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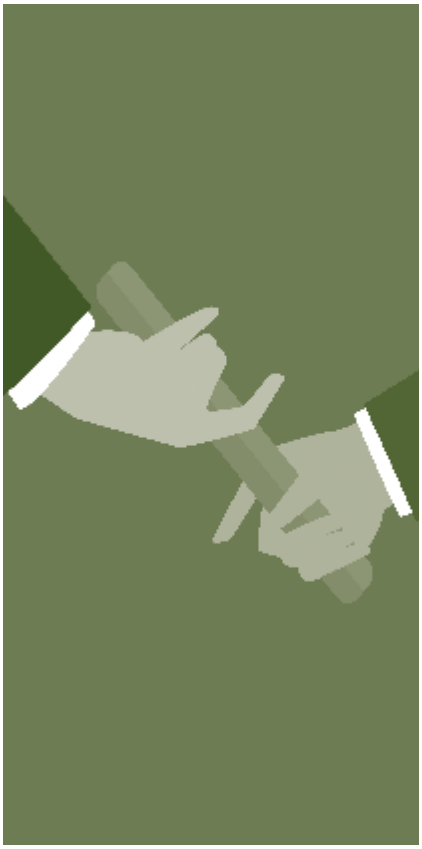
Inside



EDITORIAL

The *Residents' Journal:* A 10-Year Journey and Symbol of Collaboration

Katherine S. Pier, M.D.
Editor-in-Chief

In an effort to understand how the *Residents' Journal* developed into what it is today, I started the way I usually do: I reached back—through time—into the archives. I was inspired by a commentary called "Tis the Season for Termination" (1). A resident in 2006, Amanda Mackley, was wise beyond her years of training. Anticipating the transfer of her outpatient caseload to an incoming resident that spring, she appreciated the possibility for error and setbacks. Done with care, however, she predicted that by modeling the art of attaching and bidding farewell, the transition could yield positive transformation. The *Journal* is an example of what evolves from nine Editorial Board turnovers in 10 years and the countless residents who have shaped it. The object of immeasurable creativity and collaboration, it represents the expanding voice of psychiatry trainees.

The *Journal* is a promising vehicle for medical students, residents, and fellows to author and publish manuscripts early in their careers. To attract current and prospective authors, the *Journal* features many article types. These include commentaries, reviews, original research, and case reports. Our "Treatment in Psychiatry" forum integrates case vignettes with critical reviews of evidence-based management.

Books and movies allow for leisure and learning. Better for having been savored and shared, the experience can be enhanced by writing a review. "Drug Reviews" were introduced this past year as an instrument to facilitate mastery of psychopharmacology. "History of Psychiatry" articles acknowledge the origins of our field and shed light on its progress.

The Journal is a promising vehicle for medical students, residents, and fellows to author and publish manuscripts early in their careers.

This academic year, we will launch an "Arts and Culture" column, a space for creative nonfiction essays and introspections. "Perspectives on Global Mental Health" will be an opportunity for authors to share insights from scholarly activities abroad. We will also be soliciting "Point-Counterpoint" articles on our Facebook page.

Many upcoming issues of the *Journal* represent the visions of Guest Section Editors, who serve as liaisons between authors and the Editorial Board. Medical students, residents, and fellows who have published in the *Journal* should apply for this leadership position. In this role, trainees solicit articles on salient topics of choice and assist in peer review. They are invited to record a podcast episode to expand on a chosen theme.

We hope that podcasts offer another entry point for trainees to interact with the *Journal*. The growth of this platform will be contingent on the dedication of any and all of you. We believe the podcasts could be an invaluable educational tool for readers to learn from and teach one another.

Ten years since its inception, the *Residents' Journal* reflects our individual and collective journeys through training. Part of what has allowed it to adapt to change is an educational mission rooted in innovation. The APA is one of a handful of professional organizations that supports a trainee-led publication. The *Journal* is a powerful symbol of what we can produce through teamwork. It awaits your contribution.

Dr. Pier is a fourth-year resident at the Icahn School of Medicine at Mount Sinai, and the new Editor-in-Chief of the *Residents' Journal.*

Dr. Pier thanks the wonderful new *Residents' Journal* Editorial Board, the editorial staff, and Rajiv Radhakrishnan, M.B.B.S., M.D., for their support assembling this issue.

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COMMENTARY

Clozapine Clinic: The Need of the Hour

Andrew Hughes, M.D.
Balwinder Singh, M.D., M.S.

Despite advances, psychiatrists continue to struggle with the safe and effective treatment of schizophrenia. Clozapine is a second-generation antipsychotic with a unique D_2 dissociation constant, high affinity for D_1- and D_4-dopaminergic receptors, and potent antagonism of serotonergic and alpha-adrenergic receptors. Unfortunately, many physicians are reluctant to prescribe clozapine due to potentially fatal side effects such as agranulocytosis, myocarditis, cardiomyopathy, paralytic ileus, and aspiration pneumonia (1). We would like to call for an increase in clozapine clinics as a possible solution to this problem.

While various guidelines suggest second-generation antipsychotics as the initial pharmaceutical treatment for a first psychotic break, there is no consensus on which antipsychotic is best. Despite consistent evidence of superior efficacy, improved outcomes, and improved morbidity, clozapine is "strikingly underutilized"(2). Studies of physicians' prescribing practices reveal that only small portions of patients with treatment-resistant schizophrenia are treated with clozapine (3). Since the introduction of newer second-generation antipsychotics, clozapine use has decreased in the United States, from 11% of the total second-generation antipsychotics prescribed in 1999 to less than 5% in 2002 (3).

Clozapine's low prescription rate is likely related to its side-effect profile, as previous investigations have reported prescriber fear as a major factor for noninitiation (4). As a result, many clinicians decide to avoid clozapine altogether. Those who prescribe it may be unacquainted with its usage, resulting in treatment errors such as underdosing, unneeded discontinuation, and poor or inadequate side-effect intervention (1).

To further complicate the prescription of clozapine, patients with schizophrenia often have an inherent tendency toward poor adherence. Interestingly, a randomized controlled trial (RCT) conducted in first-episode treatment-naive patients with schizophrenia have suggested that clozapine may have superior efficacy in the initial year of treatment, mostly due to greater adherence (5). In another RCT, patients receiving clozapine were also found to remit significantly faster and remain in remission longer than those taking a first-generation antipsychotic (chlorpromazine) (6).

We believe the above barriers to prescription and adherence could be addressed with clozapine clinics. In such clinics, trained staff members have the resources, knowledge, and experience required to provide safer, more closely monitored treatment. Furthermore, clozapine clinics allow for time specifically dedicated to contacting patients and encouraging consistent follow-up. Finally, clozapine clinics can deliver focused supplementary training for psychiatric residents and other medical professionals. These professionals can gain confidence and experience with clozapine prescription in a controlled environment before continuing on to individual practices. Massachusetts General Hospital recently tested this idea and found that a 6-week direct patient contact clinic (along with accompanying curriculum-based instruction) effectively increased knowledge in participating residents (7).

Clozapine clinics can improve multiple facets of schizophrenia treatment. They can expand clozapine's accessibility, enhance clinician familiarity and competency, and provide better residency training for more effective use among desired communities. These benefits can be used to improve individual patient's quality of life while playing an important role in the successful treatment of schizophrenia.

Dr. Hughes is a first-year resident in the Department of Psychiatry, Oregon Health and Science University, Portland, Ore., and Dr. Singh is a fourth-year resident in the Department of Psychiatry and Behavioral Science, University of North Dakota School of Medicine and Health Sciences, Fargo, N.D.

For further details on the use of clozapine, see the articles by Gören et al. in *Psychiatric Services.*

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ARTS AND CULTURE

The Modern Psyche: Wisdom, Pursuit, and Contentment

Aparna Atluru, M.D.

"You cannot be this many things!" my father insisted, when I, then a college student, asked him if I could add on a third liberal arts major, as a component of my self-discovery. The Indian part of him surfaced. He believed that one goes to college to study something substantive: medicine or business or engineering. Self-discovery could not be planned for: it was serendipitous. As long as I was pursuing self-discovery, I was guaranteed not to find it.

My father is patriotic. But he has Eastern sensibilities. He tells me that the problem is inherent in the Constitution. "It is their reference to a pursuit of happiness," he says "that causes perpetual disappointment." "It's just pursuit, pursuit, pursuit," he tells me. "There is no contentment. No wonder everyone is seeing a psychiatrist."

He of course has been slowly, rather uncomfortably, adjusting to the idea that I chose to go into psychiatry. It has been 3 years now. I've almost completed my residency. He still wonders if psychiatrists are "doctors" in the sense of doctors he grew up with.

When I talk to him about my desire to work heavily in psychotherapy, he tells me that people would not need psychotherapy if they were content. I tell him he is stuck on semantics. He tells me that the semantics point toward him being right.

My father is an engineer. He prefers solid things—numbers and engines and the steel frames used to construct bridges. He is not comfortable dealing in the realms of ephemeral self-discovery or psychological fugues.

He then shifts to the Western emphasis on individuality. He says not only does everyone want happiness, they want their own special kind of happiness. He tells me that nowadays being an individual isn't enough. Everyone has to be four or five individuals. And each of these individuals has to be happy. It's madness.

He goes on. Fifty years ago, everyone was content with doing one thing well. Now everyone has to be a world-renown lawyer and a thriving entrepreneur during the daytime, a performance artist at night, and an Olympic rower on the weekends.

Statistically this is impossible, he tells me.

He has two master's degrees in engineering and one in statistics. I trust him on the stats.

I am guilty of subscribing to the fallacy of the individual(s). I, of course, tell him that I am a humanist, a writer, a physician, a philosopher of sartorial taste, and connoisseur of chocolate cake. I've told him that art and uniqueness and individuality are the new American century.

Yet, I think he might be right.

You can be as many things as you want to be on twitter, but perhaps this comes at an expense. Ancient cultures worried that being photographed could steal the subject's soul; If this were even a little true, today's youths have vanquished their souls through the ubiquitous selfie.

As psychiatrists, we are now embracing "alternative forms of therapy"—everything from depression-detecting apps, to mindfulness monitoring and telepsychotherapy; It makes me wonder if we've forgotten about the simplest of things—the wisdom of elders.

Dr. Atluru is a first-year child and adolescent psychiatry fellow at Stanford, and Culture Editor for the *Residents' Journal.*

ARTICLE

Mental Health in LGBT Refugee Populations

Mark Messih, M.D., M.Sc.

Within the United States and globally, there has been a shift toward acceptance of lesbian, gay, bisexual, and transgender (LGBT) individuals. Despite these advances, many nations continue to stigmatize, criminalize, and legitimize abuse of these communities (1). Global statistics reflect high levels of violence targeting individuals based on sexual orientation and/or gender identity (2). Concurrently, the number of refugees seeking asylum within the United States is rising. In 2013, 69,909 refugees applied for asylum, an increase from 58,159 in 2012 (3). A total of 3.8%–10.0% of refugees entering the United States identify as LGBT (4), translating to approximately between 2,656 and 6,991 LGBT refugees. Studies have examined mental illness and service provision in refugees and on mental health in LGBT populations. Increasingly, researchers are looking at the intersection of these areas (5), focusing on mental illness in LGBT refugee communities. In the present article, the most commonly cited psychiatric conditions facing LGBT asylum seekers are presented. Next, the role of psychiatrists in the asylum-seeking process is reviewed. Finally, guidelines informed by existing literature are put forward to inform clinical care. Researchers working in psychiatry, psychology traumatology, social justice, and ethics have explored this topic in recent years. The present article examines mental illness grouped according to the "phases of exile" (6), that is, pre-flight, migration, and postmigration.

Literature on LGBT refugees has focused on the reported trauma experienced by this community and examined how this correlates with posttraumatic stress disorder (PTSD), anxiety, and depression. More broadly, literature on refugee mental illness has focused in a similar area but is growing to look at other illnesses with which patients may present. Refugees show increased rates of schizophrenia, autism, and generalized anxiety disorder (7). According to the Centers for Disease Control and Prevention, refugees have an increased prevalence of depression, somatization, traumatic brain injuries, and panic attacks (8). Furthermore, refugee stressors can be organized into four categories: traumatic stress, resettlement stress, acculturation stress, and isolation stress (see Table 1).

PRE-FLIGHT

Pre-flight experiences are the traumas that occur in one's country of origin (see Table 2). LGBT refugees may have lived through years of persecution within their family or broader community. Documented violence includes corrective rape, honor killings, beatings, and imprisonment (9). This abuse can be longstanding, starting in early childhood, or more recent in adulthood. Adults who have suffered childhood sexual abuse, often from family or community members, are at increased risk of depression and anxiety (10). In some cases, individuals abruptly flee their homes due to changes in safety, including threat of exposure and fear of torture or death (11). The threat of violence, having witnessed a partner or friend murdered or tortured, can also trigger the individual to flee. Often, the spontaneous decision to leave means that individuals are not prepared for the journey or do not know where to go next. Patients may present with PTSD (12). In DSM-5, the diagnosis of PTSD incorporates depersonalization, derealization, and negative alterations in cognition (guilt, shame, fear). Presentations can include re-experiencing traumatic events, avoidance of reflecting on trauma hypervigilance, and anxiety. Previous literature has discussed LGBT refugee mental health in relation to disorders of extreme stress not otherwise specified or complex PTSD (13). Originally proposed within the DSM-IV Work Group (14), this was a cluster of symptoms encompassing three non-PTSD posttraumatic disorders: dissociative identity disorder, borderline personality disorder,

TABLE 1. Four Core Refugee Stressor Type

Type	Stressor	
Traumatic stress	War Torture Rape Forced displacement from home	Family/community violence Flight and migration Poverty Starvation
Resettlement stress	Financial stressors Housing Employment Loss of community support	Lack of access to resources Transportation difficulties Loss of pre-migration status
Acculturation stress	Problems fitting in at school Struggle to form an integrated identity including elements of the new culture and the culture of origin Conflicts related to cultural misunderstandings	The necessity to translate for family members who are not fluent in English Intergenerational conflicts over new and old cultural values Concern of children "losing" their culture
Isolation stress	Feelings of loneliness and loss of social support networks Discrimination Feelings of not "fitting in" with others	Harassment from peers or law enforcement Experiences with others who do not trust refugees

TABLE 2. Risk Factors That may Predispose Refugees and Asylum Seekers to Psychiatric Symptoms and Disorders

Pre-Flight/Migration	Post-Flight
Exposure to war	Loss of family members
State-sponsored violence	Prolonged separation
Oppression	Stress of adapting to a new culture
Torture	Low socioeconomic status and underemployment
Internment in refugee camps	Physical displacement outside one's home country
Human trafficking	

and somatization disorder. Proponents of complex PTSD suggested that it may better fit with prolonged, interpersonal, and repeated trauma (15). This is included to show that patients may present with a range of conditions that need to be addressed (16). In the long-term, repeated pre-flight trauma may erode a patient's resilience capacities, that is, how they adapt to future stressors (17).

JOURNEY INTO EXILE

After leaving one's country of origin, there are dangers in transit, especially if one must travel through nations with discriminatory laws. Refugees report abuse, imprisonment, and torture after leaving their homes. Additionally, in the initial stages of a humanitarian crisis, LGBT people are more at risk of being excluded from basic protections (18). Beyond access to care and increased likelihood of harm, alienation from government and NGO organizations can affect long-term coping and resilience ability in LGBT individuals. When promises of safety are made and then broken, clinicians have noted lasting effects on the patient's ability to form relationships and seek help. This is especially troubling given that patients who access community resources and group activity have better outcomes than patients in isolation (19). LGBT refugees may be more marginalized during the process of registration, including scrutinizing documents, detention in gender-segregated facilities, and public reporting of private information. LGBT refugees in detention are at increased risk of violence and sexual assault compared with other detainees (20). Security during asylum seeking is precarious with reports of attacks, as well as harassment by family members and other refugees.

POST-FLIGHT TRAUMA

Once a refugee has obtained status or is awaiting a court date, there are mental health challenges that can emerge in his or her new country. One such issue is the concept of "cultural bereavement" (21). This refers to the loss of familiar social structures, values, and even language. Some grieving for this loss can be expected, but symptoms may progress, causing depression. Patients may lose ties to their families and become isolated from communities because of their LGBT identity (Table 2). They may report hypervigilance and anxiety about having their identity being revealed. If they seek support within their cultural community, they risk being ostracized. While considering these factors, clinicians should remember that pre-flight trauma is connected to post-flight trauma. Pre-flight trauma has lasting effects on how the patient views him- or herself and adapts to a new life. In patients who have reported childhood abuse, for example, patients may feel shame, invisible, and "wrong," having internalized negative perceptions of family and community (22). This affects how the patient approaches therapy and informs how they approach the asylum-seeking process. For example, some individuals may not have considered filing for asylum based on being LGBT or may be resistant to doing so all together.

TABLE 3. Recommendations for Working With LGBT Refugees

Item
Establishing a sense of safety
Engendering tolerance of multiple self-identities
Preparing clients for trauma disclosure in the asylum-seeking process
Mitigating the risk of retraumatization inherent in the asylum-seeking process
Addressing cultural challenges to the utilization of psychotherapy
Empowering patients

THE CLAIMS PROCESS

In the United States, refugee claimants are asked to recount their experiences that led to leaving their country. Reviewers assess an applicant's story for plausibility, consistency, detail, country of origin information, and corroborating evidence (23). Preparing an application can force patients to revisit trauma and reflect on their identity. In transgender individuals, proof of identity is problematic (24), as some may have transitioned and/or no longer identify as the gender listed on accepted forms of identification. Not all individuals may identify outright as LGBT due to internalized shame or cultural understandings of their sexuality. As such, it is important to be sensitive to these variations when treating patients and assisting in the navigation of the asylum process. There is a one-year filing deadline from the time an individual enters the country, after which patients cannot file a claim. It is important to consider this timeline when preparing a case. When working with survivors of torture, the interviewer should make the purpose of the discussion clear, address cultural and language differences, and be aware of the impact of third parties on testimony. For example, is someone safe to identify as LGBT for asylum if he or she is with family or living within a broader community of refugees from the same area.

As clinicians, we must be aware of our own expectations and assumptions of how LGBT individuals should present. For example, a woman who identifies as lesbian may have been pressured to marry and have children (25). Reading and Rubin (19) highlighted the following priority areas for clinicians to incorporate when working with LGBT refugee applicants: cultural issues, culturally appropriate services related to language and

KEY POINTS/CLINICAL PEARLS

- There is a rising proportion of refugees that identify as LGBT who present with a range of mental health conditions from posttraumatic stress disorder, depression, and anxiety to substance abuse.
- Patients face multiple stressors due to their LGBT identity and their refugee status, stressors that may hinder access to care and inhibit patients from accessing social and medical supports.
- When working with patients, establishing safety, preparing clients for the asylum-seeking process, and empowering them are important considerations in the treatment plan.

other needs of immigrants, meeting the needs of children, the elderly, and other special groups (see Table 3). The World Psychiatric Association has established similar recommendations (26). In working with patients, it is important to acknowledge cultural differences in understanding identity. The World Psychiatric Association (26) recommends that clinicians access information of specific cultural issues, provide culturally appropriate services related to language and other needs of immigrants, and meet the needs of children, the elderly, and other special. In working with patients, it is important to acknowledge cultural differences in understanding identity.

CONCLUSIONS

Understanding the trauma experienced by LGBT refugees allows clinicians to empathize and provide appropriate care. Patients will present with complex histories comprising trauma at home, in transit, and while acclimatizing to their new lives. In working with this community, broader social, cultural, and legal aspects of mental illness should be considered by the psychiatrist to understand the patient's experience. The role of therapy is two-fold: to navigate the past and prepare the client for the future. Opportunities exist for residents and clinicians looking to assess asylum seekers. For example, the Weill Cornell Center for Human Rights (27) provides resources and training for medical students, residents, and clinicians interested in conducting asylum evaluations. Organizations such as Physicians for Human Rights and HealthRight International provide trainings as well. Finally, psychiatrists have the opportunity to act as advocates for their patients by empowering refugees to navigate the asylum process and make sense of their experiences.

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TREATMENT IN PSYCHIATRY

Psychiatric Implications of Mitochondrial Disorders

Gabriella Inczedy Farkas, M.D., Ph.D.

CASE SCENARIO

A 51-year-old Caucasian female presents to your office with mood lability. She reports fatigue, anorexia, and intermittent gait instability. She suffers from word-finding difficulty and reports cognitive dulling.

Her medical history is significant for frequent vomiting as a child, ileitis at the age of 9, and polyarthritis and hearing loss since adolescence. She presents with a stunningly long diagnosis list that includes conversion disorder (1).

It is obvious that this is going to be a complicated case. The idea that her entire clinical picture could fit into one diagnosis appears unrealistic.

Mitochondrial diseases, a heterogeneous group of disorders, bring a lot of clarity to a confusing clinical picture. Decades of medical teaching and research have repeatedly highlighted mitochondria as "the energy factory" of the cell. Aside from oxidative phosphorylation and production of ATP, however, mitochondria play various other vital roles, such as maintaining the intracellular calcium homeostasis, regulating apoptosis, and supporting amino acid (such as neurotransmitters), lipid, and steroid metabolism.

PATHOPHYSIOLOGY

Mitochondrial dysfunction may result from maternally inherited or spontaneous (age- or malignancy-related) (2) mutations of the mitochondrial DNA, or from Mendelian mutations in the nuclear DNA encoding for mitochondrial proteins. "Hot spot" point mutations or deletions of the mitochondrial DNA lead to well-defined clinical syndromes such as MELAS [mitochondrial encephalomyopathy with lactic acidosis and stroke-like episodes], MERFF [myoclonic epilepsy with ragged red fibers], or CPEO [chronic progressive external ophthalmoplegia]. Other mutations cause more nonspecific clinical presentations, ranging from isolated myopathy or encephalomyopathy to multisystem disease (2). Organs with the highest energy requirement, such as the brain, skeletal and cardiac muscle, and kidneys, are the most commonly affected; however, symptoms in any organ or tissue can present itself at any age. Although symptoms range, some symptoms are more commonly seen than others (Table 1) (3). There is significant phenotypic variability, even among blood relatives, due to varying genotype, heteroplasmy rate (the mutant to normal mitochondria ratio within the cells), and threshold effect (the proportion of affected mitochondrial necessary to cause symptoms) of different tissues. Most patients are symptomatic at baseline with chronically elevated lactate levels. However, at times of increased energy demand, such as an infection, fever, heavy exercise, fasting, and temperature extremes, patients develop higher lactate levels and metabolic acidosis, resulting in worsening (or emergence) of symptoms, often combined with altered mental status (4). Longitudinal course of the illness shows a relapsing-remitting pattern, with incremental worsening and partial recovery (5).

Clinical experience shows that family history in these cases is positive for several medical and psychiatric disorders and, frequently, substance use disorders, giving the clinician the impression of a "cursed" family.

DIAGNOSIS

Based on the data available, overall prevalence is estimated to be 13.1/100,000 (6), making primary mitochondrial disorders the most common metabolic disorders. As a general rule, the involvement of three or more organ systems without a unifying diagnosis should raise suspicion for mitochondrial disease (7). Positive family history (especially if suggestive of maternal inheritance pattern), the presence of lactic acidosis, and white

TABLE 1. The Most Frequently Affected Organs and Symptoms of Mitochondrial Disorders[a]

Organ System	Symptoms
CNS	Developmental delay, mild cognitive dysfunction to mental retardation, seizures, cerebral palsy, migraines, strokes, dementia, myoclonus, dystonia, atypical white matter disease, areflexia, hypotonia, ataxia, neuropathic pain, psychiatric disturbances
Musculoskeletal	Weakness, cramps, myalgia
Renal	Proximal renal tubular wasting of electrolytes
Cardiovascular	Cardiac conduction defects, cardiomyopathy
Hepatic	Hepatic failure
Ophthalmic	Visual loss and blindness
Otologic	Hearing loss and deafness
Gastrointestinal	Reflux, constipation, pseudo-obstruction, exocrine pancreatic failure
Systemic	Failure to thrive

[a] For further details, see Brenner (reference 3).

matter changes on MRI are further red flags. Workup is best done at specialized centers and includes detecting an elevated lactate:pyruvate ratio, serum alanine levels, and serum acyl/free carnitine ratio, as well as elevated serum and urine organic acids. A myriad of additional tests (EMG, EKG, EEG, exercise testing, etc.) might be indicated, depending on the phenotype. Gold standard for diagnosis in the majority of cases is genetic testing from the skin or a muscle biopsy (postmitotic tissue), which is generally performed in specialized laboratories. Providers play a very important role in decreasing the time to diagnosis by referring patients for further testing in a timely manner. Challenging aspects of these cases are the atypical, multisystemic manifestation, the potentially incomplete phenotypic expression of the disease at the time when medical attention is sought, as well as the lack of reliable biomarkers for screening of these disorders (7).

PSYCHIATRIC INVOLVEMENT

Early case studies have documented the association between a variety of psychiatric disorders and mitochondrial dysfunction. A few systematic studies have been conducted and found high prevalence of psychiatric comorbidities, especially affective disorders, which were present in 42% (8) and 71% (54% major depressive disorder, 17% bipolar disorder) (9) of the cases in this patient population. Comorbid psychiatric diagnosis meant more hospital admissions (p=0.02), more medical conditions (p=0.01), and lower quality of life (p=0.01) (9). Cognitive deficits are also prevalent (10). Children present with developmental delays, learning difficulties (working in "spurts" and then "zoning out"), and, occasionally, hearing difficulties. It has been postulated that the CNS dysfunction is a result of impaired calcium homeostasis (11), altered synthesis and release of neurotransmitters (12), and altered receptor signaling and synaptic plasticity (13).

Patients might seek mental health treatment at the time when no physical signs of the illness are manifested (9). Psychiatrists, therefore, play a pivotal role in ensuring that the patient gets on the right trajectory. Thorough and detailed history taking, appropriate referrals, longitudinal follow-up, and ongoing interdisciplinary collaboration are all essential in the adequate management of these cases.

TREATMENT

General

Currently, there is no "cure" for these disorders. Realistic goals of the treatment are to alleviate symptoms and slow the progression of the disease. The majority of patients benefit from the empiric '"mitochondrial cocktail," which is the combination of vitamins and supplements aimed at slowing the progression of the disease and preserving mitochondrial function. "Cocktail" ingredients are creatine (increases ATP production), L-carnitine (transports molecules facilitating the metabolism of lipids to ATP), coenzyme Q_{10} (part of the energy transport chain), and B, C, and E vitamins, folic acid, and beta-carotenes (14) that mitigate the effect of enhanced oxidative stress. Interestingly, benefits of the interventions may take a few months to be noticeable or may never get noticed. However, they still may be effective in delaying the progression of the disease (14). According to a recent meta-analysis, only creatine has been shown to significantly benefit patients; however, the authors concluded that well-controlled trials are "essential building blocks in the continuing search" for better treatments (15). Newer agents are currently tested to potentially bypass the electron transport chain, alter mitochondrial dynamics, or shift the heteroplasmy rate. Cytoplasmic mitochondrial transfer is being considered as a therapeutic approach to mitochondrial DNA-related diseases. Dubbed a "three parent in vitro fertilization," this is a process that involves transfer of a third donor's cytoplasm and healthy mitochondria. Despite some success stories and the fact that it has been approved in the United Kingdom, studies in the United States await federal funding. Preimplantation genetic diagnosis may be able to provide carriers of mitochondrial DNA mutations the opportunity to conceive healthy offspring (16) in the future.

Psychiatry

Given that the etiology of psychiatric symptoms secondary to mitochondrial disorders somewhat differs from primary psychiatric disorders, it is no surprise that the symptoms show an atypical course. Furthermore, they may be resistant to or even exacerbated by usual psychopharmacologic treatment (17). Antipsychotics and antidepressants—selective serotonin reuptake inhibitors,

KEY POINTS/CLINICAL PEARLS

- Characteristics of cases with high suspicion for mitochondrial disease are the involvement of three or more organ systems without a unifying diagnosis, positive family history (especially if suggestive of maternal inheritance pattern), and the presence of lactic acidosis and white matter changes on MRI.
- These disorders might present with atypical, therapy-resistant psychiatric symptoms as first manifestation of the disease; therefore, psychiatrists play a pivotal role in timely referral to specialized centers. Clinicians should be aware of disease characteristics and obtain a comprehensive family history and medical review of systems.
- The importance of identifying these disorders cannot be overemphasized because of the implications for treatment. Commonplace psychotropics, including typical and atypical antipsychotics, selective serotonin reuptake inhibitors, and antiepileptics, interfere with important mitochondrial functions and may worsen symptoms. The medications can also have side effects that contribute to and worsen comorbid medical conditions. Frequently, it is the discontinuation of psychotropics and the use of a cocktail of mitochondrial supplements that improves symptoms.

mirtazapine, trazodone—inhibit several mitochondrial enzyme complexes (17). Antiepileptics inhibit overall mitochondrial function (18). It has been hypothesized that mitochondrial toxicity may contribute to side effects of psychotropic medications in a much wider population of patients (17). Patients with mitochondrial disorders show an increased susceptibility to side effects. Anticholinergic compounds can worsen cognitive decline and arrhythmia. Atypical antipsychotic drugs can aggravate metabolic syndrome in these patients, many of whom are already at risk for diabetes. It is therefore essential to weigh risks versus benefits when choosing medications. Experience shows that psychiatric symptoms might improve with the mitochondrial cocktail alone, which should be considered before progressing to psychopharmacologic interventions. Unfortunately, patients frequently end up on psychotropic polypharmacy, with questionable or no benefit.

PREVENTING EPISODES

General preventive measures—such as minimizing exposure to alcohol, tobacco, and chemicals, avoiding extreme temperature and sleep deprivation, proper management of infection, fever, and dehydration—are important in the prevention of medical and psychiatric relapses in patients with mitochondrial diseases. On a general note, special considerations are required for anesthesia, surgery, and immunizations for these patients. Modification of diet is also important. An anaplerotic diet, which consists of 4–6 complex carbohydrate/protein meals a day, has been shown to be beneficial (19). Fasting should be avoided at all costs, including prolonged overnight fasting (patients are educated to take a bedtime snack). Self-monitoring (20) is essential in order to address relapses in a timely manner. Healthy lifestyle discussions and patient education can go a long way with this patient population, and there are several websites (mitoaction.org; mitochondrialdiseases.org) to help providers and patients find reliable information.

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ARTICLE

Religious Barriers to Mental Healthcare

Emine Rabia Ayvaci, M.D.

Religion can be defined as the collection of beliefs, practices, and rituals related to the "sacred" (1). A religious group refers to a large number of people with shared spiritual values. According to DSM-5, religion is considered as part of the cultural context of the illness experience. However, shared values toward spirituality may indicate common characteristics among patient populations across different religious backgrounds. Providing culturally appropriate mental healthcare is further complicated by the fact that any one religious group may be comprised of a variety of ethnicities, socioeconomic classes, and subcultures with their own belief systems.

Religion plays an important role in American society. According to a national survey by Pew Research, more than 70% of Americans report being affiliated with a religious group, and 42% attend religious services weekly or almost weekly (2). People with persistent psychiatric disorders could rely on their religious beliefs to cope with their condition (3). In a study of 406 patients from 13 Los Angeles County mental health facilities, more than 80% of the participants reported using religious beliefs or activities to cope with daily difficulties and frustration (4). Another study using the National Comorbidity Survey data suggested that a quarter of religious people seek help from clergy as their first treatment contact for mental health problems (5). Several other studies have shown that religious involvement is associated with positive mental health outcomes (6–8).

Patients' tendencies to use religion when coping with mental health-related problems and the involvement of a nonclinical party can result in a complex model of mental healthcare delivery. The current literature regarding the interface of religion and psychiatric care primarily focuses on the outcome of the psychiatric treatments. This focus draws limited attention to religion's effect on service access and use. It is critical to understand the religious barriers to appropriate and efficient mental health delivery to different populations. The present review article focuses on potential barriers to access to mental health services among people with religious involvement. Access barriers may be grouped into three major categories: the patient level, the psychiatrist level, and the system level.

ACCESS BARRIERS

Patient-Level

The help-seeking process starts with an individual's understanding and conceptualization of psychiatric disorders (Table 1). Interpretations of psychiatric symptoms are influenced by a patient's cultural experience, which includes religious beliefs and practices. Historically, psychiatric disorders were explained by supernatural phenomenon, such as demonic possession. Today, some religious people may believe that psychiatric disorders are caused by a "weakness in faith" and that the illness can be overcome or cured through "willpower" alone, rather than by seeking professional help from the mental health system (9). For example, in one survey, 85% of African Americans defined themselves as fairly religious or very religious, and researchers have found that there is a prevalence of a belief in this population that psychiatric disorder can be overcome by heroic striving (10). For this reason, some patients with religious affiliation may avoid contacting a psychiatrist. Even after contacting a physician, patients might avoid discussing their religious concerns with the provider because of their perception that psychiatrists are not sensitive to or knowledgeable about the religion (3, 10, 11).

Similar to patients, clergy also have various beliefs about psychiatric care and the perceived need for treatment

TABLE 1. Access Barriers to Care

Patient level
Conceptualization of disease
Beliefs in religious help for mental illness
Beliefs about perceived need for treatment
Use of nonpsychiatric forms of services
Fear of challenging religious beliefs
Fear of discrimination
Psychiatrist level
Difficulty recognizing nonpathological expression of religion
Reluctance in obtaining religious history
System level
Clergy's lack of familiarity with the system
Limited referral from clergy
Limited understanding of clergy
Lack of coordination between faith-based services and formal healthcare
Reluctance of collaboration by faith-based providers

(12, 13). In a survey conducted among 204 Protestant pastors, a significant portion of the participants attributed symptoms of depression to "lack of trust in God," and they were less likely to agree with the biological nature of depressive disorders (12). Another study conducted on Muslim clergy suggested that while imams can recognize the need for psychiatric care in a hypothetical clinical vignette, they could still be reluctant to make referrals to the mental health system due to concerns about discrimination based on their religion (13). Since clergy are a key entry point for a quarter of religious people, the clergy's perceptions of psychiatric disorders can lead to avoidance of referral to mental health providers.

Additional concerns among religious people may arise when they need inpatient level of care. In an observation study conducted at SUNY Downstate Hospital, Orthodox Jewish patients at the psychiatric inpatient unit experienced difficulties while following ward milieu due to conflicts with religious practice. For example, inability to pray at accustomed times exacerbated the anxiety of religious patients (14). For an outpatient treatment such as psychotherapy, nonreligious therapists can integrate religious components into their treatment; however, patients might have fears that the therapist will challenge their religious beliefs. This can be a barrier for patients who seek long-term treatments like psychotherapy (15).

Psychiatrist-Level

It is also important to note how psychiatrists relate religion and health. Clinicians' views of religion can shape how they interact with their patients (16) (Table 1). In a national survey, it was found that psychiatrists were less likely to be religious compared with nonpsychiatry physicians (15). Although psychiatric care promotes better understanding of patients' beliefs, patients still report difficulty finding a psychiatrist with an understanding of their religious beliefs. This can be especially prominent in religions with a relatively low percentage of psychiatrists within the population (2).

KEY POINTS/CLINICAL PEARLS

- More than 70% of Americans report being affiliated with a religious group.
- A quarter of religious people seek help from clergy as the first contact for mental health.
- Religious beliefs continue to be an important part of individuals' attitude toward seeking psychiatric care.
- Clinicians can use the HOPE questionnaire to assess patient's religiosity.

Psychiatrists frequently encounter patients with pathological expressions of religion, such as religious delusions (17). Psychiatrists may have difficulty separating normal and pathological expressions of religiosity, which becomes a barrier to understanding their patients. In an interview study, psychiatrists reported discussing religion with their patients in only 36% of cases, although they reported feeling comfortable talking about religion in 93% of the cases (3). None of the clinicians initiated the topic themselves. Patients in the same study reported avoidance of talking about their spirituality, especially when it overlapped with their positive psychotic symptoms. In the same study, psychiatrists discussed community resources of the religion with their patients but had difficulty discussing the subjective experience of their patients' religiosity.

System-Level

While religiosity and spirituality in American society have increased (2), there has been an increase in the use of nonpsychiatric forms of mental health services and a decrease in the use of psychiatric services (5). Because clergy are often the first entry point to mental health for religious people (5, 18), it is important to understand the role of religious institutions in service delivery. Despite the fact that use of clergy for mental healthcare is associated with good outcomes (19), we have limited understanding of the structure of faith-based service delivery. A cross-sectional survey found that counseling provided by clergy has low frequency, even for individuals with serious psychiatric or substance use disorders (5). In addition, coordination between faith-based services and formal healthcare has often been lacking (Table 1). A survey on clergy suggested that faith-based providers were found to be reluctant to collaborate with formal health services due to several reasons, including lack of demand from their community, financial limitations, and lack of specialized training (20). Even among clergy who have a willingness to refer an individual to a mental health provider, the lack of familiarity with the mental health system may remain a barrier (13).

IMPLICATIONS

The goal of this review was to raise awareness of access barriers to mental health treatment for religious people. Several barriers were identified and categorized according to patient, psychiatrist, and system levels. It is important for clinicians to be aware of these barriers and seek ways to educate themselves, their patients, and the community about the role of religion in mental health delivery. Different interventions can be used to overcome these barriers, especially at the psychiatrist level, such as assessing and understanding patients' beliefs and collaborating with clergy (17).

Assessing religious beliefs is now a standard part of psychiatric history. There are different protocols for how to assess patients' religiosity. One of them is the HOPE questionnaire [sources of **H**ope, **O**rganized religion, **P**ersonal spirituality and practices, **E**ffects on medical care and end-of-life issues], a protocol for asking patients questions about spirituality (21). The HOPE questionnaire could be a good guideline for residents. It is critical to understand

and discuss how patients shape their responses based on their religiosity. A psychiatrist should be aware of the obstacles and opportunities with regard to the religion-related issues during the interview. By understanding potential barriers at different levels, we can build individual and system-level approaches to improve mental health service delivery.

CONCLUSIONS

For a substantial part of the population, religious beliefs continue to be an important part of an individual's attitude toward seeking psychiatric care. As psychiatrists, we should be aware of both the opportunities and barriers for patients with religious involvement to receive appropriate care. In particular, understanding religiosity and its effect on service use suggests that we need to build new approaches to improve the service delivery to patients who have religious involvement and coordinate with the faith-based services. From a research standpoint, there is a strong need to understand faith-based factors that may improve access to mental healthcare.

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ARTICLE

Fire Setting and the Impulse-Control Disorder of Pyromania

R. Scott Johnson, M.D., J.D., LL.M.
Elisabeth Netherton, M.D.

For some few individuals, fascination with fire veers from a healthy respect to an unhealthy obsession. In rare instances, susceptible individuals may suffer from a buildup of tension that can only be relieved by deliberate fire setting, and that cycle of behavior is believed to represent the crux of the mental disorder called pyromania. Therefore, residents should note that mere fires setting is not at all pathognomonic for pyromania.

The term "pyromania" was first used in 1833 by Marc and was derived from the 19th-century term monomania, which described a type of insanity characterized by impulsive acts devoid of motive (1). The DSM-5 defines pyromania as requiring the following criteria:

A. Deliberate and purposeful fire setting on more than one occasion.
B. Tension or affective arousal before the act.
C. Fascination with, interest in, curiosity about, or attraction to fire and its situational contexts (e.g., paraphernalia, uses, consequences).
D. Pleasure, gratification, or relief when setting fires or when witnessing or participating in their aftermath.
E. The fire setting is not done for monetary gain, as an expression of sociopolitical ideology, to conceal criminal activity, to express anger or vengeance, to improve one's living circumstances, in response to a delusion or hallucination, or as a result of impaired judgment (e.g., major neurocognitive disorder, intellectual disability, substance intoxication).
F. The fire setting is not better explained by conduct disorder, a manic episode, or antisocial personality disorder. (2, pp. 476–477)

Per the DSM-5, "individuals with this disorder are often regular 'watchers' at fires in their neighborhoods, may set off false alarms, and derive pleasure from institutions, equipment, and personnel associated with fire. They may spend time at the local fire department, set fires to be affiliated with the fire department, or even become firefighters" (2).

Were a psychiatry resident to encounter a patient meeting DSM-5 criteria for pyromania, it would most likely occur within a forensic unit. Furthermore, for residents to properly understand and treat this rare condition, some historical perspective can be illuminating. For over 150 years, a schism existed to some extent within U.S. psychiatry as to whether pyromania even existed as a mental disorder. Some saw it solely as a form of either insanity or as a wholly criminal act, while others viewed pyromania as a legitimate mental disorder worthy of diagnostic consideration (3). Ultimately, as psychiatry grappled with issues of personal accountability over the course of the latter half of the 20th century, the concept of pyromania as a legitimate mental disorder eventually won out (3), with exceptions for clearly criminal or psychotic behavior, as elucidated in the DSM-5 criteria above.

RESEARCH FINDINGS

Epidemiology of Fire Setting and Pyromania

Fire setting is predominantly a male condition. In a landmark study by Lewis and Yarnell (4) of 1,145 fire setters, over two-thirds of the perpetrators were male. Intelligence may play a role in fire setting behavior. Roughly 70% of the adults in the aforementioned case series were below the range of normal intelligence. In a study by Grant and Kim of 21 individuals with pyromania, the mean age at onset was 18 years (SD=6). Eighty-six percent reported urges to set fires, and subjects reported setting a fire every 6 weeks (SD=4), on average. Forty-eight percent met criteria for an impulse-control disorder, and 62% had a comorbid mood disorder (5).

Prevalence of Pyromania

Pyromania is a rare disorder, and research with regard to it is infrequently conducted, generally involving small numbers of patients. With regard to its prevalence, in separate studies of 113 arsonists (6), 191 state hospital patients with a history of fire setting (7), and 27 female fire setters (8), none were diagnosed with pyromania (9). Similarly, in a Finnish study of 90 arson recidivists, only three (3.3%) met DSM-IV-TR criteria for pyromania (10). Nine other arson recidivists would have met pyromania criteria but did not because they were intoxicated with alcohol at the time of the fire setting, thus failing to meet criterion E. Additionally, in a 1967 U.S. study of 239 convicted arsonists using different DSM criteria, pyromania was found to be the motive in 23% of such cases (11). In 1967, the applicable DSM criteria did not preclude a diagnosis of pyromania for individuals who were under the effects of substance intoxication at the time of the fire setting.

Nosology of Pyromania

Pyromania's classification within the DSM has evolved over the years. It began as an obsessive-compulsive reaction in DSM-I. It was dropped in DSM-II. When it returned in DSM-III, it was an impulse-control disorder, a category that has now been rolled up into DSM-5's disruptive, impulse-control and conduct disorders.

Sexual Gratification

Cases of fires being lit for sexual gratification appear to be rare. Examination of 1,145 adult male fire setters found that 40 (3.5%) engaged in such behavior for sexual arousal (10). A subsequent study of 243 male fire setters revealed that only six persons (1.2%) did so (12).

Children and Adolescents

Fire setting has been extensively studied in children, where it is commonly comorbid with attention deficit hyperactivity disorder (13). Multiple factors have been found to contribute to the emergence of this behavior, including maltreatment (14) and family stress, with experimentation and boredom being common reasons given for the fire setting (13). There is little in the literature, however, specifically addressing pyromania. One case report did document the development of pyromania in a 9-year-old boy after escitalopram was started for separation anxiety and encopresis, which resolved with cessation of the escitalopram (15). Despite some early research suggesting a link between the Macdonald Triad of enuresis, cruelty to animals and fire setting (10), subsequent research found no relationship between enuresis and fire setting recidivism (16). Other discussions of treatment options in the literature focus primarily on children and adolescents and involve parenting training (17), as well as various forms of therapy and relaxation training (18).

In children and adolescents exhibiting fire setting behavior, the differential diagnosis should include conduct disorder, pyromania, and curiosity fire setting. Children who merely experiment with matches as a part of normal adolescent development should be considered curiosity fire setters instead of being diagnosed with conduct disorder, as they lack the intent to cause serious damage.

TARASOFF: DUTY TO WARN AND PROTECT

Given fire setting's propensity for property damage and risk for loss of life, it should be noted that a history of fire setting in a patient may give rise to a Tarasoff duty to warn and/or protect on the part of psychiatry residents. Clearly this duty is jurisdiction-dependent, and residents should be familiar with the Tarasoff statutes or case law in the state in which they practice.

IMAGING AND TREATMENT

In at least one case report, imaging has revealed an abnormality that may have been related to the pyromania itself. Specifically, an 18-year-old male who met criteria for pyromania was found to have a left inferior frontal perfusion deficit on single-photon emission computed tomography imaging. Following 3 weeks of cognitive-behavioral therapy (CBT) and 1 week of topiramate (75 mg daily), the patient reported a complete remission in his urges to set fires (19). In another case report, a man with a diagnosis of pyromania, whose condition was so severe that he had been accused of setting an individual on fire, was successfully treated with olanzapine and valproic acid. He experienced a subsequent abatement of his fire setting behaviors (20). In other patients, treatments with selective serotonin reuptake inhibitors, antiepileptic medications, lithium, antiandrogens, or atypical antipsychotics have been proposed (1). Furthermore, CBT has displayed some promise (1).

CONCLUSIONS

Many misperceptions exist about pyromania, one being that the majority of fire setters suffer from pyromania. However, the limited research on this condition does not support that proposition. Fire setting is not at all pathognomonic for pyromania, as many fire setters engage in such behavior for reasons other than anxiety relief, such as a result of schizophrenia, manic episodes, and personality disorders. Thus, psychiatry residents should be aware that pyromania is an extremely rare disorder that must not be confused with fire setting motivated by a criminal motive or which occurs under the influence of a substance. Furthermore, for the vast majority of adolescent fire setters who often set fires out of boredom or experimentation, pyromania would not be the correct diagnosis due to the DSM requirement of a buildup of tension and subsequent relief provided by fire setting. Persons diagnosed with pyromania are predominantly male, with the mean age being 18 years old, and fires are typically set every 6 weeks. Approximately half of these individuals suffer from a comorbid impulse-control disorder.

Another misperception about pyromania is that the act of fire setting is engaged for sexual gratification. However, the data similarly fails to support

KEY POINTS/CLINICAL PEARLS

- Pyromania is quite rare. In a study of 90 arson recidivists, only three met criteria for pyromania.
- Individuals with pyromania suffer from a buildup of tension that can only be released by deliberate fire setting.
- Patients who set fires due to being antisocial, merely for entertainment, or while under the influence of a substance cannot meet criteria for pyromania.
- Regarding treatment, selective serotonin reuptake inhibitors, topiramate, valproic acid, and olanzapine each have some support in the literature, depending on patient comorbidities.

that contention, with only 1.2% of fire setters in one study doing so for sexual arousal. Additionally, residents should be aware that the Macdonald triad of enuresis, cruelty to animals and fire setting, borne out in early studies has not held up in a later study with regard to the enuresis component and its link to fire setting recidivism. Lastly, the discussion of treatment options has largely been limited to case reports, given the rarity of the condition. This highlights the need for further research regarding this rare yet important psychiatric condition that, if left untreated, can result in considerable property damage and the loss of innocent life.

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CASE REPORT

Conversion Disorder With Conceptual and Treatment Challenges

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In a clinical case, we reviewed the conceptual, diagnostic, and treatment challenges in a diagnosis of conversion disorder. An examination of the revised DSM-5 criteria for conversion disorder including the current neuropsychiatric understanding of the condition is presented. Therapeutic challenges are highlighted, and treatment options are appraised using the available evidence.

CASE

"Molly" is a 39-year-old black woman who presented to the emergency department with complaints of her "throat closing up, body locking up, and falling down." She reported initially developing "belching fits" lasting 10 minutes and occurring at multiple times daily 2 months prior to presentation. She reported attending an out-of-state emergency department where she reported receiving morphine for an unspecified reason, later confirmed to be back pain. She complained that she had subsequently developed "leg jerking" and denied any allergies or past administrations of morphine. She stated that she had left against medical advice after being offered "no diagnosis." Her family reported that she went on to have fluctuating leg weakness and was seen to collapse frequently without loss of consciousness or head injuries. The patient recounted episodes in which her eyes would "roll up," and she would "become blind." Adding to these symptoms, she reported instances of throat tightening. She reported multiple emergency department visits but admitted to repeatedly discharging against medical advice after undergoing numerous investigations without any diagnoses being offered.

Molly's vital signs and laboratory findings were within normal limits, and neurological consultation noted no pertinent findings. She was admitted for observation under the Neurology service, and all further investigations were unremarkable, including urine toxicology, CT, MRI, and EEG. A psychiatric consultation was obtained. She reported experiencing dyspnea, palpitations, feelings of doom, paresthesias, and avoiding hospitals. She admitted to being unable to return to work, as she felt numb and collapsed often but always without injury. She stated, "I can feel it, so I avoid sharp and hard things." When asked about stressors, she reported moving out of state to care for her aging mother. Her sister reported that she had ended a long-distance 3-year relationship with her boyfriend in the months prior to the initial symptoms developing. When asked about the circumstances surrounding the breakdown of the relationship, Molly collapsed onto the edge of the bed but actively avoided hitting the rails.

The patient's mental state examination results remained stable, but a positive Hoover's sign was found. She developed "double vision" when the diagnosis of conversion disorder was discussed. Although the patient expressed extreme doubt, her family welcomed the diagnosis in light of her previous high-functioning, recent psychosocial stressors, and lack of clinical findings. Psychoeducation and supportive psychotherapy were provided, and the patient was referred for further outpatient treatment but unfortunately did not follow up despite multiple outreach efforts.

IMPLICATIONS

The diagnosis of conversion disorder is one that can only be made after consideration of the presentation, course, investigations, and treatments that fail to account for symptoms of altered voluntary motor or sensory function with evidence of clinical incompatibility.

The disorder raises questions, including how one may assess the volitional component of symptoms, identify psychological mechanisms where none may apparently exist, and provide a treatment that integrates these uncertainties but provides relief to the patient.

REVISION OF DSM-5 CRITERIA

Criteria for conversion disorder in DSM-5 no longer require the identification of psychological factors initiating or exacerbating the voluntary symptom but now require that clinical evidence demonstrate incompatibility between symptoms and any recognized condition. Nonintentional production is no longer a criterion. The revised criteria challenge the original definition, which relied on pseudoneurological symptoms resulting from conversion of an unconscious psychological conflict to somatic representation (1).

The above case underscores the challenges in evaluating and treating patients who do not accept such a diagnosis. Patients who seek multiple assessments and have symptoms that are incompatible to any one condition should be evaluated for possible conversion disorder. Although some hesitate to provide such a diagnosis out of fear of being incorrect, missing another condition, a meta-analysis established the misdiagnosis rate at 4%, similar to that

for schizophrenia and amyotrophic lateral sclerosis. The psychiatrist should also consider comorbid disorders, including phobia, anxiety, panic attacks, and trauma-related disorders (2).

KEY POINTS/CLINICAL PEARLS

- Criteria for conversion disorder in DSM-5 no longer require the identification of psychological factors initiating or exacerbating the voluntary motor of sensory symptom.
- Clinical evidence must demonstrate incompatibility between the symptom and any recognized condition; nonintentional production is no longer a criterion.
- The revised criteria challenge the original definition, which relied on pseudoneurological symptoms resulting from conversion of an unconscious psychological conflict to somatic representation.
- Functional imagining findings suggest a hypothesis that frontal, cortical, and limbic activation associated with emotional stress may act via inhibitory basal ganglia-thalamocortical circuits to produce a deficit of conscious sensory or motor processing.

MECHANISMS OF CONVERSION

Dissociation was initially proposed as a psychological theory for conversion disorder, as it could lead to problems maintaining the normal conscious synthesis of experience (3). Freud proposed a different mechanism whereby unwelcome experiences are repressed into the unconscious but in doing so become converted into physical symptoms. Although the repression was deliberate, the conversion was not (4). The removal of the psychological-basis criterion permits diagnosis whereby a psychological stressor may not be identified but risks its inappropriate application. The new incompatibility criterion supports the use of some evidence-based tests that demonstrate clinical discrepancy but may be unethical with regard to tests that could negatively affect the patient-doctor relationship. The use of placebo to diagnose and treat conversion disorder has been critiqued for similar reasons (5).

Researchers have examined the etiology of conversion disorder, and evidence by Black et al. (6) suggests that during conversion reactions, primary perception remains intact, with modulation of sensory and motor planning becoming impaired through disruption of the anterior cingulate cortex, orbitofrontal cortex, and limbic brain regions. Furthermore, limited functional imagining findings suggest that frontal, cortical, and limbic activation associated with emotional stress may act via inhibitory basal ganglia-thalamocortical circuits to produce a deficit of conscious sensory or motor processing (7).

CULTURAL FACTORS

Somatization, as a culturally defined phenomenon, has been understood to be a channeling of distress into physical symptoms through the idiom of distress hypothesis (8). Somatization in collectivistic cultures may be a constructive response to psychosocial stressors, whereas in individualistic cultures it may be disadvantageous because it is inconsistent with the value of direct expression. Somatization can hinder others' recognition of the individual's distress, leaving the individual without help. The patient in the above case was born to Jamaican parents but raised in the United States. Her experience of identifying as American with immigrant parents raises questions about the validity of such cultural delineations as either collectivist or individualistic.

ONGOING CHALLENGES

Conversion disorder remains a diagnosis of exclusion. Patients may express doubt, anger, and disappointment or seek different providers, which negatively affects the doctor-patient relationship. Psychoeducation helps patients accept their symptoms as real, validates the diagnosis, and allows for treatment. Although patients exhibit short-term resolution with reassurance, more than 25% relapse (9). Patients' perception of health and functioning is correlated with resolution, suggesting that interventions should focus on improving function and self-esteem.

Prospective and controlled data examining treatment for conversion disorder remain limited. Current literature supports a multidisciplinary approach with interventions including cognitive-behavioral therapy and psychodynamic therapy to address underlying symptom formation. Hypnosis may prove useful in diagnosis and treatment if its purpose is explained. Once in a trance-like state, patients may be directed to turn the symptom on and off. Symptoms may be improved using antidepressants, anxiolytics, or other psychotropics, depending on psychiatric comorbidity. The use of specific pharmacological agents, ECT, or transcranial magnetic stimulation for conversion disorder currently lacks quality evidence (10).

CONCLUSIONS

Further research is needed to investigate the etiology of conversion disorder and its treatment. We continue to have limited understanding of this contemporary nonvolitional, and at times psychological and symptom-incompatible, disorder and unfortunately lack evidence-based treatments for the patients it affects.

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