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Mikhila N. Wildey

Grand Valley State University, wildeymi@gvsu.edu

Meghan E. Fox

Grand Valley State University, foxmeg1@gvsu.edu

Kelly A. Machnik

Grand Valley State University, machnikk@gvsu.edu

Deborah Ronk

Grand Valley State University

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Exploring Graduate Student Mental Health and Service Utilization by Gender, Race, and Year in School

Mikhila N. Wildey*, Meghan E. Fox, Kelly A. Machnik, Deborah Ronk

Grand Valley State University

* Corresponding Author information:

Email: wildeymi@gvsu.edu

Address: 2126 Au Sable Hall
Grand Valley State University
Allendale, MI 49401

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Abstract

Objective: The current study explored differences in mental health problems, services utilization, and support of graduate students by gender, race/ethnicity, and year in school.

Participants: Participants consisted of 734 graduate students from a large, Midwestern university.

Methods: Graduate students answered a series of questionnaires in fall 2021 assessing their mental health, services utilization, and perception of services.

Results: Women (vs men) and participants in their second year and beyond (vs first year) reported greater mental health problems, negative impact of the pandemic, and more services utilization. White (vs non-White) participants reported greater negative impact of the pandemic, greater services utilization, and less financial strain. Finances, lack of knowledge about resources, and inadequate communication from the university about services were reported as treatment barriers.

Conclusion: Graduate students struggle with mental health, and universities may need to improve communication with and tailor their services to graduate students specifically to better support them.

Keywords: graduate student, mental health, mental health service utilization, pandemic

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Introduction

There grows a body of literature revealing the journey of obtaining a college degree has been stymied by mental health issues. Although the COVID-19 pandemic has exacerbated these issues, they were present well before. In a 2020 national survey, researchers found that one in five adults age 18 or older experience a diagnosable mental illness, and of these individuals, those age 18-25 have the highest prevalence of mental illness.¹ This age range corresponds to the make-up of the college population, and if mental health issues go unaddressed in student populations, factors such as enrollment, retention, and persistence will be threatened.

Existing work examining mental health problems within the student population has focused almost entirely on undergraduate students. Although the traditional undergraduate student makes up the majority of the college population and deserves attention in the area of mental health, it should not overshadow other populations on campus, including graduate students. According to the 2019 Census, the number of U.S. adults holding an advanced degree has doubled since the year 2000 and now represents approximately 13.1% of the population.² Currently, approximately 3.1 million graduate students attend universities across the U.S., carrying with them their own unique set of challenges.³ Compared to undergraduates, graduate students not only face increased rigor with coursework, but are also typically at a different stage in life where work-life balance, family responsibilities, and additional financial burdens contribute as stressors.⁴ Despite these unique challenges, minimal research has examined the scope of the mental health problem amongst graduate students specifically. Therefore, the current study aims to explore the mental health and wellness of graduate students, including examining the types of supports that graduate students may need in order to thrive.

Graduate Student Mental Health Issues

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Existing work has purported that graduate students experience mental health issues, specifically anxiety and depression, at a two to six times greater rate than the general population.⁵ Indeed, several additional studies have similarly found that rates of depression, anxiety, and stress symptoms are particularly high and significant in graduate student populations.⁵⁻⁷ Despite these findings, much of this collective work has relied on samples that either consist of both undergraduate and graduate students, or has relied primarily on samples of students in PhD programs. Although doctorate programs present unique challenges for students, the number of students in masters level programs far outnumbers those in doctoral programs. As such, there is a need for future work to look at graduate students across a variety of degrees.

Within the limited body of work that has examined graduate student mental health, understanding if there are differences between various demographic groups is yet another important area for consideration. With regards to gender differences, existing work has found that in general, women in graduate programs tend to report higher levels of depression, anxiety, and stress than men in graduate programs.⁸⁻¹² However, many of these studies involved relatively small samples of graduate students¹¹ or the graduate students were predominantly within PhD programs.^{5,9} With regards to racial/ethnic differences in rates of mental illness amongst graduate students, the literature is even more limited. Although one study found the rates of anxiety and depression were relatively similar across different racial/ethnic groups,¹² another review article reported most of the studies within their review on graduate student stress levels did not examine racial/ethnic differences within their samples.¹³ Thus, more work in this area is necessary, particularly given we know that significant barriers to access to care and treatment exist for racial/ethnic minorities.¹⁴

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Finally, there is little work that has examined how graduate students' mental health may be impacted by their year within their program. In the review article on graduate student stress levels, the authors reported the majority of the research studies they reviewed did not examine differences in stress levels depending on the student's year in the program.¹³ Some of the research they reviewed found that students tend to feel most stressed early on in their programs and this gradually declines over time but then rises again when defending dissertations (for doctoral students in their last years) or when transitioning to practical/internship years. However, they note only one or two studies examined year in school/type of program (e.g., masters vs doctoral).¹³ As such, there is also a need to examine these factors and how they relate to graduate student mental health.

Utilization of Campus Services

Although it is important to understand the scope of the problem with regards to graduate students and their mental health, it is equally important to understand whether students who may be struggling are able to find and utilize supports from their university. The number of total college students seeking counseling services is outpacing enrollment growth at a 6 times greater rate.¹⁵ However, this statistic fails to separate undergraduate students from graduate students. Although some work has found that graduate students may have less stigma in seeking help for a mental health need than undergraduate students,^{16,17} we need to better understand the degree to which graduate students utilize supports for their mental health and what prevents them from doing so.

A few studies have specifically examined utilization of counseling services amongst graduate students. One study found that about one third of their sample of PhD level graduate students utilized mental health services (on and off campus) while in graduate school.⁴

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Moreover, the authors found that women in this study were more likely to seek counseling services than men. There is also some evidence that might suggest that students of color may be less likely to seek help for a mental health need than White students.¹² However, again, the research in this area is lacking. There are no studies which examined whether utilization of services differs depending on year in school during graduate school, and the work examining racial differences is limited.

Other work has examined barriers that graduate students face that prevent them from seeking help for a mental health need. The societal stigma surrounding mental illness and seeing a counselor remains a primary hurdle to surmount.¹⁸ Stigma tends to be greater in racial/ethnic minorities, males, and international students, leading to less utilization of available services by these populations.¹⁹ Another major barrier to treatment is not having the financial resources to access help.²⁰ Other commonly cited barriers by students include busy schedules, service hours, and lack of information pertaining to services.¹⁸ Because university communication often targets undergraduates, graduate students may be overlooked and not be as aware of services available to them. Consequently, they may be at increased risk of having challenges with their health and academic success, which could then affect their future career opportunities and income.²¹

The COVID-19 pandemic has further complicated the scope of mental health problems and utilization of services amongst graduate students. Some research in the early part of the pandemic documented that rates of mental health problems were exacerbated due to the pandemic.²⁰ It is no surprise that the general uncertainty during the early pandemic coupled with changes to academic delivery of courses, health concerns, financial concerns, and social isolation all contributed to student stress levels. Some work even documented that women during this time

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were more likely to perceive higher levels of stress than men.²² Given the pandemic has not yet ended, it is important to continue examining the effects it is having on graduate students.

Current Study Aims

Graduate students are a specialized population who face their own set of challenges distinct from their undergraduate counterparts. Recognizing the paucity of research on graduate students' mental health, the current study explored this area with three primary aims. First, the scope of mental health problems for graduate students overall and by various demographic groups was examined. Specifically, differences in mental health problems by gender, race/ethnicity, and year in school were explored. The second aim of this study was to understand the degree to which graduate students, by demographic group, utilize services to assist in promotion of their mental health and wellness. Finally, the third aim of this study was to explore what graduate students might need to better support their mental health. The intention of this aim was to identify and present action universities could potentially take to better support graduate students and their mental health.

Methods

Participants and Procedure

Graduate students from a large Midwestern university were recruited via the university's Office of Institutional Analysis (OIA). The university is a predominantly undergraduate institution and is characterized as more of a liberal arts institution. However, they also offer nearly 50 graduate degrees. The majority of the graduate degrees offered are at the master's level, but there are also a few professional doctoral degrees offered (e.g., Physical Therapy). Notably, no PhD programs are offered at this university. Students can also enroll in several combined bachelors/master's degree programs or non-degree certificate programs where students

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may only take a few graduate courses for a specific certification. The OIA invited all 2,968 eligible graduate students (i.e., any student enrolled in a graduate course) to participate in a brief, anonymous, online survey asking about their mental health and wellness during the fall 2021 academic semester. Students were able to enter a raffle for a gift card for their time. All procedures were approved by the university's Institutional Review Board. Of the 2,968 graduate students who were eligible to participate, 818 participants consented "Yes," yielding a response rate of 27.6%. Of the 818 participants, 37 participants left the entire survey blank, and an additional 47 participants had over 92% missing data. These participants were removed from analysis within the current paper, yielding a final sample size of 734 participants (or 24.7% of eligible participants). Importantly, there were no significant differences in race, age, gender identity, and sexuality between those who remained in the final sample versus those with over 92% missing data who were removed from the final sample.

Measures

Following demographic questions, participants were asked a series of questionnaires about their mental health, satisfaction with life, the impact of COVID-19, utilization of mental health services, and supports for their mental health.

Mental Health

The Center for Epidemiological Studies Depression Scale (CES-D)²³ was used to assess severity of depressive symptoms. The CES-D consists of 20-items asking participants to indicate how often they felt particular symptoms during the last week on a 4-point Likert scale ranging from "Rarely or none of the time (less than 1 day)" to "Most or all of the time (5-7 days)." Total possible points for this questionnaire range from 0-60, internal reliability was good for this scale (Cronbach's alpha = .92), and about 4% of the sample was missing data.

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The GAD-7, a measure of generalized anxiety disorder, was used to measure anxiety.²⁴ This measure consists of seven items asking participants to report how often they have been bothered by different anxiety symptoms over the last two weeks using a 4-point Likert scale ranging from “Not at all” to “Nearly every day.” Total possible points for this questionnaire range from 0-21, internal reliability was good for this scale (Cronbach’s alpha = .91), and about 2.5% of the sample was missing data.

Satisfaction With Life

The Satisfaction With Life Scale (SWLS)²⁵ was used to assess participants’ general satisfaction with their lives. The measure consists of five statements and participants indicate to what degree they agree with each statement on a 7-point Likert scale ranging from “Strongly disagree” to “Strongly agree.” Total possible points ranged from 5-35, internal reliability was good for the measure (Cronbach’s alpha = .87), and 9.4% of the sample was missing data.

COVID-19 Pandemic Impact

Participants were asked three specific questions pertaining to the impact of the COVID-19 pandemic. Specifically, they were asked, “To what degree has the COVID-19 pandemic influenced your *mental health* [physical health; access to basic needs you have to survive].” They were asked these questions on a 5-point Likert scale from “None at all” to “A great deal.”

Utilization and Perception of Services

A series of questions were asked to gauge mental health support and services utilization. First, participants were asked “To what degree do you believe that being in graduate school has impacted your mental health” and responded with one of four options: none, a small or minor degree, a moderate degree, or a large degree. They were then asked if they are currently seeking or have ever sought mental health services, such as seeing a counselor or a psychiatrist, while in

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graduate school [yes/no]. If yes, then they indicated where they received the service [on campus/off campus/both] and how satisfied they were with the services they received [not at all satisfied, slightly satisfied, satisfied, very satisfied]. Participants were also asked if they knew where to get help on campus if they had a mental health need (e.g., counseling, psychological, other; response choices were no, somewhat, and yes) and if they felt they had the current financial resources to get help for a mental health need [no, somewhat, yes, unsure].

Finally, participants were asked one open-ended question, “Is there anything, whether small or large, that the university could do to make it easier for you to access mental health care? If so, please explain briefly.”

Data Analyses

Descriptive data was first examined for all key variables and questions of interest. A series of independent sample t-tests and chi-square tests were conducted to examine all key variables of interest by gender, race, and year in school to explore differences in outcomes based on grouping category. In addition, effect sizes (Cohen’s *d* for independent sample t-tests and Phi for chi-square tests) were calculated to determine the magnitude of the relationship between variables. As is convention with use of these effect size metrics, .1 was considered a small effect, .3 a moderate effect, and .5 or higher was considered a large effect. Quantitative data analyses were all conducted using IBM SPSS 26.²⁶

For the open-ended question, MAXQDA Standard²⁷ was used. An inductive coding approach was used by two of the four authors of the paper where 10% of the responses were reviewed and grouped into broader themes and specific codes were developed: “Suggestions for sharing/disseminating/creating resources or services,” “Suggestions for help/support from university and university affiliated personnel,” and “Dissatisfaction with current services or

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resources.” Another sub-sample of 10% of the responses were then coded by the same authors of the paper using the codes that were developed. Inter-coder agreement was established between the two authors and was high (95%), and so the two authors split the remaining responses between them and coded them separately.

Results

Descriptive Statistics

Presented in Table 1 is a breakdown of demographic characteristics of the current sample. The majority of the sample identified as a woman (over 81%) which is slightly higher than the university average of 72% of graduate students identifying as woman. Of those who identified as “Other” with regards to their gender identity, one participant identified as a trans-woman, two participants identified as a trans-man, nine participants identified as gender queer, and five participants identified as some other identity. For the purposes of data analyses, given there were a very small number of participants who identified as a gender identity other than man or woman, we chose to limit the analyses which specifically looked at gender differences to only those identifying as a woman/trans-woman ($n = 597$ or 81.3%) or man/trans-man ($n = 123$ or 16.8%). Participants in the sample ranged in age from 18-58 years old ($M = 27.2$, $SD = 7.2$) with the majority of the sample (95%) at least 22 years or older. As seen in Table 1, most participants were between 18-25 years old.

The sample was predominantly White (81.6%) with regards to race/ethnicity, and this proportion is in line with the broader student population at the university. Due to the lower numbers of participants within each of the racial/ethnic categories other than those identifying as White, we chose to collapse participants into a bimodal racial/ethnic variable of White and Non-White participants for data analyses concerning racial/ethnic differences. Consistent with the

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overall university's breakdown, most of the sample was enrolled in a terminal master's degree program, a smaller number of participants were enrolled in a terminal doctorate degree program, and only 1% was enrolled in some other program (e.g., a certificate program). Finally, the majority of participants were in their first year of their respective programs. Given the smaller amounts of participants in years two and beyond, we chose to collapse those categories and created a bimodal variable for year in school for first year students and second year and beyond students for data analyses examining differences by year in school.

Mental Health

As seen in Table 2, results of the CES-D and GAD-7 across the sample are presented. For the CES-D, a cutoff score of 16 is considered "significant" for a mild level of depression²³ and as seen in Table 2, the overall sample mean was 21, suggesting a significant level of depression in the current sample. Independent sample t-tests were conducted to determine if there were significant differences in mean levels of these measures by race, gender, and year in school. Although there were no significant differences in depression by race or year in school, women reported significantly higher levels of depression than men (Cohen's $d = -.19$). The overall sample mean for the GAD-7 was 9.3, a number which falls in the "mild" range for anxiety according to the measure's score ranges,²⁴ but also falls above the cutoff point of 8 points which indicates with 83% sensitivity that the individual meets criteria for Generalized Anxiety Disorder.²⁸ Although there were no differences in anxiety by race, women were significantly more likely to report higher levels of anxiety (Cohen's $d = -.26$) and participants in their second year and beyond were significantly more likely to report higher levels of anxiety (Cohen's $d = -.13$).

Satisfaction With Life

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As seen in Table 2, the overall average for the SWLS was 22.9 ($SD = 6.4$), and this number falls in the “slightly satisfied” range for this measure.²⁹ Of note, White participants scored significantly higher in this measure than Non-White participants (Cohen’s $d = .15$), but averages for both White and Non-White participants fell in the same “slightly satisfied” range. There were no significant differences in mean levels for this scale by gender or by year in school.

COVID-19 Pandemic Impact

Results from the three questions assessing the impact of the pandemic can also be found in Table 2. As seen there, the mean level for the item pertaining to the pandemic’s negative influence on mental health was higher than the pandemic’s impact on physical health or access to basic needs, suggesting that of the three possible areas of impact, mental health seemed to be most affected in the current sample.

Results of independent sample t-tests revealed women were significantly more likely to report that the pandemic has negatively influenced both their mental health and physical health than men (Cohen’s $ds = -.31$ and $-.24$, respectively). Interestingly, men were significantly more likely to rate that the pandemic had a negative influence on their access to basic needs than women (Cohen’s $d = .21$). White participants were more likely to report that the pandemic has negatively influenced their mental health (Cohen’s $d = .14$) than non-White participants, and non-White participants were significantly more likely to report that the pandemic has negatively influenced their ability to access basic needs they require for survival (Cohen’s $d = -.24$). There were no significant differences by race for the pandemic’s negative influence on participants’ physical health. Finally, with regards to year in school, participants in their second year and beyond rated that the pandemic had a greater negative influence on their mental health and physical health than participants in their first year of graduate school (Cohen’s $ds = -.19$ and $-.16$,

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respectively). There were no significant differences by year in school for the influence of the pandemic on participants' access to basic needs.

Utilization and Perception of Services

Results from questions about participants' mental health experiences and utilization of services can be found in Tables 2 and 3. As seen in Table 2, the overall sample mean for the item asking students to report the degree of impact being in graduate school has had on their mental health is relatively high (the item was on a 4-point Likert scale). Indeed, 64% of the sample reported that being in graduate school has impacted their mental health to a moderate or large degree. White participants, women, and participants in their second year and beyond reported higher averages for this item than non-White participants, men, and participants in their first year, respectively (Cohen's d s = .15, -.28, and -.32, respectively). The effect size for year in school was in the moderate range, and it was one of the few effect sizes that was not in a small range across all effect sizes in the current paper.

As seen in Table 3, about one third of the participants utilized mental health services while in graduate school. There was a significant association between services being utilized and race, gender, and year in school based on results from chi-square tests, such that White participants, women, and participants in their second year and beyond were more likely to utilize mental health services (Phi's = -.07, .09, and .17, respectively). On the whole, participants reported being satisfied with the care they received (see Table 2 for mean levels; of note, there were no significant differences for this item by race, gender, or year in school) and most services were received off campus (see Table 2).

With regards to awareness for mental health services, only 40.5% of the sample felt confident (i.e., marking "Yes") knowing where they should go on campus if they had a mental

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health need. In addition, only one third of the sample reported “Yes” that they had the financial resources to access mental health services. Indeed, the majority of the sample either reported no, somewhat, or that they were unsure if they had the financial resources for a mental health need. Non-White participants and participants in their second year and beyond were more likely to state that they did not have the financial resources currently to get help for a mental health need (Phi's = .19 and .15, respectively).

Finally, results of the open-ended question where participants were asked if there was anything, small or large, that the university could do to make it easier for graduate students to access mental health care were coded and summarized. Of the 734 participants, 168 participants, or about 19% of the sample, responded to the item. Results of the three codes can be found in Table 4. As seen there, most responses fell under the code where participants made suggestions for dissemination of resources/services, creation of new resources/services, and sharing of information. About 18% of the total coded responses represented participants who felt that faculty and other university personnel could be more supportive in order to help them with their mental health. Finally, about 18% of the responses of the total coded responses commented on dissatisfaction with current services or resources offered at the university.

Discussion

The current study explored mental health problems, needs, and utilization of services in a graduate student population at a large, Midwestern university. Importantly, the current study expanded on prior work in this area by also examining whether there were differences in these areas by demographic group (i.e., gender, race, and year in school).

Graduate Student Mental Health and Utilization of Services

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Findings of the current study revealed that graduate students in the current sample have significant mental health problems. Consistent with prior work,^{6,10,20} overall levels of both depression and anxiety were shown to be at clinically significant levels. Although our findings indicate the COVID-19 pandemic had a significant and negative impact on participants' mental health, most participants expressed that being in graduate school specifically had a negative impact on their mental health. Despite significant mental health problems, most participants did not seek services to help with their mental health in the current sample. Only about one-third of the sample sought help through the utilization of services for their mental health, a percentage in line with that reported in another study.⁴

The current study expanded prior work by examining differences in mental health problems, needs, and utilization of services by gender, race, and year in school. First, women relative to men in the current study reported significantly higher levels of depression and anxiety, were more likely to report being in graduate school has had a negative impact on their mental health, were more likely to report that the pandemic has negatively influenced both their mental and physical health, and were more likely to seek support for their mental health. These findings are in line with existing work which has similarly found that mental health problems and stress are higher in women than in men,^{5,9,11,12,30} and women are more likely to utilize mental health services.^{9,12,31} An interesting finding from the current study was that men were more likely than women to report that the pandemic has had a negative impact on their access to basic needs. We are unsure of what to make of this finding, given that generally, most work has found that women report a higher negative impact of COVID than men.³²

The current study did not find significant differences in anxiety and depression levels between White and non-White participants, a finding consistent with prior work.¹² Importantly,

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however, White participants reported that being in graduate school and the pandemic had a greater negative impact on their mental health than non-White participants. Despite greater negative impact on their mental health, White participants reported greater levels of life satisfaction and were more likely to seek services to help with their mental health than non-White participants, a finding consistent with prior work which has found that students of color are less likely to seek help for their mental health.^{9,12} On the other hand, non-White participants reported that the pandemic had a greater negative impact on their access to basic needs that they require to survive. Thus, these findings collectively suggest that although mental health problems may be elevated in some key areas for Whites, non-Whites seem to struggle more with accessing basic resources and needs that may in turn make it more challenging for them to seek help.

Finally, and perhaps some of the most unique findings of the current study were to examine how a participant's year in their program may affect their mental health. To our knowledge, no studies have examined differences in mental health problems and utilization of services in graduate students based on their year in school. As a reminder, the sample in the current study came from a university composed primarily of master's programs, and within these programs, the difference between the first and second year can be quite stark. Specifically, many master's programs at the university in the current study involve students beginning a practicum/work/internship placement in their second year and completing a master's thesis or project. The current study found that participants in their second year and beyond reported greater levels of anxiety, a greater negative impact of the pandemic on their mental and physical health, a greater negative impact of being in graduate school on their mental health, and a higher likelihood of utilizing services. Of note, the effect size for the relationship between year in school and the impact of being in graduate school on their mental health was one of the few

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moderate effect sizes (versus a small effect size) found in the current paper. This finding suggests being in one's second year and beyond may pose unique challenges within graduate school that negatively impact one's mental health. These findings shed light on the impact of workload/expectation changes within a graduate program on a student's stress level.

Overall, the current study found that in general, participants who had greater mental health problems/needs were also typically more likely to seek services. Nonetheless, as stated earlier, the majority of the sample did not seek mental health services, and the current study also sought to explore why this may be the case and how to better support graduate students.

Areas of Support for Graduate Student Mental Health

A significant barrier to treatment for graduate students in the current study was not knowing where to go on campus for a mental health need and not having the financial resources to access mental health help. Non-White participants were more likely than White participants to report not having the financial resources to help with their mental health, and given that Non-White participants also reported a greater negative impact of the pandemic on their access to basic needs, one can hypothesize the pandemic exacerbated this problem. This finding coupled with the fact that non-White participants were also less likely to utilize services to help with their mental health reflects that students of color may be disproportionately affected by economic hardships which may then make it challenging for them to seek care for themselves. Although little work has examined racial differences in barriers for graduate students specifically to seek treatment, there is strong evidence in the existing literature that ethnic minorities are more likely to have barriers (e.g., stigma, finances) to access quality treatment for their mental health.¹⁴

The current study also found that participants in their second year and beyond were more likely to report not having the financial means to access services for their mental health relative

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to first year graduate students. To our knowledge, only one other study similarly examined placement in graduate school in relation to financial concerns, but the study only examined masters versus doctoral students and found no significant differences in financial strain.³³ Thus, this finding is worth exploring, because second year and beyond students in the current study were also more likely to utilize services to help with their mental health despite feeling they did not have the financial means to access those services.

The current study also had a unique opportunity to examine an open-ended question asking participants what they felt the university could do to better support their mental health. A closer inspection of responses from this question revealed a few themes. First, many of the services requested by participants were those that already existed at the university, and participants wanted to know more about services that were available to them. In addition, many students commented on the lack of services that are specifically geared towards graduate students. Those that knew of existing services such as the ten free counseling sessions felt that they were geared more towards undergraduates given they were only offered at the campus location that consists primarily of undergraduates and that the counselors at the center were also graduate students. Many participants reported feeling uncomfortable being seen for counseling by someone who might be more of a “peer” in terms of their placing in school/life. Not surprisingly, the majority of the participants who did seek counseling or psychiatric services for their mental health sought these services off-campus. However, then, many discussed the financial burdens associated with seeking off-campus care.

Participants in the current study also reported some barriers to treatment: the stigma associated with seeking services and the lack of discussion around importance of mental health and taking care of oneself within their classrooms and campus community. Many expressed a

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desire to have professors talk more openly about these issues. Indeed, these findings are consistent with existing work suggesting similar themes of what graduate students want to feel more supported in their mental health and barriers they have to receiving help.^{4,18,20,31,34} In all, this work suggests that graduate students certainly do want more help for their mental health, but they may not entirely know how to go about getting that help.

Limitations and Future Research

Although the current paper is one of the first to explore a range of mental health problems, needs, and utilization of services in graduate students by demographic group, there are some limitations to note. First, the sample came from a predominantly homogenous university with regards to race and gender. Future research should examine these questions in more diverse samples where a breakdown by specific racial group would be possible. Second, the current study was conducted during the pandemic, and it is therefore unclear whether some of these effects were unique to pandemic-related stress or whether these mental health problems and needs would persist even after the pandemic ends. Finally, the university in the current study consisted primarily of master's degrees and of professional degrees. As such, these findings cannot generalize to schools which are more research-focused and are more heavily weighted with PhD programs. Despite this limitation, it is important to note that much of the existing work on graduate student mental health has focused more so on doctoral students, but further examination of mental health problems and needs within these programs is necessary, as research-focused PhD programs certainly have unique challenges with regards to workload and dissertations.

Recommendations and Action Points

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The current study was also conducted to help universities and administrators develop some ideas for actionable ways in which they can improve their mental health services for graduate students. First, universities could consider developing mental health programs/services that are *specific and targeted* to graduate students (versus undergraduate students). Participants in our sample did not feel comfortable being “clumped” together with undergraduate students and potentially fighting for resources with them. Given the graduate student schedule and lifestyle, it may be important to also tailor services so that they are more accessible to graduate students. For example, universities can offer services across campus locations, remotely, and during evening hours for students who work/attend school all day.

Second, universities could benefit from providing psychoeducation to faculty and staff regarding the importance of mental health and how to better support their students. Given faculty are already stretched thin with their own expectations and requirements for their positions, it may be helpful for everyone at the university to take some time to practice better mental health. Simple, actionable coping skills like deep breathing techniques or doing quick mindfulness videos may be helpful for students, faculty, and staff.

Finally, improving communication about mental health services and talking more openly about mental health is something all universities can strive to do. Indeed, discussing mental health more openly is one of the best ways to reduce stigma associated with it.¹⁹ Many of the participants in our sample suggested a newsletter or weekly email reminder to graduate students specifically focused on mental health would make them feel like the university was more supportive and interested in helping them with their mental health.

Mental health can have a lifespan effect. Happy, balanced individuals are overall more productive, creative, and collaborative in their life and careers. However, often times graduate

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school does not promote a happy and balanced lifestyle, leading to mental health detriments. The current study provides further evidence of the importance that we put a spotlight on the mental health of graduate students and give them the attention that they deserve.

Declaration of Interest Statement

The authors report there are no competing interests to declare.

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Table 1. Demographic characteristics of participants ($N = 734$)

Characteristic	Category	<i>n</i> (%)
Gender Identity	Man	121 (16.5%)
	Woman	596 (81.2%)
	Other	17 (2.3%)
Age	Overall Mean (SD)	27.2 (7.2)
	18-25	440 (59.9%)
	26-30	124 (16.9%)
	31+	154 (21.0%)
Race	White or Caucasian	597 (81.3%)
	Hispanic or Latino	13 (1.8%)
	Black or African American	30 (4.1%)
	Asian or Asian American	53 (7.2%)
	Native Hawaiian or Other Pacific Islander	0 (0%)
	Native American/Alaska Native	3 (.4%)
	Multiracial	35 (4.8%)
Degree Program	Masters	630 (85.8%)
	Doctorate	95 (12.9%)
	Other/Unknown	7 (1.0%)
Year in School	First	377 (51.4%)
	Second	257 (35.0%)
	Third	73 (9.9%)
	Fourth or higher	27 (3.7%)

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Table 2. Results for Interval Data by Race, Gender, and Year in School

Measure/Question (<i>n</i>)	Overall Sample Mean (<i>SD</i>)	Sample Range (Min-Max)	Race – Cohen’s <i>d</i>	Gender – Cohen’s <i>d</i>	Year - Cohen’s <i>d</i>
Depression – CES-D (<i>n</i> = 704)	21 (11.6)	0-57	-.10	-.19*	-.10
Anxiety – GAD-7 (<i>n</i> = 716)	9.3 (5.7)	0-21	.09	-.26*	-.13*
Satisfaction With Life – SWL (<i>n</i> = 665)	22.9 (6.4)	5-35	.15*	-.11	.08
To what degree has the COVID-19 pandemic negatively influenced your mental health? (<i>n</i> = 666)	3.2 (1.1)	1-5	.14*	-.31*	-.19*
To what degree has the COVID-19 pandemic negatively influenced your physical health? (<i>n</i> = 665)	2.6 (1.2)	1-5	-.08	-.24*	-.16*
To what degree has the COVID-19 pandemic negatively influenced your access to basic needs? (<i>n</i> = 666)	1.8 (.9)	1-5	-.24*	.21*	.09
To what degree do you believe that being in graduate school has impacted your mental health? (<i>n</i> = 717)	2.8 (.9)	1-4	0.15*	-0.28*	-0.32*
If you received mental health services while in graduate school, how satisfied were you with the care you received? (<i>n</i> = 242)	3.9 (.9)	2-5	-.07	.13	.11

Note. Independent sample t-tests were conducted to test for significant differences for each measure/question by race (White/Non-White), Gender (Man/Woman), and Year in School (First Year/Second Year and Beyond). Positive numbers for Cohen’s *d* effect sizes for Race indicate that Whites were more likely to have higher scores. Positive numbers for Cohen’s *d* effect sizes for Gender indicate that men were more likely to have higher scores. Positive numbers for Cohen’s *d* effect sizes for Year indicate that first year students were more likely to have higher scores. * indicates the independent sample t-test was significant at $p < .05$.

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Table 3. Results for Categorical Data by Race, Gender, and Year in School

Measure/Question	Overall	Race		Gender		Year in School	
		White	Non-White	Man	Woman	1 st year	2 nd + year
<i>n</i> (%)							
Currently/ever seek mental health services while in grad school?		Phi = -.07*		Phi = .09*		Phi = .17*	
No	473 (64.4)	377 (64.3)	94 (73.4)	89 (76.1)	381 (65)	274 (73.9)	199 (57.7)
Yes	243 (33.1)	209 (35.7)	34 (26.6)	28 (23.9)	205 (35)	97 (26.1)	146 (42.3)
Where were services received?		Phi = .13 ⁺		Phi = .06 ⁺		Phi = .05	
On campus	38 (5.2)	29 (13.9)	9 (26.5)	5 (17.9)	33 (16.1)	16 (16.5)	22 (15.1)
Off campus	195 (26.6)	172 (82.3)	23 (67.6)	21 (75)	164 (80)	78 (80.4)	117 (80.1)
On and off campus	10 (1.4)	8 (3.8)	2 (5.9)	2 (7.1)	8 (3.9)	3 (3.1)	7 (4.8)
Do you know where to go on campus for a mental health need?		Phi = .04		Phi = .07		Phi = .02	
No	183 (24.9)	153 (26.1)	28 (21.9)	37 (31.6)	143 (24.4)	97 (26.1)	86 (24.9)
Somewhat	237 (32.3)	195 (33.2)	42 (32.8)	39 (33.3)	194 (33)	123 (33.2)	114 (32.9)
Yes	297 (40.5)	239 (40.7)	58 (45.3)	41 (35)	250 (42.6)	151 (40.7)	146 (42.2)
Do you currently feel you have the financial resources to get help for a mental health need?		Phi = .19*		Phi = .07		Phi = .15*	
No	203 (27.7)	146 (24.9)	57 (44.5)	38 (32.5)	161 (27.4)	99 (26.7)	104 (30.1)
Somewhat	232 (31.6)	203 (34.6)	29 (22.7)	36 (30.8)	191 (32.5)	105 (28.3)	127 (36.7)
Yes	227 (30.9)	197 (33.6)	28 (21.9)	31 (26.5)	193 (32.9)	127 (34.2)	100 (28.9)
Unsure	55 (7.5)	41 (7)	14 (10.9)	12 (10.3)	42 (7.2)	40 (10.8)	15 (4.3)

Note. Chi-square tests were conducted to test for significant differences for each categorical question by race (White/Non-White),

Gender (Man/Woman), and Year in School (First Year/Second Year and Beyond). Phi is a measure of the effect size, and * indicates

that the chi-square test was significant at $p < .05$, suggesting a relationship between the two variables. ⁺ For tests with cell sizes < 5, a

Fisher's Exact Test was done to determine if there was a significant relationship.

Table 4. Coded Summaries from Open-Ended Question

Code	Frequency	Percentage
Suggest sharing/disseminating/creating resources or services	113	63.5%
Suggest help/support from university personnel	33	18.5%
Dissatisfaction with current services or resources	32	18.0%

Note. Participants were asked “Is there anything, whether small or large, that the university could do to make it easier for you to access mental health care? If so, please explain briefly.” Total N responses = 168.