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Research Article

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Barriers to social inclusion predict lower basic social need satisfaction among students with disabilities

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ABSTRACT

Social exclusion elicits undesirable consequences, including psychological discomfort and thwarting of basic social needs. Exclusion can result from individuals ostracizing others for threatening the group by emitting indicators of disease or physically and psychologically non-normative traits, including disabilities. Given the stigmatization faced by individuals with disabilities, the effects of exclusion could be especially pervasive, especially among university students. We sought to determine if university students with disabilities experience disability-related barriers to inclusion and how these barriers reduce basic needs satisfaction among disabled students. Individuals with (and without) qualifying disabilities completed questionnaires assessing barriers to social and academic success and basic needs satisfaction using a cross-sectional design that afforded the opportunity to compare responses from both categories and conduct a mediation analysis. Individuals with disabilities reported greater barriers and reduced needs satisfaction. Importantly, barriers mediated the link between disability status and need satisfaction, particularly for barriers with less legal consideration and reflective needs. Disability status is a pervasive inhibitor for university students' well-being. We frame results through evolutionary theory and offer suggestions to improve college experiences for individuals with disabilities.

Keywords: Disability, Stigma, Exclusion, Basic needs, Evolutionary psychology

INTRODUCTION

Humans are characteristically social; living in groups with genetically related, and unrelated, conspecifics affords significant advantages to individual survival and reproduction (Gintis, 2000). Consequently, humans have a fundamental need to belong, or desire to maintain at least a few positive, stable relationships with others (Baumeister & Leary, 1995). When this basic need is thwarted, via social exclusion, individuals report psychological discomfort and activation of pain centers in the brain, designed to motivate repair of strained relationships or secure new ones (Eisenberger, Lieberman, & Williams, 2003; MacDonald & Leary, 2005). Nonetheless, exclusion of others can be used adaptively as punishment for non-cooperation, to strengthen the in-group as a means of successful exploitation of out-groups and, most germane to the current work, to isolate others possessing physical and psychological traits that may have ancient associations with transmission of communicable disease (Kurzban & Leary, 2001).

In this latter case of stigmatization, it is not even necessary for non-normative traits to signal actual contagion to promote stigmatization. These ancient psychological processes may ultimately elicit modern, and socially costly, consequences for those possessing such traits (Faulkner, Park, & Schaller, 2003). Using this framework for understanding belongingness and its consequences, the current study explores how disability status, itself a non-normative cue, influences the extent to which persons feel more or less included on a college campus as well as perceived barriers to inclusion experienced by disabled persons relative to non-disabled persons.

Sociality and Exclusion as Adaptations in Humans

The propagation of any species is contingent upon successful survival and reproduction in environments that are consistently fluctuating and consequently, introduce novel challenges to the satisfaction of these goals. For example, changes in resource availability, such as from a drought, predation, and other conspecifics can create challenges to survival and reproduction. In response to many of these environmental pressures and consistent with other primates, humans evolved to be ultrasocial, forming cooperative social groups. Such group living facilitates individual survival and reproduction opportunities across disparate human populations, including alloparenting, food-sharing, protection, and increased access to reproductively available conspecifics. Humans have further evolved a concomitant drive to establish and maintain social relationships, as satisfying this drive would be indirectly tied to

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a greater likelihood of survival and reproduction (Baumeister & Leary, 1995).

Nonetheless, the experience of social exclusion is a ubiquitous aversive experience across all studied cultures. Along with heightened negative affect, ostracized individuals demonstrate activation of the anterior cingulate cortex, a neural substrate associated with pain, and decrements to their basic needs (Eisenberger et al., 2003). Furthermore, social exclusion reduces social capital and negatively affects mental and physical health (Song, 2011). Research indicates the acute negative states produced by exclusion are adaptive insofar as they motivate the rejected person to repair existing social relationships or establish new ones. Indeed, socially rejected individuals report greater interest in donating resources to others, cooperating in group tasks, and contributing money to a university program designed to help people meet each other on campus (Manner, Baumeister, DeWall, & Schaller, 2007; Williams & Sommer, 1997).

Given the value of group living, and the fact that social exclusion is aversive, why do humans exclude others (or experience exclusion themselves)? One explanation stems from the fact that to reap the benefits of sociality, one must successfully navigate challenges associated with group living. Social exclusion may have evolved to manage disease threats within the context of group living. Humans are susceptible to various communicable pathogens, many of which are transmitted to humans by other humans and exacerbated by close proximity to others. As such, humans may have evolved to use social exclusion to isolate conspecifics from the rest of the group who may emit signals of contagion (e.g., coughing, open sores on the skin; Kurzban & Leary, 2001). This same cognitive and behavioural system used to detect contagious illness in others to facilitate avoidance via exclusion frequently associates any non-normative characteristics, be they physical or psychological, with potential infection risk, even if no actual association exists, prompting indiscriminate exclusion of persons possessing these traits (Schaller & Park, 2011).

Disability Stigma

To mitigate the threat of contagious disease, humans have evolved the capacity to detect cues in others that might indicate a pathogenic threat to avoid close contact with potentially infected others (Schaller & Park, 2011). Because death from disease has been one of the most severe and recurrent threats to human survival and reproduction, humans' detection of disease cues is over perceptive and over general, often leading to the categorization of others as infectious, even when not (Haselton & Nettle, 2006). While such conclusions are erroneous, the error of perceiving disease where none exists is less costly to the organism than failing to notice a pathogenic threat when one is actually present.

Consequently, human cognitive systems implicitly associate numerous non-normative social categories with a heightened threat of disease, even when individual members of those categories are no more contagious than people who do not belong to such non-normative social categories. For example, people implicitly associate obesity, a non-communicable trait, with disease-connoting concepts, particularly following acute disease concern activation (Miller & Maner, 2012; Park, Schaller, & Crandall, 2007). Additionally, compared to control participants, individuals for whom disease-concerns have been activated demonstrate increased prejudice toward those with non-contagious physical disabilities (Faulkner et al., 2003). In fact, simply feeling chronically susceptible to disease heightens prejudice toward physically disabled (but non-contagious) persons. Disease concerns also increase implicit associations between mental illness and contagious disease (Lund & Boggero, 2014).

Beyond these studies demonstrating individuals associated cues to the disability with a contagious illness, other research demonstrates that disability status cues can result in emotional and behavioural reactions that would elicit potential social exclusion of disabled persons. For example, persons with disabilities evoke negative emotions, including disgust and anxiety, along with blame toward individuals for their disabling conditions (Ryan, 1971). Such emotions and judgments are precursors to exclusionary behaviour, suggesting disabled persons may be more likely to experience social exclusion because of their disability status (Kurzban & Leary, 2001). Indeed, individuals display a tendency to avoid physical contact with disabled individuals, a core behaviour associated with social exclusion (Snyder Kleck, Strenta, & Mentzer, 1979). Given the avoidance tendencies of those who perceive another person's disability status, be it physical or psychological, it becomes important to determine the extent to which disabled persons experience potential ramifications of chronic social exclusion, specifically, reduced basic social needs satisfaction compared to non-disabled persons.

Assessing Needs Satisfaction of Disabled and Non-disabled Persons on a College Campus

University students with disabilities encounter a drastically different collegiate experience than do non-disabled students. The term "disability" can serve to describe any individuals possessing a physical or psychological impairment that restrains the individual from standard activities. According to the U.S. Department of Education, 11.1% of college students possess a disability that limits their college experience to some extent. These individuals require individualized accommodations, which can include anything from extended time on exams to virtual classes (U.S. Department of Education, 2016). Through Section 504 of the Rehabilitation Act of 1973, college campuses are obliged to modify programs and provide generalized physical accommodations to provide accessibility for disabled students. This act provides coverage of these students by ensuring architecture accommodations to building entrances, communication aids and services, alternate testing method opportunities, and access to extracurricular activities (Yell, 1998). Though these government mandates protect the rights of students with disabilities to necessary modifications to account for their limitations through modification of the physical and learning environment on campuses, it is less clear whether such accommodations create equivalent social opportunities for disabled students. Accommodations have increased

environmental and social access for individuals with disabilities, but these modifications still have evident communal limits. That is, it becomes critical to understand the extent to which disability status influences how disabled persons' basic social needs are met during their tenure as students and any barriers that might impede satisfaction of these needs.

Past research supports the notion that a correlation exists between disability status and the negative, and often prolonged (Riva, Wirth, Curioni, & Williams, 2017), psychological effects of ostracism. According to prevailing models of social exclusion, individuals experiencing chronic exclusion regress into a "resignation stage" of social withdrawal, typified by the incapacity to recover from the psychological consequences of alienation and depression (Williams, 2009). Consistent with this framework, those experiencing chronic exclusion, including physical disability, compared to control condition participants, demonstrated significantly greater resignation-associated behaviours, such as depression and helplessness (Riva et al., 2017). Chronic experiences with disabilities and the social ostracism that inevitably comes along with these experiences lead to more severe psychological hindrances. Individuals with ability losses may thus be at a disadvantage in achieving happiness and psychological stability due to the social exclusion that they may face.

Current Study

The current study sought to identify an association between the barriers of disability status and a sense of fulfilment of basic social needs. We considered specific perceived barriers of disability status to examine how they may influence social need satisfaction or lack thereof. Though all disabilities are unique and experienced differently for all individuals, they are interrelated in that they encompass barriers, including physical, social, academic, and personal limitations. As such, the perceived barriers faced by individuals with a disability status may negatively influence basic needs satisfaction.

Individuals associate both physical and psychological disability traits as communicating communicable disease and are implicitly motivated to avoid such persons (Faulkner et al., 2003). Such avoidance tendencies by non-disabled persons toward disabled persons might limit the social opportunities available on campus for disabled persons, leading to chronic experiences of social exclusion and basic needs dissatisfaction. This study served to relate these barriers to the fulfilment of basic needs among university students with disabilities. We sought to determine if students with disabilities report more substantial barriers as students that limit their academic, relational, and social success. In addition, this study measured self-reports among students with disabilities and examined if they reported less satisfaction in a sense of belonging, control, meaningful existence, and self-esteem. Lastly, because our findings revealed that students with disability statuses experience more considerable barriers and reduced need satisfaction, we assessed the extent to which these barriers are directly related to social need (dis)satisfaction.

Based on previous research regarding ostracism, disability barriers, and the lack of social fulfilment following exclusion, the hypotheses of this study are as follows. First, we predicted that individuals with qualifying disabilities would report more academic, social, physical, and self-identity barriers than members of a no-disability control group. Next, we hypothesized students with disabilities would report reduced social need satisfaction compared to students in the no-disability group. Finally, we expected for the reported barriers to success experienced by individuals with qualifying disabilities to predict their reduced basic need satisfaction experienced.

MATERIALS AND METHODS

Participants

We recruited individuals with and without disabilities for a cross-sectional design. For the former, we received permission to invite all students who have a qualifying disability through the Office of Disability Accommodations, a population of approximately 700 students, at a mid-sized public university in the southeastern U.S. To recruit non-disabled participants, we utilized the online undergrad research participation system administered through the psychology department, in which psychology undergraduates participate for partial course credit. ODA-recruited respondents were not compensated, as there was no course requirement for their participation; their participation was nonetheless voluntary and not coerced. Some participants within the system self-identified as having a qualifying disability and were thus considered as part of the disability sample. Data collection occurred throughout the course of a month.

Among our recruited sample, 248 individuals completed the study; 170 did not report a disability, whereas 78 reported a disability (M Age=21.14, SD=6.11; 217 women, 27 men, 4 did not identify as male or female; 73.4% White). Examples of specific self-reported disabilities included dyslexia, narcolepsy, and epilepsy. We sought to recruit at least 200 participants, but deliberately oversampling in the instance of data exclusion; no data warranted exclusion.

Materials and Procedure

Basic Needs Questionnaire: We assessed basic social needs satisfaction using the commonly employed Basic Needs Questionnaire (BNQ; Williams, Chung, & Choi, 2000), Participants responded to each item using 5-point Likert-type scale (1=Not at All; 5=Always), which assessed four basic social needs using 5 items each: Belonging (e.g., I feel disconnected from those around me," α=0.89), Self-esteem (e.g., "I feel good about myself," α=0.91), Sense of Control (e.g., "I feel I have control over my life," α=0.83), and Meaningful Existence (e.g., "I feel invisible," α=0.88).

Barriers to Inclusion Questionnaire: We assessed potential barriers to inclusion using a questionnaire designed specifically for the current study called the Barriers to Inclusion Questionnaire (BIQ). Participants responded to 39 items along a 7-point Likert-type scale (1=Strongly Disagree; 4=Neither Disagree nor Agree; 7=Strongly Agree). BIQ contained four subscales, assessing Physical Challenges (α=0.73), Social and Relationship Barriers (α=0.90), Identity Concerns (α=0.76) and Academic Challenges (α=0.82). See Appendix A for the full list of items in BIQ.

Consenting participants first completed BNQ followed by BIQ. Finally, participants provided demographic information before debriefing.

RESULTS

Barriers

For our first analysis, we submitted participants' basic needs satisfaction to a 2 (Disability: Present vs. Absent) × 4 (Barriers: Physical, Social, Identity, Academic) mixed-model ANOVA with repeated factors over the latter factor. Given that several analyses violated the assumption of sphericity, we report the corrected degrees of freedom for such analyses. A significant main effect of Disability Status emerged, such that participants with a disability (M=3.32, SE=0.09) reported more barriers compared to those without (M=2.88, SE=0.06), F(1, 246)=15.96, p=0.031, η^2=0.061. Another main effect of Barriers emerged, F(2.67, 657.20)=62.40, p<0.001, η^2=0.202. Post hoc LSD tests indicated the largest barrier in this sample was Academic (M=3.49, SE=0.06), followed by Identity (M=3.14, SE=0.07), then Social (M=3.06, SE=0.07), and finally Physical barriers (M=2.69, SE=0.06). All scores were conventionally significantly different from each other (ps<0.001, ds>0.33), except for the difference between Social and Identity (p=0.117, d=0.09). No interaction emerged, F(2.67, 657.20)=0.58, p=0.624, η^2=0.002.

Basic Needs

We submitted participants' basic needs satisfaction to a 2 (Disability: Present vs. Absent) × 4 (Needs: Belonging, Self-Esteem, Control, Meaning) mixed-model ANOVA with repeated factors over the latter factor. A significant main effect of Disability Status indicated participants with a disability (M=3.33, SE=0.09) reported less need satisfaction compared to those without (M=3.58, SE=0.06), F(1, 246)=4.71, p=0.031, η^2=0.019. Another main effect of Basic Needs emerged, F(3, 738)=35.05, p<0.001, η^2=0.125.[a] Post hoc LSD tests indicated that the meaningful existence need was the most satisfied in this sample (M=3.65, SE=0.06), followed by Control (M=3.50, SE=0.05), followed by Belonging (M=3.42, SE=0.06), with Self-Esteem as the least satisfied (M=3.25, SE=0.06). All scores were conventionally significantly different from each other (ps<0.001, ds>0.22), except for the marginally significant difference between Belonging and Self-Esteem (p=0.081, d=0.06).

Effects are qualified by a significant Disability × Needs interaction, F(3, 738)=3.70, p=0.012, η^2=0.015 (see Figure 1). Post hoc paired samples t-tests indicated that students with disabilities reported lower Belonging satisfaction (M=3.25, SE=0.13) compared to those without (M=3.59, SE=0.06), t(116.53)=-2.36, p=0.020, d=0.34. Students with disabilities (M=3.34, SE=0.11) reported lower Control than did students without (M=3.65, SE=0.06), t(122.19)=-2.46, p=0.015, d=0.36. Furthermore, students with disabilities (M=3.52, SE=0.12) reported marginally lower Meaning than those without (M=3.77, SE=0.06), t(122.40)=-1.80, p=0.074, d=0.26. No difference emerged in Self-Esteem for students with (M=3.20, SE=0.11) and without a disability (M=3.29, SE=0.06), t(246)=-0.75, p=0.454, d=0.09.

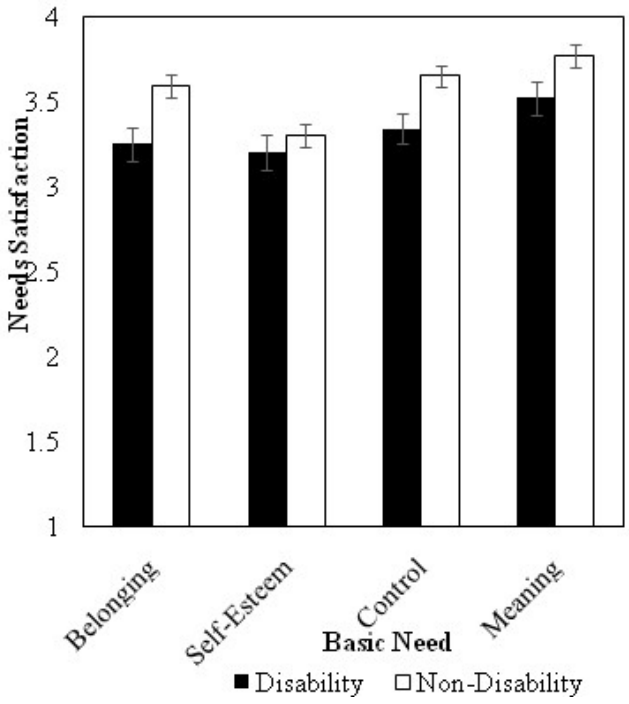


Figure 1. Basic Needs satisfaction as a function of disability status

Mediation Analyses

In identifying the best possible statistical model to determine the extent of each barrier in predicting reduced need satisfaction, we found it prudent to analyze the various subscales as theoretically justified latent variables to minimize the number of necessary analyses and therefore reduce the chance of Type I errors. We collapsed each subscale into two different components, for both measures, for subsequent mediation analyses.

For barriers, two potential categories of barriers were apparent. Some barriers have been addressed through legal means, namely, those pertaining to physical and academic accessibility, as evidenced by both enactment of the Americans with Disabilities Act and the implementation of the Office of Disabilities Accommodation to minimize both physical and academic barriers, respectively. Some barriers, however, have not been addressed with as much formal legislation, including those pertaining to social and identity barriers. Thus, we considered both addressed and non-addressed barriers as separate facets for the analysis.

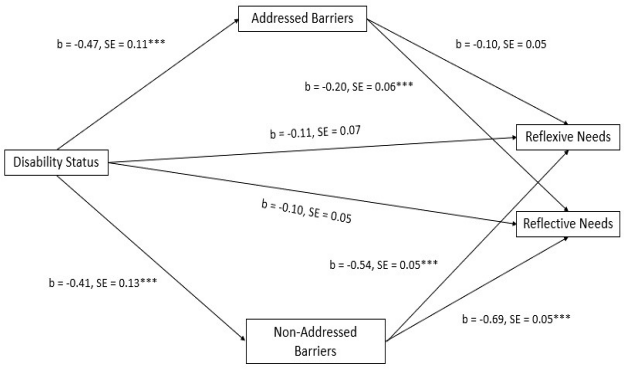
With regards to basic needs, according to a temporal needs threat model, two major response patterns emerge following social exclusion: reflexive and reflective (Williams, 2009). Typically manifesting as thwarted belongingness and reduced self-esteem, responses to the violation of reflexive needs to ostracism are immediate and distressing, particularly among marginalized minority groups, albeit short-lived (Goodwin, Williams, & Carter-Sowell, 2010; Wirth & Williams, 2009).Such needs serve to motivate individuals to identify affiliative opportunities to satisfy these thwarted needs (Bernstein, Sacco, Brown, Young, & Claypool, 2010). Conversely, other responses to social exclusion involve reflection upon the experience and manifest as threats to

individuals' sense of meaning and control, which pose long-lasting effects on the individual and relatively insensitive to contextual factors (Oaten, Williams, Jones, & Zadro, 2008). We considered reflexive (comprised of belonging and self-esteem subscales) and reflective needs satisfaction (meaning and control) separately to determine the extent to which disability predicts immediate and long-last effects on basic need satisfaction.

We conducted a pair of mediation analyses to determine the full extent of addressed and non-addressed barriers on both reflective and reflexive needs. To test for mediation, we used Model 4 of the PROCESS Macro (Hayes, 2013), a model that accounts for two proposed mediators within the same model, with both types of barriers as mediators for the link between disability status and reduced basic needs satisfaction. We conducted two separate mediation analyses with reflective and reflexive needs as separate outcomes. We utilized 10,000 bootstraps for both analyses at 95% Confidence Intervals.

The first mediation analysis considered reflexive need satisfaction as the outcome. The indirect effect of disability status on reflexive needs satisfaction was significant with non-addressed barriers as the mediator (b=0.28, SE=0.10, 95% CI [0.08, 0.49]); the link was not significantly mediated by addressed barriers, as evidenced by the confidence intervals including zero (b=0.05, SE=0.03, 95% CI [-0.00, 0.13]). In other words, the reduced satisfaction of reflexive needs in persons with a disability is due to the presence of barriers that have been addressed with less legislative fervour.

The second mediation analysis considered reflective need satisfaction. Both non-addressed (b=0.22, SE=0.08, 95% CI [0.06, 0.40]) and addressed barriers (b=0.09, SE=0.04, 95% CI [0.03, 0.20]) mediated the indirect effect of Disability Status on reflective need satisfaction. That is, reduced reflective needs satisfaction in students with disabilities is due to both addressed and non-addressed barriers, although it appears the effect of non-addressed barriers is vastly larger than addressed barriers (see Figure 2).



DISCUSSION

The current study provided evidence for how disability status may thwart the satisfaction of university students' basic social needs due to a presence of various barriers throughout campus that impede satisfaction. Mediation analyses demonstrated that such an outcome is sequential, with the presence of barriers impeding students' success on campus partially mediating the associations between disability status and needs satisfaction in both reflective and reflexive motives. Within these analyses, results indicate a level of specificity in exactly which barriers impede basic needs satisfaction and which needs are ultimately more affected by these barriers. The basis of reduced needs satisfaction appeared most rooted in thwarted reflective needs (i.e., meaning and control) and less toward reflexive needs (i.e., belonging, self-esteem).

Although students with disabilities are experiencing an increasing amount of integration into college settings that are predictive of social and academic success and various legal protections are implemented to ensure equal opportunities among students (e.g., ODA), various stigmas regarding disabilities may nonetheless remain salient and impede individuals' long-term satisfaction of basic needs (DaDeppo, 2009). For example, legal protection from discrimination may not necessarily ameliorate ancestrally shaped prejudices that were relevant to survival from others (Schaller & Park, 2011; van Leeuwen & Petersen, 2018). Thus, although integrated into group settings and capable of living meaningful lives, the possibility exists that individuals with disabilities could perceive themselves as less capable of contributing to the group living that was historically important for survival, as evidenced by their heightened feelings of burdensomeness to others (Khazem, Jahn, Cukrowicz, & Anestis, 2015). This could elicit negative attitudes from group members, thus thwarting their sense of control and meaning. Indeed, the attribution of stigmatizing behaviour to prejudice ultimately reduces reflective needs (Goodwin et al., 2010). Such a reduction could be reflected in these results, as participants with disabilities may perceive prejudice from others.

Among students with and without reported disabilities, there was a disparity in the magnitude of experienced barriers in all four categories (physical, academic, social, and identity). All participants despite disability status reported academic barriers as the greatest and physical barriers as the smallest hindrances to their success. However, the barriers that showed the largest disparities between reports of students with and without disabilities were social and identity barriers (i.e., needs not necessarily formally addressed through legal precedence), which mediated the reduced needs satisfaction for those with disabilities. These results may reflect the accommodations that have been made to attend to these barriers for students with disabilities. For example, the Rehabilitation Act of 1973 ensures physical modifications for students with disabilities, such as architectural accommodations and transportation mechanisms, which would mitigate physical barriers. Furthermore, this Act also ensures academic modifications for students with any disabilities that can impair their learning or testing abilities, such as aids for communication and alternative testing/extended test time (Yell, 1998). The Office of Disability Accommodations is responsible for implementing these academic modifications and ensuring an environment in which students with disabilities can perform to the best of their

intellectual abilities, thus mitigating academic barriers. Although these so-called addressed barriers were a mediator for reflective needs, the effect was not as robust as it was for non-addressed barriers.

Accommodations for social and identity barriers that students with disabilities face have been addressed much less in comparison, which could be reflected by the larger effect size indicating how restrictive these barriers would be too basic needs satisfaction. Though universities are required to manage physical and academic barriers in students with disabilities and have shown success in reducing the prominence in these, barriers pertaining to social and identity success have received relatively little attention (U.S. Department of Education, 1999). Although students with disabilities may not experience overt prejudice from other students, the stigma of being disabled could nonetheless persist, prompting them not to feel as socially connected as other students (Kurzban & Leary, 2001). Further, students' disability status could ultimately become an integral part of their identity while on campus, particularly if they are working with ODA, thus creating a chronically salient identity defined by a disability. In fact, such salience of a disability heightens the anticipation of stigmatization and negatively impacts health (Quinn & Chaudoir, 2009). Given the centrality of identity development in emerging adulthood, it could particularly be challenging for individuals to navigate a stigmatized aspect of their identity, therefore eliciting an impediment of success in forming a coherent sense of self (Arnett, 2001).

Limitations and Future Directions

Although these results are theoretically sensible, they are not without limitations. Most notably, these results were obtained from a relatively small, yet informative, sample from a single university in the southeastern U.S. In addition, different universities have their own unique strategies for integrating students with disabilities that may address social and identity barriers differently than that of our studied sample, and these potential differences may serve as an extraneous factor that could predict unequal reports in satisfaction of reflective needs. Future research must consider the response from multiple universities as it would afford a more representative sample of a national population while also increasing the chance for various other disabilities to be considered. With such a sample size increase, it could then be possible for researchers to consider more granularity in disability status to determine even more specific mechanisms of barriers. Whereas the current sample's power only afforded a broad analysis of disability, we were unable to consider differences between disability types, which could have yielded differences in perceptions of different barriers. Future research could consider different classifications of disabilities to determine the specific barriers that predict need dissatisfaction for a disability. For example, it could be possible that individuals with physical disabilities (e.g., individuals in wheelchairs) may experience more physical barriers, whereas those with learning disabilities may experience more academic barriers instead (Jaarsma, Geertzen, & Dekker, 2014; Shields & Synnot, 2016). Such granularity may also afford the opportunity to consider so-called invisible disabilities, disabilities with no visible physical symptoms (e.g., mental illness). Given that prejudices against mental illness typically elicit an equivocation of mental with physical illness, it would seem sensible to predict such disorders could produce more social barriers (Lund & Boggero, 2014).

Although the current study identified the role of social and identity barriers in predicting needs satisfaction, there is no consideration of potential interventions that could mitigate these perceived barriers, thereby increasing overall need satisfaction in university students. Universities could make efforts to rectify the disparity in social and identity barriers by offering more socially inclusive and individuality-celebrating opportunities for students with disabilities. One way in which universities can implement this goal and combat identity barriers is by hosting programs, campaigns, or events that celebrate disability labels and bring about the awareness of them. Another means by which universities can aid in diminishing social barriers would be to provide more networking opportunities and disability-celebrating organizations that aim to build a sense of community among individuals with disabilities. By addressing social and identity barriers, basic need satisfaction, particularly reflective needs and belongingness, will likewise be addressed and can potentially be more satisfied among this population.

Another interesting finding was the lack of difference in satisfaction of self-esteem needs among students with and without disabilities. Future studies would benefit from investigating the basis for such a non-difference. It could be the case that students have lower self-esteem, regardless of disability status, which would align with previous research indicating self-esteem deficits in earlier stages of emerging adulthood compared to later, which would have resulted in an overall drop in self-esteem that could be relatively unaffected by disability status (Galambos, Barker, & Krahn, 2006). Future studies could consider various buffers from low self-esteem among emerging adults (e.g., social networks, social support) and determine if the presence of such factors could equivocally operate for students based on disability status (Milevsky, 2005; Valkenburg, Peter, & Schouten, 2006). On the other hand, it could also be the case that students with disabilities may ultimately utilize their own protective buffers from stigma. Students may reclaim their stigmatized identity as a point of pride. Identity reclamation is efficacious in producing positive outcomes in marginalized, suggesting similar efforts could benefit other marginalized groups (Ferrari, Rosnati, Canzi, Ballerini, & Ranieri, 2017).

CONCLUSION

In ensuring an inclusive learning environment, various federal laws have afforded many opportunities for individuals to have an equal chance of obtaining a college degree, particularly as it relates to removing physical and academic barriers that would impede student successes. However, given the ancestral nature of stigmatization to mitigate contact with individuals who appear diseased or less capable of contributing group living, various barriers to an entirely equal college experience

with those without disabilities nonetheless persist that ultimately impede the basic needs satisfaction of individuals with disabilities. The current study identified the nature of these barriers, which could provide the basis for subsequent, theoretically informed interventions that would reduce barriers and thereby increase satisfaction.

FOOTNOTE

[a] One face valid item in the belongingness subscale, "I feel rejected," specifically confirmed our hypotheses, such that individuals with disabilities felt significantly more rejected than those without, $t(126.24)=2.41$, $p=0.017$, $d=0.35$. This item was reverse-scored before being aggregated.

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APPENDIX A

Disability Barriers

Physical Challenges

Physical Challenge 1: I can get from place to place on campus without any trouble.
Physical Challenge 2: A classroom is an adequate and appropriate environment for me to learn.
Physical Challenge 3: I find difficulty getting to campus and classes due to my personal limitations.
Physical Challenge 4: The noise, lighting, large number of people, and other distractions in campus classes and buildings hinder my day-to-day performance in activities.
Physical Challenge 5: Sometimes I feel as though the physical demands of attending a University are too much for me.
Physical Challenge 6: Classes, offices, and campus resources are physically easily accessible to me.
Physical Challenge 7: I have trouble getting from one floor to another on multi-levelled buildings on campus.

Social and Relationship Barriers

Social Inclusion and Relationship Barriers 1: I feel like I fit in with my peers at the university.
Social Inclusion and Relationship Barriers 2: I feel welcomed in clubs and organizations on my campus.
Social Inclusion and Relationship Barriers 3: It is easy to find and engage in social opportunities at my university.
Social Inclusion and Relationship Barriers 4: I often feel like people at my university look at me differently than others.
Social Inclusion and Relationship Barriers 5: The people around me at my university have low expectations of me.
Social Inclusion and Relationship Barriers 6: At my university, I feel like I am valued and people listen to what I have to say.
Social Inclusion and Relationship Barriers 7: The attitudes that others have towards me affect my ability to get involved at my university.
Social Inclusion and Relationship Barriers 8: Within my campus community, I feel comfortable and competent in my abilities to initiate and maintain friendships.
Social Inclusion and Relationship Barriers 9: I am satisfied with my current personal relationships with other members of my campus community.
Social Inclusion and Relationship Barriers 10: I am satisfied with my ability to communicate with the people around me on campus.
Social Inclusion and Relationship Barriers 11: I feel isolated and wish that I had more opportunities to socialize with fellow students.
Social Inclusion and Relationship Barriers 12: Sometimes I feel misunderstood by my university, its faculty, and other students.
Social Inclusion and Relationship Barriers 13: My university provides sufficient opportunities for social interaction with my peers.

Identity Concerns

Self-esteem and identity concerns 1: I identify strongly with being a student at my university.
Self-esteem and identity concerns 2: I feel like I do not fit in when I compare myself to other students at my university.
Self-esteem and identity concerns 3: Being a student at my university is important to my overall identity.
Self-esteem and identity concerns 4: When I think about my identity as a student at my university, it makes me feel good.
Self-esteem and identity concerns 5: I often compare myself to my fellow students and wish that I were more like them.
Self-esteem and identity concerns 6: When I think about how others on my campus identify me, I am dissatisfied.
Self-esteem and identity concerns 7: I think of being a student at my university as a part of who I am.

Academic Challenges

Academic Challenges 1: I feel overwhelmed because some of my personal limitations make it hard for me to accomplish my goals as a student.
Academic Challenges 2: My professors are understanding of my needs and work with me to accommodate to them.
Academic Challenges 3: I feel as though my academic performance on examinations and assignments is not up to par with those students around me.
Academic Challenges 4: I look forward to attending class each day.
Academic Challenges 5: I feel as though personal limitations I encounter make me more determined to reach my goals.
Academic Challenges 6: I feel capable of living up to the high academic demands of the classes at my university.
Academic Challenges 7: I enjoy and am confident in my abilities to study and work with other students from my classes.
Academic Challenges 8: I often struggle to cope with all of the things that I have to do as a student.
Academic Challenges 9: I can complete assignments by given deadlines easily and without any assistance.
Academic Challenges 10: I struggle to prioritize my academics due to personal limitations.
Academic Challenges 11: It is rare that I experience anxiousness regarding my academic course load.
Academic Challenges 12: My university succeeds at adjusting to accommodate for my individual needs as a student.