

How Do Perceived Disability Stigma and Resilience Influence College Student Mood?

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Abstract

Research documents negative stereotyping and perceived discrimination against students with both visible and invisible disability types. This study examined how perceived stigma affected mood and if resilience or disability type mitigated negative outcomes. We also explored whether resilience was related to students' intent to persist with collegiate studies. We surveyed college students with disabilities at a large Southeastern U.S. university. Results found that, as perceived stigma increased, negative mood increased and positive mood decreased. Although higher stigma was associated with lower resilience overall, those with visible disabilities reported significantly higher resilience than those with invisible disabilities. We tested three-way interactions (moderated moderation) between stigma, disability type, and resilience in predicting mood. Students with invisible disabilities, on average, showed greater stigma predicting lower positive mood. Students with visible disabilities, however, showed a slight increase, on average, in positive mood as their perceived stigma increased. Although resilience impacted mood, it did not have a moderation effect. Results from the current study suggest that more mental health resources are needed for college students with disabilities and that building resilience is a potential intervention target.

Keywords: college students, disability, stigma, resilience, mood

Approximately 20% of college students report having a disability (National Center for Education Statistics, 2023), including physical (visible), cognitive, and psychiatric (non-visible) disability types. Decades of research have documented negative stereotyping and perceived discrimination against students with disabilities (e.g., Haft et al., 2023; Lyman et al., 2016; Wilczenski, 1993). To understand the negative outcomes stigma may have, it is important to consider how stigma might influence one's feelings and intent to persist with college. It is also important to identify factors that may mitigate negative effects, such as resilience, defined as one's ability to bounce back from stress.

College students report many different types of disabilities. Some disabilities may be clearly visible, while others may be neurologically based and less obvious. A few examples of visible disabilities would be people who are blind or have physical limitations. Each of these disabilities is easily depicted as being

“different” from the norm. Conversely, there are invisible disabilities, which are harder to detect but still present within individuals at the collegiate level. Examples of invisible disabilities include autism spectrum disorder, attention-deficit/hyperactivity disorder, and specific learning disabilities. In terms of prevalence rates of students enrolled in postsecondary institutions in the U.S., invisible disabilities are much more common (Hinz et al., 2017). Many universities provide support for their students who have disabilities if they choose to self-disclose their disability status. Disability support at the collegiate level includes academic advising, classroom support like lecture recordings or note-taking aids, test-taking accommodations, and some specific programs tailored to students with disabilities (Coghill & Coghill, 2021).

More research is needed regarding disability stigma in university settings, especially for individuals with invisible disabilities. Many studies of disability stigma are dated (e.g., see Haft et al., 2023 for a sys-

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tematic review) or focus solely on physical disabilities, which ignores the experiences of most college students who identify as having a disability. For example, a study conducted by Liu and Zhang (2021) examined the relationship between stigma and mental health status in college students with disabilities but focused on physical (visible) disabilities. Additionally, many studies do not examine mood as an outcome despite high rates of emotional distress among adults with disabilities (CDC, 2020a). Therefore, this study examined visible and invisible disability stigma, resilience as a moderator, and mood as an outcome. We were also interested in how stigma or resilience may influence one's intent to persist with college.

Disability Stigma in Higher Education

Generally, stigma is a negative set of beliefs about people with specific characteristics. According to the classic theory of stigma by Erving Goffman (1963), stigma is defined as a social phenomenon in which an individual is labeled by society based on an attribute that is judged as non-desirable. Due to this negative label, the person is discredited or considered inferior or less equal. Stigma may lead to experiences of rejection or discrimination socially, academically, physically, and/or psychologically (Ahmedani, 2011). Stigma plays a role in the lives of people with disabilities because they might be viewed as being out of the ordinary. Many students with disabilities report being frustrated when they feel peers or instructors are stigmatizing them (Shpigelman et al., 2022). It is reasonable to assume stigmatization can drastically influence the mood of students with disabilities. Indeed, the theory of self-stigma suggests that stigma is not held only in society, but may become internalized, negatively affecting one's self-esteem and self-efficacy (Cocker, 1999).

There have been a few recent studies that focus on the stigmatization of people with disabilities. Liu and Zhang (2021) focused on individuals with physical disabilities and measured their resilience along with perceived stigma. The authors found that stigma and mental health issues, such as anxiety and depression, were positively correlated, while resilience had a negative correlation with stigma and mental health issues. These study variables are closely related to the present study, but there are notable differences in the Liu and Zhang (2021) study, including that it was conducted in China, the participants were not exclusively college students, and it focused on people with visible disabilities only.

Trunk and colleagues (2020) examined perceived stigma for a group of college students with psychiatric disabilities compared to those with other impair-

ments. The average overall score for this subsample of college students with psychiatric disabilities suggested moderate levels of perceived stigma. Compared to students with other disabilities, greater stigmatization was reported in relation to their academic success, peer and interpersonal relationships, and sense of self. Although this study did not specifically consider visible versus invisible disability types, it does suggest that college students with invisible disabilities (psychiatric impairments) experience significant stigmatization and negative outcomes.

Another study related to disability stigma examined coping strategies used by college students with disabilities (Vaccaro et al., 2019). This qualitative research study gathered 59 university students to conduct interviews about their experiences. The study resulted in rich data on coping strategies used by college students with disabilities. Specifically, the researchers found that self-advocating, positive self-talk, and drawing upon past successes were helpful coping strategies used by the participants (Vaccaro et al., 2019). This study also suggests that individual resilience may be an important coping strategy for college students with disabilities.

Disability and Mood

The Centers for Disease Control and Prevention ([CDC], 2020b) reports that about one-third of adults with disabilities report mental health issues, including anxiety and depression. This may be the result of many different factors, including stigmatization. Over half of adults with invisible and visible disabilities report emotional or mental distress, which is 4.6 times more prevalent in comparison to adults that do not have a disability (CDC, 2020a). Among the many factors to consider, individuals with disabilities may have issues with social integration, learning, and feeling accepted. These factors may harm the mood of individuals with disabilities and make it harder for them to maintain a positive outlook on life.

Social barriers may contribute to mood outcomes for college students with disabilities. From not having physical access to social settings, to feeling unwelcome in those settings, people with disabilities may feel unseen or undervalued by their peers (Lyman et al., 2016). This feeling can be amplified in college settings where socialization is a driving force, and individuals are given social freedom. A 2024 systematic review by Madaus et al. highlights persistent obstacles in postsecondary institutions' architecture, instruction, and transportation that hinder equal access, especially for college students with physical disabilities. Some may feel unwelcome if they do not have the accessibility to attend certain events. Additionally, negative

or stereotypical peer attitudes toward disabilities can hinder one's self-esteem and social courage (CDC, 2020b). Madaus et al.'s (2024) review suggests that stigmatizing behaviors at the social level can impact mood in college students with disabilities.

Perceived barriers will differ by individual, but there are similarities across students with disabilities. In a qualitative study by Hong (2015), college students with disabilities were asked to journal about disability-related issues as they pertained to their university experiences. Students reported an array of barriers, including social stigmatization, feeling like an outcast, negative mood, physical learning barriers in the classroom (e.g., bright lights, noise distractions), and lack of support. Students also reported feeling seen as outcasts by both peers and professors because of the special attention drawn to them, and difficulty asking their university community for help. Notably, being seen as an outcast can hinder students' confidence in asking for accommodations. The participants also stated that they had difficulty learning because of their disability. Learning barriers are common for students with disabilities and may be exacerbated at the collegiate level where class sizes may be larger and teacher support less available than in K-12 school settings. Lastly, students reported having issues with mental health because of these barriers and perceived stigmatization. Hong's (2015) study contributes to our understanding of college students with disabilities but fails to provide quantitative information about the relationships among these perceived barriers and outcomes or the influence of coping strategies. The findings of Hong (2015) also support the theory of self-stigma (Crocker, 1999) in that stigmatization, which can be based on the fear of being labeled/rejected or direct experience, can influence psychosocial wellbeing (Ahmedani, 2011, Lin & Tsang, 2020).

Resilience as a Moderator Between Stigmatization and Mood

Resilience is most often seen as a positive, protective factor that helps individuals overcome hardships in life (American Psychological Association, 2015). Individual resilience includes thoughts and behaviors that promote mental health and personal wellbeing. In general, resilience can act as a buffer between the impact of risk and one's mood. People who exhibit resilience tend to bounce back from adversity faster than those who do not and, generally, have a more positive outlook on life. Thus, resilience can play an important role in overall happiness and perceived quality of life for those navigating a chronic condition (e.g., Lee et al., 2017). Theorists believe that personality contrib-

utes to individual resilience (Burtaverde et al., 2021), but resilience is a learned behavior that is acquired throughout life (Fullerton et al., 2021).

As reviewed above, individuals with disabilities typically face stigma and hardships in life due to their disability, which puts people with disabilities at risk for self-stigma (Crocker, 1999), although individual reactions to stigma will vary. Coping strategies are important for people with disabilities to help them deal with adversity. The protective factor model of resilience theory suggests that resilience can act as a buffer between risks and outcomes (Zimmerman, 2013). More resilient individuals may cope with stigma better, which may result in better mood outcomes. Because resilience is a learned behavior, it may be an important intervention target for college students with disabilities.

There is a less studied model of resilience called the challenge model (Rutter, 1987) that may be particularly relevant to individuals with disabilities. This model posits that controlled exposure to moderate stressors over time (like disability stigma) provides extensive opportunities to develop effective coping strategies and to build resilience. Thus, moderate levels of stigma under supportive conditions can serve as a way to learn, grow, and build coping strategies for successful adaptation over time. Finally, resilience may play a role in college students' intent to persist with their university studies.

Intent to Persist in College

Universities are concerned with students' intent to persist and graduation rates. As such, researchers have studied factors that lead to college student retention. For example, Baier and colleagues (2016) found that self-efficacy played a large role in students' intent to persist in college. This study was conducted on first-year college students with no consideration of disability status. It is important to identify factors related to intent to persist rates in college students with disabilities, especially those who experience stigmatization and negative mood, because they may be at risk of dropping out. Many students with disabilities struggle to transition from high school to college life and find it difficult to apply learned adaptive skills to real-life settings (Mader & Butrymowicz, 2020). Additionally, people may discourage students with disabilities from pursuing a college degree because their abilities are doubted (Mader & Butrymowicz, 2020). College students with disabilities experience stigmatization that may impact their intent to persist at the collegiate level, but adequate social and academic support as well as a resilient viewpoint may mitigate this risk.

Purpose of the Study

As reviewed above, qualitative studies find that stigmatization in college students with disabilities can impact mood outcomes (Vaccaro et al., 2019). Both the protective factor model and challenge model of resilience suggest that individual resilience may play a moderating role. Gaps exist in the research on stigma in college students with disabilities, and fewer quantitative studies have examined relationships among these key factors. Additionally, few studies include the perspectives of individuals with invisible disabilities such as ADHD or learning disabilities. The present study bridged these gaps by conducting research on college students with invisible and visible disabilities, examining mood as an outcome, and including resilience as a potential moderator of the stigma-mood relationship. Finally, as a secondary research aim, this study explored if the factors listed above influenced participants' intent to persist at their university.

Using an anonymous, online survey, we assessed the extent individuals felt stigmatized at their university, their general positive and negative mood over the past week, and if resilience was a moderator of the relationship between disability stigmatization and mood. Our overarching research question was as follows: What are the relationships between disability stigma, resilience, and mood? We hypothesized a positive correlation between stigma and negative mood in college students with disabilities. We also predicted that higher levels of resilience would buffer the link between stigmatization and negative mood. Type of disability (visible v. invisible) was considered as well, but no *a priori* hypotheses were made. Lastly, because we lacked an established measure for intent to persist with college, an exploratory research question was whether resilience was associated with intent to persist.

Method

Participants

Recruitment

The directors of two university programs emailed a link to the survey opportunity to students with disabilities in their respective programs, a learning disability mentoring program and the disability support services office. There were also flyers posted at these offices advertising the survey study with a QR code for access. As a recruitment incentive, participants who voluntarily completed the survey were linked to a separate survey to receive compensation for their time in the form of a \$5 gift card. A university research award provided funding for these gift cards. Participants voluntarily chose to be a part of this study, and their survey results were anonymous.

Final Sample

Participants were college students at a large, state-funded university in the Southeast US. Sixty-five college students completed an anonymous online survey. Eight reported that they did not have a disability and were exited from the survey. An additional four completed less than 50% of the survey or had invalid responses to the validity checks and were removed from the final sample. Responses for the remaining 53 college students with disabilities were analyzed. Derived data supporting the findings of this study are available from the corresponding author on request. The sample was primarily female (81%) and white (77%). Descriptive statistics of the final sample are presented in Table 1.

Measures

The anonymous survey consisted of basic demographic questions on disability status, gender identity, age, and disability type (later categorized as invisible or visible), followed by specific measures of stigma, resilience, mood, and intent to persist with college. These measures are described next.

Demographic Items

A disability was defined on the survey as “a physical or mental condition that limits a person's movements, senses, or activities. For example, Autism Spectrum Disorder, Specific Learning Disabilities, Cerebral Palsy, and Hearing Impairments are all considered disabilities.” Although participants were recruited through programs tailored for students with disabilities, they also self-reported whether they considered themselves to have a disability (Yes/No) according to this definition. They selected their disability from a list of choices or selected “Other.” They could select multiple disabilities. Additional demographic data were self-reported gender identity, age, racial/ethnic background, and year of college.

Postsecondary Student Survey of Disability-Related Stigma (PSSDS)

The PSSDS consists of 27 items that measure perceived stigma one has experienced at the collegiate level due to their disability. This survey uses a 5-point Likert scale with a score of 0 representing “Never,” 1 representing “Occasionally,” 2 representing “Regularly,” 3 representing “Frequently,” and 4 representing “All the time” (Trammell, 2009). Psychometric data suggest good internal consistency (e.g., Cronbach's alpha of .80) and validity (e.g., factor analysis support and social validity via pilot studies; Trammell, 2009). Topics measured include academic success, peer relationship, sense of self and identity,

Table 1*Demographic Characteristics of Participants (n = 53)*

	n	%
Gender		
Female	43	81
Male	8	15
Non-binary or 'Other'	2	4
Race/Ethnicity		
Asian	1	2
Black/African American	6	11
Hispanic	2	4
White	41	77
Other	3	6
College Year		
Freshman	11	21
Sophomore	6	11
Junior	8	15
Senior	16	30
Other	12	23
Age		
18 - 21	29	55
22 or older	24	45
Disability ^a		
Visible	15	28
Invisible	38	72

Note. ^aFor this study, vision or hearing impairments, cerebral palsy, & mobility disabilities were coded as *Visible*. Autism, attention-deficit/hyperactivity disorder, specific learning disability, and traumatic brain injury were coded as *Invisible* disabilities. For those who selected 'other' ($n = 18$), we coded based on their text responses. Most were mental (e.g., PTSD, depression, anxiety) or physical (e.g., migraine, autoimmune) diagnoses coded as *Invisible*. Three were re-coded into existing categories (e.g., dyslexia, ADHD).

and global awareness. There is a total score range of 0-96 for this survey. Certain items are reverse-coded, and higher scores on the PSSDS indicate greater perceived stigma.

Brief Resilience Scale (BRS)

The BRS is a six-item measure of one's perceived ability to bounce back or recover from stress (Smith et al., 2008). Students rate their agreement with six statements using a 5-point Likert scale with a score of 1 representing "Strongly Disagree," 2 representing "Disagree," 3 representing "Neutral," 4 representing "Agree," and 5 representing "Strongly Agree." According to Smith et al. (2008), the BRS demonstrates good reliability (Cronbach's alpha values ranging from .80 to .91) and evidence for convergent and discriminant predictive validity as a measure of resilience. The BRS is scored by reverse-coding three of the negatively worded items, then finding the mean of the six items. Higher scores represent greater perceived ability to bounce back or recover from stress.

Positive and Negative Affect Schedule (PANAS)

The PANAS is a Likert scale that consists of 20 items in which participants indicate the extent to which they have felt each emotion over the past week (Watson et al., 1988). The scores are broken into negative and positive scores, each ranging from 10-50 possible points. For each item, participants select values ranging from 1-5, which are 1 "Very slightly or not at all," 2 "A little," 3 "Moderately," 4 "Quite a bit," and 5 "Extremely." This survey is intended to measure degree of positive emotions/affect (PA) individuals have experienced over the past week and degree of negative emotions/affect (NA). The PANAS demonstrates high test-retest reliabilities (.81 for NA & .79 for PA) and good scale and item reliability (Cronbach's alpha values ranging from .84 to .90; Watson et al., 1988). Watson et al. (1988) outline evidence for factorial validity and strong correlations with like measures.

College Persistence Questionnaire

We were unable to find an established measure of one's intent to persist with college, so we used three items from the College Persistence Questionnaire-V2, a survey developed for a thesis project (Gore, 2010). The questions asked participants to indicate their commitment to continuing their education at a collegiate level (1-weak, 2-neutral, or 3-strong) with total possible scores ranging from three to nine, and higher scores indicating greater intent to persist. These questions were as follows: (a) "At this moment in time, how strong would you say your commitment

is to earn a college degree, here or elsewhere?" (b) "Many things can interfere with students making progress or feeling uncertain about finishing. At this moment in time, how certain are you that you will earn a college degree?" (c) "After beginning college, students sometimes discover that a college degree is not quite as important to them as it once was. How strong is your intention to persist in your pursuit of a degree, here or elsewhere?" No psychometric data was available for this measure, but we included it for potential quantitative information regarding our secondary research aim.

Procedures and Data Analysis Plan

Our survey and recruitment plan were reviewed and approved by our institutional review board. We recruited participants as outlined above. Those who voluntarily chose to access the survey link reviewed a consent paragraph that explained the goal of the study, that no personal identification would be reported, and that assured responses would be kept confidential. Participants were also informed that the research was voluntary, and they could stop at any time without penalty. Participants who granted online survey consent completed the anonymous survey through Qualtrics software. At the end of the survey, participants who clicked on a separate survey link could opt to receive gift cards in compensation for their time completing the survey.

Analyses were conducted using IBM SPSS Statistics (Version 28). Descriptive statistics were calculated for all variables. The relationships between perceived stigma, mood, resilience, and intent to persist in college were examined using bi-variate correlational analyses. Visibility of the disability (Yes/No) and a product of stigma and resilience were created as additional variables to test main effects of disability type and indirect effects of the moderator (resilience). To test whether resilience moderated the relationship between stigma and mood, multiple regression procedures were followed using PROCESS v4.0 (Hayes, 2022).

Results

Preliminary Analyses

Table 2 displays the descriptive statistics and bi-variate correlations for key variables in the study. All variables met basic assumptions for normality except for Intent to Persist, for which there was little variability within our sample; the highest possible score was 9, and the mean for this sample was 8.7 ($SD = 0.7$; Range = 3). Both skewness and kurtosis statistics suggested non-normality for this variable.

On the PSSDS, the mean level of perceived disability-related stigma for this sample was consistent with other disability samples using this measure (e.g., Trunk et al., 2020). Reliability estimates for the PSSDS ($\alpha = .86$), BRS ($\alpha = .85$), PANAS Negative Mood ($\alpha = .89$), and PANAS Positive Mood ($\alpha = .88$) were all within acceptable limits. Compared to a general sample on the PANAS ($N = 2,527$; Crawford et al., 2009), our sample reported on average, lower positive mood ($M = 28.4$, $SD = 7.4$) than the general adult population ($M = 31.7$, $SD = 7.4$). Likewise, our sample of students with disabilities endorsed, on average, higher negative mood ($M = 25.1$, $SD = 8.7$) than the general adult population ($M = 17.0$, $SD = 6.7$).

Only one measure differed significantly for college students with visible versus invisible disabilities. College students with visible disabilities reported greater perceived resilience ($M = 19.2$, $SD = 4.9$) than those with invisible disabilities ($M = 16.6$, $SD = 4.2$), $t(50) = -1.95$, $p = 0.05$. The effect size, as measured by Cohen's d , was 0.60, indicating a medium effect. Bivariate relationships between perceived disability stigma, resilience, mood outcomes, and college persistence levels were analyzed using the Pearson correlation coefficient (see Table 2). We hypothesized that greater perceived stigma would correlate with more negative mood for college students with disabilities, which was supported. Similarly, greater perceived stigma was related to lower positive mood and less resilience for students with disabilities. As expected, positive and negative mood demonstrated a significant, negative correlation with each other. Greater resilience was significantly associated with higher positive mood and lower negative mood. Thus, students who reported higher negative mood also reported lower resilience.

We hypothesized a positive correlation between students' perceived resilience and their intent to persist with collegiate studies. None of the correlations with Intent to Persist were statistically significant, in large part because there was little variability within our sample on this measure; most participants were "strongly confident" in their intent to persist with collegiate studies. In our sample, the basic assumptions of normality were not met for this variable.

Moderation

We predicted that higher levels of resilience would buffer the link between stigmatization and mood. However, because resilience differed significantly between those with invisible and visible disabilities, we also examined disability type as a moderator of resilience. Thus, we tested a 3-way interaction (moderated moderation) between stigma, disability type, and resilience

in predicting mood (see Figure 1). To test resilience as a moderator between stigma and mood, with disability type moderating resilience, two regression models were conducted. Total perceived stigma, disability type, and total resilience were entered, as well as the products of four interactions: (a) stigma x resilience, (b) stigma x disability type, (c) resilience x disability type, and (d) stigma x resilience x disability type.

This model was first examined with positive mood as the outcome variable. The overall model was statistically significant ($F_{[7, 42]} = 8.342$, $p < .001$, $R^2 = .30$), explaining approximately 30% of variance in positive mood. The stigma variable independently predicted positive mood in the expected direction; however, only one interaction was significant (see Table 3).

The relationship between stigma and positive mood was moderated by disability type. Students with invisible disabilities, on average, showed the expected pattern of greater stigma predicting lower positive mood. Students with visible disabilities, however, showed slight increase, on average, in positive mood as their perceived stigma increased (see Figure 2).

Then we looked at the same model using negative mood as the outcome variable. The overall model was statistically significant ($F_{[7, 42]} = 14.71$, $p < .001$, $R^2 = .51$). Stigma independently predicted negative mood in the expected direction. The higher one's perceived stigma, the higher their negative mood. None of the other variables or interactions independently predicted the stigma-negative mood relationship (see Table 3). However, pictorial graphs of the data suggest that resilience may buffer the relationship between stigma and negative mood but only for students with visible disabilities (see Figure 3). The R^2 increase due to the 3-way interaction was .01, indicating that adding the interaction term explained only an additional 1% of the variance in Negative Mood.

Discussion

The results from this study completed on college students with disabilities supported the first hypothesis that there is a significant relationship between perceived stigma and mood outcomes. Our results found that, as perceived stigma increased, negative mood increased. Likewise, as perceived stigma increased, positive mood decreased. When disability type was introduced to the model, the relationship between stigma and mood became more complex. For both those with visible and invisible disabilities, greater stigma was related to greater negative mood. For those with invisible disabilities, greater stigma also predicted lower positive mood. Surprisingly, students with visible disabilities, on average, reported

Table 2*Descriptive Statistics and Correlations*

Variables	1.	2.	3.	4.	5.
1. Disability Stigma	1.0	-	-	-	-
2. Positive Mood	-0.43**	1.0	-	-	-
3. Negative Mood	0.63***	-0.47***	1.0	-	-
4. Total Resilience	-0.42**	0.43**	-0.52***	1.0	-
5. Intent to Persist	-0.12	0.13	-0.25	0.12	1.0
<i>Range</i> (Total Possible)	18 – 80 (96)	16 – 50 (50)	10 – 45 (50)	6 – 27 (30)	6 – 9 (9)
<i>Mean</i>	43.2	28.4	25.1	17.3	8.7
<i>SD</i>	12.5	7.4	8.7	4.5	0.7

Note. Intent to Persist variable did not meet basic assumptions for normality; the distribution of sample scores was too peaked and left skewed. ** $p < .01$, *** $p < .001$

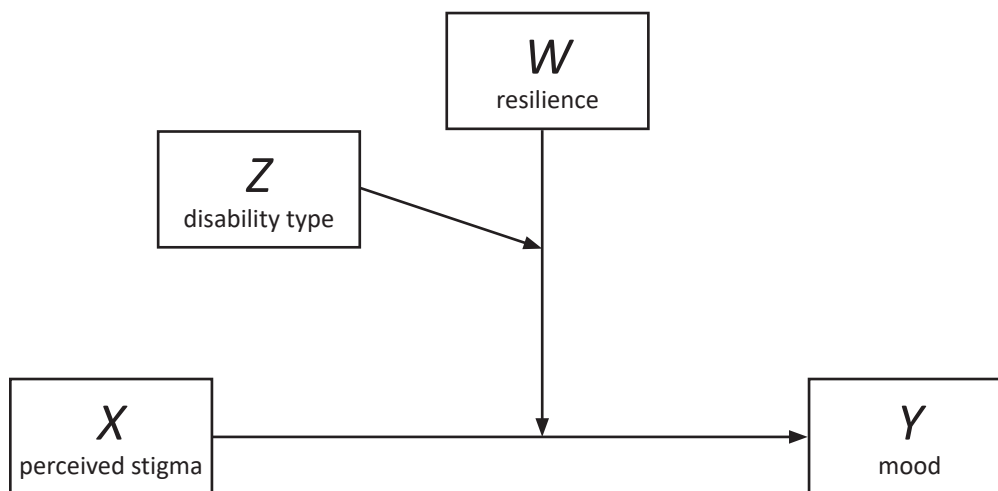
Figure 1*Moderation Model Conceptual Diagram*

Table 3*Unstandardized Direct and Interaction (Moderation) Effects*

Independent Variables	Dependent Variables			
	Positive Mood		Negative Mood	
	coeff	95% CI	coeff	95% CI
Stigma Total	-.22*	-.42, -.03	.36*	.18, .55
Resilience Total (Res)	.46	-.46, 1.38	-.47	-1.03, .09
Stigma x Resilience	.00	-.03, .04	.00	-.02, .03
Visible Disability (Y/N)	-1.70	-6.46, 3.05	.65	-4.60, 5.90
Stigma x Visible	.34*	.02, .66	-.07	-.49, .35
Resilience x Visible	.57	-.50, 1.63	-.69	-1.67, .29
Stigma x Resilience x Visible	-.01	-.07, .05	-.05	-.11, .02
R²	.30**	-	.51**	-

Note. coeff = unstandardized coefficient, CI = confidence interval. * $p < .05$, ** $p < .0001$.

Figure 2

Three-Way Interaction Between Positive Mood, Stigma, and Resilience (Low, Average, High) for Visible And Invisible Disabilities

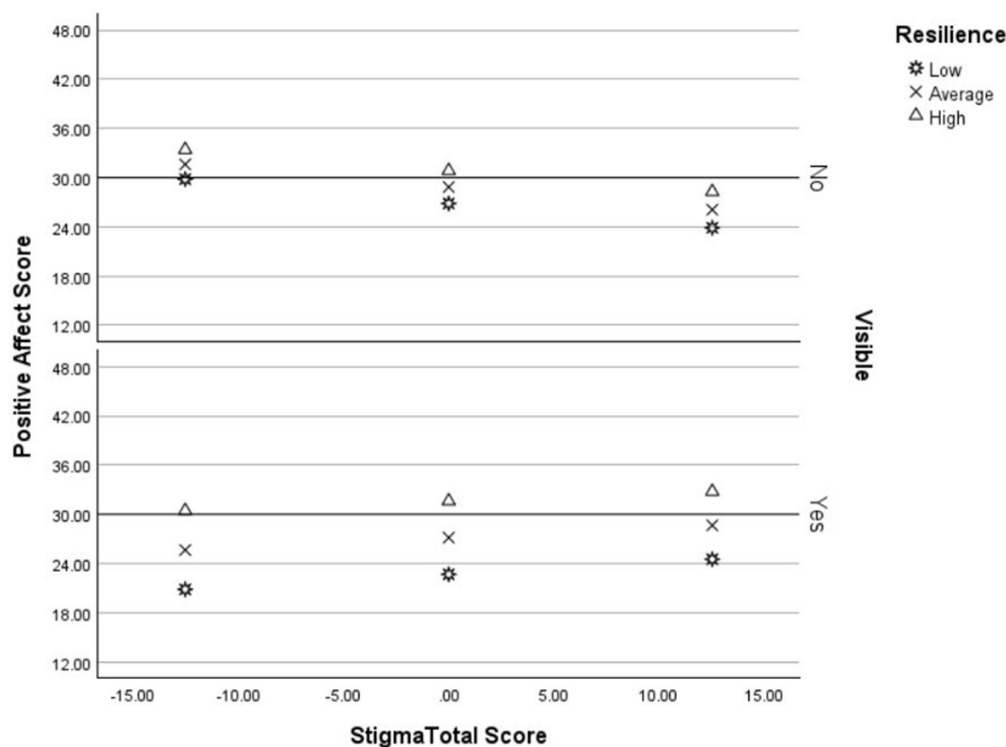
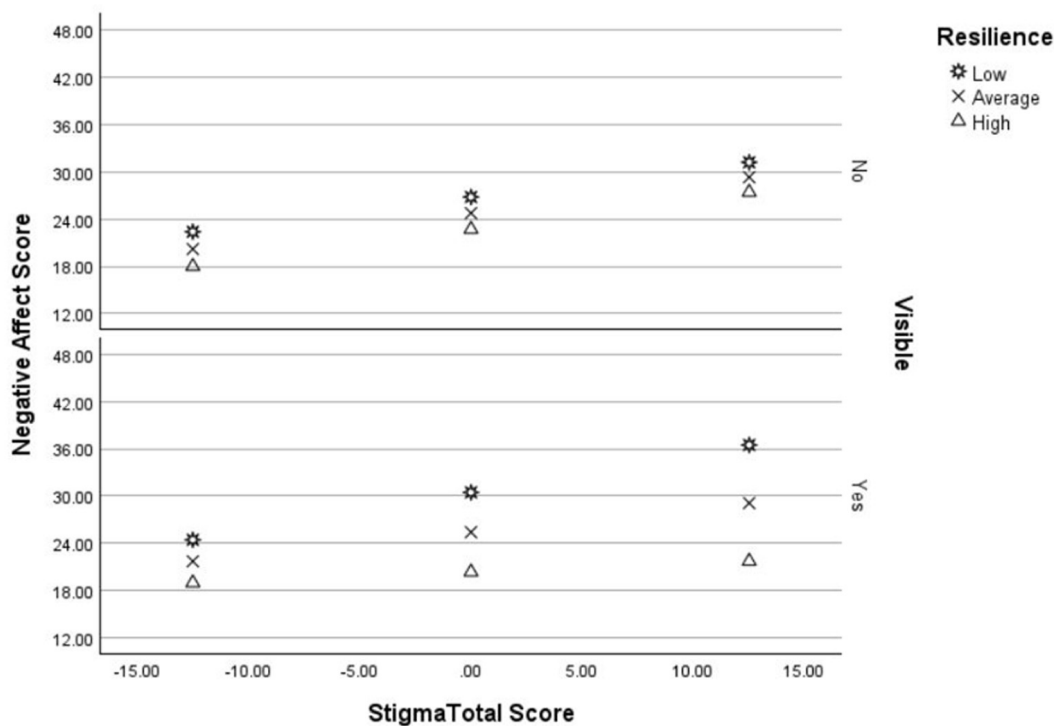


Figure 3

Three-Way Interaction Between Negative Mood, Stigma, and Resilience (Low, Average, High) for Visible and Invisible Disabilities



slightly higher positive mood as levels of perceived stigma increased. This finding suggests a higher level of self-acceptance or optimism for those with visible disabilities than for those whose disabilities are less obvious to others. Indeed, other researchers have found that people with visible disabilities report higher self-concept than those with invisible disabilities (Shpigelman & HaGani, 2019). The exact reason for this is unknown, but it is possible that people with invisible (often mental health-related) disabilities may be more likely to internalize negative social stigmas. It may also be that those with visible disabilities do not have the stress of trying to hide their impairments and/or are more often believed or supported in their challenges. Finally, those with more visible and physical disabilities often experience longstanding stigmatization from young ages, which can lead to earlier resilience and establishment of social supports thus promoting development of coping skills.

The relationship between perceived stigma and resilience was negative; as resilience increased, perceived stigma decreased. This finding suggests that individuals with disabilities who experience higher stigma may exhibit less resilience. However, it also

suggests that students with higher resilience may perceive lower stigma. We hypothesized that resilience would act as a moderator between stigma and mood for college students with disabilities. Although stigma clearly impacts mood independently, in our sample resilience did not act as a significant moderator between stigma and mood. We did find that college students with visible disabilities reported greater resilience than those with invisible disabilities. Interestingly, pictorial graphs of the data suggest that resilience may buffer the relationship between stigma and negative mood but only for students with visible disabilities (see Figure 3). However, effect size statistics suggest a very small effect. Although we had statistically significant findings and medium effect sizes in other areas, our sample size may have lacked power to detect statistically significant differences in this more complex, three-way interaction between stigma, disability type, and resilience. Thus, resilience as a moderator may depend on disability type, but this idea requires additional empirical study to verify our small effect size finding and to further examine if and how higher resilience may help those with visible disabilities cope with stigma.

We were unable to explore the final research question about the relationship between resilience and students' intent to persist because most of our sample intended to persist with collegiate studies. There was not much variability in our data on this variable. Our sample included many upperclassmen, and data show that junior and senior year students are significantly less likely to drop out of college compared to freshman and sophomores, as the highest dropout rate typically occurs during the first year of college (Hanson, 2024). Thus, we may have found more variance in students' intent to persist if we had focused on a sample of first-year college students. Of course, it is very encouraging that our students with disabilities are not questioning their ability to finish their college degrees. We specifically sampled from disability support offices and programs, so these students were receiving academic supports, which seems to be working as intended. More research conducted on college students with disabilities and their intent to persist as underclassmen (freshman/sophomores) could be beneficial, especially with samples of students just starting college. Additionally, a similar study in a community college setting might examine the intent of students with disabilities to persist with a four-year degree.

These study findings are consistent with previous research on college students with disabilities and their experiences in higher education. For example, our findings are consistent with Liu and Zhang (2021) who found that stigma was related to mental health issues for adults with visible disabilities living in China. We extended this finding by showing that stigma predicts negative mood for college students with disabilities in the US. Our findings further describe students with invisible disabilities, a group not always included in previous research of disability stigma. In some ways, students with invisible disabilities in our sample fare worse than those with visible disabilities. On average, those with visible disabilities reported slightly higher positive mood as perceived stigma increased. This finding aligns with qualitative research (e.g., Vaccaro et al., 2019) that uncovered various coping strategies associated with resilient thinking and positive outcomes. Those with visible disabilities may experience more obvious and longstanding stigmatization requiring a lifetime of adjustment, which supports the challenge model of resilience (Rutter, 1987). Perhaps those with visible disabilities expended less energy during their college years reflecting on the difficulty or unfairness of their situation. Instead, they learn to use their time and emotional energy to stay positive, which improves their quality of life (Lee et al., 2017). Given that resilience is, to some extent, a learned behavior, it is

an important target for intervention, particularly for students with invisible disabilities. Overall, the results from the current and previous studies suggest that more mental health resources for college students with disabilities should be considered and that building resilience is a potential intervention target.

Limitations and Directions for Future Research

The findings in this study were based on a relatively small sample of college students with disabilities at one public institution, thus limiting our ability to generalize widely. A bigger sample size from more universities would be beneficial for future research on this topic, with a purposeful sampling of students with both visible and invisible disabilities and those just starting college. Additionally, there are many factors that affect mood besides stigma and resilience that were not considered in this model. Future researchers may wish to add other explanatory variables to assess how much disability stigma affects mood above and beyond other factors. Participants in this sample were predominantly White females, so a more diverse sample could produce different results. Lastly, our participants were recruited from college support programs offered to students with disabilities. Other universities may not have the same support systems available for their students with disabilities and stigmatization may be different. Future research should focus on more diverse samples, varying support systems, and more psychometrically sound measures of college persistence.

Regarding resilience as an intervention target, our findings suggest this area may be a fruitful for additional research, especially for college students with invisible disabilities because they reported lower resilience overall than students with visible disabilities. Although resilience impacted mood, it did not have a moderation effect in our study; however, our measure of resilience was a brief, self-report scale. Future researchers might use a longer resilience scale that goes into more depth regarding resilience thoughts and behaviors.

Conclusion

The results from this study support the hypotheses that stigma and individual resilience are related to mood outcomes for college students with disabilities. We did not find evidence that resilience acted as a moderator between stigma and mood, but disability type did. Compared to those with invisible disabilities, those with visible disabilities fare better in level of resilience and in higher positive mood in the face of stigma. Intent to persist with collegiate

studies should be investigated further with improved measures, younger students, and those in community college settings due to limited variability in responses within our university sample. Follow-up studies should consider other protective factors that may buffer the relationship between stigma and mood, repeating the present study with a more diverse sample, and investigating support programs for college students with disabilities. The current study supports the idea that college students with disabilities would benefit from more mental health outlets and interventions that target coping and resilience.

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