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Undergraduate Honors Thesis:

Measuring Anti-Fat Bias Among Social Work Students

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Abstract

This undergraduate honors thesis engaged in basic research, utilizing a cross-sectional survey design, to measure the prevalence of explicit anti-fat bias across educational groups in social work student populations. Data was analyzed to examine differences between professional social work education levels and students' self-reported level of explicit anti-fat bias. Overall, participants endorsed relatively low levels of anti-fat bias, especially in the domains of Adverse Judgement, Social Distance, and Equal Rights. However, participants endorsed higher levels of anti-fat bias in the domain of Attraction. There was no statistically significant relationship between level of social work education and anti-fat bias. There was no statistically significant relationship between gender and anti-fat bias. There were no statistically significant relationships between self-identification of fatness and most anti-fat biases, with the exception of the domain of Attraction. Participants who self-identified as fat had lower levels of anti-fat bias in the domain of Attraction. However, this study is limited by a small, non-diverse sample, and further research is recommended.

Keywords: Anti-fat bias; social work students; social work; weight bias; fat bias; overweight bias; explicit bias; cross-sectional survey design; universal measure of bias

Introduction

Bias is commonly defined as prejudice in favor of or against a thing, person, or group when compared against another of the same, usually operationalized in a manner that undermines fairness or equity (Fitz Gerald and Hurst, 2017). One particular area of bias that is in need of further study is in the realm of bias reduction education for professionals who serve people (or populations) who are fat (also commonly referred to in literature as people who are obese, overweight, or have high-body fat). Currently, anti-fat bias literature identifies a gap in appropriate peer reviewed interventions, for bias reduction education for professionals. There is a significant body of research to suggest that implicit and explicit elements of anti-fat bias are prevalent and strong in professional practice settings, as evidenced by studies that have assessed and measured this bias in healthcare professionals (Fitz Gerald and Hertz, 2017; Lynagh et al., 2015; Phelan et al., 2014). There is also extensive research into the prevalence and strength of anti-fat bias in pre-professional student populations in healthcare (Lynagh, Cliff, & Morgan, 2015; Phelan et al., 2014). There is a limited body of research, however, on the prevalence of anti-fat bias in the social work profession or in social work pre-professional student populations. This undergraduate honors thesis engaged in basic research, utilizing a cross-sectional survey design, to measure the prevalence of explicit anti-fat bias across educational groups in a sample of social work students, in an effort to determine if the level of professional social work education has any effect on students' level of explicit anti-fat bias. The null hypothesis (H0) was that there would be no statistically significant difference between participant groups in the sample. The alternative hypothesis (H1), in contrast, was that there would be a statistically significant difference between participant groups in the sample. The main characteristic that the above-mentioned hypothesis will be applied to is level of education, as this study will analyze

whether the level of anti-fat bias among participants differs by level of social work education. Additionally, this research also considered the following supplemental questions: (1) to what extent do participants endorse statements indicating anti-fat bias and (2) what domains of anti-fat bias/stigma are most strongly endorsed by participants; and (3) does level of anti-fat bias among participants differ by characteristics other than level of social work education, such as gender and self-identification as fat?

Literature Review

Literature on anti-fat bias covers a wide range of topics such as attitudes, opinions, beliefs, thoughts, implicit attitudes, explicit attitudes, as well as methodological approaches to the study of the aforementioned concepts in human populations. This section defines terminology and reviews literature relevant to the study.

Anti-Fat Bias Terminology

Implicit and Explicit Bias. “Implicit bias is an unexpressed, unconscious, and automatic preference for one thing over another” (Burke, 2018, p. 6; Ahern and Hetherington, 2006). It is important to note that people may be partly or wholly unaware of implicit bias. Alternatively, “explicit bias... [should be considered as] outwardly expressed beliefs, values and preferences for one thing over another” (Burke, 2018, p. 6; Phelan et al, 2014). Furthermore, research also suggests that “explicit bias can be influenced by socially-accepted beliefs or patterns of behavior” (Burke, 2018, p. 6). When taken together, socially accepted beliefs or patterns of behavior could lead Person A to state that they hold no reservations about Person B based on their weight, as an outward expression of this nature could be seen as socially inappropriate; however, Person A might, in actuality, treat Person B differently based on their weight, which would represent explicit anti-fat bias.

Anti-Fat Bias. Fatness, a topic typically considered pejorative, will be discussed intentionally and directly throughout this paper in a critical way through the lens of fat studies. This paper will critique stigma and bias about fatness, and challenge them by naming fatness directly, so as to reclaim and destigmatize the concept, in alignment with the aims of contemporary fat liberation movements (Rothblum and Solovay, 2009). Rothblum and Solovay (2009) critically examine fatness through fat studies in this way:

“Fat studies is an interdisciplinary field of scholarship marked by an aggressive, consistent, rigorous critique of the negative assumptions, stereotypes, and stigma placed on fat in the fat body. The field of that studies invite scholars to pause, interrupt the everyday thinking [(including especially negative associations)] about fat (or failure to think), and do something daring and bold” (p. 2).

For the purposes of this paper, anti-fat bias will refer to “prejudice or discrimination against people who are fat” (Elran-Barak & Bar-Anan, 2018, p. 117). According to Hyer & Connor (2020), there are several major attributes that factor into anti-fat bias, which include: negative attitudes; negative views; negative opinions; negative beliefs; negative thoughts; implicit attitudes; explicit attitudes. Hyer & Connor (2020) also find that when people hold negative implicit and explicit attitudes, beliefs, and opinions toward people who are fat, it reinforces and perpetuates anti-fat discrimination. The aforementioned attitudes, beliefs, and opinions often results in negative affect (often in the form of prejudice and discrimination) targeting people who are fat “across key domains of life, from employment to education to health care” (Teachman, Gapinski, Brownell, Rawlins, & Jeyaram, 2003, p. 68). This prejudice and discrimination toward people who are fat (and the subsequent internalization of this bias by people who are fat) can result in a variety of adverse social, psychological and physical

outcomes, which include, but are not limited to “depression, anxiety, perceived stress, lack of social support, medication non-adherence, and health-care avoidance” (Elran-Barak & Bar-Anan, 2018, p. 118).

Anti-Fat Bias Literature

A systematic review of implicit bias in healthcare professionals. In 2017, Fitz Gerald and Hertz conducted a systematic review of multiple academic research databases to identify and review peer-reviewed articles that assessed implicit bias in healthcare professionals. According to Fitz Gerald and Hertz (2017), the systematic review focused on PubMed, PsychINFO, PsychARTICLE and CINAHL, which are all healthcare focused academic databases that were searched for peer-reviewed articles on the topic of implicit bias in healthcare professionals and published between March 2003 and March 2013 (Fitz Gerald and Hertz, 2017). The following search terms were used to identify articles for review:

attitudes of healthcare professionals (e.g. “physician-patient relations”, “attitude of health personnel”), implicit biases (e.g. “prejudice”, “stereotyping”, “unconscious bias”), particular kinds of discrimination (e.g. “aversive racism”, anti-fat bias”, “women’s health”), and healthcare disparities (e.g. “health status disparities”, “delivery of health care”) (Fitz Gerald and Hertz, 2017, p. 4).

From the database assessment phase, 3,767 articles were retrieved, and upon review against pre-set criteria, that number was reduced to 27 articles for final inclusion in the systematic review report. The criteria for selection of articles from the pool retrieved during the initial database assessment process to reach final selection included the following: (1) the article was required to be an empirical study; (2) the methods section of the article was required to identify the primary analysis of the study as being focused on implicit rather than explicit biases;

(3) all study participants were required to be either physicians or nurses who had completed a formal professional education and any necessary accreditation; and, (4) all articles were required to be written in English or another language spoken by the reviewers, due to resource limitations of the project (Fitz Gerald and Hertz, 2017). Validated scales and measures of implicit bias in healthcare that were identified in the review included the Implicit Association Test, bio-ethically informed assumption-oriented vignettes, and subliminal priming measures (Fitz Gerald and Hertz, 2017). Findings from the report indicate that there was evidence in a majority of the studies reviewed that implicit bias affects judgment in physicians and nurses, with the following characteristics identified as areas examined within the articles: “race/ethnicity, gender, socio-economic status (SES), age, mental illness, weight, having AIDS, brain injured patients perceived to have contributed to their injury, intravenous drug users, disability, and social circumstances”, as well as characteristics of the healthcare professional, including additional criteria such as training and specialization (Fitz Gerald and Hertz, 2017, p. 13). In consideration of their findings, Fitz Gerald and Hertz (2017) state that “impartial treatment of patients by healthcare professionals is an uncontroversial norm of healthcare” (p.15) and utilize said ethical judgment as grounds for further discussion in their report. From the former statement, Fitz Gerald and Hertz (2017) then discuss the relationship of implicit bias to healthcare disparities, while also discussing the impact that implicit bias has on already stigmatized groups. Fitz Gerald and Hertz (2017) identified that explicit anti-fat bias was prevalent among healthcare professionals, despite their inference of a perceived norm of impartiality amongst healthcare professionals.

Pre-service educator trainees’ attitudes and beliefs about obese children. In 2015, an article was published that detailed an analysis of attitudes and beliefs of non-specialist and

specialist trainee health and physical education teachers toward obese children and their relative endorsements of attitudes and beliefs associated with explicit anti-fat bias (Lynagh, Cliff, & Morgan). Utilizing a questionnaire, the study employed multiple validated scales and measures for attitudes and beliefs relating to obese children, alongside demographic identifiers, which were then provided to participants (Lynagh, et al., 2015). From a larger pool, 177 non-specialist and 62 health and physical education specialist trainee teachers responded to an invitation to participate in the study; all participants were invited in 2013 from a pool of second-year students enrolled in each related program at the University of Newcastle (Lynagh et al., 2015). Validated scales and measures for attitudes and beliefs relating to obese children in the study included the Implicit Association Test (IAT), Anti-Fat Attitudes Questionnaire (AFAQ), Beliefs About Obese People Scale (BAOP), Attitudes Toward Obese People Scale (ATOP), Expectations of Overweight Youth (EOY) questionnaire, and the Short Marlow-Crowne Social Desirability Scale (Lynagh et al., 2015). Analysis of the data found that pre-service teachers have strong anti-fat prejudice, with more prominent prejudice in populations identified as health and physical education specialists. Furthermore, evidence collected in the study indicates that both sampled populations were found to have relatively strong implicit negative bias, as well as implicit and explicit anti-fat prejudices toward obese children (the latter was evidenced more extensively in the health and physical education specialists; Lynagh et al., 2015). However, despite the findings, both populations were observed to evidence little to no explicit anti-fat attitudes toward children, which was attributed to “admitting to having weight-related prejudice is itself considered culturally unacceptable” (Lynagh et al., 2015, p. 601). When summarized collectively, results indicated that health and physical education specialist teachers were observed to endorse stronger anti-fat biases and hold differential expectations in relation to the

particular abilities of obese children, as compared to their non-specialist peers across data sets (Lynagh et al., 2015).

Implicit and explicit weight bias in medical students. In 2014, Phelan and colleagues found that “the magnitude of explicit and implicit weight biases compared to biases against other groups; and identify student factors predicting bias in a large national sample of medical students” (p. 1201). The study utilized data collected in a larger dataset associated with the Medical Student Cognitive Habits and Growth Evaluation Study (CHANGES), which is a longitudinal study of medical students in US medical schools as of fall 2010 (Phelan et al., 2014). The survey design included demographic questions, validated scales to measure implicit and explicit weight bias (fat-thin Implicit Association Test, a “feeling thermometer, and Crandall's anti-fat attitudes questionnaire (AFAT)), alongside consenting and qualifying questions (Phelan et al., 2014). The authors concluded that implicit and explicit weight bias were relatively common amongst the population surveyed, however, that there were also statistically significant differences in levels implicit and explicit bias across the demographic characteristics of participants surveyed, particularly in characteristics such as race, sex, and body mass index (or body size; Phelan et al., 2014). Phelan and colleagues (2014) noted that race, sex, and body size are characteristics that influence levels of anti-fat bias. For example, African American/Black Americans consistently display the least amount of explicit anti-fat bias, while men display the most (Phelan et al., 2014). Additionally, people with smaller bodies tend to endorse more explicit anti-fat bias (Phelan et al., 2014). Levels of implicit anti-fat bias were increased when participants were thinner, male, or of White or Hispanic race/ethnicity (Phelan et al., 2014). When anti-fat attitudes were assessed, data suggested that a fear of becoming fat was prevalent in larger females who did not identify as African American/Black American (Phelan et al., 2014).

Impact of weight bias and stigma in healthcare on patient outcomes. In 2015, Phelan and colleagues published an article following a literature review of the impact of weight bias and stigma in healthcare on patient outcomes, and possible strategies for mitigating this impact. Phelan and colleagues (2015) reviewed “topics related to obesity stigma in medical care and/or the impact of stigma on interpersonal encounters and decision-making in PubMed and PsychInfo, with the majority of studies found in health communication, social psychology and health disparities research” (p. 320). During the analysis, it was noted that the patient-provider relationship (when weight stigma was present) was negatively impacted; more specifically, multiple studies noted that negative patient outcome impacts were observed when weight bias and stigma-endorsing provider attitudes and enacted stigma were present, as such elements affected multiple components of the care process, resulting in patient avoidance of care, patient stress, patient mistrust of the provider, poor patient adherence to provider recommendations, poor communication between the patient and provider, decreased quality of care, and bias or stigma-informed professional judgments by the provider (Phelan et al., 2015).

Thematic conclusions from anti-fat literature. Considering the previously reviewed articles collectively, there are several significant implications for this paper. First, as identified in all referenced literature, multiple aspects of implicit or explicit anti-fat bias affect the relationships of patients to their healthcare professional providers (Fitz Gerald and Hertz, 2017; Lynagh et al., 2015; Phelan et al., 2014; Phelan et al., 2015). Second, demographic differences (namely, race, sex, and body size) observed in both patients and providers have varying degrees of statistically significant impacts on anti-fat bias in patient-provider interactions, dependent upon the specific characteristic in question (Fitz Gerald and Hertz, 2017; Lynagh et al., 2015; Phelan et al., 2014). There is a significant body of research to suggest that implicit and explicit

aspects of anti-fat bias are prevalent in professional practice settings, as evidenced by studies that have assessed and measured this bias in healthcare professionals (Fitz Gerald and Hertz, 2017). The prevalence and strength of implicit and explicit aspects of anti-fat bias in professional healthcare practice settings is also supported by the following article not selected for inclusion in this study, available for review in the reference section of this paper (Alberga, Pickering, Alix, Ball, Edwards, Jelinski, ... Russell-Mayhew, 2016). Furthermore, there is also developing research into the prevalence and strength of anti-fat bias in pre-professional student populations (Lynagh, Cliff, & Morgan, 2015; Phelan et al., 2014). The pervasiveness of implicit and explicit aspects of anti-fat bias in pre-professional healthcare educational settings is also supported by additional articles not selected for inclusion in this study, available for review in the reference section of this paper (O'Brien, Puhl, Latner, Mir, and Hunter, 2010; Zeiss, Kushner, Yelen, and Feinglass, 2014). However, this literature review failed to identify articles examining implicit or explicit anti-fat bias in social work professional or pre-professional student populations, which is the focus of this study.

Methods

Utilizing a cross-sectional survey design, this undergraduate honors thesis used a peer-reviewed research instrument (previously tested for reliability and validity) to measure explicit anti-fat bias in a convenience sample of social work students at a Council on Social Work Education (CSWE) accredited, midwestern, metropolitan university. An anonymous survey was utilized to collect responses to demographic questions and a peer-reviewed research instrument designed to measure explicit anti-fat bias from participants. This section describes the methodology utilized in the study.

Sample Identification and Selection Protocols

The student researcher utilized convenience sampling at a single midwestern metropolitan university that met the following: (1) the sample was composed of students enrolled at regionally accredited post-secondary institution of higher education; (2) the aforementioned institution had a social work program, and all participants were enrolled in that program; and, (3) the institution's social work program was accredited by the CSWE. When identifying an institution, CSWE accreditation was extremely pertinent, due to the fact that most states require a CSWE accredited degree as a component of the educational requirements for professional licensure post-graduation (CSWE, n.d.), and given the focus of this paper is to enhance the body of research on the prevalence of anti-fat bias in social work pre-professional student populations, such a classification was necessary for inclusion in the sampling selection criteria for this paper. Once the institution was identified, the student researcher then identified contact information for the social work department at the university and contacted their office with a request to distribute a survey (Appendix A) to all students within their program.

Data Collection Methods

The student researcher developed a questionnaire for distribution to the identified population (see Appendix A). The survey was conducted anonymously and distributed to participants electronically. Participants completed consenting questions, demographic questions (including a question on current level of social work education, which is key to data analysis), and the 20-item UMB - Fat Subscale tool (see Appendix B). Once data was collected, the student researcher produced descriptive statistics for the demographic questions, the scale averages, and the subscale averages.

Identifying and selecting the UMB Fat Subscale. The primary considerations in the search for a validated scale for this study was to identify a tool that was (1) peer-reviewed; (2) a

self-report questionnaire; and (3) that measured explicit anti-fat bias in a psychometrically-sound way. A literature review of weight bias (anti-fat bias) self-report tools and their psychometric properties was utilized to support selection of a measurement tool. The literature review, conducted by Lacroix and colleagues (2017), identified the UMB - FAT Subscale as a tool with significant internal consistency, theoretical clarity, content validity, structural validity, convergent validity, and discriminant validity, which compared well with similar scales in anti-fat bias literature for psychometrically sound design. The original article that established the tool, published by Latner and colleagues in 2008, noted the tool as one that covered multiple dimensions of explicit anti-fat bias, such as “negative judgments about character, behavior, morality, discomfort with proximity and intimacy, attraction and disgust, and equal rights” (p. 1147). The student researcher, finding the UMB - FAT Subscale tool to meet all above-mentioned criteria for inclusion in this paper’s survey questionnaire, selected the tool to measure explicit anti-fat bias in the study.

Study Recruitment

A recruitment email was sent to all students in the identified social work program (see Appendix C). Personal communications with department representatives indicated that the mass email was distributed to approximately 524 social work students. The survey remained open for two weeks. A final data report was populated after the survey closed.

Results

This section details the results of the data analysis. Data analysis included descriptive statistics of the sample, an analysis of level of social work education and its relationship to anti-fat bias, and additional analyses of gender and self-identification of fatness and their relationship to anti-fat bias. All analyses were hypothesis tested against the initial hypothesis in this paper:

The null hypothesis (H0) is that there will be no statistically significant difference between participant groups in the sampled population. The alternative hypothesis (H1), in contrast, is that there is a statistically significant difference between participant groups in the sampled population.

Sample Description

A total of 81 social work students participated in the survey, which is approximately a 15.48% response rate (81 of 542 possible responses) from the total population of students enrolled in the selected social work department. The data report was reviewed for any non-consenting, disqualified, or partially completed responses (partial completion referring to responses that did not complete the UMB - Fat Subscale in full), which were excluded from the report via deletion. Following the protocols for exclusion of non-consenting, disqualified, or partially completed responses, the total remaining sample size was 64 participants. Additionally, data was recoded to match reverse scoring protocols outlined in Appendix B. According to the UMB - Fat Subscale coding description provided in Appendix B; scores range from 1.0 (low anti-fat stigma) to 7.0 (high anti-fat stigma).

Descriptive statistics. As summarized in Table 1, the sample was predominantly white (N=54; 84.38%) cisgender women (N=47; 73.44%), not of Hispanic, Latino, or Spanish origins (N=57; 87.06%), who were closely split along lines of self-identification of fatness (Yes [N=34; 53.13%]; No [N=30; 46.87%]) and perceived peer identification as fat (Yes [N=31; 48.44%]; No [N=33; 51.56%]). Participants also reported their level of education: (1) Pre-Social work (N=15; 23.44%); (2) BSSW Program (N=14; 21.88%); (3) MSW Foundation Program (N=10; 15.63%); and (4) MSW Advanced Standing Program (N=25; 39.06%).

Table 1

Descriptive Analysis of the Sample's Demographic Characteristics

Demographic	N	%
Total Sample	(N=64)	100%
Gender Identity		
▪ Cisgender Man	(N=4)	6.25%
▪ Cisgender Woman	(N=47)	73.44%
▪ Transgender Man	(N=1)	1.56%
▪ Transgender Woman	(N=2)	3.13%
▪ Non-Binary/Genderfluid	(N=2)	3.13%
▪ No Response/Non-Disclosure	(N=8)	12.50%
Racial Identity		
▪ Multiple Races Identified	(N=1)	1.56%
▪ Black or African American	(N=5)	7.81%
▪ White	(N=54)	84.38%
▪ No Response/Non-Disclosure	(N=4)	6.25%
Ethnicity		
▪ Yes, Hispanic, Latino or Spanish origins	(N=7)	10.94%
▪ No, Hispanic, Latino or Spanish origins	(N=57)	89.06%
Self-ID of Fat Identity		
▪ Yes	(N=34)	53.13%
▪ No	(N=30)	46.87%
Self-perception of Fat Social Identification		
▪ Yes (n=31) – 48.44%	(N=31)	48.44%
▪ No (n=33) – 51.56%	(N=33)	51.56%
Social Work Level of Education		
▪ Pre-Social Work	(N=15)	23.44%
▪ BSSW Program	(N=14)	21.88%
▪ MSW Foundation Program	(N=10)	15.63%
▪ MSW Advanced Standing Program	(N=25)	39.06%

Averages overall and by domain. Following a review of the sample's demographic characteristics, descriptive statistics on the UMB Fat Subscale were also assessed (see Table 2). Overall, the sample endorsed relatively low levels of anti-fat bias. However, the level of anti-fat bias was higher in the domain of Attraction.

Table 2*UMB - Fat Subscale: Category-based Averages, Minimums, and Maximums of the Sample*

Category	Mean	Min.	Max.
▪ Overall	2.042	1.079	3.953
▪ Adverse Judgment	1.669	1.516	1.953

▪ Social Distance	1.640	1.079	1.938
▪ Attraction	3.216	2.578	3.953
▪ Equal Rights	1.641	1.547	1.766

Anti-Fat Bias and Level of Social Work Education

ANOVA. In order to determine if a statistically significant relationship existed between level of social work education and level of anti-fat bias the student researcher ran five 1-Way ANOVA tests, one concerning the overall average scores on the UMB - Fat Subscale and one for average scores in each of the domains, to compare the three or more groups that were contained within this variable (Pre-Social Work, BSSW Program, MSW Foundation Program, and MSW Advanced Standing Program, respectively; See Table 3).

Table 3

One-Way Analysis of Level of Education's on Effect on Explicit Anti-Fat Bias Scores

	Sum of Squares	df	Mean Square	F	Significance	F Crit.
Overall						
▪ Between Groups	2.542	3	0.847	1.413	0.248	2.758
▪ Within Groups	35.981	60	0.600			
▪ Total	38.524	63				
Adverse Judgement						
▪ Between Groups	2.632	3	0.877	1.172	0.328	2.758
▪ Within Groups	44.906	60	0.748			
▪ Total	47.537	63				
Social Distance						
▪ Between Groups	4.891	3	1.630	2.625	0.059	2.758
▪ Within Groups	37.269	60	0.621			
▪ Total	42.160	63				
Attraction						
▪ Between Groups	3.544	3	1.181	0.651	0.585	2.758
▪ Within Groups	108.880	60	1.815			
▪ Total	112.424	63				
Equal Rights						
▪ Between Groups	2.772	3	0.924	1.054	0.375	2.758
▪ Within Groups	52.602	60	0.877			
▪ Total	55.374375	63				

Note. Groups included Pre-Social Work (N=15), BSSW Program (N=14), MSW Foundation Program (N=10), and MSW Advanced Standing Program (N=25).

Table 3 provides the results of the five 1-Way ANOVA tests. There was no significant effect on anti-fat bias at the $\alpha = 0.05$ level for the four groups when analyzed by overall average scores on the UMB - Fat Subscale and average scores across each of the domains; therefore, each of these analyses failed to reject the null hypothesis (H_0). These results suggest that level of education does not have a statistically significant effect on explicit anti-fat bias scores.

Independent t-tests. The student researcher also ran five independent two-tailed t-tests for combined categories of undergraduate (Pre-Social Work and BSSW Program) and graduate (MSW Foundation Program and MSW Advanced Standing Program; See Table 4).

Table 4

Results of Independent T-test Analyses Examining Level of Education and Anti-Fat Bias

Test	Undergraduate		Graduate		<i>t</i>	<i>p</i>	<i>df</i>
	M	SD	M	SD			
Overall	2.019	0.709	2.065	0.548	-0.229	0.820	56
Adverse Judgment	1.745	0.680	1.606	0.829	0.641	0.524	61
Social Distance	1.607	0.641	1.686	0.709	-0.383	0.703	61
Attraction	3.062	2.077	3.343	1.559	-0.824	0.414	56
Equal Rights	1.662	0.837	1.623	0.938	0.166	0.869	61

Note. All *t*-tests were analyzed assuming unequal variances between sampled Undergraduates (N = 29) and Graduates (N = 35) in a two-sample analysis.

Table 4 provides the results of the five-independent t-tests on level of education with combined categories. There was no statistically significant effect on anti-fat bias at the $\alpha = 0.05$ level for the groups when analyzed by overall average scores on the UMB - Fat Subscale and

average scores across each of the domains therefore, each analysis failed to reject the null hypothesis (H0). These results further suggest that level of education does not have a statistically significant effect on explicit anti-fat bias scores.

Anti-Fat Bias and Gender

Independent t-tests. Considering the data in relation to the variable of gender amongst participant groups, the student researcher ran five independent two-tailed t-tests for combined categories of Women (Cisgender Woman and Transgender Woman) and Men (Cisgender Man and Transgender Man), with Non-binary/Genderfluid and No Response/Non-disclosure Preference participant responses excluded due to low sample size (see Table 5).

Table 5

Results of Independent T-test Analyses Examining Gender and Anti-Fat Bias

Test	Women		Men		<i>t</i>	<i>p</i>	<i>df</i>
	M	SD	M	SD			
Overall	2.002	0.588	2.333	1.759	-0.549	0.612	4
Adverse Judgment	1.649	0.816	2.160	1.328	-0.962	0.380	5
Social Distance	1.604	0.617	1.720	1.652	-0.198	0.853	4
Attraction	3.110	1.690	3.320	3.352	-0.250	0.815	4
Equal Rights	1.645	0.854	2.120	2.372	-0.677	0.535	4

Note. All *t*-tests were analyzed assuming unequal variances between sampled Women (N = 49) and Men (N = 5) in a two-sample analysis.

Table 5 provides the results of the five-independent t-tests on gender and level of anti-fat bias. There was no significant effect on anti-fat bias at the $\alpha = 0.05$ level for the groups when analyzed by overall average scores on the UMB - Fat Subscale and average scores across each of

the domains; therefore, each analysis failed to reject the null hypothesis (H0). These results suggest that gender does not have a statistically significant effect on explicit anti-fat bias scores.

Anti-Fat Bias and Body Size

Independent t-tests. Considering the data in relation to the variable of body size amongst participant groups, the student researcher ran five independent two-tailed t-tests for categories of Yes (self-identified fat) and No (self-identified non-fat; see Table 6).

Table 6

Results of Independent T-test Analyses Examining Self-Identified Body Size and Anti-Fat Bias

Test	Yes		No		<i>t</i>	<i>p</i>	<i>df</i>
	M	SD	M	SD			
Overall	1.949	0.724	2.152	0.483	-1.048	0.299	62
Adverse Judgment	1.771	0.849	1.553	0.647	1.007	0.318	62
Social Distance	1.729	0.807	1.560	0.520	0.836	0.406	61
Attraction	2.735	1.444	3.760	1.656	-3.279	0.002+++	60
Equal Rights	1.559	0.700	1.733	1.096	1.096	0.468	55

Note. All *t*-tests were analyzed assuming unequal variances between sampled Yes (N = 49) and No (N = 5) in a two-sample analysis.

+++ - Reject H0 ($\alpha = 0.05$)

Table 6 provides the results of the five-independent t-tests on body size and level of anti-fat bias. There was one significant effect on anti-fat bias at the $\alpha = 0.05$ level for the groups when analyzed by overall average scores on the UMB - Fat Subscale and average scores across each of the domains. Each analysis in Table 6 (see above) failed to reject the null hypothesis (H0), except for the domain of Attraction ($p < 0.05$). These results suggest that self-identified body size does not have a statistically significant effect on explicit anti-fat bias, except within the domain

of Attraction. These results suggest that body size does have an effect on self-reported attraction-specific explicit anti-fat bias. More specifically, non-fat folks are less likely than fat folks to identify fat people as attractive.

Discussion

This section discusses the statistical analyses conducted and their results. The following hypothesis test served as the framework for statistical analysis:

The null hypothesis (H0) was that there would be no statistically significant difference between participant groups in the sampled population and the alternative hypothesis (H1), in contrast, was that there would be a statistically significant difference between participant groups in the sample.

Statistical analysis found that in almost all cases, demographic characteristics, such as level of social work education, gender, and self-identification as fat, did not have a statistically significant impact on level of anti-fat bias, with one exception. The statistically significant exception was identified during the independent t-test that examined the Attraction domain-specific scores of the Self-identification of Fatness (or body size) variable between groups of self-identified fat and non-fat participants (see Table 6). The results can be interpreted as suggesting that non-fat folks are less likely than fat folks to identify fat people as attractive. Specifically, the results suggest that non-fat folks possess greater levels of anti-fat bias in the domain of Attraction than fat folks in the sample.

Concerning the main application of the hypothesis in this study to level of social work education, the results of both ANOVA and independent t-test analyses suggest that level of education does not have a statistically significant effect on explicit anti-fat bias, so it is not

reasonable to support a conclusion that level of social work education has any measurable impact on anti-fat bias endorsement without further analysis or study.

This study also considered the following supplemental questions: (1) to what extent do participants endorse statements indicating anti-fat bias; (2) what domains of anti-fat bias/stigma are most strongly endorsed by participants; and (3) does the level of anti-fat bias among participants differ by characteristics other than level of social work education? Concerning supplemental questions one and two, it was identified by method of descriptive statistical analysis (see Table 1), that participants endorsed relatively low levels of anti-fat bias, especially in the domains of Adverse Judgement, Social Distance, and Equal Rights. Participants endorsed higher levels of explicit anti-fat bias in the domain of Attraction. With regard to the third question, the analysis suggests that non-fat folks possess greater levels of anti-fat bias in the domain of Attraction than fat folks in the sample, however, there were no other statistically significant findings on the strength of endorsement by participants across domains when compared by demographic characteristic variables.

When compared to previous literature, there was a difference identified in the results of this study. This study found gender to have no relationship to anti-fat bias endorsements, whereas previous studies identified a relationship between these two variables. Possible hypotheses for this change in outcome will be discussed in the limitations of this study.

Limitations & Recommendations

This section outlines some of the limitations of this study and provides recommendations for future research. Chiefly, this study is based on a small sample of social work students at a single institution. Further research with a larger and more diverse sample is needed to generalize the results.

Sample and selection bias. Due to constraints on resources, the student researcher utilized convenience sampling to select a sample at a midwestern metropolitan university. This sample was not randomized, and therefore, subject to sample and selection bias. Furthermore, there was a lack of diversity in the identified sample, so multiple forms of analysis across demographic characteristics were not possible due to this constraint. For example, limitations on response in the category of gender required the combining of categories in order to complete analysis. Some categories, such as race, were unable to be utilized due to the diversity of the sample being quite low and risk that analysis would be insignificant if applied. This student researcher suggests that future research focus on more randomized and diverse sampling. In particular, more gender diverse samples are necessary in order to better understand the role of gender in anti-fat bias. This is especially important as the results of this study depart from previous academic literature suggestions regarding the relationship of gender to anti-fat bias endorsement. This student research hypothesizes that the sample and selection limitations of this study might be a contributing factor toward why level of social work education was not observed to impact explicit anti-fat bias and recommends future studies focus on procuring a larger randomized sample with greater diversity, as that would provide further data to either confirm or reject the above-mentioned hypothesis.

Time constraints. More data was collected for this study than was included in the analysis. For example, data collected on demographic characteristics such as age, ethnicity, self-perceptions of fat social identification by peers were not able to be assessed due to time limitations. Additional analysis and discussion of subsequent analyses by the student researcher on these elements of the study is possible in the future.

No explanatory power. Given the design of this study, this student researcher also recommends that further research integrate a qualitative component, specifically to explain the relationship between self-identification as fat and anti-fat bias in the domain of Attraction. Since quantitative data can only establish the existence of a relationship, it is recommended that this topic should be explored further qualitatively.

Conclusion

This thesis studied whether there are differences in the prevalence and strength of self-reported measures of explicit anti-fat bias in participants based on level of education, gender, and body size. Overall, participants endorsed relatively low levels of anti-fat bias, especially in the domains of Adverse Judgement, Social Distance, and Equal Rights. Participants endorsed higher levels of explicit anti-fat bias in the domain of Attraction. In the domain of Attraction, statistical significance was found in the relationship of self-identification of fatness to attraction-based anti-fat bias, with non-fat folks being less likely than fat folks to identify fat people as attractive. Additional research is needed in order to better understand and generalize these results.

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Appendix A: Measuring Anti-fat Bias in Social Work Students Survey

Q1 Thank you for your interest in participating in this survey, which is part of an undergraduate honors thesis project. This survey is being conducted by Dalton Meister. The purpose of this survey is to measure bias toward fat people among social work students. All responses are anonymous. Completing this survey should take less than 10 minutes.

What will happen during the survey?

This study is being conducted through an anonymous Qualtrics survey. This survey collects consenting information, limited demographic information, and responses to a peer-reviewed survey instrument. Completing this survey should take less than 10 minutes. You can stop participating at any time by closing the survey window.

What will happen after the survey?

The student researcher will analyze the data in order to develop a report. Your participation in the survey is anonymous and no personally identifying information will be included in the report. The report will be submitted to the University Honors Program at the University of Nebraska at Omaha and will be made publicly available through DigitalCommons (<https://digitalcommons.unomaha.edu/>).

You may also email Dalton Meister (daltonmeister@unomaha.edu) to request a copy of the report when it is complete (anticipated May 2021).

Why should I participate?

There are no direct, material benefits or incentives for participating in the survey. By completing this survey, you can ensure that your perspective is taken into account. There are no known risks to participating in the survey. If you experience discomfort while participating in the survey, you can stop participating at any time by closing the survey window. If you have any questions about the survey or your participation, please contact the student researcher, Dalton Meister (daltonmeister@unomaha.edu), or their faculty mentor, Dr. Liam Heerten-Rodriguez (lheerten2@unomaha.edu).

By clicking on the 'I Consent' button below, you are voluntarily consenting to participate in the survey. You can stop participating at any time by closing the survey window. You can print a copy of this page for your records.

☐ I Consent (1)

☐ I Do Not Consent (end survey) (2)

Skip To: End of Survey If Thank you for your interest in participating in this survey, which is part of an undergraduate ho... = I Do Not Consent (end survey)

Q2 Are you 19 years of age or older?

☐ Yes (1)

☐ No (2)

Skip To: End of Survey If Are you 19 years of age or older? = No

Q3 Are you a currently enrolled student pursuing a social work education?

☐ Yes (1)

☐ No (2)

Skip To: End of Survey If Are you a currently enrolled UNO student pursuing a social work education? = No

End of Block: Consenting Information

Start of Block: Block 2

Q4 How would you describe your gender identity and/or sex? (Some options include woman, man, nonbinary, agender, transgender*, cisgender*, intersex, genderfluid, and/or two-spirit, etc.).

*Transgender (or trans) usually refers to people who were given a gender and/or sex label at birth that does not accurately represent them. Cisgender (or cis) refers to people who are the same gender and/or sex they were assigned at birth.

☐

Please describe your gender identity and/or sex. (1)

☐

Prefer not to disclose. (2)

Q6 When I describe who participated in my study, should I include you in a trans or transgender category? For example, you are trans, you have transitioned* gender and/or sex, you will transition, and/or you are transitioning. *By transitioned, we mean changing aspects of your

gender/sex socially and/or biomedically. These may include changes in gender expression, legal documents, hormones, and/or anatomy.

- ☐ Yes (1)
- ☐ No (2)
- ☐ Prefer not to disclose. (3)
-

Q7 What is your sexual orientation? (Some options include asexual, bisexual, gay, lesbian, queer, straight, etc.)?

- ☐ Please describe your sexual orientation. (1)
-
- ☐ Prefer not to disclose. (2)
-

Q8 What is your race (please select all that apply)?

- ☐ American Indian (Native American) or Alaska Native (1)
- ☐ Asian (2)
- ☐ Black or African American (3)
- ☐ Native Hawaiian or Pacific Islander (4)
- ☐ White (5)
- ☐ Additional category/identity not listed (please specify below). (6)
-
- ☐ Prefer not to disclose. (7)
-

Q9 Are you of Hispanic, Latino or Spanish origin?

- ☐ Yes (1)
 - ☐ No (2)
 - ☐ Uncertain (3)
 - ☐ Prefer not to disclose. (4)
-

Q10 What is your age?

- ☐ Please provide your age in years, numerically (e.g. 19). (1)

 - ☐ Prefer not to disclose. (2)
-

Q11 How would you identify your current level of social work education?

- ☐ Pre-Social Work (not yet admitted to the program) (1)
 - ☐ BSSW Program (2)
 - ☐ MSW Foundation Program (3)
 - ☐ MSW Advanced Standing Program (4)
 - ☐ Prefer not to disclose. (5)
-

The next two questions ask for your height and weight - information that is used to calculate a body mass index (BMI) score. BMI is an unreliable measure of body size (for example, it does not differentiate between body fat and muscle) and is ***not*** a measure of health. **A person can experience health and wellness at any body size.** If you want, you can skip these questions.

Q12 What is your height?

☐ Please provide your height in feet and inches. (1)

☐ Prefer not to disclose. (2)

Q13 What is your weight?

☐ Please provide your weight in pounds. (1)

☐ Prefer not to disclose. (2)

End of Block: Block 2

Start of Block: Block 3

For each of the following statements, please rate the extent to which you agree or disagree.
Remember that your responses are anonymous.

Q14 Special effort should be taken to make sure that fat people have the same rights and privileges as other people.

☐ Strongly Agree (1)

☐ Moderately Agree (2)

☐ Slightly Agree (3)

☐ Neither Agree nor Disagree (4)

☐ Slightly Disagree (5)

☐ Moderately Disagree (6)

☐ Strongly Disagree (7)

Q15 I would be comfortable having a fat person in my group of friends.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q16 I find fat people attractive.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q17 Fat people make good romantic partners.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q18 Fat people have bad hygiene.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q19 I find fat people to be sexy.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q20 Fat people tend towards bad behavior.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q21 I would not want to have a fat person as a roommate.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q22 Fat people are a turn-off.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q23 I find fat people pleasant to look at.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q24 Special effort should be taken to make sure that fat people have the same salaries as other people.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q25 Sometimes I think that fat people are dishonest.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q26 I try to understand the perspective of fat people.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q27 Special effort should be taken to make sure that fat people have the same educational opportunities as other people.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q28 In general, fat people don't think about the needs of other people.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q29 Fat people are sloppy.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q30 I like fat people.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q31 Special effort should be taken to make sure that fat people have the same housing opportunities as other people.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q32 I don't enjoy having a conversation with a fat person.

- ☐ Strongly Agree (1)
 - ☐ Moderately Agree (2)
 - ☐ Slightly Agree (3)
 - ☐ Neither Agree nor Disagree (4)
 - ☐ Slightly Disagree (5)
 - ☐ Moderately Disagree (6)
 - ☐ Strongly Disagree (7)
-

Q33 I would like having a fat person at my place of worship or community center.

- ☐ Strongly Agree (1)
- ☐ Moderately Agree (2)
- ☐ Slightly Agree (3)
- ☐ Neither Agree nor Disagree (4)
- ☐ Slightly Disagree (5)
- ☐ Moderately Disagree (6)
- ☐ Strongly Disagree (7)

End of Block: Block 3

Start of Block: Block 4

Q34 Do you identify as having a larger than socially desirable or acceptable body size? (Many people with larger than socially acceptable or desirable body sizes use terms like fat, overweight, obese, large, big, chubby, curvy, husky, thick, plus-size, BBW, or others to describe their body size.)

- ☐ Yes (1)
 - ☐ No (2)
 - ☐ Prefer not to disclose. (3)
-

Q35 Do you believe that other people would label your body size as fat, overweight, obese, large, big, chubby, curvy, husky, thick, plus-size, or other similar label?

- ☐ Yes (1)
- ☐ No (2)
- ☐ Prefer not to disclose. (3)

End of Block: Block 4

Appendix B: Universal Measure of Bias - Fat Subscale Tool

(Please answer all of the following questions, using this scale:

1	2	3	4	5	6	7
strongly agree	moderately agree	slightly agree	neither agree nor disagree	slightly disagree	moderately disagree	strongly disagree

- _____ 1. Special effort should be taken to make sure that fat people have the same rights and privileges as other people.
- _____ 2. I would be comfortable having a fat person in my group of friends.
- _____ 3. I find fat people attractive.
- _____ 4. Fat people make good romantic partners.
- _____ 5. Fat people have bad hygiene.*
- _____ 6. I find fat people to be sexy.
- _____ 7. Fat people tend towards bad behavior.*
- _____ 8. I would not want to have a fat person as a roommate.*
- _____ 9. Fat people are a turn-off.*
- _____ 10. I find fat people pleasant to look at.
- _____ 11. Special effort should be taken to make sure that fat people have the same salaries as other people.
- _____ 12. Sometimes I think that fat people are dishonest.*
- _____ 13. I try to understand the perspective of fat people.
- _____ 14. Special effort should be taken to make sure that fat people have the same educational opportunities as other people.
- _____ 15. In general, fat people don't think about the needs of other people.*
- _____ 16. Fat people are sloppy.*
- _____ 17. I like fat people.
- _____ 18. Special effort should be taken to make sure that fat people have the same housing opportunities as other people.
- _____ 19. I don't enjoy having a conversation with a fat person.*
- _____ 20. I would like having a fat person at my place of worship or community center.

*Reverse coded (so that higher scores indicate greater stigma)

Factors:

- I. Items 5,7,12,15,16 (~adverse judgment)
- II. Items 2,8,17,19,20 (~social distance)
- III. Items 3,4,6,9,10 (~attraction)
- IV. Items 1,11,13,14,18 (~equal rights)

Appendix C: Email to Social Work Students

Greetings,

I hope this email finds you well; my name is Dalton Meister. I am currently conducting mentored undergraduate research, in the form of a survey and subsequent analysis, to complete my undergraduate honors thesis. I am writing to you today to see if you would be willing to participate in a survey (details below) as a component of the thesis project mentioned above.

Anonymous Qualtrics Survey Link: https://unomaha.az1.qualtrics.com/jfe/form/SV_1CjFjsAI59b7X8

Survey Details (please read):

This study is being conducted through an anonymous Qualtrics survey. The purpose of this survey is to measure bias toward fat people among social work students. **All responses are anonymous.** This survey collects consenting information, limited demographic information, and responses to a peer-reviewed survey instrument. **Completing this survey should take less than 10 minutes. You can stop participating at any time by closing the survey window.**

The student researcher will analyze the data from the survey in order to develop a report. Your participation in the survey is anonymous and no personally identifying information will be included in the report. The report will be submitted to the University Honors Program at the University of Nebraska at Omaha and will be made publicly available through DigitalCommons (<https://digitalcommons.unomaha.edu/>).

You may also **email Dalton Meister (daltonmeister@unomaha.edu) to request a copy of the report when it is complete (anticipated May 2021).**

There are no direct, material benefits or incentives for participating in the survey. By completing this survey, you can ensure that your perspective is taken into account. **There are no known risks to participating in the survey. If you experience discomfort while participating in the survey, you can stop participating at any time by closing the survey window.** If you have any questions about the survey or your participation, please contact the student researcher, Dalton Meister (daltonmeister@unomaha.edu), or their faculty mentor, Dr. Liam Heerten-Rodriguez (lheerten2@unomaha.edu).

Thank you for your time and consideration of this request.

Respectfully,
Dalton Meister