodromal schizophrenia and take preventative measures against the
accelerated deterioration of these deficits over age.

The Rate of Decline of Working Memory in Schizophrenia across Lifespan

For years, the study of psychopathology has neglected the role of cognition as a symptomatic and contributive factor of the disorder in question. The study of schizophrenia is no exception, as the study of cognitive deficits is often less popular in comparison to the more dramatic accessory symptoms of schizophrenia. Early studies by Kraeplin and Bleuer in the 1930s placed more emphasis on the cognitive aspect of schizophrenia, but their developments tapered off in light of the fascination with the positive symptoms of the disorder. The implications of this neglect have significant effects on the manner of treatment for those with schizophrenia. While antipsychotics are mostly effective in treating the psychotic symptoms of schizophrenia, no known treatment exists for the more stable and fundamental symptoms of schizophrenia which include its characteristic cognitive deficits. This discrepancy in research is significant, because, as Green and Harvey (2014) suggest, the antipsychotic medications reduce the positive symptoms of schizophrenia but have not shown to increase the overall recovery rate.

Positive and Negative Symptoms of Schizophrenia

Early research conducted by Bleuler argues that it is not the positive symptoms of hallucinations, abnormal speech patterns, and delusions that are fundamental to schizophrenia, but rather that they are accessory to and a result of the more discreet negative symptoms of attentional problems and difficulty with working memory. Recent developments of this initial ground-breaking notion have supported this claim. In a study that classified people with schizophrenia into three different groups according to their
presentation of symptoms (positive, negative, or mixed), it was observed that those with primarily negative symptoms had the lowest average level of education (\(M = 11.06, SD = 1.48\)), suggesting that “the typical negative schizophrenic is unable to complete high school” (Andreasen & Olsen, 1982, p. 791). In addition, it was observed that those who present primarily with negative symptoms of the disorder tend to consistently present with negative symptoms, and that those who primarily present with positive symptoms eventually develop negative symptoms (Andreason & Olsen, 1982). The stability of negative symptoms in schizophrenia suggests that they are most fundamental to the disorder.

Crow (1980) differentiates between what he calls type I and type II schizophrenia, where type I is “acute schizophrenia” and is characterized by the positive symptoms of the disorder, which include hallucinations, delusions, and disordered thought patterns. The type II syndrome or “chronic schizophrenia” is characterized by flattening of affect, poverty of speech, and loss of drive. In this study, Crow investigates the neurobiology of schizophrenia and concludes that the dopaminergic system of the brain is overactive in schizophrenia. Clinical studies suggest that cis- or α-isomer of the thianthrene flupenthixol, which block dopamine receptors, are effective in reducing symptoms of schizophrenia. However, this treatment is only effective for the positive aspects of schizophrenia. Therefore, Crow theorizes that the two distinct syndromes of schizophrenia may be caused by distinct underlying mechanisms. While the cause of schizophrenia is not clear, it appears that the positive symptoms of schizophrenia are responsive to neuroleptic drugs and dopaminergic antagonists. Type II schizophrenia as Crow defines it, which includes the cognitive...
deficits associated with schizophrenia, is more resistant to treatment and its symptoms are deemed “irreversible” in terms of what is available for treatment at this time.

Early researchers originally were disappointed that neuropsychological testing was unable to distinguish between head injury patients and those with schizophrenia (Spaulding et al., 1999). However, in retrospect, this “problem” is indicative of the extent to which these cognitive deficits impair people with schizophrenia, and the degree to which this warrants further research and attention. Fortunately, in more recent years, research of psychological disorders has shifted focus slightly to emphasize the cognitive aspects of schizophrenia.

**Cognitive Deficits Present in Schizophrenia**

Recent studies have emphasized the deficits in working memory and attention as characteristic to schizophrenia. A spatial working memory task performed in conjunction with fMRI demonstrated a concurrence of reduced activation of the dorsal lateral prefrontal cortex (dPFC) during the delay between the presentation of the stimuli and the recall, in other words, the retention period (Arnsten, 2013). A similar study has also shown that fMRI shows that reduced activation of the dPFC which indicates working memory deficits “correlate with symptoms of thought disorder in patients with schizophrenia”, suggesting a strong connection between the schizophrenia and working memory difficulties (Arnsten, 2013, p. 2276).

A more recent study explored the cognitive differences in people with schizophrenia and healthy controls on a working memory visuospatial task. 23 healthy controls and 23 people with schizophrenia were assessed using the Positive and Negative Symptom Scale (PANNS) and the Revised Hallucination
People with schizophrenia scored significantly higher on each of these clinical measures and met DSM-5 criteria for schizophrenia. The neuropsychological battery used in this study to assess cognitive impairment consisted of the Trail Making Test-Part A (TMT-A), Hopkins Verbal Learning Test-Revised (HVLT-R), Weschler Memory Scale-III Spatial Span (WMS III-SS), and the Brief Visuospatial Memory Test-Revised (BVMT-R). Results of the analyses revealed that people with schizophrenia had higher reaction times on the TMT-A and significantly lower scores on the HVLT-R, WMS III-SS, and BVMT-R. Additionally, people with schizophrenia showed less primacy and recency effects and were more prone to worse performance when a distractor was introduced in the visual working memory task, as measured by d’ (Staeblin et al., 2016).

Neuropsychological Assessment as Predictor and Prognosis

Recent studies evaluating the potential of neuropsychological assessment to predict functional outcomes in people with schizophrenia have been less than refined in their methodology. Yet, several striking consistencies in research show promising predictive potential for neuropsychological testing in schizophrenia. In a meta-analysis, Green (1996) remarks that for neuropsychological measures to predict functional outcome in schizophrenia, it is necessary to first decide which cognitive domains to target. For this reason, recent research has been limited in its ability to predict functional outcomes for people with schizophrenia. An important finding of this study includes the lack of association between psychotic symptoms and community outcomes, including social and occupational functioning, reinforcing the notion that the positive symptoms of
schizophrenia are less condemning than are the negative symptoms.

A recent study conducted by Scala et al. (2013) investigated deficits in executive functioning measured by the Wisconsin Card Sorting Task (WCST) among first-degree relatives of people with schizophrenia. Results showed that WCST scores significantly differentiated between first-degree relatives of people with the deficit subtype (DS) of schizophrenia, first-degree relatives of people without the deficit subtype (non-DS) of schizophrenia, and healthy controls. Relatives of the people with DS schizophrenia showed negative symptoms of schizophrenia, including diminished emotional expression and apathy. These findings suggest a predictive measure of psychosis in neuropsychological testing.

An additional finding of this study was a consistent negative association between the Wisconsin Card Sorting Task (WCST) and functional outcomes in schizophrenia, including community outcome, suggesting that executive functioning and cognitive flexibility are both important predictors of how well an individual with schizophrenia may succeed in getting and maintaining a job (Green, 1996). In addition, verbal memory and a measure of “vigilance”, or attentional abilities, were positively associated with community, skill acquisition, and social problem-solving outcomes. The measure of vigilance in this study corresponds to the idea of attentional ability in tasks related to identifying a target sound and differentiating it from other non-target sounds. Verbal memory was also shown to consistently correlate with problems in social problem-solving and skill acquisition.

The task now at hand is to measure which neuropsychological assessments are most indicative of prodromal schizophrenia and best predict prognosis and response to
treatment. Current research focusing on the link between cognition and schizophrenia affirm that the cognitive deficits prior to formal diagnosis of schizophrenia do not differ significantly from those present during illness. It stands to reason, then, that if neuropsychological assessment measuring cognitive deficits is done early enough, preventative and preparative measures can be taken against other features of schizophrenia. Green (1996) suggests that cognitive remediation is a potential application of neuropsychological testing and training to improve functional outcomes of people with schizophrenia across these neurocognitive domains. Perhaps these endeavors may also have therapeutic value once assessments of cognitive domains and their correlates have been refined and supported.

**Cognitive Decline in Schizophrenia across Lifespan**

Consistent with Kraeplin’s characterization of schizophrenia as accelerated neuropsychiatric deterioration, recent research suggests that cognitive deficits among people with schizophrenia continue across the lifespan, which corresponds to functional outcomes reaching into old age. Kalache and colleagues (2014) assessed 232 people with schizophrenia ranging from 19-79 years in age using the Measurement and Treatment Research to Improve Cognition in Schizophrenia Consensus Cognitive Battery (MCCB) and the UCSD Performance-based Skills Assessment. Results of the regression analysis show that cognitive impairment continues to predict poor functional outcomes in social, comprehension, and planning domains. Additionally, several studies suggest that not only do cognitive deficits in schizophrenia persist in old age, but they present with a sharper decline across the lifespan than do healthy controls.
Cognitive deficits in patients were shown in neuropsychological tests that measure verbal learning and memory (WAIS Logical Memory I + II). Results of the MANOVA showed that cognitive flexibility tasks (Trail Making Test A + B) attained significance in the “diagnosis x age” interaction (Herold, Schmid, Lasser, Seidl & Schroder, 2017) as well as the Mini Mental State Exam (MMSE; Folstein, 1999).

**Present Study**

The purpose of this study is to discriminate whether the n-back neuropsychological test effectively identifies cognitive impairment in schizophrenia and how this impairment is influenced by age. Given recent research suggesting impairment in attention and inhibitory control, the n-back neuropsychological task was used to measure cognitive impairment in patients with schizophrenia and a group of controls. It was hypothesized that people with schizophrenia would exhibit lower scores in working memory as measured by the n-back than healthy controls in each condition. In addition, given recent research suggesting a sharp rate of decline in people with schizophrenia over age, it was hypothesized that people with schizophrenia would exhibit increasingly lower scores on the n-back in old age compared with healthy controls in the same age range.

**Method**

**Participants**

Participants (n = 448) in this study consisted of 402 healthy controls (172 males, 230 females), with an average age of 30.0 ± 8.8 years old and 15.7 ± 2.2 years of education, and 46 patients with schizophrenia (31 males, 14 females), with an average age of 30.8 ±10.4 years old and 13.4 ± 2.6 years of education. Results of a two-way analysis of covariance (ANCOVA) revealed that there was no difference in age, but differences in sex distribution and education level are significant (p <.001).
The participant group with schizophrenia has a higher percentage of males and fewer years of education education.

Measures

The WAIS-III Vocabulary subtest was used to estimate IQ scores for a measure of general intelligence (Kirchner, 1958). The WAIS-III consists of 30 words presented to the participant one at a time with a corresponding picture. The participant is asked to briefly define and/or describe the given word. Scoring was conducted according to the Administration and Scoring Manual and scaled scores were calculated. Participants were separated into groups based on IQ level to determine if the rate of change was the same in people with below average IQ (n = 22), average IQ (n = 136), and above average IQ (n = 244).

The version of the n-back used in this study presents letters in a continuous stream with each stimulus presented one at a time on a computer screen for 500 milliseconds, and each trial phase consisted of 60 trials. In the first phase of the task, 1-back, the participants are asked to respond each time the current stimulus matches exactly the stimulus presented immediately prior. Patients were asked to respond by pressing the 0 key on an external keypad when the current stimulus matched the stimulus immediately prior. In the second phase of the task, or the 2-back, participants are asked to respond each time the current stimulus matches the stimulus presented 2 trials prior. Finally, in the 3-back phase, participants are asked to respond each time the current stimulus matches the stimulus presented 3 trials prior.

Procedure

Once participants were informed of the nature of the study and consented, healthy control participants were administered the WAIS-III Vocabulary subtest. The participants were then grouped into three groups based on level of IQ as
estimated by their scaled scores: Below Average [<= 7], Average [8-12], and Above Average [>=13]. After the IQ testing, the participants were all administered the n-back neuropsychological task on a MacBook computer. Scores were calculated based on sensitivity, as measured by d’.

A two-way ANCOVA was run using SPSS to determine the participants’ scores on the n-back for each condition across groups according to IQ based on their scaled scores, and separately for the participants with schizophrenia.

**Results**

Descriptive analyses revealed that there was a significant difference in sex distribution, education level, WAIS-III Vocabulary score, and n-back score (p < .001), where participants with schizophrenia had lower Vocabulary scores as well as worse n-back scores. Healthy controls had a mean WAIS-III Vocabulary Scaled Score 13.1 (SD = 3.2), which is classified as high average, and an overall n-back d’ score of 3.36 (SD = .77). Participants with schizophrenia had a mean WAIS-III Vocabulary Scaled Score 9.5 (SD = 3.6), which is classified as average, and an overall n-Back d’ score of 2.44 (SD = .90).

This analysis is a ANCOVA, with IQ group (the three control IQ groups and a single schizophrenia group) and sex as main effects and with age, years of education, and WAIS-III vocabulary score as covariates.

Results of the ANCOVA revealed that n-back is significantly affected by age (F[1,429] = 42.34, p < .001), education (F[1,429] = 5.53, p = .019) Vocabulary score (F[1,429] = 7.45, p = .007) and not by sex (F[1,429] = 2.26, p = .133), but the patient effect (schizophrenia vs. all of the control IQ groups) remains significant (F[3,429]=6.38, p<.001). The results of this study are depicted in Figure 1, which shows the mean d’ for the n-back for people grouped by high IQ, average IQ, and low IQ.
as measured by the WAIS-III Vocabulary score and people with schizophrenia.

Post-hoc analyses showed that schizophrenia patients differed from the above average estimated IQ controls ($p < .001$), average estimated IQ controls ($p < .001$), and below average estimated IQ controls ($p = .050$) when all covariance effects were accounted for. Adjusted mean scores for the n-back show that below average IQ participants with a score of 3.126, average IQ with a score of 3.249, above average IQ with a score of 3.407, and the participants with schizophrenia with a score of 2.743.

**Discussion**

The purpose of this study was to investigate the ability of degree of cognitive impairment to distinguish people with schizophrenia from healthy controls. Results showed that $d'$ for the n-back was significantly lower in people with schizophrenia than in healthy control groups of all three IQ levels. Thus, the n-back reliably distinguishes people with schizophrenia from healthy people based on cognitive functioning, and the primary hypothesis is supported. Results also indicated that there is a sharper decline in cognitive functioning among participants with schizophrenia than cognitive decline associated with normal aging in healthy controls. These findings corroborate the results of Kalache et al. (2014) that showed increased cognitive decline in old age in people with schizophrenia on other neuropsychological tasks. A possible reason for the more rapid decline of working memory functioning in schizophrenia is that people with schizophrenia are less cognitively stimulated, reinforced by a cycle of poor social integration and stigma, leading to positions in society with less cognitively demanding tasks. Another possibility is greater stress accumulated by
carrying out daily activities that come more easily to others.

Although the schizophrenia group in the current study seems to have less of a decline than healthy people with low IQ, it is clear that the performance on n-back declines sharply in old age for the schizophrenia patients. The reason for this shape of the regression line is that the schizophrenia patients around age 40 performed better than expected. A limitation of this study includes the use of a single neuropsychological task to assess cognitive impairment differences. It is recommended for future research that two or more tasks are used to assess cognitive differences. A major strength of this study is the inclusion of IQ grouping to demonstrate the buffer effect of IQ on cognitive impairment, as well as the wide age range of the participants.

This study only begins to expound upon important research regarding cognitive aspects of schizophrenia across age. Findings of this study have implications for diagnosing at-risk populations with schizophrenia using cognitive measures, and possibilities for cognitive remediation that may slow the accelerated deterioration of cognition in people with schizophrenia. The stability of cognitive symptoms in schizophrenia suggests they are most fundamental to the disorder. Furthermore, the strong association between cognitive deficits and diminished functioning highlights a critical need for the implementation of effective interventions to target cognitive impairment in schizophrenia. Perhaps the cognitive deficits implicated in schizophrenia can be effectively treated and improve quality of life and clinical status. Future research may continue to expound on these results and those of the current study to further investigate the connection between cognition and schizophrenia and to
capitalize on the possible prognostic potential.

References


Figure 1. Age effects on N-Back performance in three groups of healthy comparison subjects divided by estimated IQ level (based on WAIS-III Vocabulary score: Below Average [\(\leq 7\)], Average [8-12], and Above Average [\(\geq 13\)], as well as patients with schizophrenia (Mean WAIS-III Vocabulary 9.5 ± 3.6, range 3-17). Group 1: Below Average Vocabulary Healthy Comparison, Group 2: Average Vocabulary Healthy Comparison, Group 3: Above Average Vocabulary Healthy Comparison, Group 4: Patients with Schizophrenia.
Balancing Femininity and Masculinity as a Black Female Athlete: an Exploration of Self-Silencing and Self-Sexualization

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Abstract- Intersectionality theory highlights the unique position that Black women and female athletes occupy, one that complicates traditional notions of masculinity and demure femininity. As a result, they may be particularly attuned to demonstrating their femininity via conventional ways, such as self-sexualization or self-silencing. Using an intersectional framework, we investigate how female athletes and Black women navigate gender, masculinity, and femininity. In order to assess traditional gender role beliefs, self-silencing, and self-sexualization, we distributed a survey that assessed six main constructs: athletic participation, feminine gender beliefs, masculine gender beliefs, Strong Black Woman internalization, self-silencing, and self-sexualizing behaviors. Participants consisted of 198 women aged 17 to 36 ($M_{\text{age}} = 21$). Results indicated that athletes endorse feminine beliefs at the same rate as non-athletes, except non-athletes invested more in appearance, which contradicts my hypothesis. In addition, there were no significant differences in masculine beliefs between athletes and non-athletes and between Black women and non-Black women. However, Black women participated in self-silencing behaviors, invested in their appearance, and endorsed modesty less than non-Black women.

Balancing Femininity and Masculinity as a Black Female Athlete: an Exploration of Self-Silencing and Self-Sexualization

Gender roles in American society ascribe women and men to certain gendered stereotypes. Common stereotypes categorize
women as quiet, passive, and weak, and ultimately dependent on men. Since these gender beliefs are deeply embedded into American culture, those who do not conform to these stereotypes are at risk for harassment, lower self-esteem, and decreased mental health (Hurst & Beesley, 2013; Jack, 1991; Watson & Grotewiel, 2016). Two possible consequences of these gender role stereotypes are self-silencing and self-sexualizing behaviors. As a result of society’s expectation that women are silent or soft-spoken, many women repress their voice, even in intimate relationships (Hyers, 2007). Being subservient in relationships, women are also viewed as sexual objects of men. This stereotype of male attention causes many women to participate in self-sexualizing behaviors, such as wearing tight or revealing tops or heavy make-up (Smolak, Murnen, & Myers, 2014).

For female athletes, these characteristics directly oppose the requirements of athletic participation. Navigating femininity and masculinity, the female/athlete paradox describes how athletic women exemplify masculinity in their sports, but are also expected to maintain femininity in social spheres (Krane et al., 2004). However, as previous research shows, stereotypes for women who play sports often are actually stereotypes that reflect White women who play sports (Dewar, 1993). Competing gender and cultural stereotypes persist for Black women, drawing a unique intersection between race and gender. Accordingly, the present study sought to examine how Black female athletes navigate these cultural and traditional feminine gender roles, while participating in athletic competition. Stereotypes for Black women differ from stereotypes for White women in that they emphasize strength, but also self-sacrifice
and passivity. The Strong Black Woman stereotype suggest that Black women are mentally, emotionally, and even physically strong compared to the Mammy stereotype which categorizes Black women as self-sacrificing and self-silencing. Although initially our plan was to survey Black female athletes and non-Black female athletes, there were not a significant amount of Black female athletes who participated. Therefore, we chose to compare athletes to non-athletes and Black women to non-Black women. With our survey, we tested three main research questions:

RQ1. Will Black female students endorse gender roles more or less than non-Black female students?
RQ2. Will female athletes endorse gender roles more or less than female non-athletes?
RQ3. Will gender belief endorsement predict higher levels of self-silencing and/or self-sexualizing behaviors?

We pose four hypotheses considering how these variables will relate to each other in analyses:

H1. Athletes will endorse feminine beliefs less than non-athletes, but athletes will have higher levels of self-silencing and self-sexualizing.

H2. Athletes will have higher levels of endorsement of masculine beliefs than non-athletes.

H3. Black women will have higher levels of endorsement of masculine beliefs, self-silencing, and self-sexualizing than Black and non-Black women will be equal in endorsement of feminine beliefs.

H4. Connections between feminine beliefs and gendered behaviors (i.e., self-silencing and self-sexualization) will be stronger for non-athletes and non-Black women. Conversely, that connection will be weaker for Black women and athletes.

Methods

Participants
Participants were 198 self-identified women, aged 17 to 36 ($M_{age} = 21$). These women were undergraduates and graduate students from the University of Michigan. Of the 198 women, 20.2% self-identified as Black, 69.7% as White, 9.1% as Asian-American, and 2.5% as Hispanic/Latinx; White, Asian-American and Hispanic/Latinx were grouped into the larger category of non-Black women. Most women identified as exclusively heterosexual (57.1%; n=113), with a minority of participants identifying outside of exclusively heterosexual, which consisted of five options that were combined into the group “sexual minority”: “predominantly heterosexual,” “bisexual,” “predominantly homosexual,” “exclusively homosexual,” and “asexual” (42.9%; n = 85). A majority of women (61.6%; n = 122) were single, with only 38.4% of participants stating that they were in a relationship. Approximately 40% of participants indicated that they play sports, which included NCAA sports, club sports, and intramural sports. There were not enough participants that played NCAA sports to pull this group into separate category.

Measures

**Feminine Gender Beliefs.** Two sets of measures were used to test the endorsement of feminine gender roles. One set developed by Parent and Moradi (2010), the Conformity to Feminine Norms Inventory (CFNI), assesses nine aspects of femininity: “Sweet and Nice,” “Nice in Relationships,” “Investment in Appearance,” “Domestic,” “Romantic Relationships,” “Modesty,” “Sexual Fidelity,” “Thinness,” and “Involvement with Children.” Only the “Modesty,” “Sexual Fidelity,” “Investment in Appearance,” and “Romantic Relationships” subscales were used in this study. Using a 6-point Likert scale, which ranged from “strongly disagree” to “strongly agree,” participants indicated their agreement with
statements such as “I regularly wear makeup,” “I would only have sex with the person I love,” and “I would be happier if I was thinner.” For statistically significant subscales in this set of measures, we tested internal consistency reliability coefficients: “Investment in Appearance” $\alpha = .79$, “Romantic Relationships” $\alpha = .74$, “Modesty” $\alpha = .82$, and “Sexual Fidelity” $\alpha = .87$, indicating strong reliability across items in the aforementioned subscales.

The second measure was the Feminine Ideology Scale (FIS), which was developed by Lehman (2000) in order to test one’s beliefs on how women should act, including five factors that contribute to hegemonic femininity: “Stereotypic Images and Activities,” “Dependency/Deference,” “Purity,” “Caretaking,” and “Emotionality.” Participants used a 6-point Likert scale anchored by “strongly disagree” and “strongly agree” to indicate the extent to which they agree with statements like: “A woman should not swear,” “It is expected that a woman will be viewed as overly emotional,” and “A woman should not initiate sex.” We found an internal consistency reliability coefficient of .89 for the Feminine Ideology Scale, indicating strong reliability across items.

**Strong Black Woman (SBW)**

**Internalization.** The Strong Black Woman Embodiment scale (Thomas, 2006) was used to assess participants’ endorsement of SBW principles. Participants were asked to indicate their level of agreement with each of nine items including: “I view making mistakes as a sign of my own personal failure” and “It is difficult for me to ask for help, even when I need it.” Responses were anchored on a 6-point Likert scale that ranged from “strongly agree” to “strongly disagree.” We found an internal consistency reliability coefficient of .86 for the Strong Black Woman Scale, indicating strong reliability across items.
Masculine Gender Beliefs. The Conformity to Masculine Norms Inventory (CMNI) was used to assess participants’ endorsement of masculine gender norms. Parent and Moradi (2009) developed this scale as a set of measures targeted at men to assess levels of agreement with norms of masculinity. Participants responded using a 6-point Likert scale ranging from “strongly disagree” to “strongly agree” to statements such as “Winning is my first priority,” “I bring up my feelings when talking to others,” and “It would be awful if people thought I was gay.” Mahalik et al. (2003) conceptualized this scale to include nine aspects of masculinity: “Winning,” “Emotional Control,” “Risk-Taking,” “Violence,” “Power Over Women,” “Playboy,” “Self-Reliance,” “Primacy of Work,” and “Heterosexual Self-Presentation.” Due to the nature of the study (i.e. targeting college-aged women), the sections “Power over Women” and “Primacy of Work” were not included in the study. We found an internal consistency reliability coefficient of .70 for the CMNI, indicating adequate reliability across items.

Self-Silencing Behaviors. The 10-item Inauthentic Voice subscale of the Feminine Ideology Scale, developed by Tolman and Porche (2000), was used to test authenticity of voice in relationships. Participants used a 6-point Likert scale that ranged from “strongly agree” to “strongly disagree” to indicate their agreement with statements such as “Instead of risking confrontation in close relationships, I would rather not rock the boat.” We found an internal consistency reliability coefficient of .86 for the Inauthentic Voice Scale, indicating strong reliability across items.

Self-Sexualizing Behaviors. Two measures were used to investigate women’s self-sexualizing behavior. One measure assessed their enjoyment of sexualization. Participants used a 6-point Likert scale
anchored by “strongly disagree” and “strongly agree” to respond to each of the eight items concerning how much they enjoy being sexualized. Sample items include: “I feel complimented when men whistle at me” and “I feel empowered when I look hot.” We found an internal consistency reliability coefficient of .87 for the Feminine Ideology Scale, indicating strong reliability across items.

The second measure examined how often women participate in self-sexualizing behaviors via the Self-Sexualizing Behavior Questionnaire-Women (Smolak, Murnen, & Myers, 2014). Using a 5-point Likert scale, participants were asked to indicate how often they put effort into looking sexy, including nine behaviors such as “Style your hair” or “Remove or trim genital hair”. Responses ranged from 1 = never, 2 = seldom, 3 = sometimes, 4 = often, and 5 = sometimes. We found an internal consistency reliability coefficient of .86 for the Sexualized Behavior Scale, indicating strong reliability across items.

**Procedure**

Data were collected over a one-month period from mid-January 2017 through the beginning of February 2017. With permission from the Institutional Review Board, recruitment via email from the Registrar’s Office was used and sent to Black female students and female athletes. The lead author and mentor also distributed the survey link to campus groups and organizations with which they were affiliated. Participants participated in the survey online, at their leisure. The first page of the survey is informed consent, reminding participants that they can choose to not take the survey, end early, or be pulled from the study, if necessary. The order the measures were given is as followed: CFNI, FIS, SBW, CMNI, Inauthentic Voice and Self-Sexualizing subscales from the FIS, and
lastly Self-Sexualizing Behavior

Questionnaire-Women.

Results

Preliminary Analysis

Descriptive statistics for the main study variables are provided in Table 1. Each of the gender belief and gendered behavior variables could range from 1 (strongly disagree) to 6 (strongly agree). Reports from the CFNI indicated a mean of 3.25 for the Appearance Investment and Importance of Romantic Relationships subscales, indicating participants on average somewhat disagreed with items from these subscales. The Modesty subscale averaged 3.30 and the Sexual Fidelity subscale averaged 3.20, both suggesting participants somewhat disagreed with items on these subscales. Endorsement of traditional Femininity Beliefs ($M = 1.89$) was even weaker. Means were somewhat higher concerning participants’ own Inauthentic Voice ($M=3.34$) and Enjoyment of Sexualization ($M=3.68$), suggesting slightly more personal enactment of these gender norms. The mean of 3.20 for the SBW belief indicates slightly more disagreement than agreement between Black and non-Black participants. Endorsement of Masculinity Beliefs presented a mean of 3.03, indicating that participants, on average, somewhat disagreed with traditional masculine beliefs.

To examine demographic and background predictors of our study variables, we ran a series of zero-order correlations between the ten main gender belief and behavior variables and the following demographic variables: age, partnered, and sexual orientation. Partnered refers to participants’ romantic relationship status. Participants who indicated that they were single were coded as 0 and participants who indicated that they were in a relationship were coded as 1. Sexual orientation was re-scored such that those who self-identified as “exclusively
heterosexual” were coded as 0, and all other participants were coded as 1 (including those who identified as “predominantly heterosexual,” “bisexual,” “predominantly homosexual,” “exclusively homosexual,” and “asexual”). Results are provided in Table 2.

Results from these zero-order correlations indicate that age was positively correlated, $r(196) = .26, p < .01$, with endorsement of SBW beliefs. Conversely, age was negatively correlated, $r(196) = -.21, p < .01$, with masculine and feminine beliefs. In addition, age was negatively correlated with inauthentic voice, $r(196) = -.18, p < .05$, and enjoyment of sexualization, $r(196) = -.19, p < .05$. Being not exclusively heterosexual negatively correlated with traditional masculine beliefs, $r(196) = -.16, p < .05$, importance of romantic relationships, $r(196) = -.16, p < .05$, and sexual fidelity, $r(196) = -.37, p < .001$. These data suggest that participants who identify outside of exclusively heterosexual have lower levels of endorsement of traditional masculinity beliefs, importance of romantic relationships, and traditional notions of monogamous sexual fidelity. Sexual orientation had a marginally significant negative relationship with appearance investment, $r(196) = -.15, p < .075$, and traditional feminine beliefs, $r(196) = -.14, p < .075$. Being partnered was negatively correlated with traditional masculine beliefs, $r(196) = -.16, p < .05$, and modesty, $r(196) = -.14, p < .075$. Being partnered also was positively correlated with importance of romantic relationships, $r(196) = .17, p < .05$. We control for these three demographic factors in subsequent analyses.

**Testing the Research Questions**

Our first question addressed possible group differences between athletes and non-
athletes in the gender beliefs. To test this question, we ran a series of Analysis of Covariances (ANCOVA) comparing athlete and non-athlete participants in the 10 gender belief variables, controlling for age, sexual orientation, and partnered status. Results are provided in Table 3. The only significant difference was that non-athletes endorsed appearance investment at a greater level than athletes.

Our second question addressed possible racial group differences in the gender beliefs. To test this question, we ran a series of ANCOVAs comparing Black and non-Black participants in the 10 gender belief variables, controlling for age, sexual orientation, and partnered. Results are provided in Table 4. Black female participants offered significantly lower investment in appearance norms and less inauthentic voice than did non-Black women. Black women also offered a marginally significant lower level of endorsement of modesty norms than did women who are not Black.

In order to test how women’s beliefs about gender norms, in general, relate to their personal gender-related behavior, we ran a series of partial correlations between the seven gender belief variables and the three gender-related behavior variables, controlling for the demographic variables. Analyses were first run separately for the two groups of women. These results are provided in Table 5a and 5b. Analyses were then run separately for athletes and non-athletes; these results are provided in Tables 6a and 6b.

Results from these correlations indicate that, among non-Black participants, there was a positive association between inauthentic voice and CFNI-Modesty. Inauthentic voice had a negative association with SBW beliefs in non-Black women. Results indicated a positive relation between enjoyment of sexualization and the
following gender belief variables: CFNI-Appearance investment, CFNI-Importance of romantic relationships, femininity, and masculinity beliefs. Conversely, enjoyment of sexualization was negatively correlated with SBW beliefs and CFNI-Sexual fidelity. More frequent engagement in sexualized behaviors was associated with weaker endorsement of traditional femininity beliefs emphasizing modesty, sexual fidelity, and the importance of relationships, and with a stronger appearance investment.

Results from Black female participants revealed a similar though less consistent pattern. Among Black women, having a more inauthentic voice was associated with stronger acceptance of feminine modesty and traditional femininity. In addition, Black women had weaker support of SBW ideals. Engaging in self-sexualizing behaviors was associated with a marginally significant greater appearance investment and greater acceptance of sexual fidelity. Enjoyment of sexualization was negatively correlated with CFNI-Sexual fidelity. In addition, enjoyment of sexualization was positively correlated with CFNI-Appearance investment.

Results in Tables 6a and 6b provided the relationships between athletes and non-athletes with women’s general gender beliefs and their personal gendered behavior. For athletes (n = 78), SBW belief was negatively correlated with inauthentic voice. Inauthentic voice had a positive correlation with CFNI-Modesty, suggesting that athletes who endorse traditional notions of women being modest are more likely to engage in self-silencing behaviors. Enjoyment of sexualization was positively correlated with the following gender belief variables: masculinity beliefs, femininity beliefs, CFNI-Appearance investment, and CFNI-Importance of romantic relationships. No significant correlations were found for CFNI-Sexual fidelity.
For non-athletes ($n = 117$), SBW belief was negatively correlated with Inauthentic voice. Inauthentic Voice was, however, associated with higher endorsement of feminine modesty. Self-sexualization had a positive association with masculine beliefs and CFNI-Importance of romantic relationships. Self-sexualization was negatively correlated with CFNI-Appearance investment. In addition, self-sexualization had a negative relation with CFNI-Sexual fidelity. Enjoyment of sexualization was positively correlated with the following gender belief variables: masculine beliefs, CFNI-Appearance investment, and CFNI-Importance of romantic relationships. Conversely, enjoyment of sexualization had a negative relation with CFNI-Sexual fidelity.

**Discussion**

The current study sought to go beyond the small body of literature concerning female athletes and Black women by exploring gender beliefs and gendered behaviors in these two populations. We examined how traditional masculine and feminine gender belief endorsement and gendered behaviors varied across athletes/non-athletes and Black women/non-Black women. A limitation to our study was a lack of Black female athlete participants. University of Michigan athletic rules prohibit contacting athletes directly about surveys and studies and when we sent the survey to Black women at the University of Michigan, only a small population responded. Consequently, we generated five main hypotheses. First, we expected athletes and Black women to endorse traditional beliefs about masculinity more than non-Black women and non-athletes. Results indicated no significant differences in endorsement of masculine norms between athletes/non-athletes and Black women/non-Black women. Although no significant differences were found, traditional beliefs
about femininity were endorsed at a lower rate than traditional beliefs about masculinity for both groups (see Table 1). These data speak to a generation of young women, including Black women and athletes, who disagree with traditional notions of femininity, which confine women to the home. The Feminine Ideology Scale (Tolman & Porche, 2000) was developed nearly two decades ago and considering the low endorsement of traditional feminine beliefs, an adapted scale of contemporary feminine ideology is needed, given new wave of feminism encouraging women to challenge traditional notions of femininity.

Surprisingly, Black women were significantly less likely to be inauthentic or suppress their voice in personal relationships. Results did not support our hypothesis that Black women would participate in self-silencing and self-sexualizing more than non-Black women. Additionally, Black women, on average, slightly agreed with the SBW principles. These results combined suggest that Black women in this sample did not endorse SBW strongly, therefore they were less likely to agree/participate in self-silencing behaviors. Previous research on the SBW stereotype (McNair, 1992) demonstrates how endorsement of this stereotype can lead to an inability to speak up and ask for help when needed. However this is not the case for our study, where data suggests Black women are more authentic in romantic relationships. Nelson, Cardemil, and Adeoye (2016) argued that the SBW image serves to counter negative images of Black women and this proved to be true in this sample. Our data suggest that Black women negotiate gender roles without needing to silence or repress themselves.

For Black women and athletes, we expected that their endorsement of traditional notions of femininity would be equal to non-Black women and less than
non-athletes, respectively. Our data suggest this to be true. Results indicated that for athletes and Black women, only one of the seven gender belief variables had a significant difference: appearance investment. Results indicated that Black women and athletes invest in their appearance significantly less than non-athletes and non-Black women. Furthermore, Black women endorse traditional notions of modesty marginally less than non-Black women. Combined, these results show little difference in traditional gender beliefs between Black women/non-Black women and athletes/non-athletes, suggesting that Black women and athletes do not believe in traditional notions of femininity. Previous research (Tolman et al., 2006) demonstrates how endorsement of traditional notions of femininity can have negative mental health outcomes such as depression and low self-esteem. Given that our results indicate that Black women and athletes do not highly endorse traditional notions of femininity, it is possible that these women may experience less negative mental health outcomes when negotiating gender in the daily lives.

Similarly, we expected athletes to participate in self-silencing and self-sexualizing behaviors more often than non-athletes. Non-athletes invested in their appearance significantly more than athletes. There was not a significant difference for athletes and non-athletes in self-silencing. We were expecting to see the opposite effect, given that female athletes may feel a threat to their femininity if they are not investing in their appearance. These findings are consistent with previous literature on feminine gender identity and female athletes (Krane, 2004). The aforementioned study demonstrates the ability to balance feminine and athletic identities through conducting each identity in separate social spheres. Our results suggest that female athletes are able
to negotiate gender identity and athletic identity in their daily lives.

Lastly, we expected the correlation between gender beliefs and gendered behaviors to be weaker for Black women and athletes. Our data indicate this to be true. Results demonstrated more relations and stronger connections between non-Black women and non-athletes. These results suggest that non-athletes and non-Black women that endorse traditional gender beliefs participate in self-silencing and self-sexualizing behavior more than athletes and Black women who endorse traditional gender beliefs. Factors that influence these results could include positive group orientation, which conveys the idea that the athletic community (e.g. teams, coaches, and adults) and Black community (e.g. church, family, and school) provide a buffer to the negative effects of internalization of these gender beliefs.

**Conclusion**

Our study sought to expand on the small body of literature regarding Black women and contribute to the body of literature on female athletes by investigating how female athletes and Black women navigate gender, masculinity, and femininity. Black women and female athletes occupy a unique position that challenges traditional ideas of masculinity and femininity, which can lead to self-silencing or self-sexualization as subsequent coping behaviors. Our results demonstrate a stronger connection between gender beliefs and gendered behaviors for non-athletes/non-Black women, which suggest that non-athletes/non-Black women who endorse traditional notions of femininity are more likely to participate in self-sexualizing or self-silencing. These results also suggest that Black women and athletes have an understanding and balance of the gendered expectations of them as women. Future research should seek to focus on the Black
female athlete experience, as our study was unable to recruit a significant amount of this population.

References


An Analysis of the Interaction between Stigma Consciousness and Grit on Academic Outcomes among White and Racial Minority College Students

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Abstract- The present study investigates whether there is an interaction between stigma consciousness and grit among academically stigmatized racial minority students. Past research has highlighted that stigma consciousness is associated with poorer academic performance among academically stigmatized racial minorities, but research on grit, the role of perseverance and passion for long-term goals, among academically stigmatized racial minorities has been neglected in psychological literature. It was hypothesized that grit moderates the relationship between stigma consciousness and GPA, such that greater grit interacts with high stigma consciousness scores to predict better academic performance. An online survey was conducted at a private, predominantly White university, and 185 ethnically/ racially diverse students completed the study. An analysis of variance demonstrated a significant difference in stigma consciousness by race, such that racial minorities reported significantly greater levels of stigma consciousness in comparison to White students ($F(3, 181) =14.01, p <.001$). A multiple linear regression analysis did not demonstrate a significant interaction between stigma consciousness and grit in relationship with GPA, ($p >.05$). It is possible that contextual factors, like racial biases and the surrounding environment of the educational institution, may play a role in increasing stigma consciousness among racial minorities.
An analysis of the interaction between stigma consciousness and grit on academic outcomes among white and racial minority college students

Stigma has been defined as a “mark of disgrace” on individuals who are “othered” and thereby members of a stereotyped group (Link & Phelan, 2001). Stigma consciousness is characterized by feeling stigma enacted against one’s group and being conscious of it (Pinel, Warner, & Chua, 2005). Stigma consciousness is cognitively induced and is related to the expectation of being stereotyped. According to Mosley and Rosenberg (2007), the key feature of stigma consciousness is the belief that interactions with members of non-minority groups are affected by one’s stereotyped status.

Several studies have highlighted the association between high levels of stigma consciousness and poor academic outcomes. Pinel and her colleagues’ (2005) research study found that African American male students who rated high on stigma consciousness reported lower GPAs. Findings suggested that African American students are made to feel that they are less intelligent compared to their non-minority peers, indicating they are stigmatized into performing less exceptionally or to the point of dropping out. Several environmental factors influence lower academic performance among African American male students. For example, research has found that racial minority students are often not academically challenged by White teachers and peers due to a positive feedback bias (Harber, 1998). Deprivation of stimulating challenges and critical feedback has detrimental consequences to African American students’ academic achievement (Steele, 1995). Past research also suggests stigma is context-specific, meaning that the environment of a stigmatized individual influences their self-perception and their
perception of how others perceive them. Pinel et al. (2005) highlights that vulnerable individuals are more prone to experience stigma consciousness in environments where their minority status is clearly felt. Environments in which underrepresented individuals must interact with out-of-group members particularly heighten the probability of stigma consciousness (Pinel et al., 2005).

Another study analyzed stigma consciousness in female African American students at a predominantly White university (PWU). Mosley and colleagues (2007) analyzed levels of stigma consciousness and self-efficacy. Their results demonstrated individuals with higher levels of stigma consciousness had lower levels of self-efficacy and lower academic performance. In the second phase of Mosley and colleagues’ (2007) research study, researchers conducted qualitative interviews to evaluate individual experiences of stigmatization and found that black female students felt that they must “work three times as hard to succeed” (Mosley et al., 2007, p. 103).

Interestingly, there is also evidence that suggests an awareness of racism may have the opposite effect on achievement orientation. Sanders (1997) found that African American students who reported greater awareness of discrimination against their racial group also reported greater academic achievement. Students perceived racism as a “challenge” and viewed “academic success as an opportunity to prove to a racist society” that negative stereotypes regarding academic performance are incorrect (Sanders, 1997, p. 89). Therefore, it is possible that there is an interaction effect underlying the relationship between achievement orientation and stigma consciousness with academic outcomes.

Since Sanders (1997) highlights that racial minorities may try to challenge
stereotypes by way of academic achievement, perhaps non-cognitive traits play a role in academic settings for marginalized racial groups. The exertion of academic effort despite general obstacles is a topic that has been recently gaining more traction in developmental and school psychology. This motivation is characterized by an inner drive that influences students to improve their academic performance while facing multiple setbacks and challenges. One highly popularized construct characterized by an inner drive system is referred to as grit.

**Grit**

Grit refers to perseverance and passion for long-term goals (Duckworth, Peterson, Matthews, & Kelly, 2007). According to Duckworth et al. (2007), the internal drive to make the best use of one’s cognitive abilities is what distinguishes individuals higher in grit from individuals lower in grit. Grit “entails working strenuously toward challenges, maintaining effort and interest over years despite failure, adversity, and plateaus in progress” (Duckworth et al. 2007, p. 1088). Grit consists of trait-level perseverance, and Duckworth et al. (2009) later revised and validated their initial grit scale to narrow down on two factors of grit: consistency of interest and perseverance of effort. Duckworth and colleagues (2007) analyzed the relationship between grit and two measures of academic ability (SAT scores and GPA) among a sample of 139 Ivy League undergraduates. Their findings demonstrated that grit was positively correlated with GPA and SAT scores.

Strayhorn (2014) assessed the relationship between grit and academic success in a sample of 140 African American college students enrolled in a PWU. Academic performance was found to be moderately correlated with grit level, with grit predicting GPA beyond traditional
measures of academic performance (SAT, ACT). Another study analyzing grit among Latinx students at a PWU demonstrated that students with immigrant status, as opposed to citizenship, had significantly higher levels of grit (O’Neal et al., 2016). Researchers attribute immigrants’ higher levels of grit as a response to social pressures and educational barriers. Indeed, students reported that they sought to resist against stereotypes made against their racial group and overcome challenges (O’Neal et al., 2016).

The desire to resist stereotypes made against one’s intellectual abilities by excelling academically contradicts previous research (Pinel et al., 2005) that highlights a linear relationship between stigma consciousness and academic achievement. Racial minorities who faced academic stigmatization had high levels of grit in spite of the barriers they faced, and demonstrated higher academic performance (O’Neal et al., 2016; Strayhorn, 2014). Thus, an internal drive system, like grit, may interact with stigma consciousness to produce better achievement outcomes. Racial stigmatization has been shown to serve as an inspiration for minorities to work harder (O’Neal et al., 2016; Strayhorn, 2014).

Hypotheses

Considering past research findings, it is plausible high levels of grit moderate the relationship between stigma consciousness and academic performance. The possibility of this moderation lays the groundwork for the reasoning behind the current study. Stigmatized students may interpret harmful stereotypes as a reason to work harder and prove to themselves and others that these stereotypes are incorrect. Thus, the current study aims to answer whether grit significantly moderates the relationship between stigma consciousness and academic performance. There is a lack of consensus in psychological literature on whether racially
stigmatized students have better or worse academic outcomes in comparison to White peers; the current study seeks to address these discrepancies. The present investigation proposes four hypotheses:

$H_1$: Racial minority students are more likely to have higher levels of stigma consciousness than their White peers.

$H_2$: Grit will be positively correlated with GPA.

$H_3$: Stigma consciousness will be negatively correlated with GPA.

$H_4$: There will be an interaction effect in the relationship between stigma consciousness and GPA that is moderated by grit, such that students high in grit and stigma consciousness will also have higher GPAs.

Overall, this thesis will assess the relationship between stigma consciousness and academic performance among ethnic minority college students and synthesize research on grit. Grit refers to one’s perseverance and passion for long-term goals. Stigma consciousness levels will capture minority students’ internalized thought processes regarding their membership in a stigmatized racial group and is expected to be associated with poorer academic outcomes. Grit, however, is expected to moderate the relationship between stigma consciousness and academic performance, such that despite the potential negative impact of stigma consciousness, grit may provide students with the resources necessary to excel academically.

**Method**

**Participants**

The sample consisted of undergraduates attending a PWU in New York. Out of 298 participants, 80 (31%) reported their gender as male, 176 (68.2%) reported their gender as female, 1 (.3%) reported they were transgender, and 1 (.3%) reported they were agender. Ages ranged from 20 to 27 ($M=21.59, SD=1.77$). There
were 86 (33.6%) White, 78 (30.5%) Asian or Asian American, 66 (25.8%) Hispanic or Latino, 24 (9.4%) Black, African American, or West Indian, and 2 (.8%) American Indian/Native American or Alaskan Native students. Participants who did not complete the study’s primary measures were excluded from analyses, thus leaving a total of 185 participants for the current study. Native American respondents (n = 2) were also excluded from statistical analyses due to inadequate sample size for a representative comparison.

**Procedure**

Participants were recruited from Fall of 2016 to Spring of 2017. Three recruitment methods were utilized in the present study: emails, campus flyers, and course credit. A list of all ethnic/racial minority undergraduate and graduate students was obtained from the university registrar’s office. Participants completed the study online through a Qualtrics portal. The survey took approximately 40 to 45 minutes to complete.

**Measures**

**Stigma Consciousness.** To assess levels of stigma consciousness, participants were asked to complete a revised version of the 10-item Stigma Consciousness Questionnaire (R-SCQ), rated on a 7-point Likert scale. Response items were coded from 1 (Strongly Disagree) to 7 (Strongly Agree), such that higher scores indicate greater levels of stigma consciousness. The R-SCQ is structured to apply to all races. It includes statements like “My race/ethnicity does not influence how people act with me” (reverse scored) and “When interacting with White people, I feel like they interpret all my behaviors in terms of my race/ethnicity.” Items one through four and eight through ten were reverse scored. The total range among study participants was from 1 to 7, with a mean of 3.71 (SD=1.26). The R-SCQ
demonstrated high internal consistency ($\alpha=.83$).

**Grit.** The Short Grit Scale (Grit-S) was used to assess grit levels and consisted of an 8-item questionnaire, which was rated on a 5-point Likert scale. The Grit-S includes statements such as “Setbacks don’t discourage me” and “I am a hard worker.” Participants were asked to select responses ranging from a score of 1 (Not like me at all) to 5 (Very much like me). Items one, three, five, and six were reverse scored. Scores were averaged to represent individual students’ grit level. The total range of grit scores was from 1 to 4.88, with a mean of 3.22 ($SD=.65$). The Grit-S demonstrated acceptable internal consistency ($\alpha=.78$).

**Academic GPA.** Participants were asked to report their current cumulative grade point average. GPA scores that were not reported on a 4 point-scale (i.e., GPAs on a 100 point-scale) were converted for accurate interpretation. For instance, a GPA of 89 would be converted to a 3.45. The total GPA range among study participants was from 1.80 to 4.0, with a mean of 3.35 ($SD=.41$).

**Results**

**Stigma Consciousness**

To assess racial differences in stigma consciousness, an analysis of variance was conducted. Race of the sample was coded into the following groups: Asian or Asian Americans = 1; Black, African American = 2, or West Indian, Hispanic or Latino = 3; and White = 4. Stigma consciousness was treated as a continuous variable. Results demonstrated that there were significant differences in stigma consciousness by race, $F(3, 181) =14.01, p <.001$. The Levene test for equality of variance among the levels of the independent variable (stigma consciousness) found an $F$ value of .137 ($p=.94$). Thus, the assumption of homogeneity of variance was met.
Post hoc comparisons, using the Tukey HSD test, were then conducted to compare significant differences in stigma consciousness between racial groups. Post hoc comparisons indicated significant differences in levels of stigma consciousness between White and racial minority students. Asian or Asian Americans had an average stigma consciousness level of 4.27 (SD=1.11), which was significantly different from White students who had an average of 3.06 (SD=1.13). Of all racial groups surveyed in the present study, descriptive statistics demonstrate that Asian or Asian American students had the highest average level of stigma consciousness ($M=4.27$, $SD=1.11$). However, Asians or Asian Americans did not significantly differ in levels of stigma consciousness in comparison to Black ($MD=.07$, $SD=.39$) or Hispanic ($MD=.31$, $SD=.24$) students. Black students had an average stigma consciousness level of 4.20 (SD=1.31), which was significantly different from White students ($M=3.06$, $SD=1.13$). Black students did not significantly differ in levels of stigma consciousness in comparison to Hispanic or Latino students ($MD=.24$, $SD=.41$). Hispanic or Latino students ($M=3.95$, $SD=1.20$) demonstrated significantly different levels of stigma consciousness in comparison to White students ($M=3.06$, $SD=1.13$). Thus, the first hypothesis was supported.

**Grit**

The average level of grit in the sample surveyed was 3.21 (SD=0.65). Compared to past research studies that have found average grit scores to be approximately closer to 4.00, the study sample demonstrated lower levels of grit (Strayhorn, 2014). The bivariate correlation between grit and GPA was not significant, $r = .1$, $p > .05$. Thus, the second hypothesis was not supported.

**Academic GPA**
In order to assess whether stigma consciousness is correlated with GPA, descriptive statistics for stigma consciousness were first explored. The average level of stigma consciousness in the sample surveyed was 3.71 (SD=1.26). The bivariate correlation between stigma consciousness and GPA was not significant (r = -.03, p > .05). Thus, the third hypothesis was not supported.

**Stigma Consciousness * Grit: Moderation Analysis**

To test the final hypothesis that levels of grit moderate the relationship between an awareness of one’s stigmatized status and grade point average, a multiple linear regression analysis was conducted. Before conducting the regression analyses, average stigma consciousness (M=3.71, SD=1.26) and average grit scores (M=3.22, SD=0.65) were centered from the wider sample means of both respective scores. Then, an interaction term was created and entered into the regression model to determine if there was a significant interaction effect. Multicollinearity diagnostics were assessed and were within an acceptable range (i.e., .94 to .98). Results indicated that neither grit nor stigma consciousness was a significant predictor of GPA (β=-.06, t = -1.30, p > .05; β=-.01, t = -.38, p > .05), a finding consistent with the correlational analyses. The interaction term was also not statistically significant, (β= -.05, t=-1.37, p > .05). The regression equation for predicting GPA was: Y= -.05(SC*G) - .01(SC) -.06(G) + 3.36. The overall model was not statistically significant, R² =.02, F (3, 174)= 1.16, p >.05, R²=.02. Thus, the final hypothesis was not supported.

**Discussion**

The present study’s findings revealed a significant difference in stigma consciousness by race, such that racial minorities reported greater levels of stigma consciousness.
consciousness in comparison to White students \( (F(3, 181) =14.01, p <.001) \). Of the four hypotheses proposed, racial differences in stigma consciousness levels was the only statistically significant finding. It was initially expected that greater awareness of stigma enacted against one’s racial group and higher drive to face hardship would result in a buffering effect, resulting in higher GPAs. However, a multiple linear regression analysis demonstrated that grit does not significantly moderate the relationship between stigma consciousness and GPA \( (p >.05) \). In addition, stigma consciousness and grit did not demonstrate a statistically significant relationship with GPA \( (p >.05) \).

It is important to note that there were several limitations to the current study. One limitation was that students from basic psychology courses were oversampled. Therefore, this could have limited the sample population to students interested in taking psychology or required to take psychology. Furthermore, there were issues with study completion. At the start of the study, there were approximately 300 participants, but the total number of participants who completed the study dropped to 185. Considering the large amount of missing data, this raises concerns for why participants did not complete the study and shared characteristics of participants who completed the study’s measures. A strength of this study was that it was the first in its kind that has investigated an interaction between stigma consciousness and grit. Therefore, the nature of the study was exploratory and based on a theoretical framework that a noncognitive trait like grit can predict academic success in racial minority students.

Academic performance is not measured in a vacuum; environmental factors play a role in students’ academic performance. Perhaps the greater levels of
stigma consciousness reported among racial minorities in comparison to White students in the present study is partially influenced by inadequate representation of racial minorities in the educational institution’s faculty, student body, and staff. Thus, within the university’s campus gates, there is a strong possibility of heightened psychological salience of minority students’ racial identity and abilities. One well-documented study analyzed White and non-White undergraduates perceived sociocultural isolation on campus (Loo & Rolison, 1986). Researchers conducted a chi-square analysis and found that minority students reported significantly greater sociocultural isolation than their White peers (Loo & Rolison, 1986). Racial minority students, therefore, are more likely to feel distanced from their wider campus community. Loo and Rolison (1986) also found that Asian and African American students reported experiencing pressure to conform to racial or ethnic stereotypes made against their group and reported experiences of unfair treatment by university faculty. This research is pertinent to the present study considering that Asian students reported the highest average level of stigma consciousness in the sample ($M=4.27$, $SD=1.11$), followed by Black students ($M=4.20$, $SD=1.31$). It is vital to consider the strong possibility that the Asian and Black students surveyed in the present study are made aware of their stigmatized status because of the university’s sociocultural campus climate.

Grit captures higher perseverance to accomplish one’s goals, but the construct does not highlight how often other-race individuals (faculty, staff, peers) expect minorities to accomplish said academic goals. Considering the study’s nonsignificant findings on grit and its relationship to minority students’ GPA, future research must take this into
consideration when comparing racial groups on this measure, and must interpret racial differences cautiously. The responsibility lies with psychologists to assess grit and social responses to one’s grit among minority students to determine which racial groups are able to accomplish their goals, especially if educators or educational institutions obstruct their arduous efforts. Furthermore, more research needs to be conducted on the utility value of interventions that seek to foster and increase student’s levels of grit. The present study’s findings on stigma consciousness suggest that it would be more conducive to instead work towards reducing racial biases and ending systemic inequalities that contribute to high awareness of stigma among racial minority students in predominantly white institutions.

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Do Participants Perform Differently on an Administered Test under a Time Constraint versus under Observation of a Test Administrator?

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Abstract- This study investigated whether different types of testing pressure had a statistically significant effect on participant performance. Georgetown University undergraduate students (N = 45) were tested under three conditions: control, time-constrained, and monitored. This was a between-subjects study and thus each condition contained 15 participants. Each participant, regardless of condition, was given a 10 question test adapted from the SAT exam to complete. A one-way analysis of variance (ANOVA) test was then used to compare the means between these three levels of the independent variable (IV), participant score. While no significant difference in the means was discovered, this could be an indicator of how different populations may react differently to pressures. In previous research, elementary and middle-school aged children were the main participants in studies which determined that pressures had a significant effect on performance score. Thus, college aged students may have adapted to the pressures of schooling. In the sample collected, however, control group participants performed the best, followed by monitored students then time-constrained students.

Do participants perform differently on an administered test under a time constraint versus under observation of a test administrator?

There is much debate in today’s society about the quality of education.
Instructors use a widely accepted style of testing that hinges on repetition in a small amount of given time, and extreme monitoring of said tests. While the education system has reasons to implement time constraints and monitoring presences, these could potentially be factors that lead to a student’s low performance or performance anxiety. When measuring cognitive performance, the type of pressure that is applied is fundamentally tied to the level of performance observed (McCoy, Hutchinson, Hawthorne, Cosley, & Ell, 2014). Thus, the present experiment focused on two pressures—time constraint and monitoring pressure—and how they influenced performance.

The objective of this study was to determine and compare the effects of two types of pressure on test performance. Although research regarding the effects of pressure on physiological performance has been conducted, this study further explored the effects that these pressures may have had on student examination performance. The goal of this research was to expound upon the theory that pressures have a profound effect on participant performance and apply these findings to students under pressure during testing conditions. This study examined Georgetown students under different types of pressures—namely time and monitoring pressures—and had them complete an examination under these pressures. Scores were then compared between pressure groups to determine how pressure type affected performance.

Time Pressures

Time pressures are linked to a higher sense of competition in individuals when there is a specific time constraint applied to a given situation (Saravia & Iglesias, 2015). However, research has shown that the presence of competition has effects on anxiety, heart rate, and muscle activity, which can adversely affect subjects in a
cognition task study (Cooke, Kavussanu, McIntyre, & Ring, 2011). Thus, the elevated sense of competition due to time constraint may be a factor that may be affecting the outcomes of individual performance.

In many studies, time pressure has been shown to negatively affect performance. Rendon-Velez et al. (2016) found that time pressure has been linked to increased physiological activity and lowered performance, and that the effects of time pressure on behavioral performance when compared to no time pressure are large and statistically significant. This means that the stress induced by time pressure is more than psychological in nature. In many cases, the mere fact that individuals know that they are being timed is enough to decrease their productivity and performance. Time constraints directly impact performance (De Paola & Gioia, 2016), and thus it is important to view this as one of the many types of pressures that can be compared within the pressure factor.

**Monitoring Pressures**

Poor performance can occur when individuals are being watched, and these effects are especially exacerbated when one’s performance is being evaluated (Belletier et al., 2015). One study on monitoring pressure, which is the stress inflicted on an individual as a result of being watched, resulted in a statistically significant impairment in task completion (McCoy, Hutchinson, Hawthorne, Cosley, & Ell, 2014). A basic human response is to “impress” and showcase proficiency in given tasks when being observed by another individual. A chimpanzee study suggested that from an evolutionary fitness standpoint, it is crucial for animals to have a hypersensitive awareness of being watched, and as a result these factors have an effect on animal behavior (Engelmann, Herrmann, & Tomasello, 2016). A music study
discovered that there is a relationship between pressure in music and a decrease in attentional processes (Wan & Huon, 2005). Thus, monitored pressure contributes a statistically significant change to performance.

The presence of eye contact also seems to have a profound impact on an individual’s performance. When individuals make eye contact with another person while performing a task, performance decreases. This was proven using the Stroop test, which is a used to measure reaction time. Individuals are shown names of colors written in the same color which they spell out. Then, these same individuals are shown names of colors written in colors that do not match the word they spell out. Participants are instructed to say what the color of the words are, and participants in the latter scenario have a longer reaction time compared to those of the former scenario (Prevor & Diamond, 2005). Performance on the Stroop test showed more interference when eye contact between the participant and another individual was sustained during the test, as compared to no eye contact (Conty, Gimmig, Bellentier, George, & Huguet, 2010). This furthers the idea that monitored pressure affects performance negatively.

Research must be conducted regarding more than just one possible source of pressure and many perspectives ought to be considered when dealing with “pressures on performance”. DeCaro, Thomas, Albert, & Beilock (2011) found that both skill failure (failure to complete the task) and skill success (success in completing the task) depends heavily on the performance environment. Task completion also depends on how much focus is required. There is an additional stress of expectation and performance ability. It has been found that the more integral that optimal performance is to the acquisition of a reward, the less
likely an individual is to perform at that level (Hickman & Metz, 2015). This is relevant because it highlights the importance participants place on “reaching the expectations” of an administrator. If participants have an additional pressure of meeting expectations, they will perform worse than they would without that pressure.

**Present Study**

This study offered novel insight into how different pressures relating to testing conditions can affect test-takers negatively and how these negative effects can be significant when measuring performance ability. A study in which two types of testing pressures were measured had not been previously completed, and this study helped the researchers better understand the roles of monitoring pressure and timed pressure on individuals. In the studies mentioned above, researchers discovered relationships between solely monitoring pressure versus performance, or solely time pressure versus performance. This study measures both those performance statistics and compared them with each other.

The hypothesis stated that the more pressure an individual was under, the worse they would perform. H1 stated that time constrained students would perform worse than the control, and H2 stated that students in monitored conditions would also perform worse than the control. The control group was unmonitored and given unlimited time to complete the test. H3 stated that unmonitored students would perform better than monitored students, and non-time constrained students would perform better than time constrained students. Time constrained students with no monitoring were also expected to perform better than the monitored students without a time constraint.

**Methods**

**Participants**
This study observed 45 participants: 23 males and 22 females. This is so there would be a representative sample (gender) and equal representation. These participants were sampled from the population of Georgetown undergraduate students whose ages ranged from 18 to 21 years (M= 19.58, SD= 1.28). The participants in the study all had a basic understanding of the math and English grammar skills needed to complete the cognition test in its entirety. Participants were volunteers recruited by asking random individuals at random locations on the Georgetown University campus about the opportunity to participate in this study. Each participant received further logistical information about the study upon agreeing to be involved in it.

**Apparatus**

The materials used in this study were a consent form, a demographics questionnaire, and a brief cognitive test. The consent form disclosed the necessary facets of the experiment and was completed and returned before any individual participated in the experiment. The demographics questionnaire was a simple questionnaire that asked for the school year, gender, ethnicity, age, and years of education (pre-kindergarten not included). The cognitive test was adapted from questions on the SAT college admissions examinations. The test featured eight mathematics questions and two grammatical writing questions from the SAT. The mathematics questions did not require math education past the level of Trigonometry and Algebra II. The following is an example of the kinds of questions used on the examination:

I. What is the slope of any line parallel to the line $9x + 4y = 7$?

   A. $-9$
   
   B. $\frac{9}{4}$
   
   C. $\frac{9}{7}$
   
   D. 7
Design

The participants were placed in pressure groups via random assignment. In this experiment, there were two independent variables. One was a 7-minute time constraint, and the other was monitoring pressure, which was the presence or absence of a research administrator. The time constraint was 7 minutes because after administering pilot test runs, 7 minutes were just under the amount of time needed to comfortably complete the examination. The dependent variable was the performance score on the administered examination. Controlled variables were the level of cognition ability, as all Georgetown undergraduate students have had basic English grammar and Trigonometry and Algebra II experience. A potential confound for this experiment could have been if some individuals were much more advanced in mathematics than other individuals. Another could be if they were lower or upperclassmen, as the time since taking a college placement test increases as students grow older. However, these confounds should have disappeared or been distributed with random assignment.

Procedure

The experiment used three different groups of randomly assigned test participants. Participants were tested individually in a private study room. The examination was placed face-down on the table when the participant entered. A consent form on the table clarified what the participant was partaking in; it also notified the participant that they reserved the right to leave the room and cancel their data at any point of the examination. The rules for their condition (either monitored or time constrained) were explained to the participants and they were instructed to begin when the researcher said “Start”. During the time constrained condition, the
The researcher placed an iPhone with its countdown clock feature directly in front of the participant. In this condition, the researcher then left the room until the countdown alarm sounded. For the monitored condition, the researcher stayed in the room, standing, for as long as the participant needed to finish. The examination was not expected to take more than 12 minutes, but the time window for each administered participant was 15 minutes, to allow for outliers.

**Data Analysis:** The dependent variable was measured, which was the performance on the administered test, using a ratio scale of 0=no questions answered correctly to 10=all questions answered correctly with all possible whole number scores in between possible. Test scores between the three variables were compared using independent samples t-test to compare the means of three scores.

**Results**

The analysis focused on participants’ performance (score) on an administered examination, with performance measured under certain stressors. Scores were calculated by assessing how many questions out of 10 were correct on the examination.

The comparison of the means between the three groups (control, time-constrained, monitored) was calculated using an analysis of variance (ANOVA) test. At the current sample size, the ANOVA revealed no significant results. The three groups tested did not have significantly different means, $F(2,42) = 0.541, p = 0.68$. Therefore, the different testing conditions did not have an impact on participants’ scores.

**Discussion**

The analysis focused on participants’ performance (score) on an administered examination, with performance measured under certain stressors. There were three hypotheses tested in this experiment:
unmonitored students (control) would perform better than monitored students, non-time constrained students (control) would perform better than time-constrained students, and time-constrained students with no monitoring would perform better than monitored students with no time constraint. Findings indicate that there were no significant differences between any of these groups (Figure 1).

On average, time-constrained participants, monitored participants, and the control group all performed the same on an administered examination. The average performances of the three groups were not different enough to reject, at a 95% confidence level, the null hypothesis that monitored participants and time-constrained participants would perform at the same level as a control group without a time constraint and without monitoring. Thus, the data failed to accept the alternative hypothesis that pressures (time-constraint and monitoring) have a significant effect on performance. These results are inconsistent with previous research, which suggest that time constraints directly impact performance (De Paola & Gioia, 2016), and that poor performance is especially exacerbated when one’s performance is being evaluated and watched (Belletier et al., 2015). This inconsistency could stem from a variety of factors, which will be discussed in the limitations section. The findings that certain pressures have no significant effect on performance may offer a novel insight into how pressure is viewed as related to performance. These findings may imply that there is a third variable, such as testing anxiety level, in the relationship between pressure and performance.

One other issue is the small amount of research that explores the adaptation of college-age students to time and monitoring pressures. The hypothesis that these pressures adversely affect performance
cannot be accepted in this study, and thus perhaps students at this age are not affected by these pressures as much as school-aged children are. However, there has been little to no research that explores this adaptation phenomenon.

**Limitations**

Firstly, the sample size collected was relatively small. Each level of the IV only contained 15 participants, and thus there was less opportunity for a true representation of the Georgetown undergraduate population. However, the sample population from which the data was drawn (mainly, undergraduates on the second floor of Lauinger Library) may even be unreliable, as students who study on this social floor of the library may not be representative of the Georgetown undergraduate population as a whole.

Secondly, some participants may have had more math experience than others. This is a potential limitation on the study since the administered test was made up of eight math questions and two grammatical questions. Thus, students who may have been in upper level math courses would have found the test easier to complete and be able to complete it in a shorter time period. Conversely, students who may have had little to no college math experience may have found the test more difficult to complete and may have took more time to complete it. It is also possible that despite the fact that participants were randomly grouped into one of the three IV levels, more or fewer of high/low math skilled individuals could have been placed into any one of the groups, possibly skewing the data. The data may have also been skewed by the year of participants. Since the test was created using old SAT examinations, younger students may have performed better due to the proximity in time since their own SAT placement exam. Thus, college year may have been a confounding variable in the study.
Thirdly, logistical issues with the test administration could have posed problems for the acquisition of accurate data. 7 minutes were allotted for the 10-question test under the time-constrained condition. Many students, in all of the pressure groups, finished the test before time was called. Inaccurate results may have been gathered due to an inappropriately large amount of time given to these students. If the 7-minute constraint had been lowered to 5 minutes, which was the average amount of time each student took to finish the test, the results may have been more consistent with past studies, and the aforementioned hypothesis.

Conversely, if the test had been more difficult with the same 7-minute constraint, the results may have been more consistent with past studies.

**Future Research**

There are a number of ways in which this study can be improved for future research. Introducing the aspect of competition between participants for a higher score could prove promising for a future study. Time pressures are linked to a higher sense of competition in individuals when there is a specific time constraint applied (Saravia & Iglesias, 2015), and research has also shown that the presence of competition has effects on anxiety, heart rate, and muscle activity, which can adversely affect subjects in a cognition task study (Cooke, Kavussanu, McIntyre, & Ring, 2011). This could provide insight into whether competition can influence a statistically significant difference in performance between a time-constraint and a control group. Another follow up study opportunity would be to introduce more IVs. This study only had one IV with three levels. In the future, it could have multiple.

For example, gender, college year, and major could all be used to determine effects of these IVs on performance score. Future studies could also explore different ways to
test participants. For example, instead of testing participants individually, researchers could conduct time-constrained and monitored conditions in groups. This may result in data that is more consistent with previous studies.

In conclusion, this study showed that there is no relationship between performance and pressure. This study aimed to maintain external validity, and thus these results may be applied to a general college-aged population. These findings are crucial in helping researchers understand undergraduate students. Many of the aforementioned studies focused mainly on elementary-middle school children instead of college aged students. In these studies, researchers recruited students from middle and elementary schools, and very seldom were college students involved. These findings could be a good indicator of how college students have learned how to handle and cope with constant stressors on performance, such as time constraints and monitoring pressure. This could point to a deeper psychological connection, where college aged students are more desensitized to test-taking pressure than younger students, and are thus no longer affected by these pressures. This would explain why there is no statistical significance between pressure and performance in this study, as compared to the previously mentioned studies. More research on the relationship between college aged student performance and pressure is an excellent direction to look for future studies.

References


Figure 1. Performance Between Experimental Groups Graphed with Type of Group, Along with Standard Error Bars for Each Respective Group Mean. There is no statistically significant difference in the means of the three groups.
Gender and Perceived Dysfunction in Family Relations

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Abstract- Family dysfunction is common and manifests itself in differently in different families. This study explores the relationship between gender and the perception of family dysfunction. Participants completed three scales: Family Health scale, Family Views scale, and Satisfaction with Family Life scale. They then rated how normal, functional, happy, and common two family situations are, with one scenario being obviously dysfunctional (obvious scenario) and the other showing more nuanced signs of dysfunction (subtle scenario). Finally, participants answered demographic questions in addition to questions about their family life and upbringing. Females rated both family scenarios as less happy, functional, and normal than males did. Implications for the field of family therapy are discussed.

Gender and Perceived Dysfunction in Family Relations

Many prominent psychiatrists and therapists believe that the family plays a central role in determining mental health. This argument was developed most fully by members of the so-called ‘anti-psychiatry’ movement, notably R.D. Laing and Thomas Szasz. In Laing’s 1964 book Sanity, Madness, and the Family, he details the insidious effects of family dysfunction on the mental state and its relation to the onset of schizophrenia. Laing developed a method that enabled him to study “at one and the same time (i) each person in the family; (ii) the relations between persons in the family; (iii) the family itself as a system” (page 23). He calls the family a “hyperorganism, with a physiology and pathology, that can be well or ill” (page 23). This literature set the
foundation for the important idea that the family is a system of relationships from which no one person can be examined in isolation.

Another important focus of family psychology is attachment theory. Its pioneers, Mary Ainsworth and John Bowlby, conducted extensive research on how an infant’s attachment with its mother can influence and predict later relationships, not only within the family but with everyone (Ainsworth and Bowlby, 1991). There is much overlap between the characteristics of a secure attachment relationship and a functional family, and there are similarities between an insecure attachment and a dysfunctional family. Kapanee and Rao (2007) studied attachment style in relation to family functioning and distress in college students. They found that securely attached individuals reported significantly higher levels of adaptability, cohesion, and satisfaction in their family of origin, and that as family dysfunction increased, participants reported less parental attachment and more interpersonal distress. Their cross-sectional study found significant differences between the securely attached and insecurely attached on various dimensions of family functioning and on psychological distress, such as cohesion, expressiveness, family sociability, and other dimensions.

Family dysfunction has been linked with a number of other health problems. Dysfunction within the family is consistently correlated with adolescent suicidal ideation and behavior in many different samples (Prinstein, Spirito, Little, Grapentine, 2000). However, there is also evidence that family functioning may not have a strong direct association with suicidal ideation but may instead share variability with other predictors, such as psychological distress (Prinstein, Spirito, Little, Grapentine, 2000).
Another major problem linked with family dysfunction is eating disorders. This is especially true among the female population. Many studies have linked problematic familial interaction to the emergence of eating problems among college women (Cashwell & Holston, 2000). Cashwell and Holston (2000) found that the family interactional styles that influence the initiation of eating problems among college women are enmeshed, intrusive, hostile, and negating of the child’s emotional needs. Weight preoccupation and bulimic behaviors have been linked with an absence of a positive, supportive, and emotionally connected parental relationship. Their study found that although perfectionism and self-esteem had the strongest direct effects on the development of eating disordered behavior, family cohesion had a significant direct effect (Cashwell and Holston, 2000). The finding that family dysfunction primarily affects women in terms of later eating disorders may also point to gender differences in the perception of family dysfunction.

Literature suggests that achieving a better understanding of family dysfunction is important. Throughout all of the present research, there appears to be a lack of focus on the relationship between gender and perceived family dysfunction. This study aims to fill this gap by testing for gender differences in the perception of dysfunction through a mixed methods study. Are women more sensitive to sensing dysfunction in family relations? And are women more able to differentiate between the obvious and nuanced signs of family dysfunction? The current study seeks to examine these research questions.

Methods

Participants

Participants were 166 adults above the age of 18 recruited via Amazon Mechanical Turk (MTurk) and introductory
psychology courses. The survey respondents were recruited through MTurk while the interview respondents were recruited through Georgetown psychology courses to take the survey in a one-on-one interview with the principal investigator of the study. 100% of the 10 additional interview participants were women with a mean age of 19.12. Of the 166 survey participants, 53.6% were male and 44% were female. The mean age of this sample was 34.31, with a standard deviation of 9.1 years. For those 166 participants, the survey was administered through Qualtrics.

**Procedure**

The researchers administered a survey via the data analysis website Qualtrics. The participants were given three questionnaires at the start of the survey. The first questionnaire, called the Family Health Scale, asks participants to rank a series of 20 statements about the participant’s family life on a scale of 1-9 with the options ranging from “Definitely Not True” to “Definitely True.” This scale is an updated version of the Family Relationship Index (FRI), first created by Moos and Holahan in 1981. It is a self-report measure that provides an overall index of the quality of the family environment through three subscales of Family Cohesion, Expressiveness, and Conflict. This section aimed to have a basis for comparison for participants’ personal family environment. The second questionnaire, called the Family Views Scale, asked participants to rank certain aspects of family life on a scale of 1-9 based on level of importance. This section aimed to understand how participants view and prioritize these aspects of family life. The third questionnaire presented the Satisfaction with Family Life Scale (SWFL Scale), which is a scale designed to assess an individual’s global judgment of family satisfaction (Zabriskie & Ward, 2013). Following the questionnaires, participants
read two scenarios that each describe a family scene. The scenarios were written by the principal investigator. In the first scenario, the family is dysfunctional in discreet ways and will be referred to as the subtle scenario. Some excerpts from this scenario include “The kids, Mariana and Sebastian, are too scared to speak. Usually Mariana tries more than Sebastian, but she often feels like her parents don’t hear what she’s saying. She’s afraid they will misinterpret her words and find ways to get angry with her. Sebastian prefers to stay quiet because he’s afraid his parents will think he is stupid if he speaks; he’s not sure he has anything worthwhile to say.”

The second scenario, on the other hand, shows a family who verbally fights more, but has more open communication. This scenario will be referred to as the obvious scenario. Participants were then asked to answer a set of questions about how functional or dysfunctional different aspects of each scene appear to them on a scale of 1-9. Then, there was a free response section in which participants were asked to give two examples of dysfunctional relationships in families that they have seen and to describe their respective behaviors. Lastly, there was a demographic section that asked participants to disclose their age, gender, country of origin, ethnicity, number of siblings, number of parents present in upbringing, and whether or not their parents are divorced/separated.

The researchers also invited 10 additional participants (not included in the N=166 from the survey) to participate in one-on-one interviews with the principal investigator. These 10 participants completed the survey in an interview format. They did not complete the online survey. The principal investigator asked each participant to elaborate on their responses to the scales and the free-response sections.

**Results**
The first set of analyses examined the relationship between the mean female responses and the mean male responses to each of the three scales by control variable. The control variables were whether or not the parents of participants were divorced and/or separated, age of participants, number of siblings, and number of parents present during upbringing. Thus, this study employed two-way ANOVAs to analyze the data for effects between-subjects.

On the Family Views Scale, females had significantly higher scores on average \( (F(1,156)=12.218, p < 0.001) \) as compared to males. On the Family Health Scale, there was a main effect in which females had an overall higher score \( (F(1,157)=4.191, p < 0.042) \) than males. Additionally, an interaction effect for siblings was found however, this effect was only true for females with no siblings \( (M=6.333, SE=0.291) \) \( (F(1,157)=4.566, p < 0.034) \). The Family Views Scale showed both main effects as well as an interaction effect when looking at the interaction of gender and number of siblings. Overall, females \( (M=7.547, SE=0.177) \) had more positive views than males \( (M=6.419, SE=0.208) \) \( (F(1,157)=17.038, p<0.001) \), and people with siblings \( (M=7.343 , SE=0.095) \) had significantly more positive views than only children \( (M=6.623, SE=0.256) \) \( (F(1,157)=6.933, p<0.009) \). There was an interaction effect for gender and siblings \( (F(1,157)=4.228, p<0.041) \) such that the effect of having no siblings was significantly less positive for males \( (M=5.779, SE=0.397) \) in their views on family. On the SWFL Scale, females \( (M=5.301, SE=0.231) \) had significantly higher scores \( (F(1,154)=5.132, p<0.025) \) as compared to males \( (M=4.497, SE=0.270) \).

The second set of analyses examined the relationships between gender and perceived dysfunction on four different questions between the two scenarios.
Following each scenario, the same four questions were presented. The first was “To what extent have you seen a family like this?” while the last three were “To what extent does this family seem [blank] to you?” with the options being normal, happy, and functional. Thus, within-subject cross-time random effects regressions were performed to explore if there were gender effects for each question comparison (i.e. whether males or females showed significant differences in each of the four scales between the two scenarios, and if this differed within each participant). We also included a secondary regression for each of these four questions that included the controls to see if there were any significant effects.

There was a significant effect for gender on the question of happy (p < 0.005, \( \beta = 0.776 \)); males rated the question “To what extent does this family seem happy to you” 0.776 points higher on average than females [Appendix A]. When including the controls for this question, the effect of gender remained significant (p < 0.016, \( \beta = 0.662 \)). There was an effect for number of parents (p < 0.025, \( \beta = -0.606 \)); participants who had two parents or more rated -0.606 points lower on the happy question for both scenarios. The three scales were also statistically significant: Family Health (p < 0.001, \( \beta = -0.511 \)), Family Views (p < 0.006, \( \beta = -0.316 \)), and SWFL (p < 0.002, \( \beta = -0.309 \)); participants’ scores on these scales affected their responses to the perception of dysfunction questions.

There was a significant effect for both time (p < 0.019, \( \beta = 0.630 \)) and gender (p < 0.001, \( \beta = 1.211 \)) on the question of normal; males rated both scenarios significantly more normal than females (\( \beta = 1.211 \)) and the obvious scenario was rated significantly more normal than the subtle scenario [Appendix B]. When the controls were included, there was a
significant effect for number of parents ($p < 0.009, \beta = -0.889$); participants with two or more parents rated the scenarios, on average, -0.889 points less normal than those with one parent.

There was a significant effect for gender ($p < 0.002, \beta = 0.91$) on the question of functional; males scored 0.91 higher than females when deciding how functional the family was across scenarios [Appendix C]. When including the controls, almost all three of the scales were significant: Family Health ($p < 0.059, \beta = -0.328$), Family Views ($p < 0.016, \beta = -0.312$) and SWFL ($p < 0.018, \beta = 0.265$).

The question of seen had only one significant effect, even when controls were included. Time was significant at $p < 0.016$, $\beta = 0.676$, while it was significant at $p < 0.017, \beta = 0.671$ without the controls; individuals reported seeing families like those in the obvious scenario significantly more often than those in the subtle scenario.

**Discussion**

The results of the experiment provide some support for the hypothesis that women are more likely to perceive dysfunction in family relations. Females considered the families depicted in the scenarios significantly less happy, normal, and functional than males did. This evidence suggests that women see more family issues than men do in the same scenarios. However, there is less support from our results for the hypothesis that women were able to detect the nuanced differences between the types of dysfunction in the two scenarios. There was only evidence that individuals reported seeing families like those in the obvious scenario significantly more often than those in the subtle scenario, which suggests that participants did not detect or recognize these nuanced details.

There were some interesting results in the free response section of the online survey. Some common themes were that
females wrote more than men did and women focused more on the children’s perspective; they discussed examples of dysfunctional couples and the consequences on their children. Men on the other hand often cited violence and alcohol/drug abuse as signs of dysfunction in families. Interestingly, men also gave examples of families in which children were free to act as they wanted, with few enforced rules, and a lack of structure. Men seemed to be more fixated on the role of parental authority as a trait of a functional family. Both men and women often cited technology as an escape mechanism or distraction, and placed importance on family meals as a measurement of functionality.

The interview participants were all women, which gives a limited perspective. When asked to define a functional family, participants often cited mutual respect, unconditional love, open communication, open mindedness, supportiveness, stability, and good parental care as vital characteristics. Three participants (30% of participants) specified that two married parents were a necessary component of a functional family, while another participant specifically mentioned that it was not necessary to have the parents still married, as long as their unconditional love for their children was not affected. Interestingly, all four of these participants came from families with two married parents and no history of divorce or separation. In the survey, participants with two or more parents thought that both scenarios were, on average, less normal than those with only one parent. This suggests that those with two parents present in their upbringing had a higher standard for what a normal, functional family looks like.

When asked whether men and women might perceive family dysfunction differently, 90% of participants responded “yes” or “probably,” with the last participant
stating that it “could be the case, depending on the personalities in the family, since traditional gender roles are changing.” The majority of the participants seemed to think that women are more emotionally intuitive and that men are more concerned with providing financial stability instead of emotional stability. Many participants acknowledged that these gendered views of family relations were societally constructed, but true nonetheless. One participant said that for men, getting married, having a job, and having kids is a big enough achievement, while women need more emotional support from their family, which makes them more able to perceive family dysfunction. Another participant echoed this sentiment, and added that although fathers love their children, women are more nurturing, so they care about how their children feel and are more attuned to the family dynamics as a result.

The present study is limited by the difficulty in measuring and quantifying dysfunction objectively. Other limitations include the brief length of this survey, specifically the fact that there were only two scenarios of dysfunctional families provided. It is also possible that the scenarios were too similar to give clear results with regards to the obvious and subtle scenario distinctions. It may have been beneficial to include multiple scenarios with more variation in levels of dysfunction and perhaps a “control” scenario depicting a fully functional family. Additionally, there could have been response bias in the interviews, in which participants wanted to appear more normal or functional and rated themselves more highly on the different scales. For example, 90% of participants responded between 7 and 9 on the first question of the SWFL, which reads “In most ways my family life is close to ideal,” with only one participant responding with a 3.
This was also the first question of the first section of the interview, which may influence why most participants wanted to make their family lives seem ideal. It is possible that the participants may not have felt comfortable enough to answer more honestly and give a lower score. The interview participants were Georgetown students who would receive extra credit for their psychology courses upon completion of the interview, which also may have influenced their responses in that they had personal motives for participating, and may not have been interested in or attuned to the topic of family dysfunction.

In conclusion, the present study demonstrates the importance of understanding the different ways in which men and women perceive dysfunction in family relations and why. The evidence suggests that women are able to identify negative traits in family scenes more easily than men are. Another interpretation may be that women have higher expectations of how a family should interact and behave. Still, it is important to continue research in this area to further understand why this may be. It remains unclear whether this is a biological trait inherent in the female gender or whether socially constructed gender roles leave women in a caretaking role that both allows and expects them to become attuned to family dysfunction. Although there is much research in family therapy, there seems to be a gap in this area of family dysfunction and gender. This is perhaps due to the lack of universally agreed-upon operational definitions for “functional” and “dysfunctional.” Future research would benefit from concrete understandings of these terms and more comprehensive studies that allow for multiple family perspectives.

A follow-up study could include more examples of dysfunctional scenarios to have a wider range of answers and more potential for nuanced understandings of
dysfunction to uncover whether there are gender differences in the perception of family dysfunction. Ideally, a follow up study could also include family member responses to help identify how people from dysfunctional families perceive dysfunction. Findings from such a study could be helpful in the field of family therapy and could potentially be helpful for social workers who often work with dysfunctional families and their members. Understanding the role of gender in the perception of dysfunction is vital in the field of family therapy and could have many other useful applications across disciplines.

References


**Appendix A** Marginal means by gender on the question of normal between the subtle and obvious scenario.

**Appendix B** Marginal means by gender on the question of normal between the subtle and obvious scenario.

**Appendix C** Marginal means by gender on the question of functional between the subtle and obvious scenarios.
Will You Hire Me?: The Influence of Timing of Autism Disclosure on Perceptions of Hireability

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Abstract- This study investigated if the timing of Autism diagnosis disclosure during a job interview made a difference in attitudes towards hiring. There were 91 participants in this study (18 males, 73 females), from a university located in the Northeastern region of the United States. The researcher randomly assigned participants to read a written scenario that either revealed the Autism diagnosis before, during, or after an interview, which was followed by looking at a fictitious resume. The participants took an interview survey and filled out a demographic form. The participants in the before the interview condition correctly identified when the Autism diagnosis was disclosed in the interview versus the other two conditions. There were no significant differences in the attitudes towards hiring between the three conditions. These findings suggest that the timing of Autism diagnosis disclosure during a job interview does not affect hireability.

Will You Hire Me?: The Perceptions of Interviewing Autistic Individuals and the Hiring Process

Type of Disability

There are many types of disabilities that affect millions of people, and each disability affects everyone differently. Disabilities, whether mental or physical, affect different aspects of people’s lives, especially in the workplace and the hiring process. Some of the reasons for the lack of employment opportunities for adults with disabilities are employer discrimination, reluctance to hire, corporate cultures, and...
public policies (Jans, Kaye, & Jones, 2012). Research has indicated that employers often have more concerns hiring people with mental disabilities than with physical disabilities (Unger, 2002). When researchers compare an individual who is paraplegic and one who has a mental illness, employers are more likely to hire a person who is paraplegic (Drehmer & Bordieri, 1985).

When researchers compared a back injury, a closed head injury, a chronic mental illness, and a developmental disability, participants were more likely to hire people with a back injury (Gouvier, Sytsma-Jordan, & Mayville, 2003). This discrimination toward people with mental illness not only affects them during the hiring process, but when they get job opportunities as well.

When researchers compared workers with physical disabilities and those with learning disabilities, employers expressed more positive attitudes towards making accommodations for physically disabled workers, but less positive attitudes toward hiring people who have learning disabilities (Minskoff, Sautter, Hoffmann, & Hawks, 1987). Regarding employers’ attitudes toward people with developmental disabilities, employers who have experience working with people with developmental disabilities identify more advantages to hiring them than inexperienced employers (Morgan & Alexander, 2005). When researchers investigated when is the right time to disclose a disability during a job interview, individuals with highly stigmatized disabilities prefer to manage their disability rather than disclose it. (Jans et al., 2012). Disabilities impact the everyday lives of millions of people and may cause difficulties during the hiring process. The type of disability a person has often affects their employment opportunities; however, the type of business can also affect the chances of being hired for a job.
Type of Business

The hiring process is often a difficult one for people with disabilities. This is often due to preconceived judgements of businesses and employers. The type of business could be a factor in the lack of job opportunities for individuals with disabilities. When researchers compared employers from small, medium, and large sized businesses, employers from small and medium sized businesses felt that people with disabilities could not do the work or were less qualified for the job (Fraser et al., 2010).

The type of business could also help individuals with disabilities find job opportunities. Research has also indicated that small business employers were open to hiring people with mental illness, but were concerned with social and emotional skills (Hand & Tryssenaar, 2006). When researchers compared nonprofit and for-profit businesses, nonprofit businesses had more positive views on hiring people with disabilities than for-profit businesses (Hernandez et al., 2012). Research has indicated that business leaders wanted to be more open-minded about hiring people with disabilities, especially those with mental health disabilities, but were not sure about hiring due to the concerns that job seekers will not disclose their disabilities (Pettersen & Fugletveit, 2015). People with disabilities often have more opportunities at one type business than in others, however the experiences of working and interacting with individuals with disabilities can also affect job prospects.

Employer Experience

The employers at work places often do not give chances of employment to individuals with disabilities, due to several reasons. There are employers who tend to be reluctant to hire job applicants with disabilities, because of concerns of loss in profits and accommodation costs (Peck &
Research has indicated that despite employers having positive attitudes towards people with disabilities, they tend to have less positive views towards them in work settings (Burke et al., 2013). Despite the lack of open-mindedness, there are employers who want to be more accepting (Pettersen & Fugletveit, 2015).

Research has suggested that personal experiences working with people with disabilities leads to employers having more positive attitudes towards them (Leasher, Miller, & Gooden, 2009). When researchers compared employers who either had experience or inexperience working with people with intellectual disabilities, experienced workers felt that individuals with intellectual disabilities do not negatively affect the image of workplaces (Burge, Ouellette-Kuntz, & Lysaght, 2007). Research has also indicated that the personality characteristics of experienced employers who have worked with people with disabilities include making sure that people with disabilities were treated equally and adding diversity to the workplace and looking at abilities and matching the job that best fits the person's capabilities (Gilbride, Stensrud, Vandergoot, & Golden, 2003).

There is evidence that the amount of job opportunities someone is offered often depends on the type of disability they have whether it is physical or mental, but will having an Autism diagnosis affect employers’ attitudes towards getting hired for a job?

**The Present Study**

Although previous research has thoroughly looked at how employers’ attitudes affect job prospects for people with many types of disabilities, it failed to look at Autism specifically. The current topic builds on the idea that the time of disability disclosure affects the chances of getting hired for a job; by seeing if a person with Autism will likely get hired when they
disclose their diagnosis either before, during, or after a job interview.

It was hypothesized that participants would be less likely to hire when the Autism diagnosis was disclosed before the interview than after the interview. The second hypothesis predicted participants would be less likely to hire when the Autism diagnosis is disclosed during the interview than after the interview. Also, it was hypothesized participants would be less likely to hire when the Autism diagnosis was disclosed before the interview than during the interview.

**Method**

**Participants**

This study had 91 participants (18 males, 73 females). The participants were undergraduate students from a university in the Northeastern region of the United States. The researcher used convenience sampling to recruit the participants through the participation pool located in the university’s psychology department. The participants ranged in age from 18 to 32 years old ($M_{age} = 19.89$ years old; $SD = 2.23$ years). Most of the participants were in their first year of school (39.6%); 18.7% were in their sophomore year, 28.6% of the participants were in their junior year, and 13.2% were in their senior year. The participants were mostly White (80.2%), 6.6% were Black, 6.6% were Hispanic, 2.2% were Asian, and 4.4% of the participants identified as other. The participants were told that they would receive credit towards their research requirement in their psychology courses as an incentive for participating.

**Materials**

This experiment included three different written scenarios where the person being interviewed reveals their Autism diagnosis either before, during, or after a job interview, a fictitious resume, an interview survey, and a demographics form.
Demographics. The demographics form asked the participants their age, gender, ethnicity, and year in school. The demographics also asked the participants if they knew a person with Autism.

Manipulation check. The manipulation check assessed whether the participants were paying attention to the timing of the Autism diagnosis disclosure in the interview in the three scenarios. The participants were asked how early in the interview the Autism diagnosis was revealed on a 1 (very early) to 7 (very late) scale.

Interview survey. This measure evaluated how willing the participants were to hire the person being interviewed. The participants answered the statements on a 1 (extremely unlikely) to 7 (extremely likely) scale (Cronbach’s alpha = .80). The participants answered statements such as “How likely do you think Taylor will be a hard worker?,” and “If you were the hiring manager how likely would you hire Taylor?”

Resume. The resume was fictitious and contained information of the person being interviewed, such as working at McDonald’s, and volunteering at the Monmouth High School clothing drive. The person had a gender-neutral name, Taylor Vance.

Design
This study used a multi-group between subjects, experimental design to investigate if timing of disclosure of Autism diagnosis during a job interview (before, during, or after) influenced participants’ attitudes towards hiring the job applicant. Participants were randomly assigned to one of the three conditions.

Procedure
Participants signed up for the study using the participation pool at the University’s psychology department. The researcher randomly assigned participants to
one of the three conditions: the scenario where the Autism diagnosis was disclosed before an interview, the scenario where the Autism diagnosis was disclosed during an interview, and the scenario where the Autism diagnosis was disclosed after an interview. The participants were greeted by the researcher and, after completing the informed consent protocol, were instructed to read one of the three scenarios that were randomly assigned to them along with the fictitious resume.

Once the participants informed the researcher that they had finished reading the scenario and resume, the researcher then gave the participants the interview survey to fill out that asked them a series of questions assessing how likely they would hire the person being interviewed. After filling out the survey, the participants then filled out the demographics form asking them their age, gender, ethnicity, and year in school.

Along with the demographics the participants also answered another question that asked them if they know someone with Autism. As a manipulation check, the demographics form also asked the participants how early in the interview the Autism diagnosis was revealed. Once the participants completed the demographics form, they were given the debriefing form which explained the purpose of the study.

Results

Manipulation Check

To confirm that when the Autism diagnosis was revealed manipulation was effective, a one-way analysis of variance (ANOVA) was conducted to see if participants could identify when the Autism diagnosis was disclosed during the interview depending on what condition they were randomly assigned to. The analysis revealed a significant difference between the groups \(F(2, 88) = 43.58, p < .01, \text{eta}^2 = 0.04\). Those in the before group \((M = 2.90, SD = 1.49)\), knew that the Autism diagnosis was
disclosed before the interview more than those in the during group ($M = 5.47, SD = 1.11$) and those in the after group ($M = 5.97, SD = 1.50$). There was no difference between those in the during group and those in the after group.

**Likelihood to Hire**

A one-way ANOVA was used to determine if any of the conditions differed in whether timing of disclosure of Autism diagnosis made a difference in people’s attitudes towards hiring. The analysis revealed there was no significant difference between the conditions ($F (2, 88) = 1.36, p = .26, \eta^2 = 0.07$). The results suggested that timing of Autism diagnosis disclosure does not impact participant's’ likelihood to hire.

**Discussion**

The relationship between timing of Autism diagnosis disclosure and people’s attitudes towards hiring was examined. It was hypothesized that the participants would be less likely to hire when the Autism diagnosis was disclosed before the interview than after the interview. It was also hypothesized that the participants would be less likely to hire when the Autism diagnosis was disclosed during the interview than after the interview. Additionally, it was hypothesized that the participants would be less likely to hire when the Autism diagnosis was disclosed before the interview than during the interview.

**Implications and Interpretation of Results**

The results of the manipulation check were likely due to participants having an easier time identifying the before the interview timing than the during and after timings. The present study suggests that the timing of Autism diagnosis during a job interview does not affect hireability. These results may be due to that fact that the participants were mostly college students, and thus had a lack of experience hiring and recruiting people. Also, social desirability
bias was another possible factor in the results, as the participants most likely did not want to viewed as judgmental towards the job applicant with Autism. These results could indicate that those with Autism do not need to worry about the timing of the disclosure since there were no significant differences between the three conditions. Other factors in the lack of job opportunities with Autism may be attributed toward employers focusing on the limitations of Autistic individuals, in regards toward capabilities in the workplace. Autistic individuals often have difficulties in communicating and forming relationships, this may also contribute to the lack of job opportunities.

**Strengths and Limitations**

A major limitation of the study was that the participants were from a specific university in the Northeastern region of the United States, which meant that they likely could not relate to employers in the real world. Also, the participants were college students from the ages of 18-32 years old, and often lacked the experience of hiring and recruiting people in the workplace. The study took place in a lab room, not in an office at a workplace. This study did not have a specific job that the job applicant was applying for, so it was probably more difficult for the participants to decide if they were willing to hire the job applicant with Autism.

Despite the limitations in the study, there were strengths that made it successful as well. One strength was that this study looked at the effects on hireability based specifically on timing of Autism diagnosis disclosure in a job interview, which is an area of research that has not been explored before. The experimental control was another strength of this study. The procedure was the same throughout the study, as the same lab room was used, and all the
participants were given a resume, an interview survey, and a demographics form.

**Future Directions**

Researchers who wish to continue future research on this topic may want to consider opening this study to actual employers, who have experiences in hiring and recruiting. By allowing employers to participate, the results of the study could change by possibly showing significant differences between the three conditions. Another aspect of the study future researchers could change is to have the participants watch the job interview scenario on a video clip. By having the participants watch the video of the job interview, it could enhance the realism of a real-life job interview, and could allow the participants to see facial expressions and body language of the interviewer and interviewee. Another aspect of the study that can change is to have the participants keep the written interview scenario while they are completing the survey and demographics.

By keeping the written scenario, the participants could possibly pay more attention to the timing of the Autism diagnosis disclosure in the job interview. Another aspect of this study that future researchers can change is to examine the effects of hireability of Autism diagnosis in a job interview by looking at the severity of the Autism diagnosis, it could possibly affect the participants’ attitudes towards hiring.

The purpose of this study was to answer the question; are people more likely to hire Autistic individuals when disability is disclosed before, during, or after a job interview? There was no significant relationship between timing of Autism diagnosis disclosure during a job interview and attitude towards hiring for any of the three conditions. If timing of Autism diagnosis in a job interview does not affect attitudes towards hiring, then this could
mean that job applicants with Autism do not have to be as worried when seeking employment opportunities.

References


individuals with mental illness. 


Attitudes toward Women in Power: The Perceptions of a Female Primary Wage Earner on Success in Marriage

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Abstract- This study explored attitudes toward couples in which the wife earns more or less than the husband. Attitudes toward these couples have been very strongly shaped by societal constructions of a marriage in which both partners are happier when the husband makes more money than the wife, who may not work at all. Past studies exploring the topic of couples with “non-traditional” income patterns between partners (i.e., the wife makes more than the husband) or on women in positions of authority over male colleagues have focused more on the point of view of the woman in the workplace rather than in her home life. This study recruited 169 total participants for a questionnaire on financial earnings within a marriage and interviewed 7 participants to delve into the attitudes behind the questionnaire. Results suggest that men are more likely to rate a woman earning more than her husband as significantly less happy than a woman would see her.

Attitudes toward Women in Power: The Perceptions of a Female Primary Wage Earner on Success in Marriage

Traditional gender stereotypes depict men as the primary “breadwinners” and women as the primary “homemakers.” The idea of separate spheres of influence was cemented in the twentieth century into the picture of the ideal American family. In this picture, the man should be able to support his whole family on his job so that his wife can stay home, not work, and take care of the children. However, there have been many changes to this portrait of the ideal family and many more opportunities for women in the workforce. In recent decades women have excelled in higher education,
which has resulted in a change in these roles in some households. It is now much more common for both partners to work rather than just one, and among dual-earner couples in the United States, the majority of couples would still be considered “traditional,” but 24% of wives now earn more than their husbands (Triana, 2010).

Women in positions of high power in the workplace have been found to experience discrimination and sexual harassment more frequently than their male colleagues, especially women near the top of the hierarchy (McLaughlin, Uggen, & Blackstone, 2012). In order to regain power in the workplace from their female superiors, men are more likely to sexually harass female supervisors than non-supervisors. Sexual harassment is here a form of masculine overcompensation that serves to restore the workplace power to the male and is motivated by control and domination rather than sexual desire (McLaughlin, Uggen, & Blackstone, 2012).

However, despite the increased presence of women in positions of authority within the workplace, Penner, Toro-Tulla, and Huffman (2012) found no significant differences between wages of male and female managers in a longitudinal study of gender-based wage inequality at a large United States grocery retailer.

Across cultures, the expectations for social roles (such as “mother,” or “wife”) are generally constant, but recently cultural roles have been redefined in the postmodern era, specifically the roles of “spouse” and “parent” (Kroska, 2001). These ideas have become more diverse and egalitarian, family roles have changed, and media portrayals of families have become less traditional (Kroska, 2001). Female roles have traditionally been rated as “nicer” than male roles, and Kroska (2001) found that both husbands and wives rate a wife as nicer than a husband. Husbands were rated more
powerful than wives, but the subcategory “house husband” was rated less good and less powerful than that of husband, which corresponds to the traditional idea that males exhibiting less power than their wives are perceived negatively. Another relevant finding was that the evaluation of a mother and homemaker was rated significantly more positively by conservatives than liberals, (Kroska, 2001).

The differences in perceptions of male and female roles contributes to success of marriages, and the role of personal wealth in marriage is also an important factor in varying marriage patterns and success in marriage across all races and education levels (Schneider, 2011). In accordance with “traditional” gender roles, married men tend to be more employable than unmarried men, and both married men and women are healthier and less emotionally distressed than unmarried men and women (Schneider, 2011). Furthermore, personal wealth and possession of assets (including a home or car) have a significant positive relationship with first marriage for both men and women (Schneider, 2011).

Societally enforced ideas about gender in relation to financial power and its implications for a woman’s family life remain close to the surface: in and outside the workplace, women are expected to be nurturing, understanding, kind, and gentle. Men are expected to be independent, ambitious, and forceful (Triana, 2010). This harmful gender role dichotomy is still prevalent in the collective American consciousness and is problematic for women seeking high positions of power today. It is also more common for aggressive women who defy these conventions to be seen in a negative light than men who are especially gentle. Women who act gentle are not rewarded for fulfilling this expectation of female behavior, but they are often
penalized for acting against it (Triana, 2010).

The result is a new kind of sex discrimination against women who act against their prescribed gender roles and stereotypes, specifically in relation to their own and their husband’s salary differences. In the example of women as the primary wage earner and men as the secondary wage earner or stay-at-home parent, the subsequent treatment of partners in the workplace is affected when colleagues and bosses become aware of the wage incongruences between spouses (Triana, 2010). Under and overcompensation then occurs in terms of performance reviews and overall evaluation of spouses in these “unconventional” relationships. What is supposed to be a meritocracy then becomes a new form of workplace discrimination in response to these employees defying the roles of their sex. Furthermore, this “spillover” happens even in traditionally non-sex specific jobs (i.e., not traditionally female such as nurse or traditionally male such as plumber) because of the unconscious combining of work and gender roles (Triana, 2010).

The present study examines attitudes toward couples in which women earn more or less than their husbands and their resulting happiness and success at home. The research literature suggests a trend of traditional attitudes toward these relationships and illustrates the negative effects of a female as primary wage-earner. Furthermore, men are not punished for acting against their defined role and are often viewed as relatively more qualified if they are known to be the secondary wage earner in their household. Women are rated relatively less qualified among colleagues at the same position if they are known to be the primary wage earner (Triana, 2010).

**Hypothesis**
If a relationship is not "traditional," (i.e., the man earns more than the woman) there is more possibility for the woman to be viewed in a negative light by outsiders. She will be seen as a worse wife and mother if she makes more money than her husband. The couple will be considered significantly less happy and satisfied in their marriage in the condition in which the wife makes more money than her husband.

Methods

Participants

There were 162 online participants in the quantitative survey-only section of this study, and 7 Georgetown undergraduate students participated in the qualitative in-person survey and interview. The online-only participants were recruited on mTurk, and the interviews were primarily recruited through Georgetown’s SONA system of psychology studies. The online participants ranged in age from 18 to 70, and the students interviewed ranged from 19 to 24.

By gender, the online participants consisted of 97 males, 62 females, and 2 people of other genders. The interviews were 5 females and 2 males. Online, 80 participants were assigned to the control group and 82 were assigned to the experimental group. Of the interviews, 3 took the control version of the survey before the interview and 4 took the experimental version.

Procedure

The study was conducted in two phases. The first phase consisted of the online-only study in which participants, after signing the consent form, were randomly assigned to either the control or experimental group on the mTurk site. The survey consisted of a short text describing a married couple (“Melanie” and “Nicolas” and a series of statements to which participants would rate on a 9-point scale as being either “not likely to be true” or “very likely to be true.” Following the survey itself, the participants answered
demographic questions, of which the only relevant one for the present discussion was gender (coded as 1 = male, 0 = not male). They were then debriefed.

The second phase of the study consisted of qualitative interviews. Participants were randomly assigned to either the control or experimental group, and following their completion of the written survey, they answered several questions about the couple described in the survey. These questions focused on the happiness of the couple as a result of the wife’s position as the primary or secondary wage-earner and if the responses to the survey questions would be the same if the roles were reversed.

**Results**

The quantitative data were analyzed with between-subjects t-tests and 1-way analysis of variance (ANOVA) tests for each question in the survey. Because gender was the most important variable in the research question, the data were analyzed across condition (control or experimental) and gender. They were analyzed by gender (coded 0 = not male, 1 = male) and by condition (control or experimental). Results were considered significant if p < .05.

There was a significant interaction effect of Melanie’s happiness and gender: (F(1, 162)=5.732, p = .018); men perceived Melanie to be happier when she was making less money than Nicolas, and women perceived her to be happier when she made more money (Graph 1). A similar effect was present in the relationship between Melanie and Nicolas as equal parents and gender: (F(1,162)=4.968, p = .027), and in Melanie’s perceived satisfaction in her marriage and gender: (F(1, 162)=4.518, p = .035). Female participants perceived that Melanie and Nicolas were more equal parents and that Melanie was more satisfied when Melanie was making more money. Men perceived that they were more equal parents and that
Melanie was more satisfied when Nicolas was making more money.

There were also main effects in Melanie’s perceived quality of family time: (F(1, 162)=8.914, p = .003) and in Melanie’s perceived attractiveness: (F(1, 162)=5.410, p = .021. Both genders thought that Melanie had a significantly better quality of family time and was significantly more attractive when Nicolas was making more money. These findings are consistent with existing gender stereotypes. Furthermore, Nicolas was perceived to have a better quality of family time when Melanie was making more money: (F, 162) = 6.909, p = .009).

**Discussion**

The results confirmed the hypothesis that women are perceived as less happy in their marriage when they make more money than their husbands. This is especially true among male participants. It is important that both parents are thought to have a better quality of family time when they are making less money, which shows that parents of either sex who earn more money are seen to be sacrificing their families for their jobs.

The qualitative interviews offer insight into the numerical data that were analyzed from the online surveys. The answers demonstrated that even undergraduate students are still greatly influenced by gender stereotypes and societally prescribed roles in marriage. Many of the interviewees, when asked about the effect of traditional or non-traditional earning patterns on the marriage, said that the couple was less happy when Melanie made more money.

Many participants, both male and female, thought that Nicolas’s masculinity would suffer if his wife made more money than he did. This finding shows opposite ideas for both genders: men are more likely to hold more traditional ideas about which partner should be the primary wage-earner and its effects on the relationships.
The study was intended to look at only the income and its resulting effects on happiness in the marriage, but I see from the interviews that the results are influenced by other factors in the description of Melanie and Nicolas rather than just their respective incomes. The main issue in the survey was the information about the couple’s children, which made the results less focused around their income. Especially in the interviews, participants focused on details that were intended to be superfluous (e.g., the couple’s disagreement over whether or not they wanted a third child) rather than solely on income. In a future iteration of this study, the description preceding the written survey should be edited to show a more neutral picture of the family that could not be seen as causing any unhappiness they have in their marriage. Despite the previous issue, the interviews illustrated different justifications for Melanie and Nicolas’s behavior and its effects on their children depending on their income. For example, in the control group, participants saw Nicolas distant from his children and leaving Melanie with all the responsibility. In the experimental group, Melanie was seen as having unequal power over Nicolas, who was seen as bitter and emasculated when he was denied a third child.

The interviews also illustrated the perception that whichever partner was earning less money was also perceived as being the primary caregiver for the children, and in their discussions, he or she was spoken of as a stay-at-home parent, which was not the intended implication. To clean up these confounding variables in the survey, a future version of the description of Melanie and Nicolas should be less focused on presenting them as a fully-fleshed couple and be more focused on their statistics. In order to evaluate perceived happiness of men and women without concern for marital status, the survey could be changed to
present a man or a woman and his or her income without mention of marital status. Such an iteration of the survey would test the happiness of a man with a high-income job versus a woman with a high-income job.

**Conclusion**

The purpose of this study was to test expectations of which partner should earn more money and how earnings affect perceived happiness. The results show that the ideas that a husband should make more money than his wife are still very real, especially among men. Participants in the interview section of the study also voiced the opinion that marriages are seen as more successful when the mother stays home with her children rather than working more and making more money than her husband. In the couples perceived to be less happy, participants thought that the man would resent his wife for emasculating him and depriving of his traditional role as the breadwinner. Many participants expressed hope that someday these ideas will no longer influence our perceptions of what a happy marriage is, but their answers clearly indicate that marriages are perceived as more successful when the husband makes more than his wife.

**References**


### Table 1

Tests of Between-Subjects Effects

Dependent Variable: Melanie’s happiness

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Graph 1
Interaction effect between gender and condition on Melanie’s happiness