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Metaphors Impact on First-Generation College Students Experiencing Imposter Syndrome

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Imposter Syndrome

First-Generation college students are the first in their families to attend college. Approximately 39% of UC undergraduates are first-generation college students. Being the first to attend college can create a lot of stress, anxiety, and pressure, leaving students to question if they can complete a four-year degree. According to psychology research, many first-generation students struggle with imposter syndrome. Imposter syndrome is defined as “the persistent inability to believe that one's success is deserved or has been achieved as a result of one's efforts or skills". Imposter syndrome creates a cognitive and emotional mindset that perpetuates self-doubt, stress responses, and a lack of confidence to perform well on academic tasks for students (Chrousos and Mentis, 2020). Imposter syndrome (IP) which is also known as the “imposter phenomenon” was defined by Clance & Imes (1978). Clance & Imes define imposter syndrome as the belief that one’s accomplishments are not due to their capabilities, such as skill, talent, qualifications, or intellect, but rather external factors, such as luck, effort, and obtaining help from other people (Clance & Imes, 1978). Additionally, Rothblatt defines imposter syndrome as the persistent inability to believe that one's success is deserved or has been achieved because of one's efforts or skills” (Rothblatt, 2022).

Imposter syndrome may also present itself in diverse ways, for example with the feelings of being lucky rather than deserving, strong feelings of inadequacy, feeling like a fraud rather than being competent, or feeling like no achievement is ever good enough (Caldera, 2018). Previous research has also found that Imposter syndrome tends to be more prevalent in high achievers, women, underrepresented racial, ethnic, and religious minorities. Imposter syndrome has also been described as a threat to diversity due to it being more prevalent in women and people of color (Chrousos and Mentis, 2020). In 2021, the American Psychological found that

approximately 82% of people face feelings of imposter syndrome (Bravata, et al., 2020).

It is important that we understand what imposter syndrome is and that we are able to identify when we are struggling with imposter syndrome. Previous research has also found that Imposter syndrome can lead to psychological distress, burnout, emotional suffering, lower job performance, less job satisfaction, and serious mental health disorders. Imposter syndrome is often comorbid with depression, anxiety, and mental health problems which can affect both men and women across a range of age groups (Bravata, et al., 2020). Moreover, imposter syndrome can have a negative impact on the mental health of someone who is struggling with it. Some of the mental health disorders that can be caused by imposter syndrome include chronic dysphoria stress, anxiety, depression, and drug abuse (Chrousos & Mentis, 2020). Imposter syndrome creates a cognitive and emotional mindset that creates self-doubt, stress responses, and a lack of confidence to perform well on academic tasks for students. One of the main reasons why it's also important to bring awareness to imposter syndrome is because imposter syndrome can lead to suicide ideation, and higher burnout (Shanafelt et al., 2022).

Imposter feelings have been found to be quite common in students. Students who experience impostor feelings are less engaged and have lower attendance, higher thoughts of dropping out, and lower grades. Bendar found that 20% of college students experience imposter syndrome during their time in college (Bednar et al., 2019). Overall, imposter syndrome can lead people to have ongoing mental health problems, self-doubt, lack of confidence, and underpaying jobs since they are doubting their skills, assistance, and professional and academic achievement and feel unqualified due to imposter syndrome. Despite the previous research on imposter syndrome, there remain some gaps. A gap in research is the common comorbidities of imposter syndrome.

Moreover, imposter syndrome is experienced by many people but there are higher rates of imposter syndrome in underserved populations, this includes first-generation college students and people of color (Caldera, 2018). Previous research has found that levels of socially prescribed perfectionism are significantly correlated with imposter syndrome and stress for both first and continuing-generation college students. This finding shows that imposter syndrome is more strongly associated with stress among first-generation students (Holden et al., 2021). Moreover, previous research has also found that stress has also been historically more common for first-generation students, due to receiving less emotional support from their families, which is a contributing factor to their increased levels of stress (Holden et al., 2021).

First Generation College Students

Imposter syndrome is often found to be more common in first-generation students, who also tend to be characterized as more vulnerable to imposter syndrome (Harvey & Katz, 1985; Parkman, 2016; Peteet et al., 2015; Ramsey & Brown, 2018). A First-Generation college (FGCs) student refers to a student who is in college but does not have a parent who has completed a bachelor's degree, making them the first in their families to attend college. First Generation students comprise nearly one-third of all college attendees (Skomsvold, 2015; Staklis, 2016). Since first-generation students are the first in their family to attend college they face several economic and social obstacles which make it harder for them to complete college and makes it more common for them to experience challenges while in college. Since first-generation college student's' family members do not have a full understanding of the strong demands of college, first-generation students might lack family support. First-generation students are also left to navigate the academic system by themselves and encounter challenges that they might not know how to address, such as imposter syndrome. Finding different psychological strategies and

methods that could help students to shift from this mindset to a more adaptive and non-imposter syndrome mindset would be beneficial to first-generation college students.

Previous research that focused on exploring the challenges that first-generation college students face while also examining the factors that predict success in first-generation college students found that first-generation college students faced lower grades and lower critical-thinking scores compared to their peers. Additionally, first-generation college students also reported having less faculty contact and less time for academic tasks (Katrevich & Aruguete , 2017). The results of this study showed that academic preparedness and contact with faculty members predicted college success for first-generation students (Katrevich & Aruguete, 2017). Most first-generation college students, compared to continuing students, must work either part-time or full-time during college due to financial needs (Pascarella et al., 2004). McCarron & Inkelas find that first-generation college students are less likely to accomplish their original educational aspirations than their peers from college who have educated families. Pascarella found that across their two-year study which focused on the experiences and outcomes of first-generation students in community colleges compared to their classmates whose parents had both completed a bachelor's degree or above (Pascarella et al., 2004). First-generation students completed fewer credit hours, studied less, took fewer courses in the natural sciences, mathematics, and the arts and humanities, had lower college grades, were less likely to join a Greek organization, and worked more hours per week. Additionally, compared to students whose parents had completed a bachelor's degree or above, first-generation students were also more likely to take technical/pre-professional courses and less likely to use computers (Pascarella et al., 2004). Overall, first-generation students were significantly disadvantaged in important aspects of the college experience compared to students whose parents had higher education. They found that these aspects included full-time enrollment, time devoted to study, coursework in the sciences,

mathematics, and humanities, and work responsibilities (Pascarella et al., 2004).

First generation College Students First Year College compared to Continuing Students

Previous research conducted on the similarities and differences that first-generation college students have in comparison to students whose parents had some college experience but no degrees, and students whose parents had at least a bachelor's degree found that many first-generation college students were more likely to come from a lower socioeconomic background. This research also showed that compared to students whose parents had some college experience but no degrees and students whose parents had at least a bachelor's degree during their first year at college first-generation college students felt less prepared for college and worried more about financial aid in comparison to other students.

First-generation students also feared failing in college more than did the students whose parents had a bachelor's degree, and college experience first-generation students felt that they had to dedicate more time to studying than other students had to (Van T. Bui, Khanh, 2002). First-generation college students also reported knowing less information about the social environment at the university than did the other students (York-Anderson & Bowman, 1991). Another difference between the three groups was that first-generation students gave lower ratings of importance to the following reasons compared to the students whose parents had at least a bachelor's degree: their siblings or other relatives were going (or went) to college, and they wanted to move out of their parent's home.

Gaps between first-generation students and continuing-generation students

Previous research has shown that there are bigger and more present gaps when they look at the degree attainment of students whose parents did not attend college. This study found that while 42.1 percent of students whose parents attended college graduated within four years, only 27.4 percent of first-generation students graduated within four years (DeAngelo et al., 2011). While 60 percent of students whose parents attended college graduated in five years, there were less than 45 percent of first-generation students who graduated at the same time. 64 percent of students whose parents attended college graduated within six years, and only 50 percent of first-generation students earned their degrees in six years (DeAngelo et al., 2011). This study also found that Catholic four-year universities have the biggest degree completion rate gap of 14.4 percentage points between first-generation college students and students whose parents have college experience, while 69.3 percent of students whose parents attended college graduate and only 54.9 percent of first-generation students graduated.

Public universities have a completion rate gap of 14.1 percentage points between first-generation college students and students whose parents have college experience, while 68.2 percent of students whose parent's attended college graduated and only 54.1 percent of first-generation students graduated. Even though the differences in obtaining a degree are all large at these different college institutions, these gaps are especially concerning for public institutions that also enroll a large majority of first-generation college students (Saenz et al., 2007). The results of this study help to show that even though first-generation students make up a large population of college campuses they are not making up a higher percentage of graduates compared to students whose parents have a college degree and college institutions are having

difficulty graduating college students.

Metaphors Emotional and Cognitive Factors

Metaphors are defined as a figure of speech in which a word or phrase is applied to an object, person, or action that it does not denote (e.g., the journey of life) to create a forceful analogy (APA, 2022). The conceptual metaphor theory is how metaphors can shape our thoughts by transferring personalized knowledge of a set concept to understand and relate to an abstraction, despite their minimal differences (Landau et al., 2018). The Metaphor Effect is defined as how we usually tend to understand and remember things more easily. Additionally, metaphorical language activates our imagination and metaphors also engage with the right hemisphere of the brain, which controls our mental imagery which is the same function that allows us to dream (Convertize, 2022). People use metaphors daily and sometimes do it without even noticing or on purpose our language is filled with metaphors (Gibbs, 1994). People tend to use metaphors because they help us understand impalpable concepts like self or emotions (Lakoff & Johnson, 1999). Additionally, metaphors allow us to understand abstract feelings and thoughts which could not be seen directly, heard, touched, smelled, or tasted (Lakoff & Johnson, 1980; 1999). Previous research has also shown that metaphors can influence attitudes, behaviors, and judgments. In the journal do metaphors in health messages work? Exploring emotional and cognitive factors which focused on studying whether health communicators publicize messages that use metaphors to compare abstract health-related concepts to concrete concepts in other domains which aim to change health attitudes and behavior, works. This study found that while metaphors could be useful and provide helpful information which shows the need for urgent action, metaphors can also be harmful. The results of this study showed that the conceptual metaphor theory activated metaphors and shaped emotions and intentions, and that metaphor can enhance the motivational

capacity of communications (Landau et al., 2018). Metaphors can also be harmful, this study showed that the mechanism of metaphors can backfire and undermine motivation to engage in recommended behaviors (Landau et al., 2018).

Moreover, a previous study focused on examining the potential for metaphoric health messages that could connect to cultural values to reduce ethnic health disparities. The authors hypothesized that a message that frames cancer screening metaphorically in terms of family support would interact with variability in Latina women's collective-familial orientations to predict intentions to receive a Pap smear. The overall results of this study supported the author's hypothesis and showed that the more Latinas endorsed collectivistic and familial values, the stronger they intended to get a Pap smear after reading the family metaphor message (Spina et al., 2018). These findings help to show how metaphoric messages can engage with targeted cultural values and how message-framing strategy using the conceptual metaphor theory can be beneficial. We hypothesize that First-Generation students may have higher rates of imposter syndrome because they use an identity with different metaphors compared to continuing students when asked to deserve their college experience. Additionally, previous studies have not compared metaphors of first-generation students vs. second-generation college students. We believe that what causes people to use different metaphors is imposter syndrome and adverse childhood experiences.

Adverse Childhood Experiences

Adverse childhood experiences also known as ACEs are potentially traumatic events that occurred in someone's life from the age of 0-18 years old. These traumatic experiences could impact the health and well-being of a person. This includes experiencing violence, abuse, or neglect, witnessing violence in the home or community, and having a family member attempt or

die by suicide (CDC, 2022). Additionally, the environment that a child grew up in or spent most of their time in can affect their sense of safety, stability, and bonding with others and can affect their childhood experiences (CDC, 2022) Some examples of this would be growing up in a household in which someone has substance use problems drugs or alcohol problems, mental health problems like growing up with a parent who has depression or anxiety and household instability due to parental separation or household members being incarcerated. The Centers for Disease Control and Prevention finds that ACEs are connected to mental health problems, substance use, and chronic health problems in adolescence and adulthood. ACEs can also negatively affect a person's education, relationships, life opportunities, job opportunities, and earning potential. However, previous research has shown that ACEs can be prevented. The CDC found that approximately 61% of adults that had been surveyed across 25 states reported they had experienced at least one type of ACE before the age of 18, additionally, 1 in 6 adults reported that they had experienced at least four or more types of ACEs (CDC, 2022).

Adverse childhood experiences relate to college achievement, first-generation status, and imposter syndrome. Previous research has shown that ACEs affect academic performance and academic achievements in those who have a high ACEs score. Previous research also finds that ACEs were associated with academic problems and some people showed these problems 4 years later and not right away. This helps to show the effect that ACEs could have on students' academic performance even years later. A study found that 22.8% of college students had experienced at least four adverse childhood experiences (Watt, 2021). We believe that ACES relates to imposter syndrome, first-generation status, and mental health. Previous research has shown that college students who have an elevated level of adversity in childhood tend to have lower levels of social support and have low emotional support, or a person from whom they can seek help or advice (Watt, 2021). This shows how people with higher ACES scores are more

likely to lack support and are at a higher risk for depression and anxiety (Watt, 2021).

Depression & Anxiety

The Mayo Clinic defines depression as a mood disorder that causes a persistent feeling of sadness and loss of interest in daily life activities. Depression is also called major depressive disorder or clinical depression. Depression affects how someone feels, thinks, and how they act and behave. The Mayo Clinic finds that depression can lead to various emotional and physical problems. Depression can affect the quality of life of a person and their day-to-day activities. It can lead people to struggle with their daily life activities and they might sometimes feel as if life is not worth it. Depression is not just something that a person struggling with can just snap out of since depression may require long-term treatment or therapy.

Previous research has found that most people struggling with depression feel better with medication, psychotherapy, or both (Mayo Clinic, 2022). A recent study found that approximately 1 in 3 college students experience significant depression and anxiety (Mayo Clinic 2022). The Mayo Clinic defines anxiety as having frequent and intense, excessive, persistent worry and fear about everyday situations. Additionally, people who have anxiety disorders usually experience repeated episodes of sudden feelings of severe anxiety and fear that could lead them to have panic attacks. Experiencing anxiety occasionally is normal but when it becomes excessive or intense then it would be an anxiety disorder. Like depression, anxiety also interferes with the daily life and activities of people. Some people who have an anxiety disorder can avoid places or situations to prevent these feelings and anxiety attacks but sometimes these symptoms do not leave and may start during childhood or the teen years and continue far into adulthood (Mayo Clinic, 2022)

Current Study

This current study aims to examine how metaphors of college experiences are associated with experiences of imposter syndrome along with psychological and academic well-being among first-generation college students. In this study, we will be comparing first-generation college students and continuing students. The focus of this study is how identification with metaphors is associated with experiences of imposter syndrome as well as psychological well-being and achievement, including perceived stress, depressive symptoms, coping with academic challenges and workloads, and social support in first-generation college students. We will focus on first-generation college students, and we will also assess childhood adversity, family support, depression, and anxiety to test whether it predicts the types of metaphors that first-generation students relate to and whether it predicts the strength of the relationships of metaphors with psychological and academic outcomes. We hypothesize that first-generation college students are more likely to experience imposter syndrome compared to second-generation college students due to a lack of family support. We also hypothesize that first-generation students who endorse specific metaphors compared to second-generation students might have higher levels of depression, a higher ACEs score, higher anxiety, and imposter syndrome. We predict that specific metaphors in the study will predict depression, anxiety, and IS.

We will extend this research by conducting a quantitative survey exploring further how identification with these and other metaphors are associated with experiences of imposter syndrome, psychological well-being, and achievement, including perceived stress, depressive symptoms, coping with academic challenges and workloads, and social support. We will examine differences in these psychological experiences between first-generation college students and students who are not first-generation students. We will also assess childhood adversity to test whether it predicts the types of metaphors that first-generation students relate to and whether it

predicts the strength of the relationships of metaphors with psychological and academic outcomes.

Methods

Participants/ Sample

Our study participants were 250 college students from the University of California Merced, conducted in January 2023 throughout May 2023, during the Spring semester. To participate in this study, participants had to be over the age of 18 and have a SONA account. This is a research participation system in which the study was conducted. We recruited our sample by having our study posted on the school's research participation system. There was no cost to participants for taking the survey beyond the time and effort used to complete it. Participants were compensated for their time completing our studies by receiving 1.05 SONA credits for completing at least 80% of both the Pre-Test and Post-test. For completing the Pre-test participants received 1 SONA credit, and for completing the Post-Test participants received .5 SONA credits. Participants received fewer SONA credits for the Post-Test compared to the Pre-Test since the Post-Test was shorter than the Pretest and took less time for participants to complete it. This study was longitudinal and there was a one-week period between our Pre and Post-test.

Research Design

Our study aims to test how metaphors of college experiences are associated with experiences of imposter syndrome along with psychological and academic well-being among first-generation college students. We will extend this research by conducting a quantitative survey exploring how identification with these and other metaphors is associated with experiences of imposter syndrome. We also focus on how metaphors and imposter syndrome are associated with

the outcome variables of academic achievement, perceived stress, depressive symptoms, coping with academic challenges and workloads, and social support. Further, we will examine differences in these psychological experiences between first-generation college students and students who are not first-generation students. We also examine whether the associations of the metaphors and imposter syndrome with outcomes are moderated by ACE scores, such that the associations are stronger for participants with higher ACE scores relative to participants with lower ACE scores. To examine the effects of college generation on imposter syndrome we used a mixed design, with gender first-generation college student's vs second-generation college students as our between-subjects variable and imposter syndrome, depressive symptoms, anxiety, and family support as well as social support, the dependent variables are (first-generation college students vs. second-generation college students). ACE scores were treated as a moderator variable.

Participants were asked about their experiences with imposter syndrome, their perceived stress, depressive symptoms, and academic stress throughout their college years. Additionally, participants were also asked about their childhood experiences ACEs and asked to select specific metaphors describing how they would describe their college experience. Finally, participants were asked for information on their demographics, and college generation questions. Additionally, we will be using ANOVA to test our 2nd study aim. In our baseline survey, which is the Pre-test, we asked questions regarding all our measures and we had them focused on experiences in the past week except for our metaphor measure. Our follow-up survey, which is our Post-test that participants completed a week later, also included questions about all measures except the ACE screener and demographic questions. We included a baseline and follow-up survey in our study because we wanted our study to provide us with much stronger results in which we are seeing how measures at Time 1 are predicting measures in Time 2, so it gives more evidence towards

temporal directionality as a criterion of causality.

Materials

Perceived Stress Scale (PSS)

The Perceived Stress Scale (PSS) is a classic stress assessment instrument. The Perceived Stress Scale (PSS) is the most widely used psychological instrument for measuring the perception of stress (Cohen, 2022). This scale consists of 10 questions that focus on asking the participants about their feelings and thoughts during the last month. For each question, participants will get asked how they felt or thought about a specific situation, and they can choose from the following alternatives which are 0 - never 1 - almost never 2 - sometimes 3 - fairly often, and 4 - very often. An example of the questions that this scale asks is in the past month have you been upset because of something that happened. In the past month have you been unable to control the important things in your life? We choose to use the Perceived Stress Scale because we want to see if stress levels might be different between first-generation college students and second-generation college students and if stress can lead to imposter syndrome. Additionally, previous studies that have used the Perceived Stress Scale (PSS) have found that the Perceived Stress Scale had adequate reliability and was a predictor of depressive and physical symptomatology, utilization of health services, social anxiety, and smoking-reduction maintenance (Cohen et al., 1983).

Center for Epidemiologic Studies Depression Scale

CES-D was used to measure depressive symptoms. The options that this study provides are Rarely or none of the time (less than 1 day) Some or a little of the time (1-2 days) Occasionally or a moderate amount of time (3-4 days) Most or all the time (5-7 days). This scale consisted of 10 questions that asked things like I did not feel like eating; my appetite was poor, I felt depressed, or I felt sad.

The Clance Impostor Phenomenon Scale (CIPS)

The Clance IP Scale was developed to help individuals determine whether they have imposter syndrome characteristics and if they are experiencing imposter syndrome to help them determine much imposter syndrome they are experiencing (Clane et al., 1985). Overall, the higher the score is on the scale the more frequently and seriously the Impostor Phenomenon is involved in a person's life (Clane et al., 1985). This scale consists of 20 questions and for each question, the participant is asked to circle the number that best indicates how true the statement is to them. The options available are *1 (not true at all) 2 (rarely), 3 (sometimes), 4 (often), and 5 (Very true)*. Additionally, we ask participants to enter the first response that comes to mind when reading the question instead of overthinking about the question (Clane et al., 1985). An example of the questions that this study asks: I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task. And can I give the impression that I am more competent than I am? If the total score of the Clance IP Scale is 40 or less, the participant has few Impostor characteristics and if the score is between 41 and 60, the participant has moderate IP experiences. If a score is between 61 and 80, the participant has frequent Impostor feelings. Finally, if a participant has a score higher than 80, the respondent frequently has intense imposter syndrome experiences (Clane et al., 1985). In our study, we will be using this scale the way that it is set up.

The Undergraduate Family Social Support Scale Nadel (2014)

This scale was developed to assess levels of perceived social support from undergraduate students, focusing specifically on support obtained from their families. Additionally, this scale measures the respondent's level of social support received from their closest family member, and Who the respondent identifies as their closest family member. This closest family member is defined as the family member that the respondent has the closest relationship with and looks for support (Nadal et al., 2014). Additionally, this scale consisted of 50 questions. We decided to

include all 50 questions because we want to know if there is any difference between students who have higher family support compared to students who have lower family social support. The questions asked things as My Closest Family Members ask me how my friends are doing, offer advice whenever I need it, and support me in all the things I do.

Multidimensional Scale of Perceived Social Support (MSPSS)

The Multidimensional Scale of Perceived Social Support (MSPSS) focuses on the support that an individual obtains from others (Zimet et al., 1988). This scale is a 12-item measure of perceived social support from three sources. These three sources include family, friends, & also significant others. This scale uses a 7-point Likert scale and some of the questions include "there is a special person who is around when I am in need." "There is a special person with whom I can share my joys and sorrows and my family tries to help me." I am not sure if there will be only one score or scales from various sources.

Academic Stress Scale

This scale is used to measure perceived sources of academic stress among university students (Bedewy et al., 2015). This scale consists of an 18 item scale that helps to measure the perceptions of academic stress and its sources. Participants' response options are 1 through 5 *strongly disagreed through strongly agreed.* Some of the questions on this scale are: I am confident that I will be a successful student, I am confident that I will be successful in my future career, I can make academic decisions easily, and whether the time allocated to classes and academic work is enough.

Metaphors for Coming to College Measure

This part of the survey was constructed by Dr. Linda Cameron and I who listed 18 different metaphors. For each statement, we asked participants to rate the extent to which they felt that the statement describes how they typically think about their experiences of coming to college.

We asked participants to think about new experiences such as coming to college and that we often relate them to other kinds of events or experiences---even ones that we have never done ourselves—but which serve as the metaphors or analogies that help to describe how we think or feel. Then we asked them about each survey statement to rate how much they feel it describes how you typically think about their experiences of coming to college. Participants were able to choose numbers 1 through 7 *strongly disagreed and strongly agreed.* Participants rated how much they related on a Likert scale. Some of the metaphors that we included were when I think about my college experiences, I think of them as being like a long journey, a swimming pool, like buying a gym membership, an unopened book with no title, climbing up a very high mountain, and sailing through an ocean with periods of calm and periods of gigantic waves and storms. This scale includes positive and negative categories that participants will be able to choose from. Participants are also given the option to write in their metaphor describing their college experience. Additionally, this scale is not finalized yet as we might be making changes.

Adverse Childhood Experiences (ACE)

We included ACEs because we want to see if adverse childhood experiences affect imposter syndrome. This scale had 10 questions used to measure childhood trauma. This scale focuses on assessing 10 types of childhood trauma. Five of these childhood traumas are personal and focus on physical abuse, verbal abuse, sexual, physical, and emotional neglect. The next five are related to other family members for example a parent who is an alcoholic, a mother who is a victim of domestic violence, a family member in jail, a family member diagnosed with a mental illness, and the disappearance of a parent through divorce, death, or abandonment (Anda et al., 1998). Some questions ask, “Was your mother or stepmother over or very often pushed, grabbed, slapped, or had something thrown at her”? Or “was she sometimes, often, or very often kicked, bitten, hit with a fist, or hit with something hard?” Participants can answer yes or no to all 10

questions and this scale will be scored by adding up the participants' responses: a yes response has a score of 1 and a no response has a score of 0. In the end, a higher score indicates a higher risk of health problems later in life and higher adverse childhood experiences.

Demographics

Finally, in our study, we ask participants questions on their age, gender, marital status, ethnicity, race, employment status, year in college, school GPA, and first-generation questions. For our first-generation question, we asked participants if their parents and grandparents obtained college degrees. These were the questions that we asked: “Did both of your parents obtain a degree from college”? “Did one of your parents obtain a degree from college”? “Did one or both of your parents attend college but not graduate”? “Did one of your grandparents obtain a degree from college”? Participants can answer yes or no to all these questions: a yes is equal to a 1 and a no is equal to a 0. After we have collected all our data, we will add more demographic information on our participants. This information will include the gender of participants, the number of first-year students, second-year, third year, and fourth-year students, and their ages. Participants' race and ethnicity will also be included once the results are in.

Results

Key demographic and clinical characteristics

The participants of this study consisted of 250 college students at the University of California Merced. These students self-selected to take the two-part online study via SONA in response to their completion of the two studies participants received 1.05 SONA credits which they could use in their classes. Currently, our part 1 study has a total of 250 responses, and part 2 has a total of 100 responses. Data from a total of 31 participants were excluded from the analysis. 21 participants from time 1 were not included in the analysis due to submitting an incomplete survey. 9 participants from time 1 submitted multiple surveys and only their time 1 was kept and

the rest of the times were excluded from the analysis. The final sample (N= 250) was both for the pre-test and our post-test. This sample consisted of 178 females and 32 males. The key demographic that we focused on included age, gender, Year, overall estimated GPA, ethnic group, and race. The main results of this are included in our table 1.

Descriptive/Preliminary Results.

The ages of the participants that took this study were between the ages of 18 and 54 The demographics and personal characteristics are shown in table 1. This table includes the baseline information questions that were included in the study to help us measure age, gender, ethnic group, race, and education questions which include GPA, class standing, and major and minor questions. In our sample, we also noticed that we had a larger number of female participants compared to male participants. We had a percentage frequency of 82.8% females and 14.9% for males.

In our sample we have participants who are freshmen, sophomores, juniors, and seniors but we do not have any post-graduate participants who took our survey. In our study we had a total of 87 seniors, 54 juniors, 45 sophomores, and 29 freshmen. In our demographics we also noticed that we had a larger number of Hispanic or Latino with a total of 129 participants compared to 86 participants who identified as not Hispanic or Latino. Moreover, in our first-generation questions we noticed that many participants have heard or knew about imposter syndrome before taking our survey.

Study Strengths

Our study had several strengths. Some of the strengths of our study included having many participants for our time 1. We believe that this was a strength of our study because we were able to collect data from a total of 250 despite our goal of collecting data from 250 participants, we believe that 219 provided us with in-depth information on our participants. Moreover, another

strength that we found in our study is that we had participants from all class standings including freshmen, sophomores, Jrs, and a couple of seniors. The only class standing that we didn't have were graduate students. We believe that this was a strength in our study because we were able to obtain information from different class standings at UC Merced. The final study strength that we had is that we included multiple metaphors in our study questionnaire which gave participants more options to choose which metaphor they related most to. We included a total of 18 metaphors from which participants were able to rate which metaphor they felt related most to their college experience.

Moreover, in our metaphor questionnaire section, we also added a text box in which participants could add any other metaphors that they felt related more to their college experience. We believe that adding this text box was a strength because participants were able to include their metaphors which provided us with more information on their college experience. Some of the metaphors that were included in the text box were "It's kinda like a marathon and requires keeping up with things and pacing", "like I'm on open land and I have so many options on how to use it but at the same time I don't have any or enough resources to do so." "A walk on the beach while carrying a heavy backpack." "It's like a bird who thought getting its wings was enough to make it fly but how to use them properly was never specified." "Discovering a new forest", "Skydiving with no ground in sight." "Getting a new dress that you love but you outgrow but always loving the good memories or moving to a new nest that you eventually outgrow" "A Semi ran me over hard and fast, yet I got up from the road slowly and continued my journey that has an uncertain future" This was just some of the metaphors that participants filled in the box. A common word that was included in the text box which was not a metaphor was "scary" and the word "different" and "rough" The participants who included these words in the text box didn't provide much context behind the word they just placed the word in the text box.

Study Limitations

Our study had some potential limitations. Some of our limitations included not having the same number of participants that we did for time 1 compared to time 2. All participants who took part 1 of our study were supposed to take time 2 of our study a week after they had completed it. For example, if a participant took part 1 on Wednesday, they were able to take part 2 a week later which would be on the next Wednesday. Some participants completely forgot about completing part 2 of the study and some completed part 2 a little later than when they were supposed to complete part 2. We saw an increase in incomplete responses during spring break. Some of the steps that we took as soon as we saw participation for time 2 of our study dropping, we started to consistently reach out to participants reminding them to complete time 2 of the study on time and to fully complete the study. In total for our time 1 we had a total of 250 participants and for our time 2 we had a total of 119 participants. This total does not include the number of participants who had to be removed due to not completing the survey fully and having multiple submissions from the same participants. A second limitation that we encountered in our study is that some participants were not completing the survey fully. We had multiple participants only submitting the survey for both time 1 and time 2 only with their SONA id and nothing else. In our consent form, we had included that participants had to complete at least 80% of Time 1 and Time 2 to receive the full 1.5 SONA credits. Those participants who didn't fully submit their survey from Time 1 and Time 2 were removed from the data and didn't obtain SONA credits. From Time 1 we had to remove a total of 31 responses because they were incomplete. From Time 2 we had to remove a total of 9 incomplete responses. We removed a total of 40 responses from both Time 1 and Time 2 because they were incomplete.

Moreover, the third limitation that we encountered in our study was that we had multiple participants submit Time 1 multiple times, some participants just submitted it two times and

others submitted their study 3 times. We are not sure if participants were confused and thought they had to submit part 1 multiple times but as soon as we saw this happening, we contacted participants and explained the instructions for our study again. The final limitation that we encountered was that we didn't have enough time to run our ACEs moderation analyses for our study. Some of the ACEs moderators that we had planned to look to see if they were associated with first-generation status were family social support, imposter syndrome, endorsements of specific metaphors, depressive symptoms, perceived stress, coping with academic challenges, and academic performance. Despite these limitations, we were still able to obtain valuable information that supported some of our hypotheses.

Further Research

In terms of future research, it would be useful to extend the current findings by examining more metaphors. In our study, we only focused on 18 metaphors and didn't collect information on the reasoning behind the choosing of those metaphors. I think that it would be helpful to include different metaphors and show the impact that these metaphors have. I think that it would also be helpful to receive more insight into why participants felt identified with a specific metaphor or why they choose other metaphors. For this, I think that conducting individual interviews with participants would be beneficial because they might feel more comfortable sharing with the researcher why they have chosen the metaphor that they have chosen and what is the reasoning behind it. I think that this information would help us understand if family support, college graduation status, and imposter syndrome represented the factors behind the metaphors that they have felt describing their college experience so far. Moreover, for further research, I think that it would be beneficial for us to run our ACES moderation analyses because this can provide users with more information on ACEs and whether this was an influencing factor in the imposter syndrome that first-generation college student's experiences and whether ACEs also impacted the

metaphor that students choose to describe their college experience with

Conclusion

In conclusion, this study helps us understand the impact that imposter syndrome has on first-generation college students in comparison to continuing college students. Moreover, this study also shows the impact that imposter syndrome and generation status have on the experiences of college students. These metaphors help us understand that to some student's college seems like a difficult experience and on the other hand some students find college to be easy and define their college experience as being good. This study also helps to understand and identify the different factors that can impact the college experience of a student. We hope that our study is helpful to first-generation college students and that they get a sense of what imposter syndrome is and that it can be overcome using different resources on campus. In conclusion, this research study could inform the development of cognitive strategies encouraging the application of adaptive metaphors that help first-generation students to overcome imposter syndrome. These metaphors could serve as a guide for the educational community and universities to understand the affective and cultural impacts that college has on first-gen students. Finding psychological strategies that enable students to shift from this mindset to a more adaptive mindset represents a promising avenue of research.

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