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Predictors of Utilization of Care in a Community Outpatient Mental Health Sample

Matthew F. Bloom
Philadelphia College of Osteopathic Medicine

Philadelphia College of Osteopathic Medicine

School of Professional and Applied Psychology

Department of Clinical Psychology

PREDICTORS OF UTILIZATION OF CARE IN A COMMUNITY OUTPATIENT

MENTAL HEALTH SAMPLE

By Matthew F. Bloom, MS, MS, CAADC, LPC

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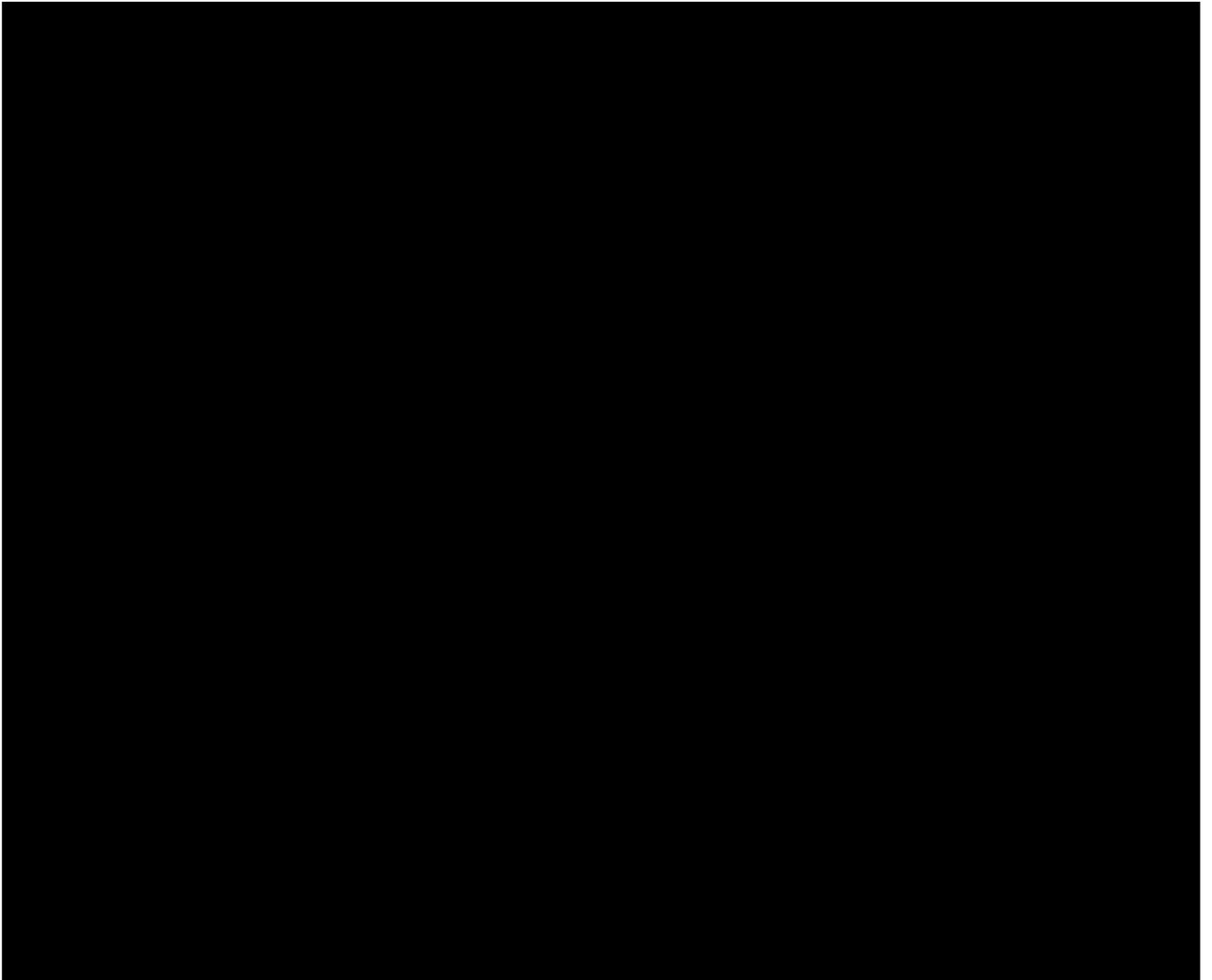
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Abstract

The term *superutilizer* is used to classify individuals who frequent emergency departments and inpatient medical settings for preventable reasons. The exact criteria for this term are unclear, and there is dearth of literature on how it applies to the outpatient medical setting and to mental health utilization. The purpose of this study was to identify potential client demographic and clinical variables predictive of the utilization of mental health services/resources, as measured by number of sessions attended over the course of treatment in an outpatient mental health setting. It was hypothesized there would be a predictive relationship between being female, younger, having higher Patient Health Questionnaire-9 (PHQ-9) and General Anxiety Disorder-7 (GAD-7) scores, having a diagnosis of bipolar disorder, seeing a psychiatrist, employment, service location (suburban or urban), referral source (personal or professional), number of comorbid/chronic conditions, and number of sessions attended. It was also hypothesized that there would be a significant decrease in PHQ-9 and GAD-7 scores over the course of treatment. The current study was conducted using archival records from the patient database of Delaware County Professional Services. Gender was the only variable that was significantly correlated with number of sessions attended ($r = .114$, $p = .044$). The overall regression model was not significant, although it approached significance. There was a significant decrease in PHQ-9 and GAD-7 scores between baseline and the 12th session. Potential explanations of the results, limitations of the current study, and future directions are provided.

Chapter 1: Introduction

Superutilizer is a relatively new term, coined by Jeffrey Brenner, MD, an

American family physician, to refer to individuals who frequently visit emergency

departments and or inpatient medical settings for arguably preventable reasons (Emeche,

2015). However, the exact criteria for defining a superutilizer remain unclear, and there is

little research on utilization of outpatient medical or mental health services. Due to the

dearth of literature surrounding utilization of outpatient mental health, it would be helpful

to understand what factors predict overutilization of services, as defined by the number of

sessions attended during a course of therapy. For the purposes of this study, an

examination of client, therapist, and clinical predictors was conducted. This study

addressed the following question: At the time of intake, what client *demographic* and

clinical variables predict utilization of mental health services, as measured by number of

sessions attended from initiation to the completion of therapy?

Statement of the Problem

A 2017 Texas Medicaid study found that only 13% of emergency department

visits were considered unavoidable (Delcher, Yang, Ranka, Tyndall, Vogel, &

Shenkman, 2017), meaning in almost 9 of 10 cases, the visits were not necessary.

However, the lack of specific criteria for superutilization means that there is no agreed-

upon number of visits or period in which an individual must engage in order to qualify as

a superutilizer. For the purposes of this study, a superutilizer was classified as an

individual who engaged with their therapist every week for a period of over 1 year.

The literature has identified various factors that precipitate and/or maintain

superutilization in medical settings. Gender, age, race, insurance, medical conditions,

behavioral health status, substance use, and socioeconomic status are just a few factors that have been identified as risk/protective factors. For example, having Medicaid insurance increased the odds of a medical readmission by 274% in some populations (Petrey et al., 2015). These same variables and others were used to examine outpatient mental health utilization.

As it pertains to age and gender, high users in medical settings comprised 0.5% of the population aged 50 to 74 and 2.6% of those aged 75 or older, but accounted for 45.6% and 56.1% hospitalization days, respectively(Rotermann, 2017). It was also found that having a neurological condition, being inactive, not having a partner, being at the end of life, and having comorbidities increased the odds of high use (Rotermann, 2017). According to Soril et al. (2016), in most healthcare systems, superutilizers were more likely to be female, older, and have a mental health diagnosis. Cunningham et al. (2017), however, had conflicting results, indicating that individuals with frequent emergency department visits were more likely to be African American, be younger, have a significant chronic illness burden, and to report fair or poor health. Lastly, more recent research conducted by Gil et al. (2018) contradicted some of the previous data; they found that a superutilizer was more likely to be African American, male, and Medicaid insured.

Cunningham et al. (2017) also identified other risk factors for future high cost use, such as low income (personal and household), living in high-dependency neighborhoods, and having less than a postsecondary education. Furthermore, high cost user status was most strongly associated with food insecurity, non-homeownership, and lower personal income. Lastly, living in a highly deprived or low ethnic concentration

neighborhood also increased the odds of becoming a high cost user (Fitzpatrick et al., 2015).

The consequences of medical superutilization are substantial. Some statistics indicate that just a small fraction of patients account for over 50% of health care costs (Westfall, 2014). A 2012 study found that one fifth of U.S. health care resources are used by the top 1% of superutilizer patients, and half the resources are used by the top 5% (Bush, 2012). In addition to high medical costs, these visits escalate from a micro level to a macro level, extending from the individual to the providers to the community to the health care system to the state and federal levels. Similarly, data produced by the Bureau of Economic Analysis Health Care Satellite Account (Blended Account) reflect that mental health treatment was tied for the 11th highest spending category at $89 billion dollars, not including institutionalization, between 2000 and 2012 (bea.gov). There was a 3% increase in cost per case to treat mental illness, and the number of mental health cases grew faster than the average number for all health treatments (bea.gov). Furthermore, according to the Global Burden of Disease Study (2015), mental health and substance use disorders are the leading causes of disease burden in the U.S. (first for females and third for men), and the U.S. has the highest rate of deaths from mental health and substance use disorders among comparable countries.

In sum, superutilization by those who overuse the healthcare system is a common, critical, and costly phenomenon. Identifying factors that precipitate and maintain superutilization may assist in reduce the burden it places on patients, physicians, and the overall health care system. This burden includes substantial financial costs (Seaberg et al., 2017). Mental health treatment is an enormous expenditure, the cost is increasing, and

the number of cases is on the rise. Considering this and extrapolating from the literature on superutilization in medical settings, it will be beneficial to better understand the factors that contribute to mental health utilization. This will assist treatment providers in ensuring adequate resources to meet the needs superutilizers, while also targeting those who may not be engaging in services but would benefit from them. For example, the Kaiser Family Foundation Health Tracking Poll (2016) found that one in five Americans reported they or a family member did not receive needed mental health services and of those with serious mental illness, 35% were not receiving mental health treatment (Firth et al., 2016).

Purpose of the Study

The primary aim of this study was to identify potential client demographic and clinical variables predictive of mental health services/resources utilization, as measured by number of sessions attended over the course of treatment in an outpatient mental health setting. Client *demographic* variables (gender, age, employment status, and service location) and *clinical* variables (depression level, level of anxiety, seeing a psychiatrist, diagnosis of bipolar disorder, number of comorbid/chronic conditions, and professional referral source) were investigated as possible predictors of outpatient mental health services (number of sessions attended from initiation to completion of therapy). These predictive factors have yet to be thoroughly explored as they pertain to outpatient mental health utilization. However, using the superutilization literature concerning emergency departments and/or inpatient medical settings as a backdrop provided guidance on what factors are likely to have predictive value regarding utilization. Information gained from this study may help treatment providers to better meet the needs of those who engage in

mental health treatment through appropriate allocation of resources, while also targeting those who would benefit, but are not currently engaged in services.

Research Questions and Hypotheses

Research Question

At the time of intake, what client demographic variables (gender, age, service location, and employment status) and clinical variables (diagnosis of bipolar disorder, seeing a psychiatrist, professional referral source, number of comorbid/chronic conditions, depression level (as measured by the Patient Health Questionnaire-9, or PHQ-9), level of anxiety (as measured by the General Anxiety Disorder-7, GAD-7) predict utilization of mental health services (as measured by number of sessions attended from initiation of therapy to the completion of therapy)?

Hypotheses

It was hypothesized that there would be a predictive relationship between being female, being younger, having higher PHQ-9 and GAD-7 scores, having a diagnosis of bipolar disorder, seeing a psychiatrist, being employed, service location (suburban or urban), referral source (personal or professional), number of comorbid/chronic conditions, and number of sessions attended.

It was also hypothesized that there would be a significant decrease in PHQ-9 and GAD-7 scores over the course of treatment (initial, fourth session, eighth session, and 12th session).

Chapter 2: Review of the Literature

Age

One of the variables considered in this study that may overlap with superutilization in medical settings is chronological age, as age may also moderate outpatient mental health utilization. DiNapoli et al. (2016) examined mental health utilization among veterans recently diagnosis with depression or anxiety. The research compared engagement in mental health services among older adults (65+), middle-aged adults (36-64), and younger adults (18-35) after diagnosis. Age was one of the strongest predictors of mental health services utilization among the veterans studied. Specifically, younger adults were 3 times more likely to utilize mental health services than older adults. Middle-aged adults utilized services less often than the younger adults, but more than the older adults. This research supports that younger adults are more likely to utilize psychological services than middle-aged adults and older adults.

Biological Sex

Biological sex is another variable considered in this study that may have similar moderating effects as in medical utilization. Parent et al. (2018) found that women seek mental health treatment much more frequently than men. Their research aimed to identify what factors may influence utilization among men. The outcomes were congruent with previous research that White, older, more depressed, and non-heterosexual men are more likely to utilize mental health services. Whereas men in general may not engage in therapeutic services as often as women, some factors influence engagement in mental health services by men. This aligns with medical utilization research, as females tend to utilize medical services much more frequently than men (Soril et al., 2016).

Type of Insurance

It has been established that older adults do not engage in psychotherapy as often as younger individuals and that females engage at a higher rate than males. However, research conducted by Choi et al. (2016) used data from the National Survey on Drug Use and Health from the years 2008 to 2012. They examined two groups: individuals from 50 to 64 years of age and those over the age of 65. Congruent with prior research, 16% of those in the 50 to 64 age group engaged in mental health treatment, whereas 10% of the 65 and over group used inpatient or outpatient mental health treatment in the preceding year. However, Choi et al. also found that public insurance (VA/military insurance, Medicaid, and Medicare) and mental health severity significantly increased the probability of outpatient treatment utilization. Private insurance was not a factor in mental health utilization or engagement. This research aligns with medical utilization research, as it Gil et al. (2018) noted that individuals with Medicare are more likely to be superutilizers.

Marital Status

One of the few variables in addition to age, gender, and insurance that can predict or influence medical utilization and mental health is relationship status. Whitton et al. (2013) studied university students' alcohol use, including binge drinking, and symptoms of depression. Findings suggested that females in a dating relationship reported fewer symptoms of depression than those who were single. However, for both males and females, being in a relationship was associated with fewer problematic drinking behaviors. This suggests that those in a committed relationship are less likely to engage in therapy because they have depressive symptoms and problematic drinking behaviors.

This aligns with research from Rotermann (2017), who found that individuals who were single were more likely to utilize medical services.

The research appears to support that being in a relationship may facilitate better mental health for most individuals. Research conducted by Gibb et al. (2011) specifically explored whether individuals in a cohabitating relationship had the same positive mental health as those who were married. Rates of substance use behaviors, suicidal behavior, and depression were significantly associated with longer duration of relationships, even after considering other factors that may covary, such as prior mental health problems. Furthermore, they found that in most cases, gender did not play a role in the associations. Lastly, being legally married did not impact the protective effect that relationship duration had on mental health for both males and females.

Individuals who are in a relationship, especially one of longer duration, seem to have better mental health. It is unclear, however, whether better mental health influences engaging and/or maintaining the relationship or the relationship influences better mental health. Research conducted by Braithwaite and Holt-Lunstad (2017) indicated that those with fewer mental health struggles were more likely to be in a relationship, whereas being in a relationship seemed to facilitate better mental health. Findings suggested that more committed relationships, perhaps even marriage, were associated with better mental health than less committed relationships. They also found that relationship status more strongly influenced mental health than mental health influenced the relationship. This provides evidence that being in a more committed relationship may confer protective factors against requiring mental health treatment.

Another study conducted by Whitton et al. (2018) examined relationship status as it pertains to mental health in diverse sexual minority youth. Literature supports that being in a romantic relationship for heterosexual adults is a mental health protective factor and similarly, the racially diverse sexual minority overall youth reported less psychological distress when they were involved in a relationship than when they were not. Psychological distress was increased for White and bisexual individuals involved in a relationship, whereas Black and gay/lesbian individuals reported lower psychological distress. These findings suggest that Black and gay/lesbian individuals have greater protection against psychological distress when in a relationship, which may ultimately decrease their involvement with mental health services. However, there was no association with relationship status in White sexual minority youth. Relationship involvement was predictive of greater distress in bisexuals.

Number of Sessions

It is important to understand the factors that influence the number of psychotherapy sessions in which patients engage. Stanley et al. (2017) examined attention seeking and reassurance seeking as they pertain to psychotherapy engagement. They defined engagement as number of sessions attended and duration of treatment in months. It was determined that duration of treatment was not influenced by reassurance seeking or attention seeking, as it accounted for only a trivial difference in engagement in psychotherapy. Additionally, sociodemographic and diagnostic factors did not influence the association between reassurance-seeking or attention-seeking behaviors and psychotherapy engagement. This research provides evidence that, in general, individuals

are not engaging in psychotherapy for pathological reassurance seeking and or attention seeking.

Referral Source

Referral sources, especially from a medical perspective, can also play a role in mental health utilization. Psychological issues are typically reported during visits to a primary care physician. The physician may make a referral to an outside mental health service provider, but very few patients will follow through with such referral. It is becoming more common for a psychologist to be available in the primary care office to increase engagement in and utilization of mental health services. Miller-Matero et al. (2015) conducted research to determine factors that predicted engagement with and utilization of a primary care psychologist. Over two thirds of patients referred engaged in an initial session with the psychologist, over half of whom had never received services from a behavioral health specialist. For almost two thirds of the patients who engaged in an initial session, a subsequent session was recommended. Over half attended their second session. Previous behavioral health treatment, years of education, race, age, and gender were not found to have any predictive value for attending the second or subsequent sessions.

Pharmacotherapy

An important element of mental health treatment is whether it includes pharmacotherapy. In 2017, Swift et al. conducted a meta-analysis to explore the impact of pharmacotherapy on the utilization of mental health treatment. In general, they found that if treatment involves only pharmacotherapy, individuals are more likely to refuse prescribed treatment at the outset. In fact, the refusal rate for pharmacotherapy alone was

almost twice that of psychotherapy alone. Among individuals who did engage in treatment, the same hold true: those receiving pharmacotherapy only were 1.2 times more likely to drop out early. Lastly, there was no apparent difference between combination treatments and psychotherapy alone or combination treatments and pharmacotherapy only.

Another meta-analysis was conducted by McHugh et al. (2013) that included 34 articles that met the inclusion criteria from an initial 644 articles. The authors were interested in the percentage of individuals reporting a preference for pharmacological treatment over psychological treatment. In the articles included in the analysis, 75% of individuals preferred psychological treatment, which was significantly higher than equivalent preference. Furthermore, it was found that women and younger individuals were significantly more likely to prefer psychological treatment. Overall, the literature supports a threefold preference for psychological treatment over pharmacological intervention.

Diagnosis

As with medical diagnoses and impact on service utilization, mental health diagnoses can impact mental health utilization. In fact, mental health can also influence medical utilization. For example, according to the Health Care Cost and Utilization Project National Inpatient Sample, 2014 (Fingar et al., 2017), at U.S. hospitals, about 13% of mental health discharges and 10% of substance use discharges are readmitted within 30 days. According to results from the 2015 National Survey on Drug Use and Health, 18% of adults in the United States had an emotional, behavioral, or mental disorder (Center for Behavioral Health Statistics and Quality, 2015). According to the

same data, major depression and phobias are the most common mental health disorder among U.S. adults, with major depression occurring more often in young adults, females, Alaska Natives, and American Indians. However, among those with major depression, only 67% of adults in the U.S. were receiving mental health treatment, with 81% being 50 years of age and over, 67% between the ages of 26 and 49, and 47% between the ages of 18 and 25 (Center for Behavioral Health Statistics and Quality, 2015). This seems to conflict with the findings among the veteran population, which indicated that younger individuals engage in more mental health treatment.

Seal et al. (2010) examined treatment engagement among 49,000 veterans following a diagnosis of posttraumatic stress disorder. It was found that in a 15-week period, only 9.5% attended nine or more VA mental health sessions. Furthermore, their research revealed variables that influenced engagement. For example, *need,* defined as type and complexity of the mental health diagnosis, *enabling variables,* defined as complexity and type of mental health diagnosis, and *predisposing variables,* defined as age and gender, moderated engagement. It is clear from this research that only a small fraction of those individuals studied, especially those from the Iraq and Afghanistan wars, received the prescribed intensity and number of treatment sessions at the VA in the first year.

Outpatient Locations

In the United States, depression is the most prevalent mood disorder. However, there are many disparities in treatment based on socioeconomic status. Todd and Teitler (2018) examined this phenomenon using data from the National Health and Nutrition Examination Survey and compared PHQ-9 scores and treatment based on educational

attainment between 2005 and 2014. They found that the odds of moderate to severe

depression increased among the least educated group, whereas depression remained

stable for women and decreased for men among the most educated. Furthermore, among

the most educated, treatment rates increased for men and remained steady for women,

whereas for the least educated group, treatment rates decreased for women and remained

stable for men. Thus, the prevalence of overall depression increased and depression

treatment was unable to meet the needs, especially among the least educated.

Serious mental illness is more prevalent among adults who are uninsured and

those who are poor; utilization of mental health services is relatively low among Blacks,

Asians, and Hispanics. Furthermore, cost is the most commonly reported barrier to using

mental health services, followed by structural barriers, prejudice and discrimination, and

low perceived need, respectively (Center for Behavioral Health Statistics and Quality,

2015).

Therapist Variables

It is clear that client or patient variables influence mental health engagement and

utilization. Similarly, therapist variables also seem to have some predictive value for

engagement. For example, Jones and Zoppel (1982) conducted two studies examining the

impact of patient and therapist gender on therapy process and outcomes. In the first study,

the researchers surveyed clinicians about 160 former therapy patients using the Rating

Scales for Therapy Outcomes (RSTO), Therapist Questionnaire, and Adjective Checklist

Descriptions. Female therapists rated themselves as more successful, especially when

working with female patients, whereas male therapists described patients in less socially

desirable terms (than female therapists) on Adjective Checklist Descriptions. Thus, it

may be that patients do not engage as long with male therapists because of male

therapists' perception of patients.

In the second study conducted by Jones and Zoppel (1982), they surveyed 99

former therapy patients by having them complete the RSTO, the Posttherapy

Questionnaire, and conducting an interview about their experiences in treatment. A factor

analysis of patient-interview terms revealed that patients, regardless of gender, agreed

that female therapists formed more effective therapeutic alliances than male therapists.

However, both male and female patients of male therapists reported significant

improvement because of therapy.

More recently, Liddon et al. (2018) explored patient preference of therapist

gender. Most men and women did not have a preference for male or female therapists.

However, among those who did, 34% of women and 22% of men preferred a female

therapist, and 5% of women and 17% of men preferred a male therapist. The preference

for female therapists is statistically significant. The results of this study conflict with

prior research indicating that women had a much stronger preference for female

therapists. Lastly, their results suggested that for both men and women, cognitive

behavioral therapy was the most-liked therapy.

PHQ-9

Klein et al. (2011) examined detection of depression, status of treatment, and rates

of engagement among 3,713 undergraduate and graduate students who engaged in

primary care services between January and April of 2006. Overall, it was found that 6%

of students had clinically significant depression symptoms (PHQ-9 score $\geq$ 10). However,

less than 1% had severe depressive symptoms (PHQ-9 score between 20 and 27). Rates

of severe symptoms of depression in male were more than twice that of females. Of the

58.3% referred to the university counseling center, only 35.7% who had untreated

depression initiated treatment within 30 days of the diagnosis and/or screening for

depression symptomatology. Lastly, the greater the severity of depression, the more

likely treatment initiation was to occur.

GAD-7

Ruiz et al. (2011) studied 212 subjects, 72.6% of whom were women, in primary

care clinics between June 2008 and January 2009. Those with generalized anxiety

disorder (GAD) visited their primary care and specialty care clinics significantly more

often than those without GAD. There appears to be a correlation between the number of

treatments and severity of GAD-7 scores; that is, as severity rises, so does the number of

treatments. However, there were no significant differences between mild and moderate or

moderate and severe anxiety levels. Furthermore, as GAD-7 severity increases so did

reported ability to complete activities of daily living and to work. In summary, the level

of GAD-7 severity is correlated with level of disability, defined as self-care and

interpersonal relations, as well as healthcare resource utilization.

Chapter 3: Method

Participants

Participants in the present study were individuals who engaged in at least one session or service at Delaware County Professional Services between the dates of January 1, 2012 and January 1, 2019. To be included in the study, individuals had to be 18 years of age or older and seeking treatment. No remuneration was provided for participation. No one was excluded, as long as they were deemed eligible to engage in services at Delaware County Professional Services.

Research Design

The goal of this correlational study was to examine how gender, age, employment status, office location, seeing a psychiatrist, diagnosis of bipolar disorder, number of comorbid/chronic conditions, professional referral source, PHQ-9 scores, and GAD-7 scores influenced the number of sessions attended. A multiple regression model was used to analyze the data. A second goal of this study was to determine whether PHQ-9 and GAD-7 scores between the initial session and subsequent sessions (i.e., fourth session, eighth session, and 12th sessions). A pair-samples *t* test was conducted using SPSS.

Measures

Variables examined were patient age, biological sex, employment status, service location (urban/suburban), professional referral (primary care provider, psychiatrist, specialist, etc.), number of comorbid/chronic conditions (both psychological and physical), diagnosis of bipolar disorder, seeing a psychiatrist, PHQ-9 score, and GAD-7 score.

The PHQ-9 is a self-administered tool that assesses each of the nine *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev; *DMS–IV–TR;* American Psychiatric Association, 2000) criteria for depression. The individual responds on a scale from 0 (*not at all*) to 3 (*nearly every day*). The criterion validity of the PHQ-9 was assessed using 580 patients and compared with an independent structured mental health professional interview. The 20-item Short-Form General Health Survey was used to assess the construct validity of the PHQ-9 in 6,000 individuals in several obstetrics-gynecology and eight primary care clinics. Cutoff scores are 5, 10, 15, and 20 for mild, moderate, moderately severe, and severe depression, respectively (Kroenke et al., 2001).

The GAD-7 is a self-administered tool that assesses seven symptoms of anxiety according to the criteria in the *DMS–IV–*TR (American Psychiatric Association, 2000). As with the PHQ-9, the individual responds on a scale from 0 (*not at all*) to 3 (*nearly every day*). Most individuals with generalized anxiety disorder will have a total score of 10 or greater. This measure was found to have strong construct validity when it was assessed using the Short-Form General Health Survey. The convergent validity was also good, as it had strong correlations with the anxiety subscale of the Symptom Checklist-90 and the Beck Anxiety Inventory. Lastly, cutoff scores of 5, 10, and 15 can be interpreted as mild, moderate, and severe anxiety, respectively (Spitzer et al., 2006).

Procedures

The current study was conducted using archival records from the patient database of Delaware County Professional Services (DCPS) health care center. Data retrieval was archival and received IRB approval; the data were originally collected by mental health clinicians working at Delaware Country Professional Services. From the patient database,

the investigator identified patients meeting inclusion criteria and recorded the necessary

demographic and clinical information described above. The archival data was then

deidentified by a professional staff consultant of the DCPS, and only the aforementioned

categories of information were extracted and entered into an SPSS database.

Deidentification entails the removal of direct patient identifiers, including names, medical

record numbers, social security numbers, and telephone numbers. Their patient identifiers

will be replaced with randomly generated numbers. The data was subsequently analyzed

to identify differences in engagement based on demographic variables/factors.

Chapter 4: Results

This study attempted to examine what client and clinical variables might predict outpatient mental health utilization. Factors such as gender, age, employment status, and office location were reviewed in the context of clinical variables to explore to what degree there is predictive value for number of sessions attended. Descriptive statistics are provided in Table 1, client ($N = 225$) demographic information is presented in Table 2, and clinical variables are presented in Table 3.

Table 1

Descriptive Statistics

	M	*SD*
Age	37.69	14.39
Initial PHQ-9 score	15.37	4.55
Initial GAD-7 score	15.12	3.82
12th session PHQ-9 score	8.15	3.68
12th session GAD-7 score	8.05	4.61
Number of chronic/comorbid conditions	1.39	1.66
Sessions attended	8.13	6.12

Descriptive analyses were conducted to describe the characteristics of the sample included in this study. Almost 70% of the participants were female, the majority of whom

were in the 18 to 35 range. The majority of the sample (85.1%) was employed, and there

was almost an even split between whether the client was seen in an urban or suburban

office setting, 54.7% ($n = 123$) and 45.3% ($n = 122$), respectively.

Table 2

Demographic Analysis of Client Variables

		f	%
Gender	Male	71	31.6
	Female	154	68.4
Age	18-35	122	54.2
	36-64	92	40.8
	65+	11	4.9
Employed	Yes	165	85.1
	No	29	14.9
Urban office	Yes	123	54.7
	No	102	45.3

An analysis of the clinical variables showed there was almost an even split

between referred by a professional or other means of referral. About 70% of the sample

suffered from at least one chronic medical or psychological condition with a small

majority not being under the care of a psychiatrist. About 95% of the participants had

PHQ9 scores indicative of at least mild depression; only 5% had a diagnosis of bipolar

disorder. Almost 55% were moderately to severely depressed. On the GAD-7 almost 99%

had mild to severe anxiety; 55% were in the moderate to severe range. A total of 72.1%

($n = 162$) attended between 1 and 10 sessions, 25.7% ($n = 57$) attended 11 to 20 sessions,

and 2.3% ($n = 5$) attended more than 20 sessions.

Table 3

Demographic Analysis of Clinical Variables

		f	%
Professional referral	Yes	105	46.7
	No	120	53.3
Number of	0	69	30.7
comorbid/chronic	1	84	37.3
conditions	2	35	15.6
	3	17	7.6
	4	8	3.6
	5	8	3.6
	> 5	4	1.6
Diagnosis of bipolar	Yes	13	5.8
disorder	No	212	94.2

		f	%
Seeing psychiatrist	Yes	100	44.4
	No	125	55.6
Initial PHQ-9 score	None (1-4)	1	0.5
	Mild (5-9)	9	4.1
	Moderate (10-14)	93	41.9
	Moderately Severe (15-19)	68	30.6
	Severe (20-27)	51	23.0
Initial GAD-7 score	Minimal (0-4)	2	0.9
	Mild (5-9)	7	3.15
	Moderate (10-14)	86	38.7
	Severe (15-21)	127	57.2
Number of sessions attended	1-10	162	72.1
	11-20	57	25.7
	>20	5	2.3

Statistical Analysis Plan

A power analysis was conducted at 80% power, medium effect size, at the .05 level to determine the number of patient files required to detect a correlation that truly exists in the population. For a regression analysis, it was determined that at the .05 level for a medium effect size at 80% power, the required number of subjects would be 104 plus the number of predictors (10), in our case, we would then require 114 subjects. We would expect that we may need to screen approximately 342 patient files to obtain our required number. Ultimately, 225 patient files were included.

Hypothesis 1 stated that there would be a positive predictive relationship between being female, PHQ-9 score, GAD-7 score, having a diagnosis of bipolar disorder, seeing a psychiatrist, being employed, being seen at an urban office location, being referred by a professional, number of comorbid/chronic conditions and the criteria of number of sessions attended. Age of the patient would show an inverse relationship to the number of treatment sessions attended. In order to determine what variables to enter into the regression equation, a correlation analysis was conducted on the degree to which the identified client and clinical variables were correlated with number of sessions attended. Gender was the only variable that was significantly correlated with number of sessions attended ($r = .114$, $p = .044$). The overall regression model was not significant, although it approached significance. No significant relationship was identified between gender and number of sessions attended ($F(1, 223) = 2.946$, $p = .087$).

Table 4

Model Summary

Model	R	R^2	Adjusted R^2	SE of Estimate
1	.114[a]	.013	.009	6.09

[a]Predictors: (Constant), Gender

Table 5

ANOVA[a]

Model		SS	df	MS	F	p
1	Regression	109.21	1	109.21	2.95	.087[b]
	Residual	8266.06	223	37.07		
	Total	8375.26	224			

[a]Dependent variable: Number of sessions attended

[b]Predictors: (Constant), Gender

Table 6

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients β	*t*	*p*
		B	*SE*			
1	(Constant)	7.67	.49		15.61	.00
	Gender	1.50	.87	.11	1.72	.09

^aDependent variable: Number of sessions attended

Despite hypothesis 1 not being supported, additional analysis (not based on hypotheses) revealed a few significant correlations of note. First, initial PHQ-9 and GAD-7 scores are correlated ($r = .510$, $p = .000$), as are initial PHQ-9 and GAD-7 with being referred for outpatient mental health treatment by a professional ($r = .158$, $p = .009$). Additionally, initial PHQ-9 and GAD-7 scores are correlated with seeing a psychiatrist ($r = .147$, $p = .014$; $r = .162$, $p = .008$, respectively). As it pertains the having a diagnosis of Bipolar Disorder, initial PHQ-9 score is significantly correlated ($r = .217$, $p = .001$) however initial GAD-7 score is not. Lastly, age was found to be significantly correlated with number of comorbid/chronic conditions ($r = .294$, $p = .000$). In summary, these correlations reflect that people who are anxious are also depressed and vice versa. Also, those who are anxious and depressed are being seen by a psychiatrist and more likely to be referred by another professional for mental health services. The older you are, the more likely it is that you have a higher number of comorbid/chronic conditions. A

Bonferroni correction was used to establish a new alpha level of $p = .005$ to reduce the possibility of Type I error. Given the adjusted p value, the remaining significant correlations are as follows: initial PHQ-9 and GAD-7 scores, diagnosis of Bipolar Disorder and initial PHQ-9, and age with number of comorbid/chronic conditions.

Hypothesis 2 stated there would be a significant decrease in PHQ-9 and GAD-7 scores across administrations (initial, fourth session, eighth session, and 12th session). Out of the 225 patient files included in this analysis, only 19 files had initial and 12th session PHQ-9 and GAD-7 scores reported. Nonetheless, a pair samples t test was conducted to determine whether the difference in PHQ-9 and GAD-7 scores, between the initial and 12th session, were statistically significant. As it pertains to the initial PHQ-9 score ($M = 15.2$, $SD = 4.76$) and 12th PHQ-9 scores ($M = 8.2$, $SD = 3.77$), there was a significant difference in the scores; $t(18) = 4.75$, $p = .000$. Similarly, as it pertains to the initial GAD-7 scores ($M = 14.4$, $SD = 3.93$) and 12th GAD-7 scores ($M = 8.05$, $SD = 4.61$), there was a significant difference in the scores; $t(18)=4.56$, $p = .000$. In summary, although there was a decrease in reported depression and anxiety on the PHQ-9 and GAD-7 between the initial session and 12th session, the differences reflected in the 19 patient charts analyzed, were significant. However, these analyses are based on a very limited subgroup of participants.

Table 7

Pair Samples Statistics

		M	*n*	*SD*	*SEM*
Pair 1	PHQ-9 score initial	15.21	19	4.76	1.09
	PHQ-9 score 12th session	8.21	19	3.77	.86
Pair 2	GAD-7 score initial	14.42	19	3.93	.90
	GAD-7 score 12th session	8.05	19	4.61	1.06

Table 8

Pair Samples Test – Paired Differences

		M	*SD*	*SEM*
Pair 1	PHQ-9 Score – initial – PHQ-9 score – 12th Session	7.00	6.43	1.48
Pair 2	GAD-7 Score – initial – GAD-7 score – 12th session	6.37	6.09	1.40

Chapter 5: Discussion

This study set out to explore what client and clinical variables may predict outpatient mental health utilization using superutilization in the emergency department as a backdrop to extrapolate from and inform hypotheses as it pertains to mental health utilization based on demographical and clinical factors. Despite hypothesis 1 not being supported, there were some consistencies in the present study that support existing research as it relates to outpatient mental health engagement, the first of which is gender. Parent et al. (2018) found that women seek mental health treatment much more frequently than men. In the present study, gender was the only variable that was significantly correlated with number of sessions attended, therefore providing support to that research. As it pertains to age and mental health utilization, the literature was split regarding whether or not younger or older individuals engage in mental health services. The current study found that over 50% of the sample was in the age group of 18-35, supporting the literature that finds that younger individuals engage in mental health services more frequently than other age groups.

The reviewed literature surrounding PHQ-9 and GAD-7 scores utilized a primary care sample and examined mental health engagement after a referral for depression (Klein et al., 2011) and reported level of difficulty completing daily tasks based on level of anxiety (Ruiz et al., 2011). The current study found that in an outpatient mental health sample, PHQ-9 and GAD-7 scores are correlated, as is PHQ-9 and GAD-7 with being referred for outpatient mental health treatment by a professional. These findings provide support that depression and anxiety typically occur together in a similar severity and that higher rates of depression and anxiety, endorsed and or other manifestations, with other

health care professionals, result in a referral to outpatient mental health services. For example, literature by Miller-Matero et al. (2015) indicates that psychological issues are typically reported during primary care visits and that when a referral is made, very few patients follow through on such referral. That was not supported in the current study, as the sample was almost evenly split regarding whether or not they were referred by another healthcare professional.

Currently literature surrounding psychopharmacology and psychological treatment indicate that there is a three-fold preference of psychological treatment over a pharmacological intervention and that those individuals are typically younger females (McHugh et al., 2013). The current study did not examine preference, but is congruent with previous research, as over half the sample was not seeing a psychiatrist. Perhaps in some of these cases, the PCP is providing the care or prescribing psychotropic medications. However, the current study also supports that higher initial PHQ-9 and GAD-7 scores are correlated with seeing a psychiatrist. These data provide some indication that more severe depression and anxiety, as measured by the PHQ-9 and GAD-7 the more likely someone is to seek treatment from a psychiatrist in addition to attending outpatient mental health treatment in the form of psychotherapy.

According to Center for Behavioral Health Statistics and Quality (2015), 18% of adults in the United States have an emotional, behavioral, or mental disorder, and of those, major depression and phobias are the most common disorder. The present study was interested in not only depression but Bipolar Disorder and potential impacts on outpatient mental health engagement. It was found that a large majority, almost 95% of the reviewed sample, did not have bipolar disorder. However, a diagnosis of bipolar

disorder was found to be significantly correlated with initial PHQ-9 score but not GAD-7. This finding potentially reflects the depressive nature of bipolar disorder without associated anxiety while also providing some valuable information on the degree to which those individuals with Bipolar engage in outpatient mental health treatment.

The last two variables examined in the current study were office location and number of comorbid and or chronic conditions in addition to a primary mental health diagnosis. Current literature surrounding treatment seeking and socioeconomic status indicates that there are disparities in treatment based on this variable. In the current study, most individuals were employed (85%); however, treatment location was approximately evenly divided between urban and suburban locations, with slightly more individuals attending treatment at an urban office location. These data are not necessarily congruent with previous findings that most an urban residents are of lower socioeconomic status and underserved than suburban residents. With the majority of the sample employed, it is difficult to determine socioeconomic level. Lastly, as it pertains to number of comorbid and or chronic conditions, age was found to be significantly correlated: the older the individual, the more likely they were to have more health challenges.

Although hypothesis 1 was not supported, there were a few correlations that inform some interactions and intersections between variables examined. This may be useful in future research. Hypothesis 2 was a bit more challenging to explore, as there were only 19 of 225 client files that had a complete data set, that is initial and 12th session PHQ-9 and GAD-7 scores. However, the 19 files that did include these data points were found to have significant differences between initial PHQ-9 and GAD-between initial and 12th session scores. This lends some support to the effectiveness of engaging in outpatient

mental health services as over 12 sessions, the 19 individuals included, improved based on their depression and anxiety screeners.

Limitations

The examination of hypothesis 2 uncovered one of a few limitations surrounding the present study, missing data from patient files. The client files used to populate the statistical database were missing large amounts of demographical and clinical data. For example, it was pointed out that out of 225 client files reviewed and included, only 19 of them had initial and 12th session PHQ-9 and GAD-7 scores. Additionally, it was at times hard to decipher other variables such as employment, engagement with psychiatry, referral sources, chronicity/comorbidity, as well as other variables given the availability of these specific data points in client files and or documentation.

Another limitation to the study is the sample used. The current study used a sample that was privately insured, on the East coast, and currently engaged in outpatient mental health treatment. Given these limitations, it makes it difficult to generalize these results to other populations.

One of the major strengths of this study is that it adds to the literature on factors that predict outpatient mental health utilization. It would be helpful to know what potential factors may influence such utilization given that the current resources do not fully meet the demand of the mental health needs. For example, there would be great utility in being able to allocate a certain number of resources given a certain demographic and or clinical profile to ensure that needs can be met.

Future Directions

Based on the findings of the current research, there are several future directions that could be explored. None of the factors examined predicted the number of outpatient mental health sessions attended. As previously mentioned, it would be helpful to be able identify factor(s) that influence engagement to ensure appropriate allocation of resources. To do this, it may be helpful to examine other variables not included in this study. For example, measuring motivation or functional impairment in daily living may be two variables worth exploring, as they may influence engagement in outpatient mental health. It also may be advantageous to extend some of the existing literature to explore what makes a difference on whether or not someone engages in outpatient mental health services after a referral is made.

Mental health treatment is a large expenditure and the number of individuals seeking treatment far outweighs the supply of providers. The issues surrounding the demand for and supply of mental health services are common, critical and costly. The client and clinical factors examined in this research were not found to have predictive value as it pertains to outpatient mental health utilization measured in sessions attended. However, it is still believed that identifying those variables that predict utilization of such services may prove informative in assisting treatment providers to ensure adequate allocation of resources in treatment planning and delivery.

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