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REVIEW ARTICLE

Access to interventional psychiatric treatments in the United States: Disparities and proposed solutions

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Abstract

Interventional psychiatric treatments are a group of mental health procedures and monitored pharmacological interventions that are implemented when first-line therapies, such as psychotherapy and traditional pharmacotherapy, are ineffective or when there is a need for rapid symptom relief. Interventional treatments such as repetitive transcranial magnetic stimulation, esketamine, and electroconvulsive therapy are the United States Food and Drug Administration -approved treatments for major depressive disorder that has gained increased use and shows promise for improvement in efficacy and greater adoption. Despite the immense value and potential of interventional therapies, there are disparities in access to these treatments owing to economic, cultural, and geographical factors. When compounded with existing disparities in mental health care for racial and ethnic minorities, this interaction worsens inequities in access and may exacerbate the severity of disease in underserved groups. This review describes the factors contributing to these disparities, suggests strategies to ameliorate inequities, and broadens the impact of interventional therapies.

Keywords: Interventional psychiatry; Health-care disparities; Transcranial magnetic stimulation; Electroconvulsive therapy; Major depressive disorder

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1. Introduction

Major depressive disorder (MDD) is a mood disorder characterized by persistent feelings of sadness, hopelessness, and a lack of interest or pleasure in daily activities, affecting millions of individuals worldwide. MDD is one of the most prevalent and burdensome illnesses globally, with approximately 19% of individuals experiencing it at least once in their lifetime (Shorey *et al*., 2022). From an economic perspective, depression significantly impacts the economy due to its substantial costs and broader societal burdens. In 2018, the economic burden of MDD among adults in the United States was USD $326.2 billion (Proudman *et al*., 2021), in comparison to cardiovascular diseases at USD $363 billion (Benjamin *et al*., 2018), and cancer at USD $210 billion (Institute, 2023), underscoring the significant impact of MDD on individuals and society. While the prevalence of

MDD varies by geographical region (Vyas *et al*., 2022), it affects individuals of all ages, races, and socioeconomic backgrounds. Treatment-resistant depression (TRD) refers to a subset of MDD that does not respond adequately to standard first-line antidepressant treatments, including psychotherapy and pharmacotherapy. While TRD affects individuals across all demographic groups, certain factors, such as substance abuse, poor social support, co-occurring medical conditions, and a prolonged history of depression, may increase the risk of its development (Kautzky *et al*., 2019).

Interventional psychiatry refers to a rapidly growing branch of psychiatry that utilizes minimally invasive procedures to treat mental health disorders. Since the 1930s, neuromodulation has been a medical technique used to address mental health disorders (Conroy & Holtzheimer, 2021). The ongoing technological advancements have significantly enhanced the effectiveness of these approaches in addressing treatment resistance. This shift has fostered greater acceptance of neuromodulation and other rapidly acting device-based and pharmaceutical therapies, particularly for the treatment of conditions such as TRD (Staudt *et al*., 2019). Common interventional approaches that have gained federal regulatory approval include repetitive transcranial magnetic stimulation (rTMS), first approved in 2008; esketamine, approved in 2019; and electroconvulsive therapy (ECT), first approved in 1976. These treatments can provide fast-acting symptom improvement compared to psychotherapies and traditional pharmacotherapies, with ongoing research trials aimed at further improving their efficacy through individualization and optimization of treatment parameters (Appelbaum *et al*., 2023). Despite these methodological advances, disparities in access, specifically in historically underrepresented groups, continue to present a challenge to addressing the burden of TRD. For example, ethnic minorities are considerably less likely to receive ECT (Giacobbe *et al*., 2023), to be referred for psychiatric treatment and proper diagnoses (Smith *et al*., 2021), and are more hesitant to participate in psychedelic therapy (Smith *et al*., 2021). These shortcomings necessitate proactive measures to ensure comprehensive and equitable mental health interventions. As such, the aims of this paper are twofold (i) to delineate the barriers to interventional psychiatric treatment and (ii) to propose solutions that could reduce these disparities.

2. Challenges contributing to disparities

While developments and improvements in psychiatric health care have led to more effective treatments for TRD and related mental health disorders, access to psychiatric care, especially interventional services, is unevenly distributed. Disparities in access to mental health services are influenced by various factors, including socioeconomic status (SES), cultural beliefs, stigma surrounding mental health, geographical location, and the availability of mental health services (Araya *et al*., 2018; Barksdale *et al*., 2022; Terlizzi & Norris, 2021). For example, studies in the United States revealed that racial, ethnic, and cultural minorities have lower rates of access to mental health care than their respective majorities (Barksdale *et al*., 2022; Terlizzi & Norris, 2021). Furthermore, when minorities have access to health care, providers more frequently exhibit implicit biases that can lead to misdiagnosis and underdiagnosis of mood disorders (Black Parker *et al*., 2021; Merino *et al*., 2018; Moran, 2018). In addition, disparities in research participation and representation within psychiatric studies significantly impact access to mental health treatments (Ruiz-White *et al*., 2023). Despite accounting for sociodemographic and economic factors, minorities exhibit higher rates of MDD compared to their White counterparts (Vyas *et al*., 2020). This underscores the urgent need to reduce mental health treatment disparities within underrepresented communities in both practice and research efforts.

2.1. Geographical barriers

One of the primary factors influencing disparities in access to interventional psychiatry relates to the unrepresentative geographical distribution of facilities and psychiatrists, particularly those that deliver interventional treatments. In addition to the substantial time required to access services, patients must overcome the burden of securing transportation. Research indicates that access to health care, particularly transportation, disproportionally affects socioeconomically disadvantaged and racially minoritized populations, with longer distance-normalized trip times for Black individuals compared to their White counterparts (Labban *et al*., 2023; Walker *et al*., 2021). Moreover, transportation and financial instability emerge as significant barriers to health-care access (Walker *et al*., 2021). Considering America's growing racial diversity, ensuring reliable transportation becomes even more imperative. As central and southern regions of the United States continue to experience growing racial diversity, it is crucial to correspondingly expand psychiatric services in these areas (Jensen *et al*., 2021). A survey conducted in 2020 by the National Mental Health Services (SAMHSA, 2021) characterized these discrepancies and reported that the central and southern regions of the United States had the lowest ratio of psychiatrists, especially geriatric psychiatrists, which further exacerbates the gap in mental health care, given the prevalence of TRD among older patients (Kautzky *et al*., 2023). Rural communities were found to be especially understaffed, whereby 65% of

counties lacked sufficient psychiatrists, compared to 27% in metropolitan counties (Morales *et al*., 2020). Another identified issue was the severe lack of interventional psychiatric treatments, with only 1% of all facilities offering ketamine treatment, 7% offering ECT in two states, and at least 5% offering rTMS in five states. These data highlight the disparities in resources such as transportation or access to health care in rural and racially diverse states, which further accentuate the gap in mental health treatments available to historically underserved communities.

2.2. Cultural barriers

Racial disparities are prominent within interventional psychiatry and can be attributed to cultural barriers, differences, and a lack of cultural competence among providers. Cultural barriers and differences among ethnicities also exacerbate disparities in access to mental health treatments. Beliefs and stigma surrounding mental health can also deter individuals from seeking help. Black communities are especially sensitive to new treatment modalities due to historical discrimination and abuse from trials such as the Tuskegee study and the lack of information disseminated about novel, interventional treatments to these communities (Cabrera *et al*., 2021; Dean & Smith, 2021; Moran, 2018). Furthermore, studies indicate that Black individuals with depression are less likely to receive therapy compared to their White counterparts, and when they do, it is less intensive, lower in quality, and less commonly provided by specialists (Bailey *et al*., 2019). Historically, Black individuals have received ECT at a much lower rate than their White counterparts, which could be attributed to a greater proportion of their therapy being based in public hospitals that are less likely to offer ECT (Asnis *et al*., 1978; Bailine & Rau, 1981; Black Parker *et al*., 2021; Kramer, 1990). Even when MDD patients were referred to hospitals that offered ECT services, White individuals still received ECT treatment at higher rates (Jones *et al*., 2019). Ketamine and other psychedelic therapies exhibit the greatest racial disparities, with approximately 74% of patients identifying as Whites and only 9% as Black, while 80% of patients in psychedelic trials identify as Whites, with only 3 – 9% as Black (Simon, 2023). In addition, disparities in race between providers and patients contribute to increased racial biases, gaps in cultural awareness, and communication barriers (Wyse *et al*., 2020). As a result, clients tend to be less trusting and limit the amount of information they disclose, as well as their medication adherence (Pugh *et al*., 2021).

2.3. Provider biases

Another source of discrepancies stems from the misdiagnosis of symptoms due to a lack of cultural understanding by providers and their underlying racial biases (Garb, 2021). For example, black individuals are often misdiagnosed with psychotic disorders instead of affective disorders, resulting in fewer referrals to interventional psychiatric treatments (SAMHSA, 2021). Furthermore, underrepresented groups, including racial and ethnic minorities, LGBTQ+ individuals, and refugees, may face additional challenges in accessing mental health services due to discrimination and a lack of culturally competent health care (Buchanan, 2020; Choi *et al*., 2023). Approximately 1 in 10 youths in the United States identify as LGBTQ+ and have three times the prevalence of depression and anxiety compared to heterosexual youth, and 42% have contemplated suicide at some point in their lives (Choi *et al*., 2023). Only 28% of mental health facilities have personalized care for such identity issues, highlighting once again the challenges of individualized and specified care for under-represented groups (Choi *et al*., 2023).

2.4. Financial barriers

Additional important factors that contribute to disparities in mental health access are the cost of treatment, their lack of integration with primary care, and the limited insurance coverage and reimbursement provided for the therapies. Patients with illnesses such as TRD, anxiety, and postpartum depression experience significantly higher treatment costs, worse outcomes, and ultimately a greater burden of disease compared to those with MDD but no comorbidities (Proudman *et al*., 2021). Barriers to treatment are amplified in interventional psychiatry as many insurance plans have multiple stipulations to cover costs and require patients to have failed several other therapies (Bermudes, 2021). For example, typical treatment costs for transcranial magnetic stimulation (TMS) are around USD $6,000 – $12,000, while accelerated TMS protocols are not yet covered by insurance and are completely paid out-of-pocket by patients (Health; Psychiatry). While most Medicaid and Medicare plans cover a portion of some costs, they often do not cover all modalities or the full amount and may only cover treatment if the patient has a higher-tier, more expensive plan. Since minorities are more likely to have a lower SES and be covered by Medicare, the extra out-of-pocket costs are an added barrier to these groups (Cohen & Cha, 2023). Due to the cost of interventional treatments, access often requires individuals to have health insurance, and racial minority groups are less likely to be covered by health insurance compared to their White counterparts (Lee *et al*., 2021; Weissman *et al*., 2023).

3. Solutions to alleviate disparities

While the systemic, cultural, financial, and socioeconomic obstacles described above lead to disparities in treatments

and poorer health outcomes for some, several avenues can improve representation and access to interventional therapies. These improvements could emanate from approaches that facilitate patient access and increase equity, including the removal of economic barriers, increased representation of research providers and participants, investment in cultural competency, and increased education on procedures.

To address economic barriers, policymakers should advocate for equitable insurance coverage for mental health treatments overall, with a particular focus on interventional procedures. This could entail expanding Medicare coverage to fully cover the cost of rTMS treatments, rather than only a portion of the treatment, as is currently practiced. At present, insurance companies impose restrictions on rTMS for TRD, so efforts need to be made to persuade insurance companies to eliminate such restrictions (Weissman *et al*., 2023). Another economic barrier that prevents equitable treatment stems from the lack of adequate transportation for patients (Labban *et al*., 2023). While this problem is not unique to interventional treatments, it is exacerbated because interventional procedures typically require in-person services, and as noted above, these are less common in rural and underserved communities. Improved accessibility to and reduced costs of medical transportation services can lead to a decrease in such transportation barriers. Moreover, there has been a recent attempt to implement mobile interventional services, such as the Montana TMS Mobile Medical Unit, which recently began operation as part of the Veterans Administration hospitals, bringing services to patients who might not otherwise be able to obtain these treatments. Similarly, while the vast majority of interventional services are provided in private health-care systems, there is a need to expand such services in public health-care systems, such as those currently being implemented by the Los Angeles County Department of Mental Health (Chung, 2022).

Cultural barriers exacerbate disparities in access to mental health treatments overall, particularly for interventional therapies such as ECT. There are several potential paths to reduce these barriers, both for health-care providers and in the treatments that they provide. The first step is to increase both the number of psychiatrists and non-clinician caregivers from minority groups that are engaged in interventional treatments. Hiring medical professionals and affiliated technicians from diverse backgrounds that represent local demographics, and training them in culturally competent health care through programs offered by the Substance Abuse and Mental Health Services Administration and the United States Department of Health and Human Services, will make interventions more accessible and improve their representation in both clinical settings and clinical trials. Furthermore, the hiring teams can enhance diversity by implementing inclusive hiring practices by sourcing candidates from diverse channels such as community organizations, providing greater incentives to alleviate the burden of relocating, and using more inclusive platforms. Promoting diversity can also involve incorporating a diverse interview panel, requiring diversity training for the hiring team, and adopting practices such as anonymous resume reviews and structured interviews to foster a more representative workforce.

In terms of research, having a diverse and understanding team may ease the complicated consent and procedure processes of clinical trials for participants and, ultimately, may lead to the recruitment of participants from populations that would otherwise have language and cultural barriers. The current resident physician workforce is also unrepresentative of minorities, with Blacks/African Americans and Hispanics/Latinos accounting for 6.3% and 8.3% of residents, respectively (AAMC, 2023). Specifically, in interventional psychiatry, a recent study showed that most residents believed that familiarity with ECT (91.3%) and rTMS (56.5%) were required for licensure; however, only a small percentage were able to achieve competency during their training (ECT: 24.3% and rTMS: 3.1%) (Giacobbe *et al*., 2021). This highlights the need for psychiatrists to receive better training in interventional procedures and, more importantly, to combine their cultural competence training to effectively provide services for minorities. This can be achieved by incorporating simulation-based education into interventional psychiatric training and providing neuroethics training to physicians and residents as a part of their learning curriculum (Giacobbe *et al*., 2023).

Clinical trials need to increase the representation of underrepresented minorities so that findings from studies ensure efficacy and appropriate treatment for minorities. The National Institutes of Health has made significant efforts to ensure greater representation in clinical trials, including requirements for racial and gender representation of research participants. Despite this, there remains a marked underrepresentation of minorities (Turner *et al*., 2022). While there are many factors driving disparity, there are several ethnic factors that may specifically contribute to the underrepresentation of minorities in rTMS clinical trials. For example, ethnic differences in hairstyles and head coverings may dissuade some individuals from participating in studies that measure brain activity, leading to inaccuracies in the dosing and treatment

intensity for these participants during rTMS treatment. One study showed that there might be ethnic differences in response to deep TMS treatment, as they found a greater clinical decrease in Quick Inventory of Depressive Symptomatology-16 scores among South Asians compared to their White counterparts (Sheth *et al*., 2022). As discussed earlier, given the significant racial disparity in participation observed in emerging psychedelic trials and the identification of ethnic differences in outcomes, it is crucial for researchers to prioritize diverse representation in clinical trials. This ensures that results are not generalized to a broader population without considering a more diverse and inclusive participant base.

Recent initiatives by the NIH require clinical researchers to report their racial and ethnic demographics to promote diversity and inclusion; however, no such requirements exist for basic scientific research (Goldfarb & Brown, 2022). Biomarker studies often rely on convenience samples consisting of university students and staff as the primary population of their research. However, since many demographic groups, such as ethnic minorities and members of lower SES, are underrepresented on college campuses, the collected data is not entirely representative of the general population (Dotson & Duarte, 2020). Studies revealed that community-based involvement in trials results in a more diverse participant pool, leading to greater representation in community trials (Shea *et al*., 2022). This implies that conducting more community-based interventional trials, as opposed to solely relying on academic medical institutions, can improve enrollment diversity.

4. Conclusion

Although efforts are being made to address concerns regarding disparities in access to mental health care, inequities persist and continue to be a public health burden. Because of the unique role of interventional therapies in the treatment of more severe, treatment-resistant illnesses, these inequities are amplified. Through awareness of these barriers and consideration of the solutions suggested above, it may be possible to ameliorate these disparities and broaden the reach and impact of this important branch of psychiatric care.

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Conflict of interest

The authors declare that they have no competing interests.

Author contributions

Conceptualization: Deepinder Nagra, Greg Appelbaum
Writing – original draft: All authors
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Not applicable.

Consent for publication

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References

AAMC. (2023). Report on Residents. Association of American Medical Colleges. Available from: https://www.aamc.org/data-reports/students-residents/data/report-residents/2022/table-b5-md-residents-race-ethnicity-and-specialty [Last accessed on 2023 Dec 12].

Appelbaum, L.G., Shenasa, M.A., Stolz, L., & Daskalakis, Z. (2023). Synaptic plasticity and mental health: Methods, challenges and opportunities. *Neuropsychopharmacology*, 48(1):113-120.

https://doi.org/10.1038/s41386-022-01370-w

Araya, R., Zitko, P., Markkula, N., Rai, D., & Jones, K. (2018). Determinants of access to health care for depression in 49 countries: A multilevel analysis. *Journal of Affective Disorders*, 234:80-88.

https://doi.org/10.1016/j.jad.2018.02.092

Asnis, G.M., Fink, M., & Saferstein, S. (1978). ECT in metropolitan New York hospitals: A survey of practice, 1975-1976. *The American Journal of Psychiatry*, 135(4):479-482.

https://doi.org/10.1176/ajp.135.4.479

Axis Integrated Mental Health. TMS Therapy Costs Axis Integrated Mental Health. Available from: https://axismh.com/home-page-2/tms-therapy-costs [Last accessed on 2023 Sep 26].

Bailey, R.K., Mokonogho, J., & Kumar, A. (2019), Racial and ethnic differences in depression: Current perspectives. *Neuropsychiatric Disease and Treatment*, 15:603-609.

https://doi.org/10.2147/NDT.S128584

Bailine, S.H., & Rau, J.H. (1981). The decision to use ECT: A retrospective study. *Comprehensive Psychiatry*, 22(3):274-281.

https://doi.org/10.1016/0010-440x(81)90085-7

Barksdale, C.L., Perez-Stable, E., & Gordon, J. (2022). Innovative directions to advance mental health disparities research. *The American Journal of Psychiatry*, 179(6):397-401.

https://doi.org/10.1176/appi.ajp.21100972

Benjamin, E.J., Virani, S.S., Callaway, C.W., Chamberlain, A.M., Chang, A.R., Cheng, S., *et al.* (2018). Heart disease and stroke statistics-2018 update: A report from the American Heart Association. *Circulation*, 137(12):e67-e492.

https://doi.org/10.1161/CIR.0000000000000558

Bermudes, R.A. (2021). Guidance on navigating insurance plans for TMS-eligible patients. *Psychiatric News*, 56(10):21.

https://doi.org/10.1176/APPI.PN.2021.10.36

Black Parker, C., McCall, W.V., Spearman-McCarthy, E.V., Rosenquist, P., & Cortese, N. (2021). Clinicians' racial bias contributing to disparities in electroconvulsive therapy for patients from racial-ethnic minority groups. *Psychiatric Services*, 72(6):684-690.

https://doi.org/10.1176/appi.ps.202000142

Buchanan, N.T. (2020). Ensuring the psychedelic renaissance and radical healing reach the Black community: Commentary on culture and psychedelic psychotherapy. *Journal of Psychedelic Studies*, 4(3):142-145.

https://doi.org/10.1556/2054.2020.00145

Cabrera, L.Y., Gilbert, M.M.C., McCright, A.M., Achtyes, E.D., & Bluhm, R. (2021). Beyond the Cuckoo's nest: Patient and public attitudes about psychiatric electroceutical interventions. *Psychiatric Quarterly*, 92(4):1425-1438.

https://doi.org/10.1007/s11126-021-09916-9

Choi, K.R., Wisk, L.E., & Zima, B.T. (2023). Availability of LGBTQ mental health services for US youth, 2014 to 2020. *JAMA Pediatrics*, 177(8):865-867.

https://doi.org/10.1001/jamapediatrics.2023.1473

Chung, H. (2022). Innovation Project Highlights: Transcranial Magnetic Stimulation. Available from: https://www.visn19.va.gov/features/TMS_mobile_medical_unit_unveiled.asp [Last accessed on 2023 Aug 26].

Cohen, R.A., & Cha, A.E. (2023). Health Insurance Coverage: Early Release of Estimates From the National Health Interview Survey, 2022. Available from: https://www.cdc.gov/nchs/data/nhis/earlyrelease/insur202305_1.pdf [Last accessed on 2023 Aug 26].

Conroy, S.K., & Holtzheimer, P.E. (2021). Neuromodulation strategies for the treatment of depression. *American Journal of Psychiatry*, 178(12):1082-1088.

https://doi.org/10.1176/appi.ajp.2021.21101034

Dean, L.T., & Smith, G.S. (2021). Examining the role of family history of us enslavement in health care system distrust today. *Ethnicity and Disease*, 31(3):417-424.

https://doi.org/10.18865/ed.31.3.417

Dotson, V.M., & Duarte, A. (2020). The importance of diversity in cognitive neuroscience. *Ann The New York Academy of Sciences*, 1464(1):181-191.

https://doi.org/10.1111/nyas.14268

Garb, H.N. (2021). Race bias and gender bias in the diagnosis of psychological disorders. *Clinical Psychology Review*, 90:102087.

https://doi.org/10.1016/j.cpr.2021.102087

Giacobbe, P., Burhan, A.M., Waxman, R., & Ng, E. (2023). Interventional psychiatry and neurotechnologies: Education and ethics training. *Canadian Journal of Neurological Sciences*, 50(s1):S10-S16.

https://doi.org/10.1017/cjn.2023.27

Giacobbe, P., Ng, E., Blumberger, D.M., Daskalakis, Z.J., Downar, J., Garcia, C., *et al.* (2021). Interventional psychiatry: An idea whose time has come? *The Canadian Journal of Psychiatry*, 66(3):316-318.

https://doi.org/10.1177/0706743720963887

Goldfarb, M.G., & Brown, D.R. (2022). Diversifying participation: The rarity of reporting racial demographics in neuroimaging research. *Neuroimage*, 254:119122.

https://doi.org/10.1016/j.neuroimage.2022.119122

Institute, N.C. (2023). Financial Burden of Cancer Care, Cancer Trends Progress Report. National Cancer Institute. Available from: https://progressreport.cancer.gov/after/economic_burden [Last accessed on 2023 Feb 08].

Jensen, E., Jones, N., Rabe, M., Pratt, B., Medina, L., Orozco, K., *et al.* (2021). Racial and Ethnic Disparities in Physical and Mental Health Care and Clinical Trials. Available from: https://www.census.gov/library/stories/2021/08/2020-united-states-population-more-racially-ethnically-diverse-than-2010.html [Last accessed on 2023 Dec 12].

Jones, K.C., Salemi, J.L., Dongarwar, D., Kunik, M.E., Rodriguez, S.M., Quach, T.H., *et al.* (2019). Racial/ethnic disparities in receipt of electroconvulsive therapy for elderly patients with a principal diagnosis of depression in inpatient settings. *The American Journal of Geriatric Psychiatry*, 27(3):266-278.

https://doi.org/10.1016/j.jagp.2018.11.007

Kautzky, A., Bartova, L., Fugger, G., Dold, M., Souery, D., Montgomery, S., *et al.* (2023). Age as a moderating factor of treatment resistance in depression. *European Psychiatry*, 66(1):e35.

https://doi.org/10.1192/j.eurpsy.2023.17

Kautzky, A., Dold, M., Bartova, L., Spies, M., Kranz, G.S., Souery, D., *et al.* (2019). Clinical factors predicting treatment resistant depression: Affirmative results from the European multicenter study. *Acta Psychiatrica Scandinavica*,

139(1):78-88.

https://doi.org/10.1111/acps.12959

Kramer, B.A. (1990). ECT use in the public sector: California. *Psychiatric Quarterly*, 61(2):97-103.

https://doi.org/10.1007/BF01064910

Labban, M., Chen, C.R., Frego, N., Nguyen, D.D., Lipsitz, S.R., Reich, A.J., *et al.* (2023). Disparities in travel-related barriers to accessing health care from the 2017 national household travel survey. *JAMA Network Open*, 6(7):e2325291.

https://doi.org/10.1001/jamanetworkopen.2023.25291

Lee, D.C., Liang, H., & Shi, L. (2021). The convergence of racial and income disparities in health insurance coverage in the United States. *International Journal for Equity in Health*, 20(1):96.

https://doi.org/10.1186/s12939-021-01436-z

Merino, Y., Adams, L., & Hall, W.J. (2018). Implicit bias and mental health professionals: Priorities and directions for research. *Psychiatric Services*, 69(6):723-725.

https://doi.org/10.1176/appi.ps.201700294

Morales, D.A., Barksdale, C.L., & Beckel-Mitchener, A.C. (2020). A call to action to address rural mental health disparities. *Journal of Clinical and Translational Science*, 4(5):463-467.

https://doi.org/10.1017/cts.2020.42

Moran, M. (2018). Survey Finds Dramatic Disparities in Reimbursement, Out-of-Network Use. *Psychiatric News*. Available from: https://psychnews.psychiatryonline.org [Last accessed on 2023 Sep 22].

https://doi.org/10.1176/appi.pn.2018.1a8

Proudman, D., Greenberg, P., & Nellesen, D. (2021). The growing burden of major depressive disorders (MDD): Implications for researchers and policy makers. *Pharmacoeconomics*, 39(6):619-625.

https://doi.org/10.1007/s40273-021-01040-7

Psychiatry, A. Transcranial Magnetic Stimulation (TMS) Treatment in Chicago, IL. Available from: https://ablepsychiatry.com/tms [Last accessed on 2023 Sep 27].

Pugh, M. Jr., Perrin, P.B., Rybarczyk, B., & Tan, J. (2021). Racism, mental health, healthcare provider trust, and medication adherence among black patients in safety-net primary care. *Journal of Clinical Psychology in Medical Settings*, 28(1):181-190.

https://doi.org/10.1007/s10880-020-09702-y

Ruiz-White, I., Kramer, L., Philips, L., Wong, B., Lonergan, K., & Moreno, F. (2023). Racial and ethnic disparities in physical and mental health care and clinical trials. *The Journal of Clinical Psychiatry*, 84(4):23ah14887.

https://doi.org/10.4088/JCP.23ah14887

SAMHSA. (2021). National Mental Health Services Survey (N-MHSS): 2020 Data on Mental Health Treatment Facilities. Available from: https://www.samhsa.gov/data/sites/default/files/reports/rpt35336/2020_nmhss_final.pdf [Last accessed on 2023 Aug 26].

Shea, L., Pesa, J., Geonnotti, G., Powell, V., Kahn, C., & Peters, W. (2022). Improving diversity in study participation: Patient perspectives on barriers, racial differences and the role of communities. *Health Expectations*, 25(4):1979-1987.

https://doi.org/10.1111/hex.13554

Sheth, S., Shah, R., & Sheth, M. (2022). Ethnicity-dependent response To dTMS treatment. *Psychiatria Danubina*, 34(3):39.

Shorey, S., Ng, E.D., & Wong, C.H.J. (2022). Global prevalence of depression and elevated depressive symptoms among adolescents: A systematic review and meta-analysis. *British Journal of Clinical Psychology*, 61(2):287-305.

https://doi.org/10.1111/bjc.12333

Simon, M.A. (2023). Ensuring psychedelic treatments and research do not leave anyone behind. *Neuropsychopharmacology*, 49:294-295

https://doi.org/10.1038/s41386-023-01710-4

Smith, D.T., Faber, S.C., Buchanan, N.T., Foster, D., & Green, L. (2021). The need for psychedelic-assisted therapy in the black community and the burdens of its provision. *Front Psychiatry*, 12:774736.

https://doi.org/10.3389/fpsyt.2021.774736

Staudt, M.D., Herring, E.Z., Gao, K., Miller, J.P., & Sweet, J.A. (2019). Evolution in the Treatment of psychiatric disorders: From psychosurgery to psychopharmacology to neuromodulation. *Frontiers in Neuroscience*, 13:108.

https://doi.org/10.3389/fnins.2019.00108

Terlizzi, E.P., & Norris, T. (2021). Mental Health Treatment Among Adults: United States, 2020. CDC. Avaialble from: https://www.cdc.gov/nchs/products/databriefs/db419.htm [Last accessed on 2024 Feb 08].

Turner, B.E., Steinberg, J.R., Weeks, B.T., Rodriguez, F., & Cullen, M.R. (2022). Race/ethnicity reporting and representation in US clinical trials: A cohort study. *Lancet Regional Health Americas*, 11:100252.

https://doi.org/10.1016/j.lana.2022.100252

Vyas, C.M., Donneyong, M., Mischoulon, D., Chang, G., Gibson, H., Cook, N.R., *et al.* (2020). Association of race and ethnicity with late-life depression severity, symptom burden, and care. *JAMA Network Open*, 3(3):e201606.

https://doi.org/10.1001/jamanetworkopen.2020.1606

Vyas, C.M., Reynolds, C.F. 3rd, Donneyong, M., Mischoulon, D., Chang, G., Cook, N.R., *et al.* (2022). Geographic region, racial/ethnic disparities, and late-life depression: Results from a large US cohort of older adults. *The American Journal*

of Geriatric Psychiatry, 30(6):703-716.

https://doi.org/10.1016/j.jagp.2021.11.010

Walker, E.R., Fukuda, J., McMonigle, M., Nguyen, J., & Druss, B.G. (2021). A qualitative study of barriers and facilitators to transitions from the emergency department to outpatient mental health care. *Psychiatric Services*, 72(11):1311-1319.

https://doi.org/10.1176/appi.ps.202000299

Weissman, C.R., Bermudes, R.A., Voigt, J., Liston, C., Williams, N., Blumberger, D.M., *et al.* (2023). Repetitive transcranial magnetic stimulation for treatment-resistant depression: mismatch of evidence and insurance coverage policies in the United States. *The Journal of Clinical Psychiatry*, 84(3):22com14575.

https://doi.org/10.4088/JCP.22com14575

Wyse, R., Hwang, W.T., Ahmed, A.A., Richards, E., & Deville, C. Jr. (2020). Diversity by race, ethnicity, and sex within the US psychiatry physician workforce. *Academic Psychiatry*, 44(5):523-530.

https://doi.org/10.1007/s40596-020-01276-z