

The Relationship of Personality and Depression in Pharmacy Students

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Abstract

Objectives. To determine if there is a correlation between personality traits or types and depression ratings of Samford University McWhorter School of Pharmacy students. A further objective of this study was to determine if there is a higher rate of depression in students with personality types that are nondominant for their gender.

Methods. An online survey was sent to all full-time pharmacy students enrolled in the graduating classes of 2021, 2022, and 2023. Data were analyzed using IBM SPSS.

Results. All students with severe depression had personality traits of introversion, feeling, and judging (types INFJ and ISFJ), with 50% intuitive and 50% sensing. No males in this study had moderately severe or severe depression. Most males with moderate depression were INTJ. The two females with severe depression had personality types ISFJ and INFJ. Most of the seven females with moderately severe depression were ISTJ. A nondominant personality type for gender did not have a correlation with rate of depression.

Conclusion. This study was completed with the goal of creating tools and resources to decrease the number of future pharmacy students with depression. Future research should include multiple schools of pharmacy or a more general population.

Keywords: personality, depression, pharmacy students, gender

1. Introduction

The purpose of this study was to determine if there is a correlation between personality traits (extraversion/introversion, sensing/intuition, thinking/feeling, and judging/perceiving) or types (ENFJ, ENTP, INFJ, INFP, INTJ, INTP, ISFJ, ISTJ, ESFJ, ESFP, ESTJ, ESTP, ISFP, ISTP, ENTJ, and ENFP)¹⁰ and rates of depression in students at Samford University McWhorter School of Pharmacy. A further objective of this study was to evaluate whether students with personality types that are nondominant for their gender have a higher rate of depression. This data could help to improve measures in place at the McWhorter School of Pharmacy for students who might be at higher risk for developing depression.

Some studies suggest that there is a possible correlation between depression and academic satisfaction in pharmacy students⁹. Multiple studies show that individuals with higher neuroticism and lower extraversion are more likely to have depression^{1,5,7}. By determining factors that can lead to depression, early measures can be taken to help prevent students from developing this disorder while in pharmacy school. Because McWhorter School of Pharmacy uses the Myers-Briggs Type Indicator (MBTI) to determine students' personality traits and types, this research focused on these eight single-factor personality traits as well as the 16 four-factor personality types and their correlation to depression in pharmacy students.

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One study assessed patients with unipolar depression and found that the most common single-factor personality traits were introversion, sensing, feeling, and perceiving, while their most common four-factor personality types were ISFP and INFP⁶.

Another objective of this study was to assess if students with personality types that are nondominant for their gender are more likely to have depression. According to a study published in the *Journal of Psychological Type*, males are more likely to be the ISTJ or ESTJ four-factor personality type, while females are more likely to be ISFJ or ESFJ⁴. In one study, referenced above, males with the ISFP four-factor personality type were heavily represented in patients with unipolar depression⁶.

2. Methods

This study was submitted to and approved by the Institutional Review Board (IRB) at Samford University. An online survey was sent via Qualtrics to all full-time students enrolled in McWhorter School of Pharmacy graduating classes of 2021, 2022, and 2023. Results gathered were completely anonymous and participants voluntarily chose to take the survey. In order to increase completion rates of the survey, a random drawing—using information collected through a subsequent survey—was conducted for a chance to win one of five \$20 Amazon.com gift cards or a hand sanitizer gift package.

Survey questions were developed based on the Myers-Briggs Type Indicator personality inventory to determine each respondent's personality traits and type. The Patient Health Questionnaire (PHQ-9) was used to determine rates of depression⁸. Depression ratings were classified as minimal or none, mild, moderate, moderately severe, and severe. Participants were led through a series of questions which began with demographics and continued with questions determining personality traits and types, wellness, questions from the Patient Health Questionnaire, questions determining persistence, and results from students' Gallup's Clifton Strengths test. Results were analyzed using IBM's SPSS v.26 statistical analysis program. Wellness, persistence, and strengths were analyzed by the co-authors for related studies.

3. Results

Of the 179 responses to the survey, 67.6% were female and 32.4% were male. There were 14% in the age range of 18-21, 59.8% in the age range of 22-25, 16.2% in the age range of 26-29, and 10.1% were 30 years or older. Students were asked whether they identified as a traditional or nontraditional student. According to the National Center for Education Statistics, a nontraditional student is defined as one who does not attend their postsecondary education immediately after high school, has a dependent or dependents other than a spouse, works full time while enrolled, is financially independent from their caregivers, or those who did not receive a standard high school diploma¹². Of the participants, 77.7% identified as traditional students, and 22.3% identified as nontraditional students. For current year in the pharmacy program, 36.3% of participants were in their second year, 29.1% were in their third year, and 34.6% were in their fourth year. Results regarding personality correlations with wellness, persistence, and Gallup's Clifton Strengths can be found in manuscripts written by the co-authors.

From a series of custom questions based on the Myers-Briggs Type Indicator personality inventory, participants' personality traits and types were determined. Responses to these questions determined the four out of eight possible personality traits for each participant (introversion vs. extroversion, intuition vs. sensing, thinking vs. feeling, or judging vs. perceiving) (Table 1), as well as the one of 16 possible four-factor personality types (ENFJ, ENTP, INFJ, INFP, INTJ, INTP, ISFJ, ISTJ, ESFJ, ESFP, ESTJ, ESTP, ISFP, ISTP, ENTJ, or ENFP) (Table 2). The most common traits were introversion at 82.1%, sensing at 57.5%, thinking at 59.2%, and judging at 76%. The top five types were ISTJ at 26.8%, ISFJ at 14.5%, INFJ at 11.7%, INTJ at 11.7%, and INTP at 7.3%.

Table 1: Frequency and Percent of Personality Traits in McWhorter School of Pharmacy Students

Personality Trait	Frequency	Percent (%)
Introversion	147	82.1
Extroversion	32	17.9
Intuition	76	42.5
Sensing	103	57.5
Thinking	106	59.2
Feeling	73	40.8
Judging	136	76.0
Perceiving	43	24.0

Table 2: Frequency and Percent of Personality Types in McWhorter School of Pharmacy Students

Personality Type	Frequency	Percent (%)
ISTJ	48	26.8
ISFJ	26	14.5
INFJ	21	11.7
INTJ	21	11.7
INTP	13	7.3
ESTJ	7	3.9
INFP	6	3.4
ISFP	6	3.4
ISTP	6	3.4
ENFJ	5	2.8
ESFJ	5	2.8
ESTP	5	2.8
ENFP	4	2.2
ENTJ	3	1.7
ENTP	3	1.7
ESFP	0	0.0

The PHQ-9 scoring system was used to determine participants' rate of depression. Based on the survey, 55.3% of students had minimal or no depression, 22.9% had mild depression, 16.8% had moderate depression, 3.9% had moderately severe depression, and 1.1% had severe depression. For the personality traits of the 1.1% of students who were severely depressed, each were found to have introversion, feeling, and judging, while they each differed between intuition and sensing. For the personality traits of the 3.9% of students who had moderately severe depression, they were 100% introverted, 71.4% sensing, 71.4% thinking, and 85.7% judging. Of the 55.3% of students with minimal or no depression, 77.8% were introverted, 55.6% sensing, 59.6% thinking, and 74.7% judging.

Of the two students that had severe depression, one was categorized as personality type INFJ and one as ISFJ. For the students who had moderately severe depression, 42.9% were ISTJ, while there were 14.3% each with personality types INFJ, INTJ, ISFJ, and ISTP. The most common personality types of the students who had minimal or no depression were ISTJ at 24.2%, INTJ at 13.1%, INFJ at 12.1%, and ISFJ at 12.1%. As mentioned above, the most common personality types for this survey were ISTJ, ISFJ, INFJ, INTJ, and INTP. See Table 3 for the breakdowns of depression ratings in each of these five types.

Table 3: Percent Breakdown of Depression Ratings for the Five Most Common Personality Types

Personality Type	Depression Rating (%)				
	Minimal or None	Mild	Moderate	Moderately Severe	Severe
ISTJ	50.0	27.1	16.7	6.3	0.0
ISFJ	46.2	30.8	15.4	3.8	3.8
INFJ	57.1	23.8	9.5	4.8	4.8
INTJ	61.9	9.5	23.8	4.8	0.0
INTP	46.2	23.1	30.8	0.0	0.0

Based on the study published in the Journal of Psychological Type, the dominant personality types for males were ISTJ and ESTJ. Only one of the 14 males that had either one of these personality types within this study conducted at McWhorter School of Pharmacy had moderate depression, and that student was personality type ISTJ. Among the 58 males that completed this survey, the most common personality types were ISTJ at 19% and INTJ at 15.5%.

For the nine males with INTJ, three had moderate depression. None of the males in this study had moderately severe or severe depression, but the highest number of males with moderate depression had personality type INTJ (27.3% of all males with moderate depression). Of the 37 males with minimal or no depression, the most common personality type was ISTJ at 18.9%.

For males with personality types ENFJ, ENFP, ENTJ, and ESTP, 100% had minimal or no depression. From the same study mentioned above, the dominant personality types for females were ISFJ and ESFJ. Of the 24 students that had either one of these personality types within this study conducted at McWhorter School of Pharmacy, one had severe depression, one had moderately severe depression, and four had moderate depression. Each of those students were personality type ISFJ. Among the 121 females that completed this survey, the most common personality types were ISTJ at 30.6% and ISFJ at 19.0%. For the 37 females with ISTJ, three had moderately severe depression and seven had moderate depression. The two students with severe depression were both female and had personality types ISFJ and INFJ. The seven students with moderately severe depression were also female, with the most common personality type being ISTJ (42.9% of all students with moderately severe depression). The most common personality type of females with moderate depression was ISTJ at 36.8%. Of the 62 females with minimal or no depression, the most common personality type was ISTJ at 27.4%. For females with personality types ESTJ, ESTP, and ISFP, 100% had minimal or no depression.

4. Discussion

When assessing the limitations of this survey, a few factors were of note. Although the custom questions determining personality traits and types were based on the Myers-Briggs Type Indicator personality inventory, the question set was not as in depth as the MBTI questionnaire. The MBTI questionnaire consists of 93 questions, while this survey contained 20 questions determining personality traits and types¹¹. These questions were formulated by the authors of this study and—although the questions were piloted with success—the questions could have miscategorized some of the students' personality traits and types. For example, the study's participants were depicted as 82.1% introverted. If the questions determining whether the participant was an introvert or extrovert did not elicit the intended responses, overall data comparing depression with these personality traits and types could be misleading.

This study was conducted during the COVID-19 global pandemic. The pandemic increased the number of people who were suffering from depression in the U.S. and other countries³. In this survey, the Patient Health Questionnaire-9 was used to determine depression ratings. The validity of this questionnaire has been studied multiple times and is an accepted diagnostic tool among many practices^{2,8}. Although over half of the students had minimal or no depression, the percentage of students with some form of depression could have been affected by this pandemic.

This survey was only administered to full-time students enrolled in McWhorter School of Pharmacy. Because people who choose pharmacy as a career or are under the stress of pharmacy school may have differing personality traits and types than those of the general public, these results may not accurately describe a larger, more variable population. Future research on this subject should include multiple schools of pharmacy or a larger, more general population.

Conclusion

This study was completed with the goal of being able to apply the results to future McWhorter School of Pharmacy students, and potentially creating tools and resources to decrease the number of students with depression. By decreasing depression, students could have greater academic satisfaction, and could possibly improve patient care. To apply these data and/or generalize to a broader population, more research should be done.

From the results of this study, the majority of students in Samford University McWhorter School of Pharmacy had personality traits of introversion, sensing, thinking, and judging, and a personality type of ISTJ. In turn, students with these personality traits and type were shown to have the highest rate of moderately severe depression, but also, the highest rate of minimal or no depression. Only two of the 179 participants who completed this study had severe depression. The personality types of these two students were INFJ and ISFJ. For both males and females in this study, having a personality type that is non-dominant for their gender did not correlate with higher rates of depression.

Overall, female students had a higher rate of depression. The results of this study provide a good foundation for analyzing the relationship between different personality traits and types with depression. The school plans to conduct more research on these topics.

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