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CAN UNDERDOG STORIES HELP STUDENTS TO OVERCOME COLLEGE BARRIERS?  
A STUDY ON GENDER AND ETHNIC DIFFERENCES

by

Daniela Gonzalez  
B.S. University of Central Florida, 2021

A thesis submitted in partial fulfillment of the requirements  
for the Honors in the Major Program in Psychology  
in the College of Sciences  
and in the Burnett Honors College

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Major Professor: Alvin Wang

## **ABSTRACT**

Previous organizational research has shown that people who perceived discrimination can bounce back from their negative experiences by constructing underdog stories: narratives in which others do not believe an individual could succeed, but in the end, the person succeeds. However, this concept has not been tested in the educational setting. Therefore, the objective of this study was to determine if constructing underdog stories can influence how college students perceive potential barriers in education. Participants were randomly assigned conditions: Underdog and control (neutral stories) condition. We hypothesized that creating underdog stories would reduce perceived barriers in college. We further hypothesized that creating “neutral” control stories, narratives where people do not have to overcome any challenges, will not affect perceived barriers in college. These hypotheses were tested by comparing participants’ underdog story reflections and the control group’s story reflections. McWhirter’s Perceived Barriers Scale (1992), a commonly instrument used in perceived college barriers and education studies, was used to establish and analyze participants’ perceived barriers in education.

## **ACKNOWLEDGMENTS**

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## INTRODUCTION

Albert Bandura's Social Cognitive Theory (1986) offered a new approach to study different aspects of people's goals, self-efficacy, and career choices. This theory proposes that cognitive processes and social context are significant influences on learning and behavior (Mejia and Gushue, 2017). Social Cognitive Career Theory (SCCT) was developed as an extension of Bandura's original work. Using SSCT, Lent, Brown, and Hackett (1994) studied the processes and reasons why people make their career choices. They concluded that career choices were based on three main factors: 1) the formation and elaboration of career-relevant interests; 2) the selection of academic and career choice options; 3) performance and persistence in educational and occupational pursuits. They also emphasized that personal factors as well as environmental factors can affect people's career choices. One significant factor are the perceived barriers in education that can affect people's career goals; particularly for women and students from underrepresented populations (McWhirter, 1997).

Perceived career barriers in education are defined as undesirable obstacles that individuals identify will interfere to achieve their career goals (Mejia and Gushue, 2017). Examples of perceived barriers in education can be gender, ethnicity, low Social Economic Status, previous experiences with discrimination, and lack of a support system. It has also been reported that career-related barriers in education are more likely to be perceived among women and ethnic minorities (Luzzo and McWhirter, 2001).

McWhirter (1997) reported that women were more likely to anticipate the perception of sex discrimination than men did. Women are also more likely to expect and perceived more



negative comments and get less hired often than men (Luzzo and McWhirter, 2001). Similarly, Watts, Frame, Moffett, Van Hein, and Hein (2015) found that older women perceived more career barriers in education than men respect sex discrimination.

Research has shown that women are less motivated to pursue nontraditional careers in education than males, and this idea is associated with low self-efficacy. Lent and his colleagues (1994) defined self-efficacy as people's judgments about their capacities to perform certain activities or tasks; as a consequence, perceived barriers in education can decrease one's self-efficacy. Betz and Hackett (1981) observed sex differences in self-efficacy. In their study, men reported equal overall self-efficacy in both traditional female occupations like social work and dental hygienist and nontraditional female occupations like mathematicians and engineers. In contrast, women only reported higher self-efficacy in traditionally female occupations.

Additionally, Betz and colleagues suggest that potential reasons why women develop lower self-expectations in nontraditional female careers might be due to the lack of support systems such as encouragement from teachers and parents, and positive role. This observation is consistent with Fouad, Hackett, Smith, Kantamneni, Fitzpatrick, Hagg, and Spencer's (2010) research showing that when teachers expect women to do well in science and math, they tend to perform better in these classes.

Low self-efficacy and high perceived career barriers in education are also associated with stereotype threats about women in cognitive and academic domains. For Steele (1997, p. 614) stereotype threats occur “when one is in a situation or doing something for which a negative stereotype about one's group applies.” Steele also mentions that stereotype threat affects self-confidence and identity in schooling. This concept is related to a higher perception

of career barriers in education for women because some stereotypes view men as better in STEM (Science, Technology, Engineering, and Mathematics) courses or math classes than women. When women internalized those stereotypes, it can decrease their performance in these subjects, becoming an internal career barrier in.

Research has shown that women perceived gender career barriers in education across different cultures. For example, Holloway (2018) states that Latinas reported greater concerns and more perceptions of discrimination than Latino males. Asian American women are more likely to perceived experiences of racial and gender barriers in education than men (Chen and Fouad, 2013). In general, regardless of ethnicity women are more likely than men to anticipate and perceive educational and career barriers in the future (McWhirter, 1977)

For this study we are focusing on ethnicity instead of race. According to the Office of Civil Rights from the United States Department of Interior (n.d.), the five categories of race in the United States are: American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, Black or African American, and White. Additionally, there are two types of ethnicities which are Hispanic or Latino, and Not Hispanic or Latino.

It is important to emphasize that race is different from ethnicity. Race mainly focuses on the individual's external characteristics such as skin color, facial features, or height, for example. On the other hand, ethnicity focuses on the cultural values and traditions that the person possess. Consequently, some people might identify themselves as "white" when it comes to race. However, it does not mean that the person is Caucasian or originally from Europe, but Hispanic or Latino. In the same way, a person can identify themselves as black as their race; nevertheless, they can identify their ethnicity as Hispanic or Latino.

After understanding the differences between race and ethnicity, it is essential to define what ethnic minority means in our study. According to the Office of Surgeon General and the United States Public Health Service and (2001), the term minority refers to the ethnic and race groups that are limited in economic and social resources as well as political power. However, it does not mean that they are inferior to any other ethnic or race group or in demographic size.

Additionally, the Office of the Surgeon General (2001) defined that the four racial and ethnic minorities in the United States (African Americans, American Indians and Alaska Natives, Asian Americans and Pacific Islanders, and Hispanic Americans) represent about the 30% of the United States in 2000. Based on this information, in our study, we categorized our participants ethnicity following the definitions provided by the Surgeon General.

After the previous information, it is important to highlight that another significant factor in perceived career barriers in education is ethnicity. According to the American Association of University of Women (1992), all girls experience more barrier career barriers than men. Moreover, minority girls faced more challenges not only associated with sexism, but also with racism. African American women expect and perceived more career barriers than either their White or Hispanic colleagues (Lopez and Ann-Yi 2006). This finding was supported in a recent study (Kim and O'Brien, 2018), reporting that women of color were more likely to perceive more career barriers due to racism and more educational barriers due to racial discrimination than Caucasian women. However, it is important to highlight that in the same study women of any racial group reported more perceived educational barriers than men. Moreover, men of color reported more perceived educational barriers than Caucasian men.

Ethnic minority students were more likely than European American students to perceived career-related barriers associated with their ethnicities, such as negative comments about their ethnicity, background, and financial difficulties (Luzzo et al., 2001)

A study conducted by Constantine and Kindaichi (2005) revealed that African American adolescents who perceived greater career barriers in education tended to report higher degrees of career indecision, which can also become a perceived barrier. Additionally, Hall, Nishina, and Lewis (2017) highlight that ethnic discrimination was a clear and consistent perceived barrier that was found in their study across ethnic minority students majoring in STEM. In fact, students who perceived discrimination and previously experienced discrimination were more likely to rate themselves lower on math and other academic skills. This suggests that perceived careers in education and perceived experiences with discrimination decrease minority student's self-efficacy which can become an educational barrier for students to accomplish their academic goals. Grossman and Porche (2014) observed that girls and underrepresented minorities were more likely to identify microassaults and microinsults than Caucasian boys. However, when they have a support system like family and professors, they are more likely to believe that they will overcome potential perceived barriers in education.

Low Social Economic Status (SES) is another educational barrier perceived by many students, especially minorities. Turner, Sims, Dade, and Reid (2019) reported that low SES students have less access to STEM classes and career counseling, which can reduce their opportunity to explore different careers and educational options. Also, higher SES students

received more support from parents while lower SES background students reported a greater perception of barriers in education in their STEM career development.

It is important to note that perceived career barriers in education are associated with perceived prior discrimination. Perceived prior discrimination is defined as perceiving differential and unfair treatment in the past due to a group membership, including, but not limited to, race and gender (Major, Quinton, and McCoy, 2002) There is extensive research revealed that perception of prior experiences with discrimination can affect people mental and physical health. For example, perception of discrimination is related to greater negative psychological responses that increase unhealthy behaviors that lead to increases in blood pressure (Pascoe and Smart Richman, 2009) It can also affect people self- confidence and self-esteem (Schmitt, Branscombe, Postmes, and Garcia, 2014).

Previous research about perceived career barriers in education has significantly contributed to a better understanding of obstacles in one's academic journey. It also raises the question of whether individuals can overcome present and future career barriers by reflecting on previous experiences with discrimination. For instance, there is evidence that pessimistic people are less likely to be affected by prior experiences with discrimination than optimistic people (Kaiser, Major, and McCoy 2004). Surprisingly, a study conducted by Sherman, Hartson, Binning, Purdie-Vaughns, Garcia, Taborsky-Barba, and Cohen (2013) with high school students has shown that affirmations can change the psychological experiences people have and change how people construe threats over time and perceived their environment. Affirmations are defined as positive messages of self- worth and value that can help people remind that they have great qualities and are capable of amazing things in life. Thus, positive

affirmations can be very beneficial for minority students' striving to overcome that perceived career and educational barriers.

Other researchers have shown that individuals who use expressive writing to describe their emotions and thoughts reported significantly higher psychological well-being (Barclay and Skarlicki, 2009.) A recent study was done by Nurmohamed (2021) has revealed that job seekers who experienced perceived prior discrimination and constructed "successful" underdog stories are more likely to rebound from experiences with discrimination and perform better than people who constructed other kinds of stories. Nurmohamed (2014) defines underdog as an individual or group of individuals who are viewed as less likely to succeed and more likely to lose relative to others. Based on the previous definition, underdog stories are those where others have low expectations about an individual or did not believe that an individual could succeed, but in the end, the person is able to succeed.

Nurmohamed findings on the relationship of constructing underdog stories and overcoming perceived prior discrimination have only been tested in the business field and not in education. The present study differs from previous research because it combines underdog stories and the perceived barrier scale ( McWhirter, 1992) using college students. This scale is well known and commonly used in perceived career and educational research to measure students' perceptions of potential career barriers. Nevertheless, it has never been paired with the underdog theory before until now. This research will contribute to the academic field, especially the perceived career barrier theory, by studying the relationship between underdog stories and it might help college students to be more confident and optimistic when overcoming perceived educational barriers. This research is focused on providing a better

theatrical understanding of how students, especially minority students and women, perceived those potential barriers. Additionally, this study seeks to provide applied techniques such as constructing underdog stories to decrease the perception of potential perceived barriers in education which can be used by career and academic advisors and educators to motivate students to overcome potential challenges that affect their academic journey if these findings are supported by the data collected.

Based on the previous information, the primary purpose of this study is to determine if developing and constructing successful underdog stories can influence potential perceived career barriers in college students.

Hypothesis 1: Students who reflect about their own underdog stories will perceive less perceived career barriers compared to students who write and reflect about generic stories (i.e., students will be more optimistic about overcoming perceived barriers in education after they construct underdog stories). Nurmohamed (2021) found that people who developed underdog stories were more motivated to find jobs and performed better than those who did not write that kind of story. It raises the question if underdog stories can also have similar effects in college students and how they perceive career barriers in education after reflecting on previous challenges they faced.

Hypothesis 2: There will be gender differences between men and women when constructing underdog stories. Previous studies have found that women are more likely to perceive career barriers in education experiences than men (McWhirter, 1997). By introducing this manipulation of creating underdog stories, female participants will be more likely to show higher levels of positivity compared to their male counterparts. Gender differences expected in

the study will be assessed by using the perceived barrier scale (McWhirter, 1992).

Specifically, we expect to find these gender differences in the perceived sex discrimination section which contains four questions such as “in my future job, I will be treated differently because of my sex.”.

Hypothesis 3: Minority students will be more likely to perceive less potential career barriers after developing underdog stories than those who did not develop underdog stories. A final factor that is expected to be observed from this research is the role of ethnicity and race on one’s perception of career barriers. Luzzo and McWhirter (2001) stated that ethnic minority students perceived more career-related barriers associated with their ethnicity than Caucasian students. After constructing underdog stories, minority students will be more likely to be more positive and motivate to overcome career barriers than minority students who develop general stories about their lives.

Hypothesis 4: There will be expected differences between Caucasian and minority students in the perception of economic resources as a perceived barrier in education. Minority students who construct underdog stories will be more likely to perceive less economic and family problems as potential perceived barriers in education than Caucasians that construct underdog stories. Expected differences in the study will be assessed by using the perceived barrier scale (McWhirter, 1992), specifically the perceived barriers to attending college section which contains four questions such as “If I didn’t go to college, it would be because of money problems” for example. This hypothesis is based on previous research that shows that minority students such as Latinos perceived fewer economic resources than Caucasian students. McWhirter, Torres, Salgado, and Valdez (2007) reported that the perception of higher economic



barriers might be a result of students constantly hearing their parents talking about their financial challenges and concerns. By introducing the manipulation of developing underdog stories, minority students will be less likely than Caucasian students to perceive more economic and family barriers.

## METHODS

**Participants:** A total of 51 students participated in this study. Participants were at least 18 years old in order to participate. They were recruited from two large public universities in the Southeastern United States through the psychology department's on-line recruitment websites. Flyers were created with the link of study, and it was shared with some faculty professors from general psychology classes and developmental psychology classes and majors to promote more diverse participants. All participants will be awarded 1 credit point for their participation toward course requirements.

The average age of the participants was 20 years old. Twenty-five students identify themselves as women and 21 men. One participant self-identified as "non-binary." Thirty-one students identified themselves as white while eighteen students identified themselves as members of an underrepresented group.

### Materials

**Demographic scale:** A background questionnaire were added to the survey to collect basic demographic information about the participants. Some of the demographic questions include age, gender, major, ethnicity, and previous and current employment status. This scale is included in Appendix A.

**Creating and recording underdog stories:** Participants were asked to develop and record underdog stories based on the prompt used by Nurmohamed (2021). The prompt was "Please describe your underdog story below of when other people doubted your chances of succeeding,

but you thought you could succeed. Think carefully about the details surrounding your underdog story, including what happened when you were seen as an underdog, the characters involved, and what ended up happening” Additionally, audio- recording participant’s stories is a significant part for this study due that research has shown that alternatives forms of communication like video and recording facilitate one’s better communication of their emotions, thoughts, and tones (Vaara and Boje, 2016) It is also more memorable and impactful for to study participants (Nurmohamed, 2021)

**Creating and recording control group stories:** Participants were asked to develop and record general stories based on the prompt used by Nurmohamed (2021) such as “We want you to think about a story from your life. In other words, we want you to think of a situation in your life and tell us a story about it.”

**Reflection on the story –Underdog Group:** After participants had developed their underdog stories, they were asked to reflect on their stories. Underdog condition participants were asked: “Now with your underdog story in mind, what does this mean for who you are as a college student and future job searcher after graduation? This question was based on the prompt used by Nurmohamed (2021), “Now with your underdog story in mind, what does this mean for who you are as a job seeker and your job search moving forward?” but was slightly modified for this study.

**Reflection on the story –Control Group:** After participants had developed their control stories, they were asked to reflect on their stories. Control condition participants were asked: “Now with your story in mind, what does this mean for who you are as a college student and future job

searcher after graduation? This question was based on the prompt used by Nurmohamed (2021), “Now with your story in mind, what does this mean for who you are as a job seeker and your job search moving forward?”, but it was modified for this study purpose and interests.

**Perceived barriers:** This scale developed by McWhirter (1992) was created to measure students’ perceptions of potential career barriers, and it is commonly used in perceived career education studies. The scale has 24 questions with a Cronbach’s alpha (reliability) of .87 (McWhirter, 1997.) The items in the scale are designed to assess perceived sex discrimination, perceived ethnic discrimination, perceived barriers to attending college, perceived barriers anticipated in college, and general perception barriers. All items are rated on a 5-point Likert-type scale consisted of *Strongly Agree* (1 point, *Agree* (2 points), *Unsure* (3 points), *Disagree* (4 points), *Strongly Disagree* (5 points.) The inventory is included in Appendix B.

**Underdog and Control Coding Prompt:** Inter-judge reliability for each story were assessed by using a story prompt develop by Nurmohamed and colleagues (2021); however, some criteria slightly changed to accommodate this research interests with the prompt. The stories were blind coded to avoid bias. Coders listened and read to each audio-record story and subjectively transformed the qualitative data to quantitative by selecting a number from one to five that will fit the content of each story with the underdog and general elements. When the coders determined that a story does not fit with any of the story options, that story was not used in the study. Finally, Inter-judge reliability will be established by calculating the average deviation for each story type, underdog stories, and general stories. This coding prompt is included in Appendix C.

## **Design**

Differences in perceived barriers in education in this study were assessed using a Multivariate ANalysis Of Variance (MANOVA) procedure. Missing data of any of the participants will be excluded from the analysis performed in the study. The MANOVA procedure consist of a mix of between subject and within-subject designs. First, the subject design consisted in 2(race) x 2 (gender) x 2 (stories). The two races that were analyzed are minority students and Caucasian students. The two genders that will be use for the study are men and females. The two stories and independent variables which will be controlled in this study are the underdog stories and general stories. Additionally, the MANOVA procedure will have a within-subject section. In this procedure the five conditions established in the perceived barriers scale created by McWhirter in 1992 will be calculated. The five conditions are the following (1) perceived sex discrimination, (2) perceived ethnic discrimination, (3) perceived barriers to attending college, (4) perceived barriers anticipated in college, and (5) general perception barriers.

The data will be subjected to a mixed-design 2 (Race) x 2 (Gender) x 2 (Story) x 5 (McWhirter Subscales) MANOVA with the 5 McWhirter Subscales treated as the within-subjects factor.

## **Outcomes**

We measured five different outcomes using the perceived barriers in education scale (McWhirter, 1997). The five outcomes in the scale that were assessed were: perceived sex discrimination, perceived ethnic discrimination, perceived barriers to attending college,

perceived barriers anticipated in college, and general perception barriers. All scale were rated on a 5-point Likert-type scale consisted from “Strongly Agree = 1 to “Strongly Disagree = 5”.

*Perceived sex discrimination:* This outcome was assessed by using the first four items of the scale, which included the following prompt: “In my future job, I will probably: Be treated differently because of my sex, experience negative comments about my sex (such as insults or rude jokes), have a harder time getting hired than people of the opposite sex, and experience discrimination because of my sex.”

*Perceived ethnic discrimination:* Perceived ethnic discrimination outcome was assessed by using four items in the McWhirter scale which included the following prompt: “In my future job, I will probably: Be treated differently because of my ethnic/racial background, experience negative comments about my racial/ethnic background (such as insults or rude jokes), have a harder time getting hired than people of other racial/ethnic backgrounds, and experience discrimination because of my ethnic/racial background.”

*Perceived barriers to attending college:* This outcome was analyzed by using nine items in the McWhirter scale which included the following prompt: “If I didn’t go to college, it would be because of: Money problems, family problems, not being smart enough, family attitudes about college, I wouldn’t fit it, I couldn’t get into college, having a good job already, lack of interest, and it wouldn’t help my future.”

*Perceived barriers anticipated in college:* To measure this outcome, we used five items in the McWhirter scale which included the following prompt: “If I do go to college, I will

probably experience: 'money problems, family problems, negative family attitude, not being smart enough, not fitting in with others.'

*General perception barriers:* The last outcome was determined by using two items from the McWhirter scale that included the following prompt: "In general, I think that: There are many barriers that will make it difficult for me to achieve my career goals and I will be able to overcome any barriers that stand in the way of achieving my career goals."

## **Procedure**

Participants were informed that they were going to participate in a research project regarding education. They were able to complete the on-line survey from any computer with internet and microphone during the time the study will be available. The participants were instructed of the general purpose and procedure of the study, and asked if they were comfortable participating in the study. They were instructed to indicate consent by clicking "agree" before the experiment begins. As the experiment began, participants were randomly assigned by Qualtrics to one of the two conditions: control stories or underdog stories. They were instructed to take as much time as needed to create and record their stories. Once they finished recording their story, participants were asked to reflect on the story they created. Once participants have had been primed with these thoughts, they were given the perceived barriers scale. Finally, participants answered some demographic questions. In total, the experiment took about 25 minutes to complete.

## DATA ANALYSIS AND RESULTS

Two blind raters read the stories written by the participants to analyze data in order to avoid bias while rating the stories. Additionally, a manipulation rating scale was used to analyze and code the students based on specific criteria. The inner-reliability degree for underdog stories were 80.39%. On the other hand, for control or general stories, the inner-reliability percentage was 82.35%.

To test our first hypothesis, we conducted a One-way ANOVA design. For this analysis, we use the condition of the stories that were randomly assigned to the participants as the independent variable. Underdog stories were coded as number one (1) while control stories were coded as number two (2). The perceived barriers of education scale (McWhirter, 1997) was used as the dependent variable. In the analysis. We first hypothesized that students who reflected about their own underdog stories in the underdog condition will perceive less perceived career barriers compared to students who write and reflect about generic stories based on Nurmohamed's founding's (2021) on underdog stories.

There was a total of fifty-one participants and fifty-one stories that were analyzed. From those stories, thirty-three participants were randomly assigned to the underdog condition while eighteen participants in the control or general stories condition. Based on the analysis, no significance relationship was found between writing underdogs stories and control stories to overcome perceived barriers in education in ethnic discrimination [ $F(1,49) = 1.026, p = 0.316$ ], prevent college barriers [ $F(1,49) = 1.797, p = 0.186$ ], perceived barriers during college [ $F(1,49) = 2.031, p = 0.160$ ], or in general perceived barriers [ $F(1,49) = 0.034, p = 0.853$ ]. However, in



the perceived sex discrimination, it was found that participants who wrote underdog stories perceived more barriers in sex discrimination than participants who wrote control stories which is lead us to reject hypothesis one. The relationship between underdog stories and perceived sex discrimination was strongly significant with a mean = 2.92 compare to the mean = 3.69 for control stories [ $F(1,49) = 5.392, p = 0.024$ ] as shown in Figure 1.

Figure 1. Stories' Differences in Perceived Sex Discrimination

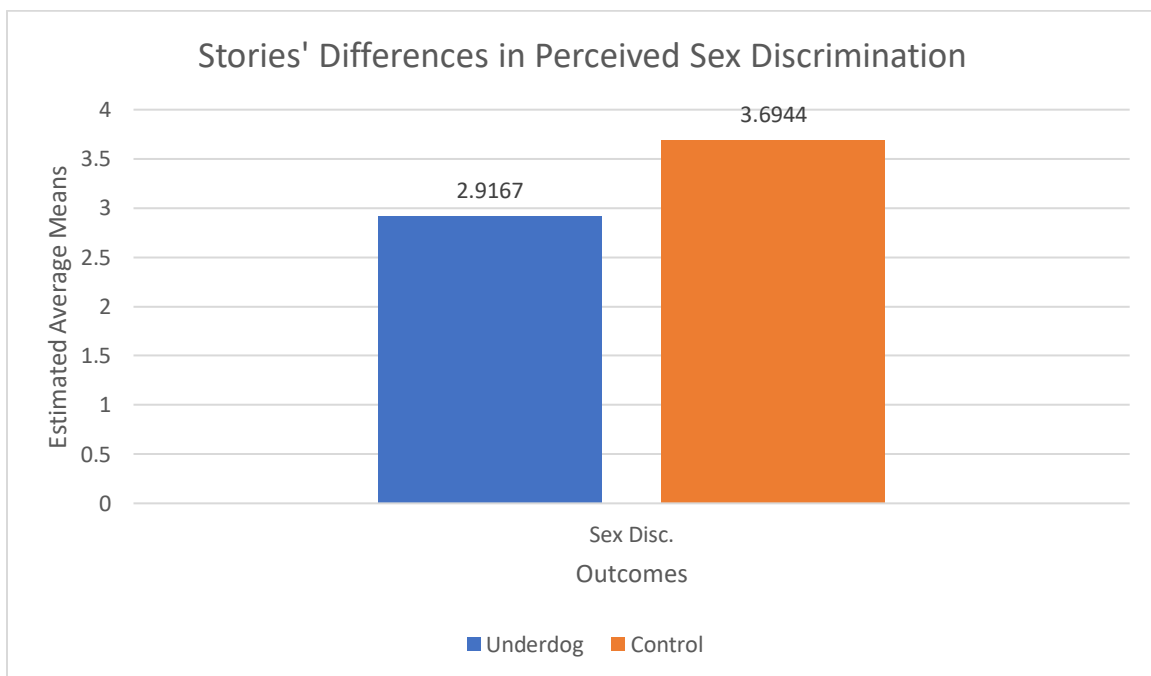


Table 1 Conditions and Outcomes

Outcome	Condition	Number of Participants (N)	Mean	Std. Deviation	Frequency	Significance
Sex Discrimination	Underdog	33	2.9167	1.06739		
	Control	18	3.6944	1.27347		
Sex discrimination					5.392	0.024

<b>between groups</b>						
<b>Ethnic Discrimination</b>	Underdog	33	3.2273	1.11166		
	Control	18	3.5833	1.35038		
<b>Ethnic discrimination between groups</b>					1.026	0.316
<b>Prevent College</b>	Underdog	33	3.7744	.58233		
	Control	18	3.5309	.68552		
<b>Prevent College between groups</b>					1.797	0.186
<b>During College</b>	Underdog	33	3.2364	.84181		
	Control	18	3.6000	.92291		
<b>During college between groups</b>					2.031	0.160
<b>General Perceptions</b>	Underdog	33	2.3485	.70139		
	Control	18	2.3889	.81449		
<b>General Perceptions between groups</b>					.034	0.853

Hypothesis 2 proposes that there will be gender differences between men and women when constructing underdog stories. A One-way ANOVA design was conducted where the

story conditions were used as the independent variable and the McWhirter, 1997 scale as the dependent variables. Additionally, gender was used as a second factor in the analysis. The ANOVA revealed a strong and significant difference between men and women who wrote underdog and control stories in the perceived sex discrimination outcome where women perceived more sex discrimination than men. The mean calculated for women that was 2.38 while for men that the mean was 4.04, [ $F(2,48) = 23.74, p < .01$ ] as shown in Figure 2. This data partially supported hypothesis two.

Another important relationship was found was between the ethnic discrimination outcome and gender. In the analysis, women perceived more ethnic barriers in both conditions than men which shows that there are gender differences when men and woman write underdog stories and control stories. The mean = 2.96 for women while the mean for men= 3.74. These results were found with a marginal  $p$  value of 0.68, [ $F(2,48) = 2.84, p = 0.06$ ] as shown in Figure 2.

Moreover, a marginal relationship between general perceptions of barriers and gender was found in the study. Women reported a higher perception of general barriers with a mean of 2.14 while the mean for men was = 2.60. These results were found with a marginal  $p$  value of 0.07, [ $F(2,48) = 2.74, p = 0.07$ ] as shown in Figure 2. This data led us to partially support our hypothesis that there are gender differences between men and women when constructing underdog stories. However, no gender differences between men and women were found for overcoming perceived barriers. Additionally, there was not significant relationship between gender and overcoming barriers in education by writing underdog stories. Consequently, those factors lead us to partially support our hypothesis.

Figure 2. Gender Differences in Perceived Barriers in Education

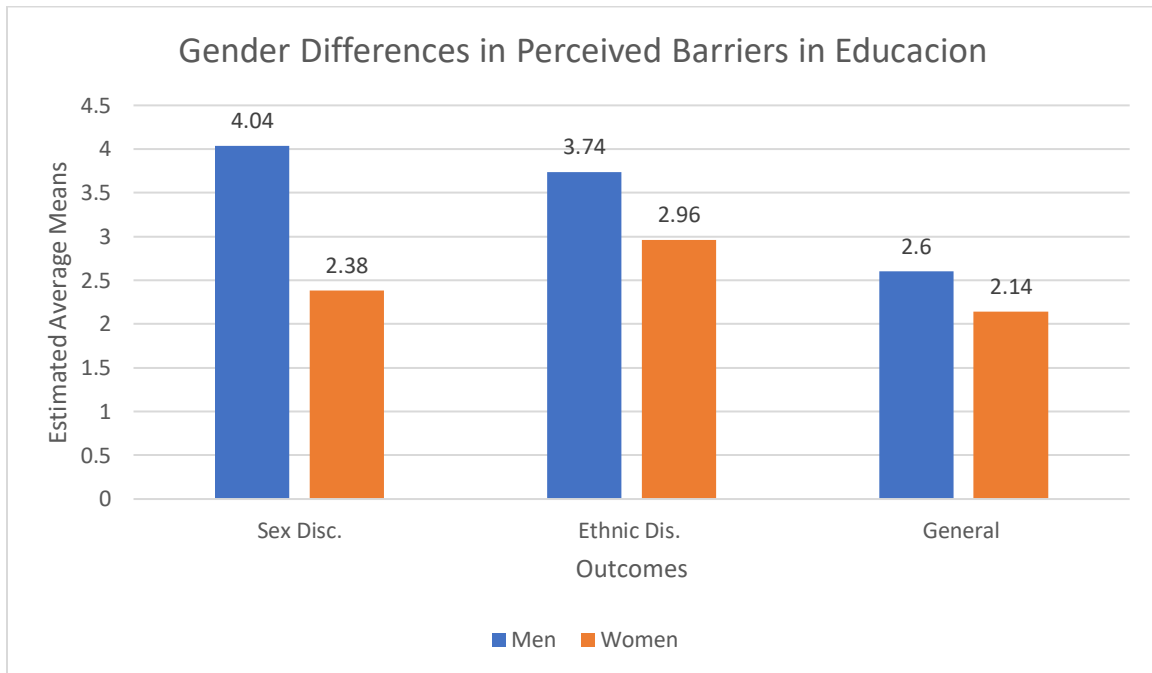


Table 2. Gender and Perceived Barriers in Education

Outcome	Gender	Number of Participants (N)	Mean	Std. Deviation	Frequency	Significance
<b>Sex Discrimination</b>	Men	25	4.0400	.75236		
	Women	25	2.3800	.96047		
	Non-binary	1	2.2500			
<b>Sex discrimination between groups</b>					23.747	0.000
<b>Ethnic Discrimination</b>	Men	25	3.7400	1.18251		
	Women	25	2.9600	1.13349		
	Non-Binary	1	3.5000			

<b>Ethnic discrimination between groups</b>			2.843	0.068
<b>Prevent College</b>	Men	25	3.6756	.57460
	Woman	25	3.6578	.65806
	Non-binary	1	4.7778	.65806
<b>Prevent College between groups</b>			1.591	0.214
<b>During College</b>	Men	25	3.4640	.88829
	Woman	25	3.2880	.89084
	Non-binary	1	2.8000	
<b>During college between groups</b>			.450	0.640
<b>General Perceptions</b>	Men	25	2.6000	.87973
	Women	25	2.1400	.58666
	Other	1	2.000	
<b>General Perceptions between groups</b>			2.749	0.074

Hypothesis 3: In order to analyze the third hypothesis, we used a 2 (Conditions) x 4 (Perceived ethnic discrimination outcomes) x 2 (Ethnicity) MANOVA.

Hypothesis 3 posits that minority students will be more likely to perceive less potential career barriers in education after developing underdog stories than participants who did not

develop underdog stories. However, no significance relationship was found between minority students writing underdogs stories and overcoming perceived barriers in education in the ethnic discrimination outcome. Minority students in the underdog category has a calculated mean of 2.75,  $SD = 1.048$  while minority students in the control group had a mean of 3.10,  $SD= 1.51$ . This data led us to reject our hypothesis that minority students that write underdog stories can perceive fewer barriers in education than those who write general or control  $p$  value of .54, [ $F(1,48) = .38, p = 0.54$ ]. Similar results were found for Caucasian participants in the underdog story, no relationship was found between writing underdog stories and perceived ethnic barriers with a mean of 3.4643, ( $M= 3.4643, SD= 1.11323$ ) for underdog stories and 3.7750,  $SD = 1.21$  for control stories, as shown in Table 3, [ $F(1,48) = .382, p = 0.540$ ].

Table 3. Conditions and Ethnicities

Condition	Ethnicity	Number	Mean	Std. Derivation	Frequency	Significance
Underdog	Minority	11	2.7500	1.04881		
Control	Minority	7	3.1071	1.51971		
Underdog	Caucasian	21	3.4643	1.11323		
Control	Caucasian	10	3.7750	1.21020		
Condition between group					.382	0.540

Hypothesis 4 predicted that there will be differences between Caucasian and minority students in the perception of economic resources as a perceived barrier in education. Minority students who construct underdog stories will be more likely to perceived less economic and

family problems as potential perceived barriers in education than Caucasians who construct underdog stories. To test this hypothesis, a 2 (Condition) x 2 (Outcomes (Prevent College - Perceived Barriers to Attending College and During College - Perceived Barriers Anticipated in College) x 2 (Ethnicity) MANOVA design was used.

No significant differences between Caucasian and minority students were found in the perception of economic resources as a perceived barrier in education when writing underdog stories. The results shows that Caucasian students have a calculated mean  $M = 3.73$ ,  $SD = .57$  in the items of Prevent College - Perceived Barriers to Attending College outcomes. On the contrary, minority students reported to perceived less economic barriers in the Prevent College - Perceived Barriers to Attending College outcomes with  $M = 3.82$ ,  $SD = .63$  as shown in Figure 3. These differences were not significant [ $F(1,48) = 0.92$ ,  $p = 0.3$ ].

Additionally, on the second item outcome that was being determined which was During College - Perceived Barriers Anticipated in College, there were not significant differences in economic barriers for Caucasian students with  $M = 3.17$ ,  $SD = .78$ , and minority students with  $M = 3.41$ ,  $SD = .96$ , [ $F(1,48) = .125$ ,  $p = 0.725$ ] as shown in Table 4 and figure 3.

Figure 3. Perceived Economic Barriers Based on Ethnicity

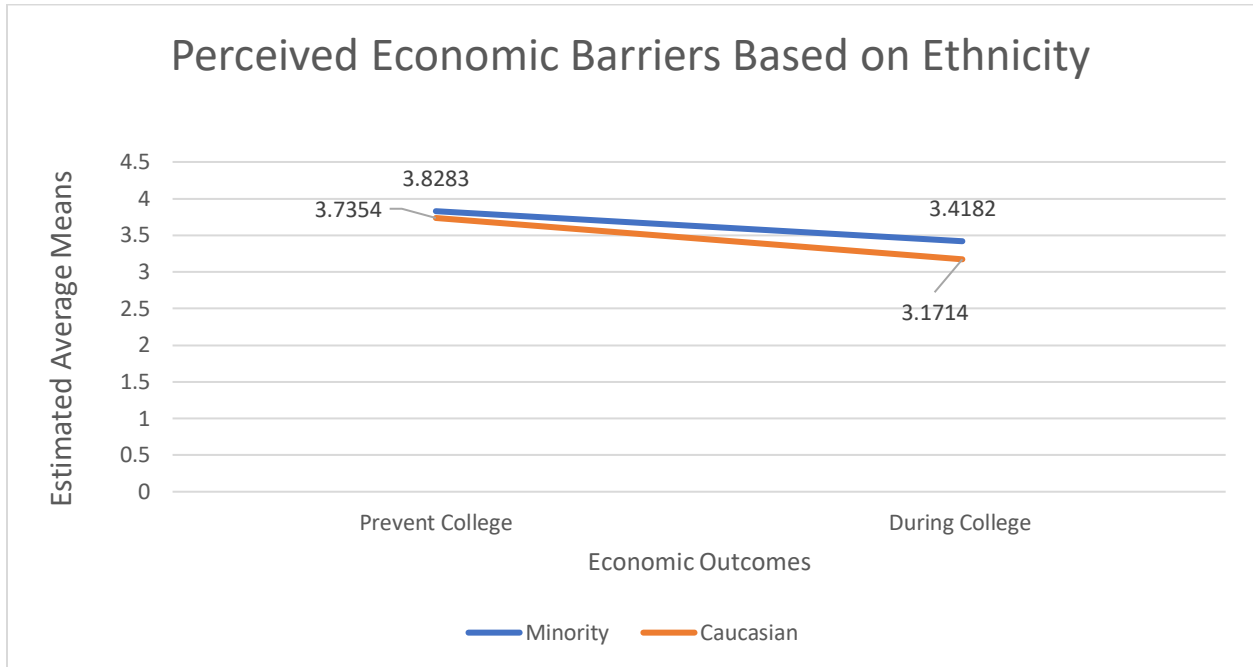


Table 4. Perceived Economic Barriers and Ethnicity

Condition	Ethnicity	Number	Mean	Std. Derivation	Frequency	Significance
<b>Prevent Underdog</b>	Minority		3.8283	.63705		
	Caucasian		3.7354	.57786		
<b>Condition between group</b>					0.929	0.341
<b>During Underdog</b>	Minority		3.4182	.96935		
	Caucasian		3.1714	.78813		
<b>Condition between group</b>					0.125	0.725



Additionally, no significant relationship was found between minority students writing underdog stories and overcoming perceived barriers in education in the outcomes of prevent college and during college. For minority students that conducted underdog stories and perceived barriers to prevent college  $M = 3.82$ ,  $SD = .63$  while the mean for minority students that conducted control stories was  $M = 3.66$ ,  $SD = .71$ , [ $F(1,48) = .429$ ,  $p = 0.516$ ]. On the other hand, the mean for minority students that conducted underdog stories and perceived barriers during college was  $M = 3.41$ ,  $SD = .96$  while the mean for minority students that conducted control stories  $M = 3.37$ ,  $SD = 1.25$ , [ $F(1,48) = .157$ ,  $p = 0.21$ ], as shown in Table 5 and in Figure 4. Based on the previous results, we found no support for hypothesis four that minority students that were randomly assigned to the underdog condition would perceive less economic barriers than minority students in the control condition.

Figure 4. Perceived Economic Barriers Based on Ethnicity (Minority Students) and Story Conditions

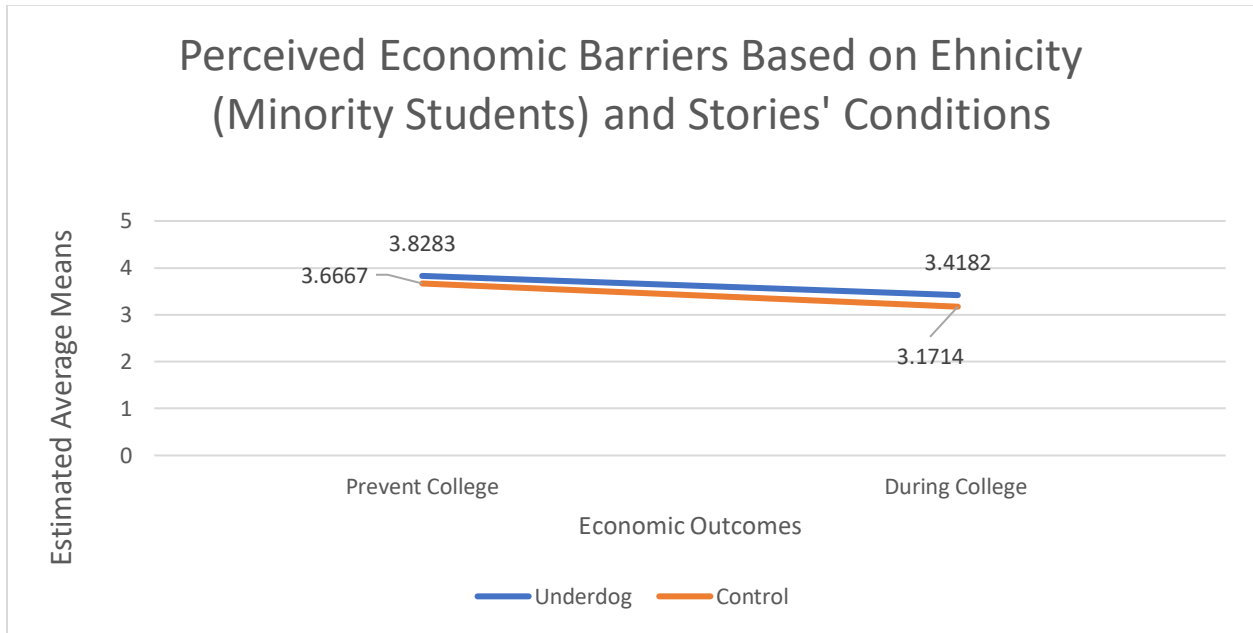


Table 5. Perceived Economic Barriers Based on Ethnicity (Minority Students) and Story Conditions

Outcome	Condition	Number	Mean	Std. Deviation	Frequency	Significance
Prevent College	Underdog	11	3.8283	.63705		
	Control	7	3.6667	.71434		
<b>Condition between group</b>					.429	0.516
During College	Underdog	11	3.4182	.96935		
	Control	7	3.3714	1.25129		
<b>Condition between group</b>					1.570	0.217

## DISCUSSION

This study aimed to determine if constructing underdog stories could help students, particularly ethnic minority students and women, overcome perceived barriers in education. Writing underdog stories and reflecting on them has been used as an applied methodology to help job seekers to be motivated to increase performance in specific tasks compared to people who write any other narratives, such as finding jobs (Nurmohamed, 2021). This study tested for the first time the effect of underdog stories in students' perceptions of college barriers and observed if underdog stories have a similar influence on students' perceptions of academic barriers.

The first hypothesis studied the relationship between writing underdog stories and overcoming perceived barriers in education using the McWhirter scale (1991). We found no significant relationship between writing underdog stories and perceived education barriers in ethnic discrimination, preventing college barriers, perceived barriers during college, or in general perceived barrier. However, there was a strong relationship between perceived sex discrimination and participants who wrote underdog stories. These are very interesting results because it shows that underdog stories may have an opposite effect in participants' perceived barriers in education outcomes. It was expected that underdog stories would help participants to perceive less barriers in sex discrimination than the participants in the control story condition. As mentioned previously, writing underdog stories and reflecting on them has only been tested in the workforce setting, which can explain why they do not have a positive effect on students overcoming barriers in education. Additionally, it is essential to mention that our participants

perceived more sex discrimination in the underdog condition than in other categories like Social Economic Status. These results can be explained because sex discrimination affects people's core values. Sex discrimination or sexual harassment experiences, for example, do not only affect people's perceptions of more barriers to succeed but also affect their dignity, their self-esteem, and their identity. If any of our participants experienced any situation related to that item before, it would take more than writing an underdog story to perceived less barriers in that aspect. It shows that academic counselors and higher education institutions should provide more coping strategies for their students to overcome any sex discrimination they might perceive at school or in their everyday lives.

Hypothesis 2 studied gender differences between men and women when constructing underdog stories. Similar to the findings in hypothesis one, the perceived sex discrimination outcome has a significant relationship with writing underdog stories where women perceived more sex discrimination than men. We also found a marginal relationship between ethnic discrimination outcome and gender where women perceived more ethnic discrimination barriers than men. Moreover, a marginal relationship between general perceptions of barriers and gender was found in the study where women also reported more general perceptions of barriers than men. The clear gender differences between men and women in the perception of barriers allow us to partially support hypothesis two. It is essential to mention that women's higher perception of carrier barriers in education, particularly sex, is consistent with previous findings in the literature, as reported by McWhirter (1992, 1997). However, no gender differences were found between men and women about overcoming perceived barriers when writing underdog or control stories, which shows that underdog stories do not affect students perceiving barriers in education.

Hypothesis 3 predicted that minority students would be more likely to perceive less potential career barriers in education, particularly ethnic discrimination, after conducting underdog stories than minority students that develop control stories. Based on the analysis, no significance relationship was found between minority students writing underdogs stories and overcoming perceived barriers in education in the ethnic discrimination outcome. A possible explanation for those results and our previous results is that students in both conditions, underdog and control stories needed to audio-record the story they were sharing for the study. A significant number of students were unable to use the Camera Tag application tool because of the lack of accessibility to computers with microphone. Audio recording the story was a key part of the study because as previously mentioned in the introduction, alternatives form of communication like video and recording facilitates participants to reflect and open up about their feelings and emotions. This tool was also used by Nurmohamed in his study (2021). This unexpected finding can explain why underdogs stories do not positively impact ethnic minority students to overcome perceived barriers in education. Students could not reflect and be primed with positive thoughts by audio-recording the story before taking the perceived barriers in education scale.

Hypothesis 4 expected differences between Caucasian and minority students in the perception of economic resources as a perceived barrier in education. Based on previous literature findings, minority students perceive less economic barriers in education than Caucasian students. Interestingly, our findings showed that there were no significant differences between Caucasian and minority students in the perception of economic resources as a perceived barrier in education. Nevertheless, it is significant to mention that according to our results, minority

students perceived less economic barriers than Caucasian students when constructing underdog stories in both of the economic outcomes, Prevent College and During college. A potential explanation about those results could be that ethnic minority students sometimes suppress negative perceptions associated with being members of an underrepresented group. For example, according to the American Psychological Association (n.d.), African American, Native American, Latino, and Pacific Islanders families face more economic challenges than Caucasians. In the same way, African American and Latino adolescents are more likely to live in poverty and attend academic institutions with low financial resources and support. Based on this information, we would like to note that because being a member of a minority group is associated with the lack of economic resources, some of the participants might not want to share their economic challenges in our studies. Unfortunately, this is a very sensitive topic; consequently, some students do not like to think that money would be a challenge to their education because this is one of the disadvantages for many minority students. This situation could potentially explain why minority students perceived fewer economic barriers than Caucasian students in our study.

Finally, hypothesis four also aimed to understand the effect underdog stories had on ethnic minority students and the perception of less economic barriers compared to minority students in the control condition. Even though our results were not, minority students in the underdog condition reported less economic barriers in both prevent college and during college outcomes than minority students in the control condition. These circumstances can also be explained by the factors described above. When it comes to economic barriers, minority students

may be reluctant to share many details about their Social Economic Status because most of the time, it is associated with poverty and lower status compared to Caucasian students.

## **Limitations**

A major limitation of this study was the sample size. In the study, only fifty-one (51) students participated in the study which might have limited the statistical power of our analyses.

Another limitation of the study was that even though the participants in the study completed all the questions and items, most of the students did not use the Camera Tag application that was embedded in the survey. Audio-recording students' stories was an innovative tool used in the study to prime students with positive thoughts about their story condition, particularly underdog stories, to perceived less barriers in education. Because most of the students did not use this tool to reflect about their stories, it could have affected students' responses while taking the perceived barrier in education scale by McWhirter (1991).

Another potential limitation refers to what an underdog story meant for our participants. Notably, we provided them with the following definition which Nurmohamed used in his underdog study: "Please describe your underdog story below of when other people doubted your chances of succeeding, but you thought you could succeed" (Nurmohamed, 2021, p. 5). After coding and analyzing the stories, raters noticed that some participants in the underdog condition wrote stories that participants believed were underdog stories; however, they are missing some small elements like other people doubting their abilities to succeed. Consequently, it led us to

assume that people have different definitions of what underdog stories mean and that it could have affected the expected results.

It is important to highlight that our data collection was based on self-reported items. We asked participants to classify certain situations and barriers based on their subjective perceptions. Unfortunately, sometimes, participants are biased about certain situations because they do not want to identify themselves with negative experiences or circumstances such as the lack of economic resources or being discriminated against because of their membership in a minority group. These situations can affect how participants respond to the questions presented in the study, altering the expected results. It would be beneficial if this study could be recreated in the future where participants can select which language, they would like to take our survey. We recognize that when participants speak different languages, they might prefer one over the other one. For example, Spanish Native Speaker participants might prefer sharing their stories in Spanish than in English. Consequently, sometimes, important information such as emotions and feelings can be lost in translation when participants share their feelings in a language they do not prefer.

Besides the limitations of our study, it is significant to mention that the population that participated in the primary two articles used as a foundation for this research are different from ours. The first article, which McWhirter (1997) published at the University of Nebraska found that minority students perceived more barriers in education than Caucasian students in many aspects such as lack of economic resources and ethnic and sex discrimination. We did not find similar results in our data like McWhirter regarding minority students' perception of barriers even though it was expected. However, a potential explanation could be sample size and



characteristics. In the McWhirter (1997) study, 1199 junior and senior high school students participated in her survey where 482 students were Mexican-American, 113 Hispanic, and 555 were Caucasians (McWhirter, 1997, pp. 128,129). Her participants' average age was 17 years old across ethnicities, and the location was a Southwestern semirural area.

On the other hand, our sample size were college students from two Southeastern universities, and the average age of the participants 20 years old. Even though McWhirter's research measured perceived barriers in education in college, they used high school students instead of college students like we did. Additionally, McWhirter's study was conducted twenty-four years ago. Quite possibly, the discrimination rate was much higher than now. Suppose people perceive and experience discrimination nowadays, where they are more aware of social issues like discrimination and inclusion, twenty-four years ago. In that case, people must have faced more enormous challenges and adversity because of their race, gender, and social-economic status. Those factors might explain why our data collected shows no significant perception of college barriers between minority and Caucasian students. The location also plays a vital role in the results. Sometimes, the population's perceptions and experiences may vary depending on their location. For this study, we collected data from the Southeastern region instead of the Southwestern region like McWhirter did many years ago. The Southeastern universities where we collected our data are well known for its diversity in culture, traditions, and beliefs from other counties. Consequently, the universities where the data was collected in our study were Hispanic and minority-serving institutions where people, faculty, staff, and students embrace diversity and inclusion, which might affect participants' perceptions of discrimination and adversity than the McWhirter study (1997).

Another critical article used as a reference for our study was by Nurmohamed and colleagues (2021). We learned the positive relationship between writing underdog stories and job seekers' abilities to succeed from his research. However, two significant differences between his study and ours are the field and the population. Nurmohamed's research focused on organizational settings, while our study wanted to test the effect of underdog stories in students and the educational environment. He collected data from two different studies, a field study and an online study for his research. In the field study, the participants were 330 unemployed job seekers affiliated with two employment centers in the northeastern United States; 92.5% were female, and 97.4% were demographic minorities with an average age was 30.5 years (Nurmohamed, 2021, p. 5).

Furthermore, for his second sample set, he collected data from CloudResearch to recruit active job seekers. They collected 531 completed responses, where 56.3% were female, 35.2% were demographic minorities with an average of 36.6 years (Nurmohamed, 2021, p. 8). If we compare Nurmohamed's extensive data collection and participants, we observe notorious differences like the average age of their participants compared to ours, which is only 20 years old. It shows that participants in his study might be more established economically and emotionally, which can help them respond to subjective questions with more precision and maturity. On the other hand, in our study, our population were college students who might still explore their personality and learning to overcome barriers. In fact, in his second study, more than 50% of the participants have some degree, such as a bachelor or graduate title (Nurmohamed, 2021, p. 8). Those differences can explain why did not see a positive relationship between constructing underdog stories and reducing perceptions of college barriers.

Finally, it is essential to highlight that some of the students who participated in our study belong to different clubs, organizations, and departments in their institution where they are taught about students' potential barriers like impostor syndrome. Those students are also constantly informed about scholarships and academic and emotional support system tools that might affect their perceived college barriers. It would explain why some minority students perceived no significant barriers in education compared to Caucasian students. Some students that participated are remarkably resilient which might have impacted their perceptions of college barriers.

## CONCLUSION

Even though there is extensive research on how applied techniques like journaling and expressive writing can contribute to a healthier psychological well-being, the present study was the first research conducted on the impact of writing underdog stories on perceived barriers in education. Based on our data, there was no relationship between underdog stories and overcoming perceived barriers in education. However, those conclusions informed us to continue working and researching what needs to be done to help students overcome those negative perceptions that affect students' success in college. Particularly, we were able to learn that women students perceived more sexual, ethnic, and general perceived barriers in education more than men students. This can be explained by the lack of role models and representation of women leadership in academia and the academic administration. These findings can be used by counselors and academic advisers to help students and provide them with resources, particularly women, to overcome those perceptions in academia and potentially in their workplaces. Future steps for this research include recreating the study in a face-to-face setting that could explain the meaning of underdog stories more effectively. Additionally, by recreating the study in a face-to-face environment, we can provide computers with microphone and audio-recording tools that students can use to open up about their feelings by audio-recording their stories and evaluating the differences between these results with future studies. In the future, we should also focus on our qualitative data collected instead of only quantitative data. For example, in the stories that our participants wrote, we were able to identify other factors that affect their success in college that were not in the survey such as unfortunate events like massive shootings or the loss of someone and how they can mark students' lives forever.

**APPENDIX A**  
**DEMOGRAPHIC SCALE**

## Appendix A: Demographic Scale

1. What is your age? \_\_\_\_\_
2. What is your gender?
  - Male
  - Female
  - Other
3. What is your major? \_\_\_\_\_
4. Which year in school are you?
  - Freshman
  - Sophomore
  - Junior
  - Senior
  - Graduate Student
5. Are you Hispanic, Latino, or Spanish origin?
  - Yes
  - No
6. What race do you identify with?
  - American Indian and Alaska Native
  - Asian
  - Black or African American
  - Native Hawaiian or Other Pacific Islander
  - Other race

- White
7. What is your current employment status?
- Employed full time (40 or more hours per week)
  - Employed part time (up to 39 hours per week)
  - Unemployed and currently looking for work
  - Unemployed and not currently looking for work
  - Self-employed
  - Unable to work

## **APPENDIX B**

### **PERCEIVED BARRIERS IN EDUCATION SCALE**



## **Appendix B: Perceived Barriers in Education Scale**

McWhirter (1992)

### **Future Job Discrimination**

- **Sex discrimination (summed responses to four items)**

- “In my future job, I will probably”

1. Be treated differently because of my sex
2. Experience negative comments about my sex (such as insults or rude jokes)
3. Have a harder time getting hired than people of the opposite sex
4. Experience discrimination because of my sex

- **Ethnic discrimination (summed responses to four items)**

“In my future job, I will probably”

5. Be treated differently because of my ethnic/racial background
6. Experience negative comments about my racial/ethnic background (such as insults or rude jokes)
7. Have a harder time getting hired than people of other racial/ethnic backgrounds
8. Experience discrimination because of my ethnic/racial background

- **Prevent College (Perceived Barriers to Attending College)**

“If I didn’t go to college, it would be because of”

9. Money problems
10. Family problems
11. Not being smart enough
12. Family attitudes about college.

- 13. I wouldn't fit it
- 14. I couldn't get into college
- 15. Having a good job already
- 16. Lack of interest
- 17. It wouldn't help my future

- **During College (Perceived Barriers Anticipated in College)**

“If I do go to college, I will probably experience”

- 18. Money problems
- 19. Family problems
- 20. Negative family attitudes
- 21. Not being smart enough
- 22. Not fitting in with others

- **General Perception of Barriers**

“In general, I think that”

- 23. There are many barriers that will make it difficult for me to achieve my career goals
- 24. I will be able to overcome any barriers that stand in the way of achieving my career goals

*\*Note.* Response options are A, Strongly Agree; B, Agree; C, Unsure; D, Disagree; E, Strongly Disagree.

## **APPENDIX C**

### **UNDERDOG AND CONTROL CODING PROMPT**

## Appendix C: Underdog and Control Coding Prompt

Nurmohamed (2021)

### Condition Definitions

- **Underdog condition:** We want you to think about a story when you were seen as an underdog but believed you had what it takes to succeed. In other words, we want you to tell us about a story in which others doubted your chances of succeeding, but you believed you could succeed and could overcome the odds to be successful. This story has a beginning, middle, and end.
- **Control condition:** We want you to think about a story from your life. In other words, we want you to think of a situation in your life and tell us a story about it.

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