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## **Motivation and Perceived Barriers for Underrepresented Students Interested in Art Therapy**

Michael A. Jesson  
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# MOTIVATION & PERCEIVED BARRIERS IN ART THERAPY

Motivation and Perceived Barriers for Underrepresented Students

Interested in Art Therapy

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Submitted in partial fulfillment of the Masters Degree

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December 2020

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### **Abstract**

Substantial racial and gender disparities exist in art therapy (AT), with 90% of U.S. art therapists identifying as White and female. This has been identified as a major concern of both practitioners and educators, though little research has been performed. To understand the role of student motivation and barriers to the field, this study recruited 116 undergraduate students academically exposed to AT. Student interest in the field, psychological needs defined by Self-Determination Theory and perceived educational and career barriers were measured. Autonomy, relatedness and competence regarding studies in AT as well as financial barriers were significantly related to interest in the field. No racial/ethnic differences were found in the motivational elements, and the only gender difference was in females reporting greater competence. Racial/ethnic and gender differences for in multiple barriers were found, and artistic ability was introduced as a potential barrier. Financial concerns were the greatest barrier across all groups. The major limitation was the sample's small proportion of underrepresented groups. While the majority was female, the proportion who identified as neither female nor male was double the size of the male cohort. Future studies should continue examining the disparities in AT and be more inclusive regarding gender.

*Keywords:* art therapy, art therapy students, racial/ethnic disparity, gender disparity, educational barriers, career barriers, artistic ability, self-determination theory

### **Acknowledgements**

Dr. Ann Marie Yali has been a tireless faculty advisor, I am exceedingly grateful for her dedication and support on this project, and throughout my time at the City College of New York. I would like to offer a sincere thank you to my committee member Dr. Adeyinka M. Akinsulure-Smith, for the kind and generous offer of her time and insight.

Special thanks are due to Ms. Yasmin Awais. Her previous research in this area was my starting point and her advice, assistance and wisdom were critical in the completion of this endeavor. Thank you also to my thesis-group colleagues Margot Goldblum, Joseph Hillesheim, Sasha Kononenko and Ariana Mackson, for their social support and guidance.

My interest in this area was prompted by my time working and volunteering at the Alfano Family Arts in Medicine Studio, at the New York-Presbyterian Hospital/Columbia University Medical Center. Thank you to Nitza Danieli and all those who continue inspiring many through their work there. And to my husband Rohan, for always providing unconditional support and encouragement, thank you.

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### **Motivation and Perceived Barriers for Racial/Ethnic and Gender Minority Students Interested in Art Therapy**

As the population of the U.S. becomes ever more multicultural, the continued lack of diversity in the art therapy (AT) profession is in need of critical examination. AT practitioners remain majority White and female (American Association for Art Therapy [AATA], 2018) and this lack of diversity weakens the field and limits its potential reach. AT is defined by the American Association for Art Therapy, the field's major professional organization in the U.S., as a form of therapeutic psychological treatment where artmaking is used to improve physical and mental health (AATA, 2017). Art therapy can include such activities as drawing, painting, sculpting, collage or woodworking, among many others, with various goals such as creative communication, greater expressiveness and goal building (Buchalter, 2009). A recent systematic review (Regev & Cohen-Yatziv, 2018) found art therapy to be an overall impactful, effective psychological treatment in a variety of adult populations. AT interventions have been shown to reduce both the physical and psychological markers of stress in diverse populations such as medical students (Mercer et al., 2010), adult and pediatric cancer patients (Abdulah & Abdulla, 2018; Aguilar, 2017; Glinzak, 2016), Latvian health care workers (Visnola et al., 2010), and Syrian refugee children (Ugurlu et al., 2016).

Exact figures for the number of trained or practicing U.S. art therapists can be difficult to find. Licensure requirements for art therapists vary from state to state in the U.S. (AATA, 2020) and the U.S. Bureau of Labor Statistics groups art therapists into the "therapists, all other" category (U.S. Bureau of Labor Statistics, 2015), so there is no governmental record of practicing art therapists available. The AATA does perform an occasional census of the field, though, and the most recently available census, conducted in 2018, found practitioners of AT are overwhelmingly White (87.9%), and female (93.0%; AATA, 2018). This represents a small

increase (0.1%) in White art therapists from the other most recent survey prior to that, completed in 2013 (Elkins & Deaver, 2015), and a slight decrease in female art therapists (-0.4%). While it is clear the gender makeup of art therapists does not reflect the U.S. population, the racial disparity is stark as well, with the most recent data from the U.S. Census Bureau showing the general population to be only 76.3% White, and just 60.1%, non-Hispanic White (U.S. Census, 2019). That this is an issue is highlighted by the American Psychological Association's statement that a lack of attention to the mental health needs of racial and ethnic minority populations needs to be addressed (American Psychological Association [APA], 2017). One way to address this issue is to increase racial/ethnic diversity amongst the U.S. corps of art therapists.

Awais & Yali (2013) propose several benefits of increasing diversity in the AT profession, the most important of which are: meeting the desire of ethnic minorities to address their mental health needs with therapists of similar backgrounds to their own, and to promote greater diversity of thought and a more critical evaluation of AT methods. Culture and context are recognized as key to providing personalized, effective psychological interventions (Bernal et al., 2009; Jackson, 2015), and given the current demographic shifts in the general population towards greater racial/ethnic diversity (U.S. Census, 2020), and that Awais & Yali (2013) found that 64.7% of clients of art therapy interns were people of color, a concurrent diversification in mental health professionals becomes even more necessary.

The goal of diversifying the AT field mirrors a corresponding movement in the greater psychology field, with the American Psychological Association (APA) creating a Presidential Task Force on Enhancing Diversity in 2005 and an APA Divisions Task Force on Inclusion and Diversity in 2006 (APA, 2011). These initiatives were charged with the task of increasing racial/ethnic diversity throughout the field, and this increased focus seems to be producing some

results: the percentage of racial/ethnic minority graduate students has increased from 27% to 35% from 2006–2016, (Bailey, 2020). However, U.S. psychology faculty members remain 83% White (Bichsel et al., 2019) and the U.S. Census also shows that the overall psychology workforce, which includes all adults working in the field who have an advanced degree, as 83% White (APA, 2020). These are both stark indicators, considering that only 60.1% of Americans identify as White non-Hispanic (U.S. Census, 2019). The APA also reports females to be overly represented in the psychology workforce, with the field being 70% female (APA, 2020), a smaller disparity compared to AT, with 93% of art therapists identifying as female (AATA, 2018). The AATA has only recently begun examining the lack of racial/ethnic diversity amongst American art therapists, releasing a “Diversity, Equity, and Inclusion Vision Statement” (AATA, 2019) expressing the desire to systematically examine the organization’s integration of diversity, equity and inclusion in the professional organization and the greater AT community.

The gender disparity in AT has also only received limited attention. Tavani published a survey of male art therapists in 2007, finding that most were aware of the gender disparity in the field but did not perceive it as a “female” discipline and that most did not view their gender identity as an issue in their career advancement. An expressive therapist published an examination of male personality traits and strengths in 2007 (Riddle & riddle, 2007)<sup>1</sup>, and described how he felt as a male art therapist:

I still must deal with the dissonance of being a man in an occupation where the women out-number the men. I must deal with the idea of not being able to earn the income to provide financially for my family like so many friends who have entered higher paying, historically male professions. I often think of the lower status I hold as an expressive

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<sup>1</sup> Second author specifies that they do not capitalize their surname.

therapist in the overall hierarchical structure of the hospital where I work. I think about being asked to lift and carry supplies at work more often than my female counterparts yet feeling all right with that because I'm the man in the department. (p. 1)

These experiences of gender discrimination for males in many of the “helping” professions (nursing, early education, etc.) have often been undercut by the “glass escalator” effect. The glass escalator effect (Williams, 2013) has been proposed as the male counterpoint to the female “glass ceiling,” stating that when males join majority female domains, they tend to rise to the upper echelons of that domain more quickly, being seen as more suitable for managerial or high responsibility positions. The originator of this term has since criticized it as being overly simplistic and lacking in nuance, but elements of it surely remain, and it could be proposed that the perception of this effect is what underlies the lack of critical concern in this area. It remains important to examine this gender disparity though, as this lack of males weakens the field of AT in many similar ways as the lack of people of color: through limiting the available labor available for the field, reducing creativity and innovation, and reducing its potential reach. Also, male participation in female domains has the potential to increase overall gender equality in society (Block et al, 2019). Especially in the public-facing role that art therapists have, increasing gender diversity could have a multiplicative effect on how society views certain gender roles.

The majority of art therapists become interested in the field through schooling (Oppegard et al., 2005); therefore, students are an important population in which to examine the origins of the lack of racial/ethnic and gender diversity in the field. Most of the literature regarding disparities in education focus on racial/ethnic diversity, so that will be discussed here, but much can be assumed to apply to gender minorities as well. The lack of diversity in AT leads to fewer academic role models and mentors for students of diverse backgrounds. Similar to the

enhancement that clinical patients receive by receiving care from practitioners of related backgrounds, students receive greater benefits from academic mentors of alike backgrounds (Jones et al., 2018). Fewer authority figures from diverse racial/ethnic backgrounds could lead to neglecting the experiences of students of color, something which has been cited as being partially responsible for lower retention rates of racial/ethnic minority students (Thomas & Hollenshead, 2001) and could affect the motivation of these students to study AT.

Underrepresentation in academic environments increases the presence of racial/ethnic stressors for students of color (Upshaw et al., 2020), and this element could certainly prevent students from entering or continuing studies of AT. In addition, increasing racial/ethnic diversity in AT is critical to supporting innovation in the field, as a lack of diversity of experiences can limit theory development (Renninger et al., 2015). Indeed, AT programs are aware of these missing benefits, as diversification of the AT faculty and student body has been stated as a top goal at both the undergraduate (Schwartz et al., 2019) and graduate (Awais & Yali, 2015) levels. Many of these same issues might also apply to those who do not identify as female.

Unfortunately, there is no information available on the current or recent demographic information of AT undergraduate students, and there is very limited previous research on student diversity in the AT field. Presently, only one previous study examining the role of these student's perceptions of AT has been identified, a master's thesis from 2012 (Awais, 2012). Two published studies that touch upon program directors' perceptions of barriers to broadening the racial/ethnic diversity issues in AT programs have been identified, one examining graduate program directors (Awais & Yali, 2015) and one examining undergraduate directors (Schwartz et al., 2019). Awais & Yali (2015) examined graduate school programs' strategies for recruitment of racial/ethnic minority students, finding that these programs had insufficient strategies for

diversifying their student body and the eventual AT workforce. The researchers note that more information is needed on the students' barriers to entry to graduate study and the field. While it did not explicitly examine racial/ethnic or gender disparities in the student body, Schwartz et al. (2019) included a recent survey of lead faculty and administrative representatives of U.S. undergraduate AT programs, finding similar results to Awais and Yali's study of graduate AT programs. They found that 57% of AT undergraduate programs listed recruiting students from diverse backgrounds as an important priority, yet only 20% were offering scholarships dedicated to mitigating this disparity. Presuming this lack of diversity is indeed a real issue, Awais (2012) looked at a racially/ethnically diverse sample of undergraduate students in order to better understand student perceptions of the field. In this master's thesis, the recruited student sample was majoring in psychology, art, art education or other related fields, and the researcher measured the students' attitudes regarding the AT field, specifically asking participants about their interest in it, if they believed they could see someone like themselves entering the field, and if they felt supported by their teachers to study AT. No significant difference for any of these variables was found between racial/ethnic minority and non-minority students in this sample. Interestingly, student attitudes towards the field (e.g., "Would you be interested in studying Art Therapy") and their responses when asked whether they felt they could see someone like themselves as an art therapist, became more positive from the beginning to the end of the survey. This sample was recruited from a university system with no art therapy coursework available, and it appears that the simple exposure to an AT-related survey increased interest in and positive attitudes towards the field. This study also called for more research into perceptions of the field, as the results imply it may not be knowledge of the field or support from teachers that keeps more students of color from entering the field.

It is assumed that other motivations and barriers might be the primary reasons for keeping students from entering and diversifying the field. Examining motivation may provide some insight on whether students of color and male students feel connected and intrinsically driven to the field, while barriers such as financial issues may be another route keeping these students from entering and diversifying the field.

### **Theoretical Basis for the Current Study**

#### ***Motivation***

One important factor that determines whether or not a person chooses an area of study and eventual career is motivation. Self-Determination Theory (SDT; Ryan & Deci, 2000) is a frequently cited theory of motivation that outlines three major psychological needs that must be satisfied in order to enact or motivate a behavior: autonomy, competence and relatedness. SDT is a relational theory that, rather than examining the isolated development of inherent motivation, assesses the interplay of environmental elements and the support of these three psychological needs, explaining how individuals' intrinsic motivation may be fomented or impeded. While unmet physiological needs can lead to a greater pursuit of fulfilling the deficient need, failure to fulfill psychological needs can lead to a sense of amotivation in the salient area. In SDT, autonomy (Ryan et al., 1997) is defined as a type of self-regulator or free will, the belief that one has the ability to organize behaviors and experiences in a way that aligns with one's sense of self. Relatedness (Deci & Ryan, 2000) refers to the feeling of being connected to others, including having a reciprocated sense of personal value. And competence (Ryan, 1995) refers to the perception that one has an ability to effect and achieve desired outcomes from one's environment. Regarding goal attainment, SDT states that "a critical issue in the effects of goal pursuit and attainment concerns the degree to which people are able to satisfy their basic

psychological needs as they pursue and attain their valued outcomes” (Deci & Ryan, 2000, pg. 1).

This theory has been used as a framework for understanding the intrinsic and extrinsic social-contextual conditions that influence individuals’ motivation regarding multiple career and education areas, including general feelings of career success (Dahling & Lauricella, 2017), general engagement with work (Van Beek et al., 2012), whether doctoral students will enter academia (Burk & Wiese, 2018), and career commitment and satisfaction in Nigerian nurses (Onyishi et al., 2019). Numerous studies have shown that the fulfilment of SDT’s basic psychological needs is a critical element in fomenting undergraduate university students’ intrinsic motivation to academically succeed (Garn et al, 2019; Goldman et al., 2017; Taylor et al., 2014). For example, Guay et al. (2003) used SDT as a framework to explore Canadian undergraduate students’ ability to decide on a career. They examined the role of student perceptions of competence and autonomy in selecting a career, finding that lower levels of perceived competence and autonomy led to higher amounts of career indecision. Wang (2012) conducted a longitudinal study on middle and high school students' motivation and career interests around mathematics. Using SDT as a framework, the researcher found that autonomous ability and social support from teachers led to greater motivation and career aspirations in math. Pan & Gauvain (2012) longitudinally examined the elements of SDT in a sample of college students over three years, finding that relatedness, specifically with peers, was positively related with autonomous learning motivation. The researchers claim that positive peer support enhances intrinsic motivation and contributes to student success.

Given this prior research, it stands to reason that SDT can also be applied to understanding the motivations of undergraduate students in studying or continuing to study art

therapy. In order to choose AT as a career, students need to feel as if they are freely able to choose and enter the profession (i.e., autonomy), that they have the ability to complete the requirements of the program (i.e., competence) and to believe that others like themselves have been accepted in the field or accept them going into the field (i.e., relatedness). If these psychological needs for autonomy, competence and relatedness are not satisfied for students in their perception and experience of a potential career path, they may become unmotivated, disengaged and could potentially lose interest in the field. However, no study to date has assessed the role of these SDT elements as a possible pathway affecting student motivation in studying AT.

### ***Career & Education Barriers***

An important element in vocational decision-making is the perception of physical and psychological barriers to one's career or education, generally referred to in research as "career barriers" (Swanson et al., 1996). These psychological and environmental impediments to an individual's attainment of a specific career or course of study can be universal, such as financial concerns, but can also be more specific to minority individuals who may experience unique barriers such as racism or stereotype threat. Additional barriers can include lack of support from family, friends and mentors, gender discrimination, or a lack of confidence (Luzzo & McWhirter, 2011). Black and Hispanic college students enroll in post-baccalaureate programs at higher rates than White students (Tienda & Zhao, 2017), and given that AT is a master's level occupation, a greater examination of perceived career barriers is critical in understanding the lack of racial/ethnic minorities entering the AT field. The perception of these career barriers directly and indirectly affects career interests and choice (Kim & Obrien, 2018). For example, barriers such as racial discrimination or financial concerns are suggested to directly inhibit the

translation of interests into goals, and then goals into action (Luzzo & McWhirter, 2011). Perception of career barriers can directly hinder even the most interested individual from pursuing a specific career path. These barriers may also affect individuals indirectly; for example, a barrier such as lack of support may greatly inhibit the career choice of individuals with low coping efficacy.

Students of AT are presented with a potential barrier that is unique to the field: the confidence in their own artistic ability. A recent study examined the art practice of a large sample of current South Korean AT graduate students, finding strong evidence that confidence in one's art practice significantly influenced career commitment and professional identity (Jue & Ha, in press). This has been unexplored in undergraduate AT students, and could be a significant barrier for students in their pursuit of an AT career.

Of all of these potential barriers, arguably the most powerful in preventing minority students from pursuing art therapy as a career may be the lack of finances. The cost of attending college has been found to be one of the greatest obstacles for students of color in the U.S. (U.S. Department of Education [DOE], 2016), and an examination of the art therapy programs listed by the AATA show that the vast majority are located within private universities in the U.S. (AATA, n.d.). Many ethnic minority students come from families without college experience (US DOE, 2016), and parental education can have a strong effect on enrollment in professional and doctoral degree programs (Mullen et al., 2003). The AT field is also a lower-paying one: as of 2016 the average annual salary range for an art therapist is \$30,000-\$49,999 (AATA, 2018), well below the median U.S. salary of \$68,703 (Semega et al., 2019). Males tend to pursue graduate programs that offer higher earning potential and racial ethnic minority students are overrepresented in graduate programs in lower-paying fields (National Association of Student

Financial Aid Administrators, 2017). The gender disparity in the AT field follows this trend, but the racial and ethnic disparity does not, pointing to a possible other element affecting the disparity in enrollment in graduate study and eventual practice as an art therapist. In their study on AT program directors, Awais & Yali (2015) found that program directors mentioned financial concerns as the top barrier to entry to these programs for students of diverse racial/ethnic backgrounds. Anecdotally, as a former artist-in-residence at a large NYC hospital, it was not uncommon to hear that financial—including salary—concerns were the top-mentioned reason when nurses, administrators and other clinical staff were asked why they thought there were so few art therapists of color. There remains a gap in the literature on why students of color fail to join the AT field at higher rates and whether finances are a factor in this disparity.

### **The Current Study**

This study examined undergraduate students, limiting the sample criteria to students already exposed to the field, in order to understand if there is something that racially/ethnically diverse and male as well as other non-female identifying students experience in their exploration of the field that is preventing them from entering and diversifying the corps of American art therapists.

The current study looks to build upon previous work and addresses the limitations of the current literature in a few areas. Firstly, the previous study in this area recruited general students from a single university system with no AT coursework available. The current study specifically recruits AT undergraduate students, and undergraduate students of related majors, from colleges and universities that offer AT coursework. This sample should have greater exposure to the field and perhaps more defined thoughts and attitudes towards AT. This is important as the previous study found simple exposure to an AT survey increased interest and positive perceptions of the

field, showing that this sample did not have much extant knowledge or interest in AT. Secondly, it expands the study of diversity to include both racial/ethnic and gender diversity. In prior work diversity was viewed only through the lens of race/ethnicity, and this study will slightly expand that definition to include gender as well. The aim is to better understand the motivations and barriers for pursuing a graduate degree or career in AT and examine if this non-naïve population shows racial and/or gender differences in these areas.

Using SDT as a framework, it is hypothesized that autonomy, relatedness and competence will be positively correlated to interest in attending AT graduate school and becoming an art therapist. It is also hypothesized that students of racial/ethnic minority backgrounds will have lower levels of these variables compared to their White peers. The study will also examine students who identify as male and it is hypothesized that they will also show lower levels of the three elements of SDT compared to female students. More specifically, relatedness is expected to show the greatest amount of difference between these groups, as this element is directly associated with peer and mentor relationships and feelings of belonging; given the lack of diversity in the field, it can be expected that relatedness would be especially lacking for students of color and males.

Regarding perceived career barriers, it is hypothesized that all students will report financial barriers as the main barrier to entry to further studies in the field, and that racial/ethnic minority students will report this as a barrier in larger numbers than White students. In addition, a new lack of artistic ability item has been included as a possible barrier in this study. It is hypothesized that this will be related to perceived competence and reported to be a significant barrier for the majority of this undergraduate student sample. In general, greater reports of barriers are expected to be associated with less interest in AT pursuits.

## Method

### Participants

Undergraduate students with educational exposure to Art Therapy were targeted to complete an online survey. The survey was available from March 9, 2020 through December 31, 2020. Art therapy and psychology program directors at 41 U.S. colleges and universities that offered art therapy coursework were contacted via email in the spring and fall of 2020 and asked to share the study information with their students, and the study information was also shared on a listserv for art therapy educators. Recruitment occurred in two waves: the spring 2020 wave targeted art therapy program directors, while fall 2020, due to a low sample size from the first wave, expanded recruitment to include psychology department chairs as well. The criteria for participation included being age 18 or older, the ability to read and understand English, and being a current undergraduate student at a college or university. A total of 139 students were recruited, 23 respondents did not include demographic or pertinent study data and were excluded, leaving 116 providing complete relevant data. The median completion time for the survey was 13 minutes. Ages ranged from 18-49, with a mean age of 22.86 (SD=6.91), and the majority identified as White race/ethnicity (82%,  $n = 95$ ). An inclusive gender measure was used in the study, with 106 students identifying as female (91%), three as male (3%) and seven participants (6%) who identified neither as male nor female, including three non-binary participants, two gender fluid, one male transgender and one androgenous. A slight majority of the students were living with their parents (51.7%,  $n=60$ ), the majority of the sample reported a range of personal income from \$1-\$19,999 (69.8%,  $n=81$ ), while total household income was more varied, with the highest proportion reporting household income from \$40,000-\$59,999 (16.4%,  $n=19$ ). A majority attended private college and universities (72%,  $n=18$ ), and the schools that students were enrolled in were almost evenly split between the Northeast (44%,

n=11) and the Midwest (40%, n=10), with the remainder attending schools in the Southeast (16%, n=4). Art Therapy was listed as an exclusive major for a majority of the students (49%, n=57), with an additional 15 students indicating Art Therapy as part of their major, such as “Pre-Art Therapy” or “Psychology and Art Therapy”. Twelve students listed minors in AT. The most frequent major after AT was “Psychology” (17%, n=20). The student sample was majority Juniors (26%, n=30) and Seniors (37%, n=43). GPA for the sample had a mean of 3.62 (SD=.39) and a median of 3.75 (Range=2). Full demographic information can be found in Table 1.

## **Materials**

### ***Basic Psychological Need Satisfaction and Frustration Scale*** (BPNSFS; Chen et al, 2015b)

The BPNSFS was administered as part of the online survey. This self-report measure consists of 24 items and 3 subscales that measure satisfaction or frustration with the three components of Self-Determination Theory: autonomy, relatedness and competence. The scale was modified in order to examine whether students felt these needs were met or unmet specifically in regard to their current AT studies. Participants were instructed to answer according to their thoughts about the study of art therapy, on a scale from 1 (not true at all) through 5 (completely true). Autonomy satisfaction is measured through items such as “I feel a sense of choice and freedom in the things I undertake”, while frustration is measured through items like “Most of the things I do I feel I ‘have to’.” Similar items are used to measure relatedness satisfaction (“I feel that the people I care about also care about me”) and frustration (“I feel excluded from the group I want to belong to”) and competence satisfaction (“I feel confident I can do things well”) and frustration (“I have serious doubts about whether I can do things well”). The items are summed for each of the three subscales, with frustration scores being reverse scored and added to each need satisfaction subscale; higher scores represent greater need satisfaction in each of the three areas. The BPNSFS has been validated with university student samples in a cross-cultural study of students

in the USA, China, Belgium and Peru (Chen et al, 2015b), where the internal consistency in the US college sample was found to be .82 for autonomy, .87 for relatedness and .89 for competence, and also in a 2016 study of Japanese undergraduates (Nishimura & Suzuki, 2016) where the subscales were also found to have satisfactory internal consistency. In the current study, the reliabilities were similar, with an alpha of .75 for autonomy, .87 for relatedness and .82 for competence.

***Perception of Barriers Scale*** (POB; Luzzo & McWhirter, 2001)

The POB is an instrument measuring perceived barriers to educational and career goals, including anticipated gender and racial/ethnic discrimination. The scale is composed of 32 items across two subscales: one subscale measures career-related barriers due to sexism, racism and children/future family concerns; and the other measures education-related barriers due to financial concerns, relationship/childcare concerns, gender discrimination, racial discrimination, lack of support/interpersonal problems and lack of confidence/skills. The scale was modified in three ways. First, participants were asked to answer according to their experiences in AT training and pursuing AT as a potential career. The second modification was to add an item regarding perceived lack of artistic ability as a possible barrier to educational aspirations in art therapy, and the third modification was to add an item about low salary or earning potential as a potential future barrier to a career in AT. Items were measured on a Likert scale ranging from 1=strongly disagree to 5=strongly agree on items such as “In my future career I will probably be treated differently because of my sex/racial or ethnic background” (career barrier); “Currently a barrier to my educational aspirations are money problems/family problems”(education barrier) The scale is scored by first reverse scoring the negatively phrased items, then summing the responses such that a higher score indicates a higher perception of barriers. In a recent study on a diverse sample of U.S. college-aged women, reliabilities across the subscales were high, with Cronbach’s alpha

coefficients ranging from .84 to .93 (Kim & O'Brien, 2018). In the current sample, reliability for each of the barriers was also acceptable, ranging from .73 to .95 (see Table 2).

### **Demographics**

Demographic information including age, gender, racial/ethnic identity, socio-economic status (SES), academic major, interest in becoming an art therapist (yes/no), interest in attending graduate school for art therapy (yes/no), marital status and sexual orientation was collected at the end of the survey. Participants were also asked if they could or could not see themselves as an art therapist and why they felt that way.

### **Procedures**

The City University of New York institutional review board granted exemption to the project on March 3, 2019 (IRB File #2020-0136). The first round of recruitment occurred in the spring of 2020, targeting Art Therapy majors or minors at institutions that provide AT coursework. AT program directors and faculty across 48 mostly private U.S. colleges and universities were contacted via e-mail from March 31-April 21, 2020, with follow-up emails sent in early May and on September 14, 2020. Emails were also sent via the Coalition of Art Therapy Educators (CATE) listserv around these dates. Overall 154 participants began the survey. One was exited due to being under 18, and 37 began the survey but did not complete pertinent items or demographic information. A sample of 51 students who provided complete data were recruited in the first round. Due to a low sample size recruited in this round, and to broaden and increase the recruitment beyond AT students, an IRB amendment was filed and approved in October 2020 to expand the inclusion criteria from Art Therapy majors or minors to also include Psychology majors or minors at these institutions who offer AT coursework. Psychology department chairs were contacted via email on October 12, 2020, as well as an undergraduate AT educators email list. An additional 65 students with complete data were recruited in this second

round. The emails provided information on the study and asked the recipients to forward this information, along with a link to the study, to their current art therapy and psychology students. Students who were interested in participating were directed to an anonymous Qualtrics web-based survey, where they were required to complete an online consent form in order to continue to the survey. Participants were asked if they were over 18, and if they were a current undergraduate student. They were exited from the survey if they answered negatively to any of these questions. Demographic information was collected, and questionnaires measuring elements of the Theory of Self-Determination and perceived barriers to pursuing an education and career in art therapy were administered. The opportunity to enter to win a \$20 Amazon.com gift card was offered at the conclusion of the survey, with participants being sent to a separate page to enter to win.

## **Results**

### **Planned Analyses**

SPSS version 27 (IBM, 2020) was used to examine the data for statistical significance. The data collected from the two separate waves of data collected were examined for differences and were found not to differ demographically or on any study variables except “Are you interested in pursuing a career as an art therapist?”, with the second wave of data reporting less interest than the first ( $\chi^2(1) = 7.609, p = .006$ ). This is in line with the second round of recruitment expanding beyond AT departments and into Psychology departments, these two groups were combined for all other analyses. The subscales for the BPNSFS and POB scales were examined for normality, with all except the competence subscale of the BPNSFS showing non-normal distribution. This is not unexpected given the sample’s strong connection to AT. A visual examination of the scatterplots confirmed the non-normal distributions of some of the

POB variables; skewness, kurtosis and Shapiro-Wilk values for the variables are displayed in Table 2. Non-parametric tests were used given the lack of normality in many of the variables, and also because the variables were captured on a Likert scale, which should be categorized as ordinal (Liddell & Kruschke, 2018).

The majority of analyses to test the study hypotheses were conducted on median differences, with non-parametric Mann-Whitney  $U$  tests being used to compare differences between two groups, and Kruskal-Wallis  $H$  tests to examine possible differences between more than two groups. In addition, Spearman rho correlations were used for tests of association. Furthermore, Chi Square tests of independence were used to detect differences among categorical variables.

A-priori power analyses using G\*Power v.3 were conducted to determine the sample size needed to reliably detect effects across these four statistical tests. The current sample size of 116 is deemed adequate as per the results of these analyses. For the two-tailed Mann-Whitney  $U$  test, the power analysis showed that a total sample size of 92 would be required to detect a moderate effect size ( $d=0.7$ ) with  $p=0.05$  and a power of 0.80. For the Kruskal-Wallis  $H$  test, the power analysis showed a total sample size of 111 would be necessary to detect a moderate effect size ( $f=.30$ ) with  $p=0.05$  and a power of 0.80. Typically, the literature indicates moderate effect sizes are appropriate for these test variables (Ng et al., 2012; Guay et al., 2003).

Spearman's rho correlational analysis was used to test the hypotheses about relationships between autonomy, relatedness and competence and interest in pursuing a career or graduate school in AT. An a-priori power analysis showed that a sample size of 29 would be required to detect a moderate one-tailed correlation ( $r=0.30$ ) at  $p=0.05$  with a statistical power of 0.80. For tests of association between strictly categorical variables, Chi Square tests of independence were

used; the a priori power analysis suggested a sample size of 100 would be necessary to detect a medium effect size ( $h=.50$ ) at  $p=0.05$  with a statistical power of 0.80.

### **Descriptives**

Descriptive results on the sample demographics are reported in Table 3. Students were examined on their interest in pursuing a career and graduate study in AT. A majority of students answered affirmatively to both questions, with 76% ( $n=88$ ) expressing interest in an AT career, and 71% ( $n=82$ ) interested in pursuing AT graduate studies. The vast majority of the sample, 91% ( $n=106$ ), responded “yes” to the question “Could you see someone like yourself being an art therapist?” In examining the descriptives by subgroups, it is noted that the sample sizes of the individual groups are often too small to run analyses. In order to meet the assumptions for the following Pearson Chi Square tests, used for analysis of association between categorical variables, the racial/ethnic categories were compressed to White and non-White to meet the test’s requirements of having a minimum of five expected counts per cell. Chi Square tests found no racial/ethnic differences in interest in becoming an art therapist  $\chi^2(1) = 1.359, p = 0.244$ , interest in attending graduate school for AT  $\chi^2(1) = 0.007, p = 0.934$ , or in answer to the question about the ability to see oneself as an art therapist,  $\chi^2(1) = 1.045, p = 0.307$ .

Due to the small number of males in the study, Fisher’s Exact Test, which corrects for small expected counts in a 2X2 Chi Square frequency analysis, was used to examine the gender differences in interest in attending AT graduate school or becoming an art therapist, and if students could see themselves as an art therapist. Gender was categorized as female/non-female for these analyses to meet the necessary expected counts and two-by-two matrix design of Fisher’s Exact Test. No gender difference was found in interest in becoming an art therapist, with 79 females and nine non-females answering yes, and 27 females and one non-female

answering no ( $p=.447$ ). There was also no gender difference in interest in attending graduate school for art therapy, with 73 females answering yes, 33 answering no, nine non-females answering yes and one answering no ( $p=.277$ ). No difference was found in answer to the question about being able to see oneself as an art therapist, with 97 females replying yes to nine responding no, and nine non-females responding yes to one responding no ( $p=1.00$ ).

## **Elements of Self-Determination Theory**

### ***Race & Gender Differences***

**Racial/ethnic differences.** The hypothesis that non-White respondents would report lower levels of relatedness to their AT studies was not supported. A Kruskal-Wallis  $H$  test showed no significant differences on relatedness between the racial categories,  $\chi^2(4) = 3.479$ ,  $p = .481$ , with mean rank scores of 77.80 for Black/African Americans, 44.17 for Asians, 58.71 for Whites and 49.67 for Hispanic/Latinos, showing that relatedness scores are highest for the Black/African American group, and lowest for the Asian group, and the overall scores are similar to relatedness in other student samples (Chen et al., 2015a). No racial differences were found on the autonomy ( $\chi^2(4) = 6.190$ ,  $p = .185$ ) or competence ( $\chi^2(4) = 1.644$ ,  $p = 0.801$ ) scales.

**Gender differences.** Given the small sample sizes for male and “A Gender Not Listed” participants, Mann-Whitney tests were used to examine the differences between the two groups to determine if they could be incorporated into one group. This step would conserve power in the statistical analyses. These two groups did not significantly differ on autonomy ( $U=10.5$ ,  $p=1.00$ ), relatedness ( $U=7.50$ ,  $p=0.49$ ) or competence ( $U=10.0$ ,  $p=.91$ ). They were therefore combined into a new “non-female” category ( $n=10$ ) for the analyses of the BPNSFS subscales. The hypothesis that non-female respondents would report lower levels of relatedness to their AT studies was not supported. A Mann-Whitney test found no significant difference on relatedness

between female ( $Mdn=35$ ) and non-female participants ( $Mdn=31.5$ )  $U=360.5$ ,  $p=.102$ . These scores are relatively equal to other reports of this variable among college students and correspond to moderately high levels of relatedness (Chen et al., 2015b). No significant difference was found between females ( $Mdn=31$ ) and non-females ( $Mdn=25$ ) on autonomy ( $U=354.5$ ,  $p=.090$ ), but competence was found to differ significantly between female ( $Mdn=31$ ) and non-female ( $Mdn=23$ ) participants ( $U=274$ ,  $p=.013$ ). This difference was examined more closely by using a Kruskal-Wallis  $H$  test to explore competence differences between the male ( $Mdn =26$ ), female and “A Gender Not Listed” students ( $Mdn =23$ ), and a significant result was again found ( $\chi^2(2) = 6.462$ ,  $p = .040$ ), with post-hoc pairwise comparisons revealing the main difference lies between female and “A Gender Not Listed” students, ( $\chi^2(2) = 30.82$ ,  $p = .018$ , Bonferroni adjusted  $p = .053$ ).

### ***Interest in Pursuing Art Therapy***

The hypothesis that the levels of autonomy, relatedness and competence would be related to interest in pursuing an AT career and AT graduate school was partially supported. Mann-Whitney tests revealed significant differences on autonomy ( $Mdn_{YES}=32$ ,  $Mdn_{NO}=27$ ,  $U=551$ ,  $p < 0.01$ ), relatedness ( $Mdn_{YES}=35.5$ ,  $Mdn_{NO}=29$ ,  $U=711$ ,  $p = .002$ ) and competence ( $Mdn_{YES}=32$ ,  $Mdn_{NO}=28$ ,  $U=823.5$ ,  $p = .016$ ), between those who were and were not interested in becoming art therapists, with mean ranks showing that those interested in becoming art therapists reported higher levels of these three elements than those who were not interested. There were also significant differences in relatedness ( $Mdn_{YES}=36$ ,  $Mdn_{NO}=33$ ,  $U=912.5$ ,  $p = .006$ ) and autonomy ( $Mdn_{YES}=32$ ,  $Mdn_{NO}=29$ ,  $U=911$ ,  $p = .006$ ), but not competence ( $Mdn_{YES}=31.5$ ,  $Mdn_{NO}=30$ ,  $U=1093$ ,  $p = .107$ ) between those interested and those not interested in attending AT graduate school. To corroborate this finding a correlation was run and showed a negative

relationship between the three scales and the interest in AT variables. Dummy variables were used for the dichotomous interest variables (1= “yes”, 2 = “no”), so a negative relationship implies that interest increases (or moves towards yes) as autonomy, relatedness and competence increase. Significant moderate correlations were found between interest in an AT career and autonomy,  $r(115) = -.40, p < .001$ , relatedness,  $r(115) = -.30, p < .001$ , and competence,  $r(115) = -.23, p = .015$ . For interest in attending AT graduate school, significant weak correlations were found with autonomy  $r(115) = -.26, p = .006$  and relatedness,  $r(115) = -.26, p = .006$ , but no significant relationship was found with competence,  $r(115) = -.151, p = .108$ .

### **Perception of Barriers**

In order to examine the hypothesis that educational barriers due to financial concerns would be the most reported barrier, two analyses were conducted. The scores in the POB were conservatively transformed into a dichotomy, where a score of 3 (neither agree nor disagree) or lower was defined as “no/not” a barrier and a score of 4 (agree) or 5 (strongly agree) was defined as “yes” a barrier. As hypothesized, the barriers most experienced in this sample were items comprising the Educational Barriers due to Financial Concerns subscale, led by “Money problems are currently a barrier to my educational aspirations”, endorsed as a barrier by 63.8% ( $n=74$ ) of the sample. Table 4 lists the complete items, the original, published factors on which they were assigned, and their frequencies.

A principal factor analysis was run on the POB scale for two reasons: to determine if the factor structure is similar in our student sample to the previously published scale (Luzzo & McWhirter, 2011) and to see if the new item, “Educational Barrier due to lack of Artistic Ability”, fits on any of the existing subscales. The subscales and composite items measuring childcare and family issues, Career Barriers Due to Children/Future Family and Educational

Barriers Due to Relationship/Childcare Concerns, were not included in the factor analysis because responses to these items were optional for participants. This instruction unfortunately led to the inability to differentiate between a skipped item that did not apply to the participant, or missing data for other reasons. This is problematic because it is ill-advised to run a factor analysis with “missing not at random” data (Josse & Husson, 2016; Stanimirova, 2013) as this provides biased results. Based upon our analysis of the a-priori dichotomized scales, the items comprising *Career* Barriers Due to Children/Future Family were moderately endorsed strongly as a barrier by the proportion of the sample that chose to answer these items (Range: 32-39), therefore that subscale and its original a-priori items will be examined for our hypotheses. The *Educational* Barriers Due to Relationship/Childcare items received very few positive endorsements (Range 8-18), therefore this subscale has been removed from further analysis. The remaining items were assessed for suitability for factor analysis, and with a Kaiser-Meyer-Okin value of .805 and a significant result from Bartlett’s Test of Sphericity, were found to meet the necessary assumptions.

The scale items were allowed to intercorrelate simultaneously and six components generating Eigenvalues over 1 were extracted, accounting for a cumulative 69.03% of variance explained. The items were expected to correlate, so were examined in an oblique rotation, which confirmed six distinct factors. Items’ rotated factor loadings on the pattern matrix were required to be above 0.4 to be retained, and items that cross-loaded on more than one item were also required to have a factor loading difference of .2-.3 to their next nearest factor. If an item’s loading was within .2-.3 on more than one factor, it was deemed indiscriminate and discarded (Matsunaga, 2010). These criteria eliminated four items which were found to load indiscriminately over two factors (see Table 5). The six identified factors aligned with four of the

previously verified subscales: Career Barriers Due to Gender Discrimination, Career Barriers Due to Racial Discrimination, Educational Barriers Due to Lack Confidence/Skills and Educational Barriers Due to Financial Concerns. An item originally part of a racial discrimination subscale loaded more strongly with the Educational Barriers Due to Lack of Support/Interpersonal Problems subscale so was retained there. A new factor was found comprised of both the items on the original Educational Barriers Due to Gender Discrimination subscale, the created item for this study measuring Educational Barriers due to Artistic Ability, and two items previously part of the Educational Barriers Due to Lack of Support/Interpersonal Problems subscale. These items combined appeared to reflect lack of “identity support”, as all were related to others’ perceptions of one’s identity. To distinguish this new factor from the “Educational Barriers Due to Lack of Support/Interpersonal Problems” factor, the latter was retitled “Educational Barriers Due to Lack of Social Support” while the new factor was titled “Educational Barriers Due to Lack of Identity Support”. Table 5 displays the factor loadings and alpha levels for the final factors and items.

### *Race and Gender Differences*

**Racial/Ethnic Differences.** The Kruskal-Wallis  $H$  test was used to examine racial/ethnic differences between students on the six new POB subscales and the one a-priori Career Barriers Due to Children/Future Family subscale. Significant differences were found only on Career Barriers due to Racial Discrimination ( $\chi^2(4) = 26.344, p < .001$ ) and Educational Barrier due to Lack of Social Support ( $\chi^2(2) = 10.216, p = .037$ ). Post-hoc pairwise comparisons revealed the main differences in the Racial Discrimination subscale were between White and Asian ( $\chi^2(4) = 2.745, p = .006$ , Bonferroni adjusted  $p = .059$ ), Hispanic/Latino ( $\chi^2(4) = -3.331, p = .001$ , Bonferroni adjusted  $p = .009$ ) and Black/African American ( $\chi^2(4) = 2.762, p = .006$ , Bonferroni

adjusted  $p = .057$ ) students, with White students reporting racial discrimination as less of a barrier than the others, but only remaining significant compared to the Hispanic/Latino students with the adjusted  $p$  value. The post-hocs for the Social Support scale showed the differences were significant between the Black/African American and White ( $\chi^2(4) = -2.300, p = .021$ , Bonferroni adjusted  $p = .214$ ) and between Black/African American and Hispanic/Latino ( $\chi^2(4) = -2.728, p = .006$ , Bonferroni adjusted  $p = .064$ ) students, such that a lack of social support was reported as less of a barrier for Black/African American students than the other two groups, although not significantly given the  $p$  value adjustment.

**Gender Differences.** A Kruskal-Wallis H test was used to explore differences between the male, female and “A Gender Not Listed” students on the six factor analyzed POB subscales and the one a-priori Career Barriers Due to Children/Future Family subscale. Significant differences were found only on the Educational Barrier due to Lack of Social Support ( $\chi^2(2) = 6.946, p = .031$ ), Educational Barrier due to Lack of Confidence/Skills ( $\chi^2(2) = 9.006, p = .011$ ), and Career Barriers Due to Children/Future Family ( $\chi^2(2) = 6.551, p = .038$ ). Post-hoc pairwise comparisons revealed the main differences in the Social Support subscale were between female and “A Gender Not Listed” students, ( $\chi^2(2) = -2.306, p = .021$ , Bonferroni adjusted  $p = .063$ ), such that females reported a lack of social support as less of a barrier; and between male and “A Gender Not Listed” students, ( $\chi^2(2) = -2.305, p = .021$ , Bonferroni adjusted  $p = .063$ ), such that males reported this as less of a barrier. The post-hocs showed that the main differences in the Confidence subscale was also between female and “A Gender Not Listed” students, ( $\chi^2(2) = -2.525, p = .012$ , Bonferroni adjusted  $p = .035$ ) and male and “A Gender Not Listed” students, ( $\chi^2(2) = -2.714, p = .007$ , Bonferroni adjusted  $p = .020$ ), such that males and females reported this as less of a barrier than “A Gender Not Listed” students. The post-hoc analyses showed that

the differences in the Children/Future Family subscale were also between female and “A Gender Not Listed” students, ( $\chi^2(2) = -2.036, p = .042$ , Bonferroni adjusted  $p = .125$ ) and male and “A Gender Not Listed” students, ( $\chi^2(2) = -2.460, p = .014$ , Bonferroni adjusted  $p = .042$ ), such that males and females reported this as less of a barrier than “A Gender Not Listed” students.

### ***Interest in Pursuing Art Therapy***

While there were no specific hypotheses regarding the associations between perception of barriers and interest in the AT field, an exploratory analysis was conducted to examine the general prediction that a higher perception of barriers is related to lower levels of interest in the field. Mann-Whitney tests revealed no significant differences between those who answered yes or no to the question “Are you interested in pursuing a career as an art therapist?” on levels of perceived Career Barriers due to Racial Discrimination ( $Mdn_{YES}=4, Mdn_{NO}=5.5, U = 1174.5, p = .693$ ), Career Barriers due to Gender Discrimination ( $Mdn_{YES}=12, Mdn_{NO}=12, U = 1189, p = .781$ ), Educational Barriers due to Lack of Social Support autonomy ( $Mdn_{YES}=6, Mdn_{NO}=7.5, U = 1071.5, p = .291$ ) or Educational Barriers due to Lack of Confidence/Skills ( $Mdn_{YES}=5, Mdn_{NO}=5, U = 1140.5, p = .550$ ). Significant differences were found on interest in a career as an art therapist for Educational Barriers due to Lack of Identity Support ( $Mdn_{YES}=8, Mdn_{NO}=10, U = 890.5, p = .027$ ) and Educational Barriers due to Financial Concerns ( $Mdn_{YES}=11, Mdn_{NO}=8, U = 807.5, p = .007$ ). An examination of the medians shows that Lack of Identity Support is seen as a larger barrier for those not interested in a career in AT, while those interested in entering the field perceive finances as a greater barrier.

The results analyzing the answers to the question “Are you interested in graduate school for art therapy?” by perceived barriers mirrored the above results, with significant differences only being found between the Educational Barriers due to Lack of Identity Support ( $Mdn_{YES}=8,$

$Mdn_{NO}=10$ ,  $U = 1031.5$ ,  $p = .027$ ) and Educational Barriers due to Financial Concerns ( $Mdn_{YES}=11$ ,  $Mdn_{NO}=8.5$ ,  $U = 992.5$ ,  $p = .018$ ) variables.

A Spearman correlation was run to further corroborate these differences and finding a significant weak positive correlation between Educational Barriers Lack of Identity Support and interest in a career in AT ( $r(116) = .21$ ,  $p = .013$ ) and in attending graduate school for AT ( $r(116) = .21$ ,  $p = .013$ ). This finding suggests that as the perception of a lack of identity support increases, interest in a career or graduate study in AT decreases. Significant negative correlations between Educational Barriers due to Financial concerns and interest in an AT career ( $r(115) = -.25$ ,  $p = .003$ ) and interest in attending AT graduate school ( $r(115) = -.22$ ,  $p = .009$ ) were also found. While it was suggested that barriers will affect interest, this negative correlation may be better interpreted as the converse: that as interest in being an art therapist or attending AT graduate school increases, the perception of financial issues being a barrier increases as well.

### **Artistic Ability**

The hypothesis that the “Educational Barrier due to lack of Artistic Ability” would be related to competence was supported, with a weak negative correlation found ( $r_s = -.33$ ,  $p < .001$ ,  $n = 115$ ) between the original Likert response on this item and the summed competence score, suggesting that as the perception of a lack of artistic ability increases, perceived competence decreases. A Kruskal-Wallis H test showed no significant difference on this barrier by gender,  $\chi^2(3) = .087$ ,  $p = 0.957$  or race  $\chi^2(4) = 3.24$ ,  $p = 0.518$ , with an examination of the medians showing this was infrequently endorsed as a barrier across all groups.

### **Discussion**

The study aimed to examine potential motivational elements and perceived barriers for students in AT-related programs that may help explain the limited racial/ethnic and gender

diversity in the field. There remains limited information on undergraduate students studying AT in the U.S., and this study provides important information about this population. The results from the descriptive analysis show no racial or gender differences in terms of interest in pursuing graduate school or a career in AT, or in the ability to view oneself as an art therapist. This is not unexpected, given that the majority of the student sample were either majors or minors in the field. This also aligns with the previous research on general undergraduate students' perceptions of the field (Awais, 2012). It appears that the general perception of the AT field is not a major barrier to entry for undergraduate students of diverse racial/ethnic and gender backgrounds, irrespective of whether they were familiar or unfamiliar with the field.

It is important to note that the racial/ethnic and gender composition of this sample reflects the current disparities present in the field. The sample was 81.9% White and 91.4% female, very similar to the most recent gender and racial/ethnic makeup of the field (87.9% White, 93.0% female; AATA, 2018). The sample's percentage of "A Gender Not Listed" participants (6%) was larger than its percentage of males (3%), and while this group did not differ from males on the motivational elements of the study, they did differ significantly on Career Barriers due to Children/Future Family and Educational Barriers due to Lack of Support/Interpersonal Problems. This revealed that while this gender identity group may align more with male participants in this study, they are still a unique group that is due greater attention. It is important to note that students who selected this gender category identified as non-binary, gender fluid, transgender and androgynous, and while there is still limited information on if and how these gender identities can be categorized in psychological research (Cameron & Stinson, 2019), the fact that there were double the number of respondents who selected this category than selected "Male" indicates it could be an important area for future research.

This student sample showed no statistically significant racial or gender differences in relatedness as a motivation to their studies of AT. Self-Determination Theory proposes relatedness as the basic psychological need of belongingness, feeling supported and part of one's social environment that, when fulfilled along with competence and autonomy, supports individuals' intrinsic motivation. When a social environment, such as school, fulfills these needs, it fuels the intrinsic motivation to set and attempt to succeed at one's goals. The study's hypothesis that this element of SDT might be especially salient for individuals who do not fit the racial/ethnic or gender norms of the field they are studying was not supported. This is not surprising given the lack of significant racial/ethnic or gender differences in the descriptive analyses, where non-White and non-females students were equally interested in becoming art therapists, attending graduate school for AT and in the ability to see themselves as an art therapist. It could be that this student sample, most of whom are already training to enter the field, already have high levels of intrinsic motivation, and relatedness is not as critical in supporting this drive to succeed. The hypotheses that autonomy would be lower for non-White and non-female students was not supported, while competence did show a significant difference along gender lines, but not race/ethnicity. Females showed higher levels of competence than non-females; this result is in line with the expectations that females, being overrepresented in the AT field, would show higher levels of the elements of SDT than non-females. The competence subscale asks respondents questions about their confidence in their abilities and resilience in overcoming obstacles. It could be that male and "A Gender not Listed" students would show less competence because of a lack of modeling of successful behaviors from others like them in this specific area of study. For this sample though, it appears that intrinsic motivation is rather similar for students of all racial/ethnic and gender backgrounds who are academically exposed to AT.

While no differences by race/ethnicity and only one difference by gender were found on the autonomy, relatedness and competence scales, the current study did find support for the hypothesis that the elements of SDT are related to overall interest in pursuing AT graduate studies and an eventual career in the field. All three elements of SDT were moderately correlated with interest in pursuing an AT career, while autonomy and relatedness but not competence, were weakly correlated with interest in attending AT graduate school. These findings confirm that SDT is a useful theoretical framework through which to understand student motivations to enter this field, supporting the extant literature that uses SDT as an organizing principle around career choice (Sheldon et al., 2020). The disparate results regarding competence are worth noting and require greater study. It could be that, in this student sample comprising a variety of years in school, individuals are still seeking and developing educational competence, and therefore this element does not influence one's motivation towards graduate school.

Moving from the study's examination of intrinsic to more extrinsic barriers, one important finding was the quantifiable confirmation of finances being a key barrier to the study of AT and becoming an art therapist, with 64% of students agreeing "Money problems are currently a barrier to my educational aspirations", and the other items comprising the "Educational Barriers Due to Financial Concerns" being reported as a barrier by 51% or more of the sample. This aligns with both the researcher's anecdotal observations and what AT graduate program directors believe to be the greatest barrier (Awais & Yali, 2013), but this is the first study to methodically examine this issue in the student population. A recent study on the characteristics of U.S. undergraduate AT programs (Schwartz et al., 2019) found that only 20% of undergraduate programs were offering scholarships dedicated to recruiting racially/ethnically diverse students, yet 57% of programs listed increasing student diversity as an important goal.

The finding that financial concerns are the most frequently cited barriers by students confirms that finances should be the first area of focus when it comes to increasing racial/ethnic diversity in the field. While no barrier items besides the three dealing with finances had greater than 50% endorsement, the largest perceived barrier after finances was a lack of confidence (47%). This is an important finding because, unlike increasing financial support, enhancing confidence among students is something universities and AT departments can address more directly by offering various confidence-boosting exercises or modules.

The majority of students strongly perceived financial concerns as the top barrier to their education and likely future career in AT, and a closer examination of this barrier along the lines of stated interest in a career and graduate study in the field produced additional support to this finding. In this sample, interest in becoming an art therapist or attending graduate school in AT was negatively correlated with the perception of “Educational Barriers due to Financial Concerns”. While just a weak correlation, this relationship was notable as it was the only POB subscale to be negatively correlated with the interest variables. This finding that, as interest in the field and graduate study increases, perceiving finances as a barrier increases as well, is in alignment with these students citing this as the greatest barrier to their studies. It is also in alignment with the fact that the majority of Art Therapy programs are in private institutions which can be quite costly. Interestingly, a quick examination showed that this barrier was not dependent upon either personal or household income. That this sample acknowledges finances as the largest barrier to further pursuit in the field is reinforced by this association between perception of finances as a barrier to their educational pursuits and interest in becoming an art therapist.

The two new items that were added as potential perceived barriers showed interesting results. As the original scale did not address the perception of a career's earning ability as a career barrier, the item "Low salary or limited earning potential will be an issue in my future career" was added. This item was added only for the second round of data collection, so could not be analyzed for the whole sample. Of the 51% (n=59) of the sample who received this item, 54% (n=32) said this was a barrier, while 46% (n=23) indicated that it was not. This gives additional evidence that finances are a key barrier, both in education and in later practice as an art therapist. The other item added, "Lack of artistic ability is currently a barrier to my educational aspirations" was intended to measure a unique element of AT, artistic ability, and whether this came into play with students deciding to pursue a career in the field. Sixteen percent of the sample reported that this was indeed a barrier to their educational aspirations, and it was weakly correlated with competence. A recent paper (Jue & Ha, in press) explored AT graduate students' art practice and its connection to career commitment and professional identity, finding a significant positive relationship between these variables. While the current study found that artistic ability is somewhat infrequently mentioned as a barrier to student's study of AT, when one considered the significant correlation it had with competence this contributes to the nascent literature on AT students' perception of artistic ability, suggesting further investigation into this ability as a possible avenue affecting diversity in the AT field.

This artistic ability item was also hypothesized to be related to the competence level of the SDT measures, and was shown to be weakly related to competence, in alignment with the hypothesis. This could provide evidence to the assumption that artistic ability for these students is related to intrinsic motivation to study and become art therapists. However, the interpretation of this finding is slightly confounded by the factor analysis on this item, which showed it loaded

with the Educational Barrier due to Gender Discrimination items. This could simply imply that barriers related to gender and artistic ability are related, and a closer analysis revealed that non-female students found a lack of artistic ability to be a stronger barrier than females. These findings could indicate that for males and gender non-conforming students, more support around their art practice might increase their motivation and desire to study and enter the field.

The analysis of gender differences on the POB items revealed only significant differences between the “A Gender Not Listed” participants and both females and males, with the “A Gender Not Listed” participants reporting that Educational Barriers due to Social Support and due to Confidence, and Career Barriers due to Children/Future Family are greater barriers for them than both males and females. Given it is not clear how to extrapolate findings from this varied gender category, it can only be inferred that having a non-male or female gender identity must affect confidence, perceived social support and childcare/family concerns in a negative way. The finding of no difference in barriers between males and females in the study may simply be due to the very small proportion of males in the study. A difference would have been expected on the Career Barriers due to Gender Discrimination but was not found, and upon further analysis of that scale, males actually reported this as being less a barrier than females. While not a significant difference, this points to the importance of future study of male students of AT, who may not view their gender as an impediment in their future career, in alignment with the glass escalator effect.

The racial differences on the Career Barriers due to Racial Discrimination were not unexpected, with all non-White students reporting this is a greater barrier than White students. This simply confirms the robustness and power of this measure and that racism and discrimination are clearly at play in keeping the AT field from further diversification. The

differences in Educational Barriers due to Social Support found between the Black/African American, Hispanic/Latino and White students is interesting. A further examination of the medians showed that Black/African American students report a lack of social support as less of a barrier than Hispanic/Latino and White students. This varied finding may be unique to the study's sample, or it may show that social support is race/ethnicity-specific, and more care needs to be taken to examine and explore the nuances inherent in students' racial identities.

The factor analysis of the POB scale revealed a few additional interesting findings. It was revealed that this student sample seems to differentiate between educational barriers due to social support and identity support. The analysis revealed that the previously independent "Educational Barriers due to Gender Discrimination" factor now had additional items relating to artistic ability, family attitudes towards college and family problems loading on it. These items were interpreted to be representing a lack of identity support: students felt that how others perceived their gender, their artistic ability and their identity as a college student were more similar as a barrier than different. This merging of identity-related barriers could have been due to the limited gender diversity in the sample, but it provides further evidence that gender identity and gender identity support is a critical component that could be a barrier for increasing diversity in the AT field. Perception of the Educational Barrier due to Lack of Identity Support also was significantly different between the groups who were and were not interested in pursuing a career or graduate studies in the field. The association between these variables showed that greater perception of the lack of identity support was linked to less interest in a career and graduate study in AT. This could point to a potential pathway to increasing diversity in the field: providing strong identity support, particularly relating to gender, artistic ability and student identity, to students interested in AT.

The factor analysis also showed some notable findings in regard to race and gender discrimination. The current study's subscales for *Career*, but not *Educational*, Barriers related to Racial and Gender Discrimination aligned with the previously published scales. Further, the items relating to Educational Barriers due to *Gender* Discrimination were retained as part of a new "Barrier due to Identity Support" subscale, while the items relating to Educational Barriers due to *Racial* Discrimination were eliminated due to indiscriminately cross-loading on multiple factors. This may imply that while gender discrimination may remain salient to education for this student sample, racial discrimination may be perceived only as a strong barrier to students' future careers, but not their education. This idea aligns with the literature showing that non-White students enter post-secondary programs at higher rates than Whites (Tienda & Zhao, 2017), perhaps because racial discrimination is not seen as salient a barrier in this realm, especially given that these students were current undergraduates, already accepted into a program. These results suggest that some advances may have been made in addressing racial discrimination as a barrier to education for these students, but that racism remains a potent barrier to their future career aspirations.

### **Strengths, Limitations, and Future Directions**

The main strength of this study is its contribution to the limited research on AT undergraduate students. Only one previous published study was found that focused on this population (Schwartz et al, 2019), but the focus was on the academic programs themselves and not students. The sample of the current study shows that the age range and backgrounds of AT and AT exposed students is quite varied, and that those who are studying the field seem to have strong, positive perceptions of AT. Using a more inclusive measure of gender was another major strength of this study. The demographic results, with more than double the "A Gender Not

Listed” respondents than males, shows the potential limitations that using a male/female gender measure may promote. Zappa (2017) elucidated the need for greater inclusion of gender nonconforming individuals specifically in AT research; the demographic findings of this study add more evidence for the need to reduce erasure of those who identify beyond male or female.

The disparity that this study attempted to examine was responsible for its main limitation: a lack of racial/ethnic minority and male gender participants. With no prior studies on the AT undergraduate student population, this study hypothesized that there might be a factor in the educational system that is limiting the racial and gender diversification of the field. The finding that the proportion of these groups in the undergraduate student population mirrors their representation among trained art therapists points to a reason beyond academia that is limiting a diversification of AT. Even among those who are majoring in or are non-naïve to AT, there do not appear to be career/educational barriers to attending AT graduate school that are unique to gender or racial/ethnic minorities although, as expected racial discrimination is indeed a career barrier for non-Whites. The precipitating issue preventing more non-females and people of color from pursuing AT may lie outside the academic arena, or alternatively, sexism and racism may be so deeply imbedded in the field that differences can be difficult to extract. That no difference was found by race or gender on most of the SDT-related subscales may have been due to issues with our limited sample size. Perhaps if our sample was larger and had greater gender and racial/ethnic diversity then more significant differences would have been detected. The study’s finding that financial barriers to education were indeed the greatest barrier for all students could lead to a reexamination, on a global scale, of finances as a factor affecting diversification of the field. The study attempted to look at limited future earnings as a potential career barrier, but the item was not added until later in the data-collection phase and results should be considered

exploratory in nature. Given the amount of schooling and certification required to become a practicing art therapist, the low salary potential for these workers could be an important barrier for students selecting a major or future career and should be examined more closely in future studies.

The study's examination of career and educational barriers was limited in a few ways. The goal of the study was to explore students' perception of these barriers, but how students cope with barriers is also an important element in studying these possible career and academic impediments. Coping efficacy is often examined in conjunction with barriers (Luzzo & McWhirter, 2001), as this efficacy can affect how strongly these barriers exert influence on students' motivations and interest in the field and pursuing graduate studies. While this was not a specific aim, the current study would have been strengthened by including a measure of coping efficacy. The interaction of the participants' various personal identities, such as race/ethnicity, gender and sexual orientation, were also not accounted for in examining these barriers, which could have affected how important individual barriers were perceived by our student sample. For example, Kim & O'Brien (2018) found that race/ethnicity and gender affected the salience of career and educational barriers; they found that Educational Barrier due to Lack of Confidence/Skills was most salient for Asian women. Although the current study lacked the sample size to assess interaction effects of these elements of participants personal identities on the study variables, future studies should attempt to take intersectionality into account when examining these barriers in diverse student samples.

The current study also should have examined students' perceptions of the field's diversity to ensure the sample was aware of the field being mostly White and female. It also looked only at the student side of the academic arena and was limited in its exclusion of examining the

students' perception of racial/ethnic and gender diversity of faculty. The identities of faculty members would surely affect students' perceptions of the field and their place in it. Future studies should more explicitly look at how faculty diversity can affect student motivation and perception of the AT field.

The study was also limited by its cross-sectional nature. Capturing one moment in the academic careers of students runs the risk of missing important events or experiences that may influence students' perception of AT. This study attempted to examine perceptions of AT from students with exposure to the field, but a first-semester freshman arguably has much less exposure than a junior or senior, and the sample was relatively mixed with respect to what point of their college careers respondents were in. This did not seem to affect students in this study, as a quick post-hoc examination of the data revealed no difference in our study variables between upper and lower classmen, though differences in college level could still affect exposure and perception of the field in other ways. The study would be strengthened by a longitudinal design, following up with students over the course of their undergraduate studies to examine if there are changes in their perceptions of the field as they progress academically, and in their motivations based on autonomy, relatedness and competence.

Important to note is that recruitment for this study was conducted during the COVID-19 pandemic, which may have affected overall participation for a variety of reasons. Students were mostly studying virtually in this time and may have been too distracted or busy adjusting to this new mode of learning to be interested in participating. Participants' ability to envision their future career, or their general perception of their futures, may have been difficult in the midst of an unprecedented worldwide pandemic. Recruitment occurred in two separate stages, and this could have affected the geographical distribution of our sample given the regional and temporal

differences in transmission and response to the pandemic. Collecting data in a pandemic may also have affected students' exposure to the field. With less or no time in physical classrooms amongst cohorts, or at relevant internships meeting those working in the field, students' exposure to the current disparities in the field may have been lessened. Finally, the appalling racial/ethnic disparities in rates of infection and mortality for Black/African American and Hispanic/Latino Americans is now well-documented (e.g., Kolata, 2020), and this could have affected the ability of students from these groups to participate in the study.

In terms of practical implications for the study, it appears even more apparent that greater financial resources need to be allocated to financial aid programs for students of color and possible gender non-conforming students as well. Ideally, an expansion of AT programs into more public institutions would also help broaden the reach and reduce the financial barrier preventing the diversification of U.S. art therapists. Lack of identity support appeared to affect interest in the field, and more support through increasing racial/ethnic and gender diversity in faculty and staff could help weaken this barrier. This finding also provides additional support to previous strategies suggested by Awais & Yali (2015), such as engaging students in diversity-focused research, offering more coursework in diversity issues, and a renewed focus on mentorship for students of color. Social support was also salient as a barrier for students of color, and this could be due to a lack of knowledge of the field by their parents, friends and other peers. More use of AT in schools, hospitals and other appropriate arenas could help increase global knowledge and respect for the field, increasing the support these students are lacking from family and friends.

Addressing the barriers of financial concerns and lack of identity and social support for AT students of color will also have downstream effects on field's training and clients. Greater

racial/ethnic and gender diversity in the field could lead to more innovative training methods and techniques, with broader experiences and perspectives fueling new theory and technique development. A more diverse corps of American art therapists could potentially expand the reach and effectiveness of this form of therapy, providing more effective psychological care to a greater number of people in need.

### **Conclusion**

The study attempted to provide more information on the racial/ethnic and gender disparity within the art therapy field. It examined two possible pathways as preventing students of color and non-female students from the broadening of the AT field: intrinsic motivation as measured through the elements of Self-Determination Theory, and external education and career barriers such as finances, support, and discrimination. While the results revealed fewer differences in autonomy, relatedness and competence by gender and race/ethnicity in this student sample, it did confirm the importance of financial support for all students interested in AT. Racial discrimination seems to be more salient as a career, but not educational, barrier for these students. Another important finding was the significant presence of, and differences in psychological need satisfaction and perception of barriers for, students who identify as neither male nor female. In addition, this was the first study to look at artistic ability as a possible barrier for art therapy undergraduate students, finding that this could be a potential area of focus for supporting non-female students to persist in the field. Future studies should look beyond academic exposure as an organizational principle in examining the racial/ethnic and gender disparities in the AT field. Research should continue to examine external barriers like finances or internal barriers related to identity, that may affect motivation for pursuing art therapy as a career

path, as a more diverse body of art therapists will surely strengthen this important mental health field.

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**Table 1**  
*Demographic Details of Participants*

Variable	<i>n</i>	%
Gender		
Female	106	91.4
A gender not listed	7	6.0
Male	3	2.6
Race/Ethnicity		
White	95	81.9
Hispanic/Latino	9	7.8
Asian	6	5.2
Black/African American	5	4.3
American Indian	1	0.9
Sexual Orientation		
Heterosexual or Straight	81	69.8
Lesbian, Gay, Bisexual, or Queer	29	25.0
A sexuality not listed	6	5.2
Marital Status		
Single	88	75.9
Single/not married, but living with a romantic partner	18	15.5
Married/Domestic Partnered	8	6.9
A marital status not listed	2	1.7
Academic Major		
Art Therapy	57	49.1
Psychology	20	17.2
Other	16	13.8
Art Therapy & Psychology	9	7.8
Psychology & Other	8	6.9
Art Therapy & Other	3	2.6
Pre-Art Therapy	3	2.6
Academic Minor		
None Listed	83	71.6
Art Therapy, Pre-Art Therapy or Art Therapy & Other	12	10.3
Psychology or Psychology & Other	11	9.5
Other	10	8.6
College Level		
Freshman	13	11.2
Sophomore	30	25.9
Junior	30	25.9
Senior	43	37.1

College Affiliation	Private	18	72
	Public	7	28
Geographic Location of College in U.S.	Northeast	11	44
	Midwest	10	40
	Southeast	4	16
	West	0	0
Are you living with your parents?	Yes	60	51.7
	No	56	48.3
Personal Income	Zero / No Income	22	19.0
	\$1 - \$19,999	81	69.8
	\$20,000 - \$39,999	6	5.2
	\$60,000 - \$79,999	2	1.7
	More Than \$100,000	1	0.9
Household Income	Less than \$19,999	15	12.9
	\$20,000 - \$39,999	16	13.8
	\$40,000 - \$59,999	19	16.4
	\$60,000 - \$79,999	18	15.5
	\$80,000 - \$99,999	12	10.3
	\$100,000 - \$149,000	17	14.7
	\$150,000 - \$199,999	6	5.2
	More Than \$200,000	5	4.3

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**Table 2***Descriptive Statistics and Normality Parameters for Study Variables*

Variable	N <sup>1</sup>	Mean	SD	Median	Min	Max	Cronbach's $\alpha$	Shapiro-Wilk			Skewness		Kurtosis	
								Statistic	df	Sig.	Statistic	Std. Error	Statistic	Std. Error
Autonomy	115	30.08	4.78	31.00	16.00	39.00	.75	.973	115	.019	-.452	.226	-.028	.447
Relatedness	115	33.06	5.87	34.00	15.00	40.00	.87	.92	115	.000	-.810	.226	.166	.447
Competence	115	30.60	5.42	31.00	15.00	40.00	.82	.98	115	.076	-.254	.226	-.454	.447
CB Gender	116	11.43	4.42	12.00	4.00	20.00	.87	.962	116	.002	.002	.225	-1.025	.446
CB Racial	116	7.24	4.32	5.00	4.00	20.00	.94	.771	116	.000	1.228	.225	.497	.446
CB ChildFam	103	8.81	2.78	9.00	3.00	15.00	.76	.973	103	.034	-.157	.238	-.304	.472
EB Financial	115	10.05	3.32	10.00	3.00	15.00	.73	.954	115	.001	-.246	.226	-.902	.447
EB Support	116	11.66	4.90	10.00	6.00	26.00	.78	.911	116	.000	.879	.225	.103	.446
EB Confidence	115	9.30	3.99	9.00	4.00	19.00	.78	.94	115	.000	.256	.226	-.883	.447
EB Relationships	103	6.87	3.51	5.00	4.00	18.00	.74	.799	103	.000	.939	.238	-.203	.472
EB Gender	116	3.44	1.96	2.00	2.00	10.00	.91	.754	116	.000	1.235	.225	.611	.446
EB Racial	116	2.67	1.47	2.00	2.00	10.00	.95	.529	116	.000	2.520	.225	6.777	.446

*Note.* The Perception of Barriers subscales are the a-priori, pre-factor analysis subscales. CB = Career Barrier due to....; EB = Educational Barrier due to.... Gender = Gender Discrimination, Racial = Racial Discrimination, ChildFam = Children/Future Family; Financial=Financial Concerns; Support = Lack of Support/Interpersonal Problems; Confidence = Lack Confidence/Skills; Relationships = Relationship/Childcare Concerns. 1. Pairwise deletion used on the variables.

**Table 3***Descriptives for Study Variables by Race/Ethnicity & Gender*

Variable	Race/Ethnicity				Gender			
	Black/ African American	Asian	White	Hispanic/ Latino	Female	Male	AGNL	
Autonomy								
	<i>n</i>	5	6	94	9	105	3	7
	<i>Med</i>	33	30.5	30	33	31	25	25
	<i>IQR</i>	4	9.75	7	8.5	6.5	--	12
Relatedness								
	<i>n</i>	5	6	94	9	105	3	7
	<i>Med</i>	38	31.5	34.5	33	35	33	30
	<i>IQR</i>	6	14	9.5	8	9	--	14
Competence								
	<i>n</i>	5	6	95	8	105	3	7
	<i>Med</i>	35	26	31	30.5	31 <sup>a</sup>	26	23 <sup>b</sup>
	<i>IQR</i>	12	10.25	8	7.5	7	--	12
CB Racial								
	<i>n</i>	5	6	95	9	106	3	7
	<i>Med</i>	16 <sup>b</sup>	12.5 <sup>b</sup>	4 <sup>a</sup>	12 <sup>b</sup>	5	4	4
	<i>IQR</i>	10.5	10	4	5	6	--	10
CB Gender								
	<i>n</i>	5	6	95	9	106	3	7
	<i>Med</i>	11	12.5	12	10	12	4	15
	<i>IQR</i>	6	10	7	10	7	--	11

**Table 3 continued**

Variable	Race/Ethnicity				Gender		
	Black/ African American	Asian	White	Hispanic/ Latino	Female	Male	AGNL
CB Children/Family							
<i>n</i>	5	5	84	8	95	3	5
<i>Med</i>	6	8	9	10.5	9 <sup>a</sup>	8 <sup>c</sup>	11 <sup>bd</sup>
<i>IQR</i>	6	5.50	3	5.75	3	--	4
EB SocialSupport							
<i>n</i>	5	6	95	9	106	3	7
<i>Med</i>	4 <sup>a</sup>	7	6 <sup>b</sup>	11 <sup>b</sup>	6 <sup>a</sup>	4 <sup>c</sup>	11 <sup>bd</sup>
<i>IQR</i>	0.5	2.5	6	7.5	6	--	5
EB IDSupport							
<i>n</i>	5	6	95	9	106	3	7
<i>Med</i>	8	10.5	9	10	9	5	15
<i>IQR</i>	2	5.5	6	10	4.5	--	9
EB Confidence							
<i>n</i>	5	6	95	9	106	3	7
<i>Med</i>	3	4	5	8	5 <sup>a</sup>	2 <sup>c</sup>	9 <sup>bd</sup>
<i>IQR</i>	3.5	3.25	4	6	3	--	5
EB Financial							
<i>n</i>	5	6	94	9	106	3	7
<i>Med</i>	8	8	10	11	10	10	13
<i>IQR</i>	4	3.25	5	6.5	5	--	4

*Note.* The Perception of Barriers scales represent the new factor analyzed scales excluding Career Barriers due to Children/Future Family which is an a-priori scale. AGNL = "A Gender Not Listed"; Med = Median; IQR = Inter-quartile Range; Due to small sample size an IQR could not be calculated for the male participants; CB = Career Barrier due to...; EB = Educational Barrier due to...; Gender = Gender Discrimination; Racial = Racial Discrimination; Children/Family = Children/Future Family; SocialSupport = Lack of Social Support; IDSupport = Lack of Identity Support; Confidence = Lack Confidence/Skills; Financial = Financial Concerns.

<sup>a</sup>Group differs statistically significantly from related type (in row) where <sup>b</sup> is indicated.

<sup>b</sup>Group differs statistically significantly from related type (in row) where <sup>d</sup> is indicated.

**Table 4**  
*Dichotomous POB Scale Item Frequencies*

Item	Factor	Yes		No		Missing	
		n	%	n	%	n	%
Money problems are currently a barrier to my educational aspirations.	Educational Barriers Due to Financial Concerns	74	63.8	41	35.3	1	0.9
Having to work while I go to school is currently a barrier to my educational aspirations.	Educational Barriers Due to Financial Concerns	62	53.4	54	46.6	0	0
Lack of financial support is currently a barrier to my educational aspirations.	Educational Barriers Due to Financial Concerns	59	50.9	57	49.1	0	0
Not having enough confidence is currently a barrier to my educational aspirations.	Educational Barriers Due to Lack Confidence/Skills	55	47.4	61	52.6	0	0
In my future career, I will probably be treated differently because of my sex.	Career Barriers Due to Gender Discrimination	53	45.7	63	54.3	0	0
In my future career, I will probably experience negative comments about my sex (such as insults or rude jokes).	Career Barriers Due to Gender Discrimination	53	45.7	63	54.3	0	0
In my future career, I will probably experience discrimination because of my sex.	Career Barriers Due to Gender Discrimination	44	37.9	72	62.1	0	0
In my future career, I will probably have difficulty finding work that allows me to spend time with my family.	Career Barriers Due to Children/Future Family	39	33.6	72	62.1	5	4.3
In my future career, I will probably have difficulty getting time off when my children are sick.	Career Barriers Due to Children/Future Family	38	32.8	65	56.0	13	11.2
In my future career, I will probably have difficulty finding quality daycare for my children.	Career Barriers Due to Children/Future Family	32	27.6	72	62.1	12	10.3
Low salary or limited earning potential will be an issue in my future career	Career Barriers due to Financial Concerns	32	27.6	27	23.3	57	49.1 <sup>a</sup>

**Table 4 continued**

Item	Factor	Yes		No		Missing	
		N	%	N	%	N	%
Family problems are currently a barrier to my educational aspirations.	Educational Barriers Due to Lack of Support/Interpersonal Problems	32	27.6	84	72.4	0	0
In my future career, I will probably have a harder time getting hired than people of the opposite sex.	Career Barriers Due to Gender Discrimination	28	24.1	88	75.9	0	0
In my future career, I will probably experience discrimination because of my racial/ethnic background.	Career Barriers Due to Racial Discrimination	25	21.6	91	78.4	0	0
Lack of role models or mentors is currently a barrier to my educational aspirations.	Educational Barriers Due to Lack of Support/Interpersonal Problems	25	21.6	91	78.4	0	0
Not being prepared enough is currently a barrier to my educational aspirations.	Educational Barriers Due to Lack Confidence/Skills	23	19.8	92	79.3	1	0.9
Not knowing how to study well is currently a barrier to my educational aspirations.	Educational Barriers Due to Lack Confidence/Skills	20	17.2	96	82.8	0	0
Not fitting in at college is currently a barrier to my educational aspirations.	Educational Barriers Due to Lack of Support/Interpersonal Problems	19	16.4	97	83.6	0	0
My desire to have children is currently a barrier to my educational aspirations.	Educational Barriers Due to Relationship/Childcare Concerns	18	15.5	87	75.0	11	9.5
Lack of artistic ability is currently a barrier to my educational aspirations	Educational Barrier due to lack of Artistic Ability	18	15.5	98	84.5	0	0
Relationship concerns are currently a barrier to my educational aspirations.	Educational Barriers Due to Relationship/Childcare Concerns	17	14.7	96	82.8	3	2.6
In my future career, I will probably experience negative comments about my racial/ethnic background (such as insults or rude jokes)	Career Barriers Due to Racial Discrimination	16	13.8	100	86.2	0	0
Not being smart enough is currently a barrier to my educational aspirations.	Educational Barriers Due to Lack Confidence/Skills	14	12.1	102	87.9	0	0

**Table 4 continued**

Item	Factor	Yes		No		Missing	
		N	%	N	%	N	%
In my future career, I will probably be treated differently because of my ethnic/racial background.	Career Barriers Due to Racial Discrimination	11	9.5	105	90.5	0	0
In my future career, I will probably have a harder time getting hired than people of other racial/ethnic backgrounds.	Career Barriers Due to Racial Discrimination	11	9.5	105	90.5	0	0
Negative family attitudes about college are currently a barrier to my educational aspirations.	Educational Barriers Due to Lack of Support/Interpersonal Problems	11	9.5	105	90.5	0	0
People's attitudes about my gender are currently a barrier to my educational aspirations.	Educational Barriers Due to Gender Discrimination	11	9.5	105	90.5	0	0
Lack of support from friends to pursue my educational aspirations is currently a barrier to my educational aspirations.	Educational Barriers Due to Lack of Support/Interpersonal Problems	10	8.6	106	91.4	0	0
Childcare concerns are currently a barrier to my educational aspirations.	Educational Barriers Due to Relationship/Childcare Concerns	10	8.6	94	81.0	12	10.3
Lack of support from teachers is currently a barrier to my educational aspirations.	Educational Barriers Due to Lack of Support/Interpersonal Problems	8	6.9	108	93.1	0	0
Lack of support from my "significant other" to pursue education is currently a barrier to my educational aspirations.	Educational Barriers Due to Relationship/Childcare Concerns	8	6.9	101	87.1	7	6.0
My gender is currently a barrier to my educational aspirations.	Educational Barriers Due to Gender Discrimination	6	5.2	110	94.8	0	0
My ethnic background is currently a barrier to my educational aspirations.	Educational Barriers Due to Racial Discrimination	3	2.6	113	97.4	0	0
People's attitudes about my ethnic background are currently a barrier to my educational aspirations.	Educational Barriers Due to Racial Discrimination	3	2.6	113	97.4	0	0

*Note.* POB = Perception of Barriers

<sup>a</sup>The item for Career Barriers due to Financial Concerns was only offered in the second round of recruitment, therefore only about half of the sample received this item on their survey.

**Table 5***Factor Analysis: Final Subscales, Reliabilities and Item Loadings for POB scale*

Factor/Construct	Factor $\alpha$	Item	Standardized Loading
Career Barriers Due to Racial Discrimination	.94	In my future career, I will probably experience discrimination because of my racial/ethnic background.	.99
		In my future career, I will probably experience negative comments about my racial/ethnic background (such as insults or rude jokes)	.95
		In my future career, I will probably have a harder time getting hired than people of other racial/ethnic backgrounds.	.92
		In my future career, I will probably be treated differently because of my ethnic/racial background.	.87
		My ethnic background is currently a barrier to my educational aspirations.	.52 <sup>a</sup>
		People's attitudes about my ethnic background are currently a barrier to my educational aspirations.	.43 <sup>a</sup>
		Career Barriers Due to Gender Discrimination	.87
In my future career, I will probably experience negative comments about my sex (such as insults or rude jokes).	.90		
In my future career, I will probably be treated differently because of my sex.	.88		
In my future career, I will probably have a harder time getting hired than people of the opposite sex.	.75		
Educational Barriers Due to Lack of Social Support	.79		
		Lack of support from teachers is currently a barrier to my educational aspirations.	.74
		Not fitting in at college is currently a barrier to my educational aspirations.	.63
		Lack of role models or mentors is currently a barrier to my educational aspirations.	.54
		My ethnic background is currently a barrier to my educational aspirations.	.46 <sup>a</sup>
		Not being prepared enough is currently a barrier to my educational aspirations.	.45 <sup>a</sup>
		People's attitudes about my ethnic background are currently a barrier to my educational aspirations.	.51 <sup>a</sup>

Table 5 continued

Factor/Construct	Factor $\alpha$	Item	Standardized Loading
Educational Barriers Due to Lack of Identity Support	.79	Negative family attitudes about college are currently a barrier to my educational aspirations.	.78
		People's attitudes about my gender are currently a barrier to my educational aspirations.	.70
		Lack of artistic ability is currently a barrier to my educational aspirations	.67
		My gender is currently a barrier to my educational aspirations.	.66
		Family problems are currently a barrier to my educational aspirations.	.56
		Not being smart enough is currently a barrier to my educational aspirations.	.53 <sup>a</sup>
Educational Barriers Due to Lack Confidence / Skills	.71	Not having enough confidence is currently a barrier to my educational aspirations.	.79
		Not knowing how to study well is currently a barrier to my educational aspirations.	.78
		Not being smart enough is currently a barrier to my educational aspirations.	.58 <sup>a</sup>
		Not being prepared enough is currently a barrier to my educational aspirations.	.55 <sup>a</sup>
		Family problems are currently a barrier to my educational aspirations.	.33 <sup>a</sup>
Educational Barriers Due to Financial Concerns	.74	Money problems are currently a barrier to my educational aspirations.	.92
		Lack of financial support is currently a barrier to my educational aspirations.	.89
		Having to work while I go to school is currently a barrier to my educational aspirations.	.47
		Family problems are currently a barrier to my educational aspirations.	.31 <sup>a</sup>

*Note.* Principle components analysis with oblique rotation; POB = Perception of Barriers

<sup>a</sup>Removed due to cross-loading and not satisfying factor loading criteria, hence may appear more than once in the table.