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Original Research

Neuropsychiatric Disorders Among Individuals Seeking Transgender Care in the Texas Panhandle: A Cross-Sectional Study

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Abstract

Background: Psychiatric disorders are commonly encountered among individuals with gender dysphoria. Transgender patients are a historically marginalized population and knowledge about neuropsychiatric morbidity in rural populations of transgender individuals is limited.

Objective: Identify neuropsychiatric diagnoses and use of psychotropic medications among transgender individuals referred to a university-based transgender care clinic serving a largely rural population.

Methods: A retrospective cross-sectional chart review was performed on transgender patients presenting for endocrine therapy at a single academic institution between 2009 and 2023. A total of 102 charts were included. Data pertaining to neuropsychiatric diagnoses and treatments form mental health professionals, primary care physicians, and medical specialists were recorded and analyzed. This is a sub-study from a broader analysis.

Findings: Neuropsychiatric conditions were found in 60.8% of the transgender population and use of psychotropic medication utilization was 56.9%. A total of 35.3% received more than one medication. Psychiatric conditions in this transgender population exceeded general population estimates in the US by over two-fold. No differences were found between transmen and transwomen.

Conclusions: Mental health disorders and use of prescription psychotropic medications are frequently encountered among the transgender population in the Texas Panhandle and closely approximates levels described in the international literature. Mental health practitioners and primary physicians should be aware of higher incidence of neuropsychiatric conditions in rural transgender populations.

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Abbreviations: Transgender (TG), gender dysphoria (GD), Texas Tech University Health Sciences Center School of Medicine at Amarillo, Texas (TTUHSC-Amarillo), World Professional Association of Transgender Health (WPATH), American Society for Reproductive Medicine (ASRM), Lesbian, gay, bisexual, transgender (LGBT), Total laparoscopic hysterectomy with bilateral salpingo-oophorectomy (TLH-BSO), Gonadotropin releasing hormone analog (GnRHa), Pre-exposure prophylaxis (PreP).

Background

Mental health is an essential component of human wellbeing. The prevalence of mental disorders has been estimated at 18.9-22.8% of the US population.[1,2] Mental disorders exact a financial burden on affected individuals, their families, and the economy. Social disruption on families and society is considerable although difficult to fully quantify.[3]

Emerging data suggest that psychiatric disorders are more common in transgender (TG) individuals compared to the general population.[1,4] In this paper, "transgender" will refer to individuals whose gender identify is incongruent with their assigned gender at birth (ie, natal or chromosomal sex). "Gender dysphoria" refers to the psychological distress experienced by those whose identify is at odds with natal sex. Gender dysphoria (GD) is a near-universal condition found in TG persons particularly during the discovery phase of their gender identity. TG and gender-nonconforming persons experience higher rates of societal discrimination, unemployment, homelessness, inadequate access to healthcare, abuse, violence, and sexual assault. As a result, GD tends to create high levels of personal distress and referrals to mental health practitioners.[5,6] In addition, TG individuals represent an underserved medical community. Recent publications have detected at least one mental health disorder in 53-77% of TG individuals.[1,4,7]

The true incidence of gender incongruence is unknown. Many who have an innate sense of gender different from natal sex never "come out" due to (1) social stigma and fear of discrimination, (2) confusion or uncertainty, (3) a degree of fluidity in gender identity, or (4) a combination thereof.[8,9] Until recently, GD has been considered rare with an incidence of 2.6-6.8 per 100,000 individuals.[10] Contemporary data suggests that GD may be fairly common, reaching levels at 0.5% of the population and even high in adolescent populations.[11,12] Despite the American Psychiatric Association removing "transsexualism" and "transgenderism" from the lists of pathological disorders (depathologization), controversy persists about medicalization of adult TG persons and pubertal suppression in minors.[13] In politically rural or conservative locales, discrimination (real or perceived) against TG individuals may be greater than in urban areas although much of this remains conjectural.[14]

The Panhandle of Texas (uppermost 26 counties) is a relatively rural region of the state that is politically and religiously conservative. Whether or not transphobia and discrimination are more prevalent in this region is unknown as no reliable or comparative data exists. Nevertheless, in the age of health equity, it is important to better understand the mental health background of those seeking gender-affirming care at a non-urban referral center. The ultimate goal is to better respond to individual mental health needs and improve quality of care to this population that has long suffered social discrimination and exclusion from compassionate health care.

Methods

A retrospective cross-sectional chart study was conducted including all TG individuals who presented to the reproductive medicine service at Texas Tech University Health Science Center School of Medicine in Amarillo, Texas (TTUHSC-Amarillo) between 2009 and 2023. The starting date (2009) was selected as computerized electronic medical records were introduced in that year. The

diagnostic search terms included “transgender”, “transsexual”, and “gender dysphoria”. A total of 102 charts were identified that included a full neuropsychiatric and social history. Prior to chart analysis, the authors devised a 32-item checklist including demographic, social, medical, and psychiatric data. Each chart underwent individual review by one of the authors. Any concerns or perceived discrepancies were adjudicated by the two of the authors (RK and DM) who were familiar with each of the patients. This analysis is a sub-study of a cross-sectional study of individuals with gender-dysphoria presenting to TTUHSC-Amarillo for affirming endocrine care. Our specific goal is to better understand the scope and extent of mental health disorders in this regional population.

The TG endocrine clinic is staffed by a sole member of the department of Obstetrics and Gynecology at TTUHSC-Amarillo. World Professional Association of Transgender Health (WPATH) guidelines for entry into the service are followed.[15] The principal author of this paper is a member of WPATH with background and postgraduate education in TG health.

Under WPATH and TTUHSC-Amarillo guidelines, each individual admitted to this specialty clinic must be screened by a state licensed psychologist or psychiatrist who must validate the diagnosis of GD and readiness to initiate hormone therapy. A letter on stationary must be received by the clinic. Almost all letters have included significant psychological or psychiatric background and Diagnostic and Statistical Manual (DSM-V or DSM-V-TR) diagnoses.[10] The mental health professional must confirm that the patient has a reasonable self-awareness and competency to consent to endocrine therapy (or pubertal suppression in children). A small number of individuals had been previously treated with hormone therapy prior to presentation and were not required to see a psychologist or psychiatrist first although many produced a letter from previous encounters with a mental health professional.

Medical comorbidities were obtained by patient interview. Primary care physician records were also available in some instances and used to extract information on medical and mental health treatments.

Statistical Analysis: Data was entered into an Excel spreadsheet and statistical assessments were performed using MedCalc Statistical Software, v22.014, Ostend, Belgium. Distribution of continuous data was determined by the Shapiro-Wilk test. Continuous variables were backtransformed after logarithmic transformation if the distribution was non-parametric. Independent samples Student’s t-test was used to compare continuous data between two groups when the F-test determined equal variances. Welch’s test was used when variances by the F-test were unequal. Chi-square or Fisher’s Exact tests were used to compare categorial data between two groups. Statistical differences were assumed if $p < 0.05$.

IRB approval: The study was approved by the Institutional Review Board of Texas Tech University Health Sciences Center at Amarillo, Texas (IRB-FY2024-19).

Results

Among the TG population under care at this institution, 61 (59.8%) self-identified as trans-male and 41 (40.2%) as trans-female. Chronological ages ranged from 9-69 with the mean age 23.4 (95% CI 21.8-25.2). The majority of the attendees were from West Texas (95%) with the others from New Mexico or Oklahoma.

A neuropsychiatric history was extracted from all 102 charts reviewed. Of the 102 individuals, 63 (61.8%) had at least one additional neuropsychiatric condition (in addition to GD) while 39 (38.2%) did not. Of those with additional neuropsychiatric morbidity, 26 (25.5%) had one condition while 26 (25.5%) had two conditions, seven (6.9%) had 3 conditions, one had 4 conditions (1.0%) and two (2.0%) with 5 comorbidities (Figure 1). Among the 102 patients studied, the mean number of neuropsychiatric diagnoses was 1.11 (95% CI 0.88-1.33). Table 1 lists the neuropsychiatric conditions encountered among

the study population. Major depression (MDD), generalized anxiety disorder (GAD), and posttraumatic stress disorder (PTSD) were the top three diagnoses, respectively. A history of substance use disorder (specifically, cocaine) was elicited in only one individual.

When the patient population was analyzed by gender identity (transmale or transfemale), the number with at least one neuropsychiatric morbidity was similar ($p = 0.58$, Figure 2), and no differences were seen between the transmen and transwomen in any of the most common diagnoses recorded (MDD, $p = 0.60$; GAD, $p = 0.34$; PTSD, $p = 0.16$; bipolar disorder, $p = 0.70$, attention deficit disorder, $p = 0.32$.)

Use of psychotropic drugs was common. A total of 58 (56.9%) were prescribed at least one psychoactive drug (Table 2). By drug category, 52 (51.0%) were treated with an antidepressant and 35 (34.7%) with another psychotropic drug (psychostimulants, antipsychotics, benzodiazepines, mood stabilizers, etc.)

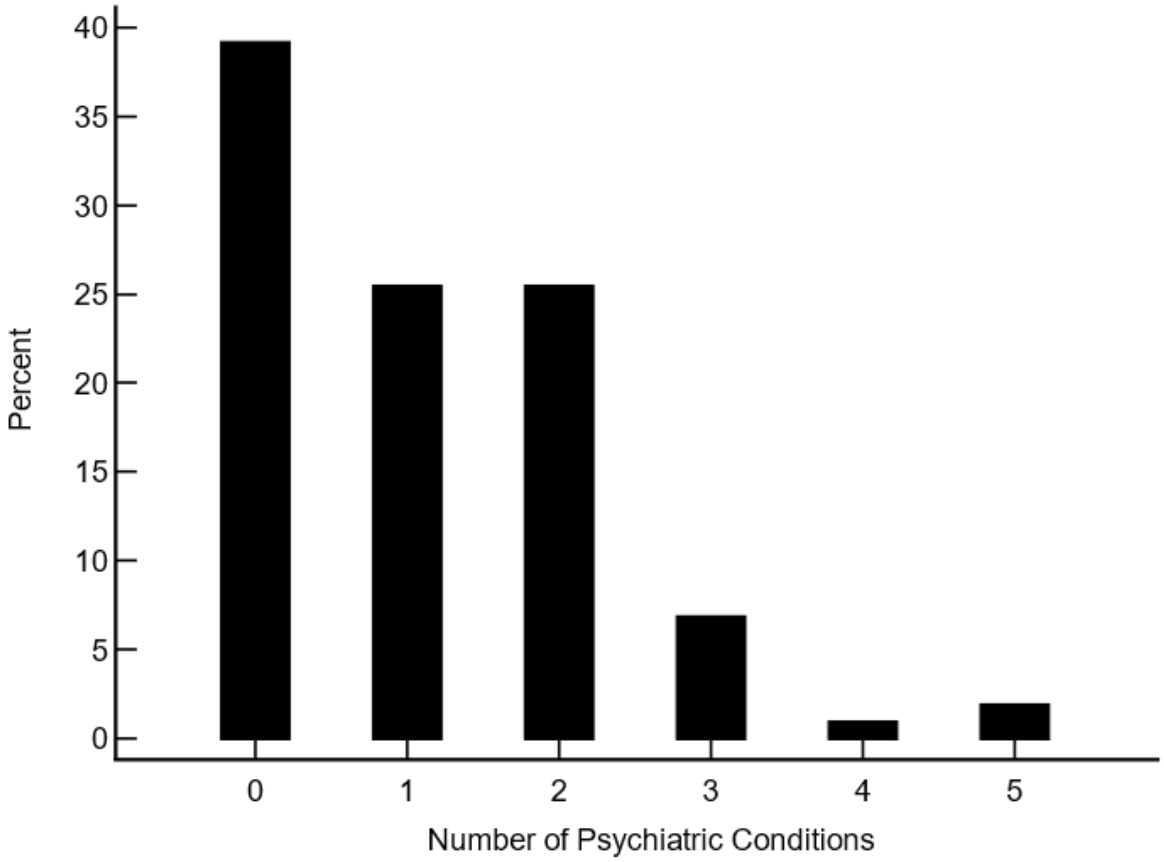

Figure 1. Number of neuropsychiatric conditions detected in individuals attending the TG clinic population. $p < 0.0001$ by Shapiro-Wilk test for normal distribution.

Neuropsychiatric Condition	n	Percentage (%)
Major depression	38	37.2
Generalized anxiety disorder	25	24.5
Posttraumatic stress disorder	22	21.6
ADHD	20	19.6
Bipolar disorder	8	7.8
Suicidal ideation/attempt	6	5.9
Panic disorder	5	4.9
Borderline personality disorder	3	2.9
Tourette's syndrome	2	2.0
Autism	1	1.0
Agoraphobia	1	1.0
Eating Disorder	1	1.0
Obsessive-compulsive disorder	1	1.0
Substance use disorder	1	1.0

Table 1. Specific neuropsychiatric conditions and overall frequencies. Total number of individuals studied = 102.

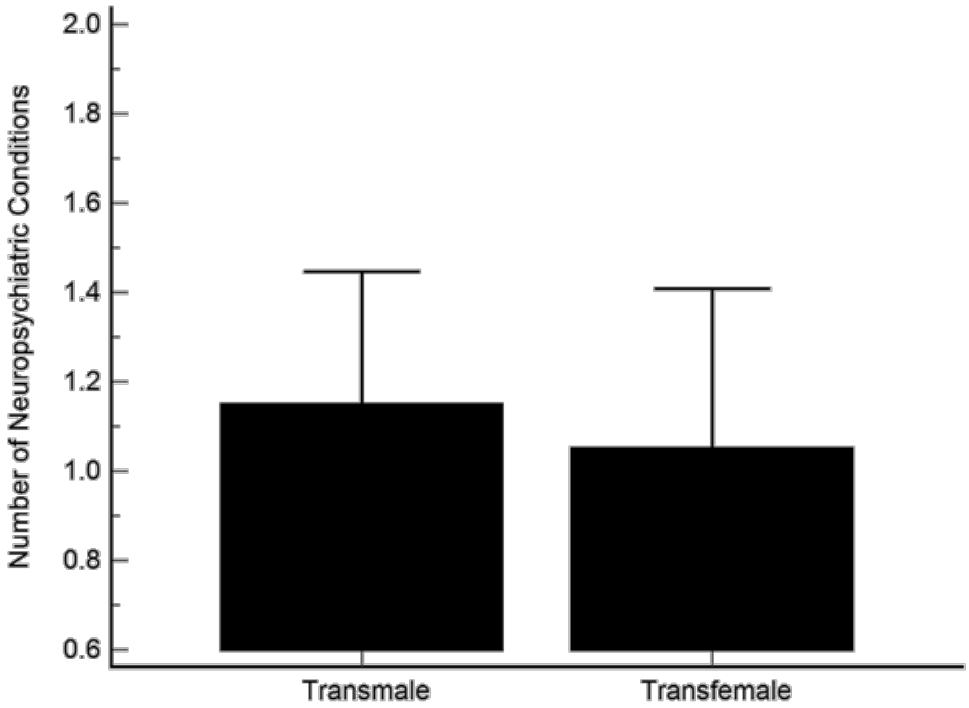

Figure 2. Number of neuropsychiatric conditions in transmales and transfemales. Solid bars represent means and error bars 95% CI for the mean. p = 0.67.

Psychotropic Drug Categories	n	Percentage (%)
Any psychotropic drug	58	56.9
Antidepressant	52	51.0
Anxiolytics, antipsychotics, stimulants, mood stabilizers, etc.	35	34.7

Table 2. Use of psychotropic drugs among the TG population. Some patients were prescribed more than one drug.

Discussion

Neuropsychiatric disorders were widely overrepresented in the TG population in the Texas Panhandle compared to published general population reports. In 2021, the National Survey on Drug Use and Health by the Substance Abuse and Mental Health Services Administration (SAMSHA) found the prevalence of any mental disorder in the US general population was 22.8%. Specifically, 27.2% of females and 18.1% of males were burdened by a psychiatric disorder.[2] Those with GD were not specifically identified in this database. When broken down by age group, younger Americans between the ages of 18-25 had the highest prevalence (33.7%). Individuals with mixed ethnicity were identified with a mental disorder in 34.9% which was higher than any specific ethnic/racial group.[2] Our regional population of TG persons with mental health disorders (61.8%) greatly exceeded the national SAMSHA estimates by well over two-fold. Pinna, et al., performed a systemic review of mental health in TG individuals in 2022.[4] A total 165 studies met criteria for inclusion into their analysis and twenty-two (22) studies examined comorbid neuropsychiatric disorders. Individuals with mood/anxiety disorders, eating disorders, PTSD, personality disorders, substance use disorders, autistic spectrum disorders, and associated neuropsychiatric disorders were indexed. A meta-analysis was not performed given the observational nature of available studies. Overall, the investigators found a consistently higher prevalence of mental health disorders (mostly mood, anxiety, suicidal, and somatization disorders) in TG persons compared to general populations.[4] In another study, Hanna, et al., performed a cross-sectional analysis of 25,233 TG and over 254 million cis-gender inpatient admissions from the National Inpatient Sample.[1] This study uncovered a mental health disorder in 77% of TG persons vs 37.8% in those identifying as cis-gender. In a multivariate regression analysis, the odds ratio (OR) of any mental health diagnosis was 7.94 (95% CI 7.63-8.26), anxiety 3.44 (95% CI 3.32-3.56), and depression 1.63 (95% CI 1.57-1.70) in TG vs. cis-gender hospitalized inpatients.[1]

Another smaller systemic review by deFreitas, et al., evaluating 577 TG individuals, found MDD in 42.1%, anxiety disorders in 26.8%, and substance use/abuse disorder in 14.7%.[7] The first two disorders closely approximate our findings in the Texas Panhandle. In contrast, we identified only one individual (1% of the total) recovering from a substance use disorder (specially cocaine). We did not record casual/social use of alcohol or marijuana in our database.

Suicidal ideation or attempt was reported by 6/102 (5.9%) of our population which is less than reported in large cross-sectional studies. The lifetime incidence of suicidal thoughts or attempts have been confirmed in 29-58% of TG adults versus 2.7-9.2% of cis-gender populations.[16-19] It is possible that suicidal thoughts were underreported to local therapists and to us during intake history. Since this cross-sectional analysis was performed a few years following the population studies quoted, it is conceivable than suicide is less frequently encountered in gender diverse populations in an era of increasing social acceptance. Additionally, suicidal thoughts and actions may be less common in this regional TG population. Further population studies are needed to clarify this important topic.

A strength of this study is the inclusion of 100% of the individuals referred for TG endocrine therapy over a 14-year span. By following WPATH guidelines for entry into our program, we had fairly extensive mental health histories on nearly all individuals.

A weakness of this study is the lack of inclusion of all TG patients in the region. Many TG persons are treated by primary care physicians or endocrinologists. Telemedicine for TG care is growing in popularity in the US although safety issues and outcomes require further study.[20]

Transformative hormone therapy and sexual reassignment surgery are well established to have a positive effect on mental

health and well-being.[21-23] By better understanding baseline neuropsychiatric issues in TG individuals in a rural part of Texas, mental health agencies can better target specific needs of TG persons and effect improvements in mental health provision to this largely misunderstood and underserved population.

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