PERSPECTIVE

Economic and Policy Research Interests Highlighted in the 25th NIMH-Sponsored Mental Health Services Research Conference

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Abstract

Background: The National Institute of Mental Health (NIMH) remains committed to addressing real-world challenges with delivering high quality mental health care to people in need by advancing a services research agenda to improve access, continuity, quality, equity, and value of mental healthcare nationwide, and to improve outcomes for people with serious mental illnesses (SMI). The NIMH-Sponsored *Mental Health Services Research Conference* (MHSR) is a highly productive venue for discussing topics of interest to NIMH audiences and disseminating NIMH's latest research findings directly to mental health clinicians, policy makers, administrators, advocates, consumers, and scientists who attend.
Aims: This Perspective summarizes and provides highlights from the 25th MHSR. It also reviews three papers presented at the 25th MSHR and subsequently published in the June 2023 special issue of *The Journal of Mental Health Policy and Economics* (JMHPE).
Methods: The authors review three papers published in the June 2023 special issue of JMHPE, identifying common themes across the papers and illustrating how the papers' findings promote key areas of NIMH research interests.
Results: Three important areas are highlighted in this review: (i) service user engagement in the research enterprise, (ii) financing the implementation of the 988 Suicide & Crisis Lifeline, and (iii) methods to predict mental health workforce turnover.
Discussion: These three papers illustrate key areas in which policy research can help to promote quality mental health care. One notable common theme across the papers is that of the role that end users play in the research enterprise. The papers focus on (i) service users and the value they bring to informing the practice of research, (ii) policy makers and the information they need to make evidence-informed decisions, and (iii) provider organization leadership, by using an innovative machine learning process to help organizations predict and address staff turnover.
Implications for Health Care: NIMH encourages and often requires strong research-practice partnerships to help ensure findings will be of value to end users and make their way into the practice setting. The three papers reviewed in this perspective are exemplars of how necessary stakeholder partnerships are to improve care for those with mental illness.
Implications for Health Policies: The highlighted papers (i) provide recommendations for structural changes to research institutions to increase service user engagement in all aspects of the research enterprise, (ii) identify policy solutions to improve fiscal readiness to address increased demand of 988, and (iii) pilot a novel data-driven approach to predict mental health workforce turnover, a significant problem in community mental health clinics, offering health system leaders and policy makers an opportunity to proactively intervene to help maintain continuity of staffing.
Implications for Further Research: Consistent with NIMH's Strategic Plan for Research and current funding announcements, there remains an urgent need to (i) develop strategies to better implement, scale, and sustain existing evidence-supported treatments and services, particularly in historically underserved communities, and (ii) develop, test, and evaluate new solutions to improve access, continuity, quality, equity, and value of care.

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Introduction

Despite recent scientific advances in the development of effective evidence-based mental health practices, real-world challenges continue to impede access, delivery, and implementation of high-quality mental health care that many individuals urgently need. The National Institute of Mental Health (NIMH) remains committed to addressing these real-world challenges by advancing a services research agenda to improve access, continuity, quality, equity, and value of mental healthcare nationwide. NIMH research interests highlighted in the NIMH Strategic Plan[1] provide the scientific foundation for NIMH's mental health services research portfolios that include research to test new models in digital health, suicide prevention, primary care, financing and managed care, disparities, and implementation science to rapidly deliver evidence-based mental health practices that can be utilized in real-world settings and communities.

The NIMH-Sponsored *Mental Health Services Research Conference* (MHSR) is one highly successful venue for discussing topics of interest to NIMH audiences and disseminating NIMH's latest research findings directly to mental health clinicians, policy makers, managers, advocates, consumers, and scientists who attend. NIMH has convened the MHSR Conference on a biennial basis since 1979 (sans an off-year due to the COVID-19 pandemic) to present the most recent scientific findings on topics of high interest to the public.[2] The MHSR has built an international reputation of scientific excellence and attracts top researchers to attend and participate.

The *25th NIMH Conference on Mental Health Services Research* (MHSR 2022) themed: "Transforming Challenges into New Opportunities" highlighted recently completed scientific advances poised to inform future opportunities for the next generation to improve mental health care. MHSR 2022 attracted over 1,800 leading mental health services researchers, clinicians, advocates, consumers, and federal and non-federal virtual partners from 91 countries.

MHSR 2022 featured internationally recognized speakers to deliver the keynote addresses (Drs. Leana Wen and Ruth Shim) who presented strategies to improve mental health equity in under-resourced communities and identified approaches to achieve equity in mental health research. A plenary panel included leaders from multiple agencies within the Department of Health and Human Services (HHS) to discuss current mental health research interests, potential partnerships, and future funding opportunities. Another plenary panel focused on forecasting the future of mental health services research and speakers identified bold visions that will move the mental health services research field forward to transform mental health care over the next decade. Eighteen symposia, consisting of about three research projects each, showcased innovative research findings designed to transform mental health care over the next decade across a range of topics – including trauma-focused treatment, early detection, decision-support systems, and learning mental health care. The full meeting agenda is available here (https://www.nimh.nih.gov/news/events/2022/25th-nimh-mental-health-services-research-conference-agenda). Session recordings are available on the NIMH YouTube page (https://www.youtube.com/playlist?list=PLV9WJDAawyhaxwpyQjd4WLwqTPWY-KWpa).

In a special June 2023 issue, *The Journal of Mental Health Policy and Economics* highlighted a sample of relevant economic- and policy-focused research presented at MHSR 2022. This commentary, written by NIMH staff, describes how these three projects – led by Drs. Nev Jones, Jonathan Purtle, and Sadaaki Fukui – fit within NIMH research interests and notably advance mental health services research.

Forecasting the Future: Lived Experience and the Transformation of Mental Health Services Research in the United States

For decades, the field of mental health recognized that people with mental illness should be empowered, as partners, to make decisions about their lives.[3] Indeed, the 2003 President's New Freedom Commission on Mental Health report argues for direct participation of consumers and families in developing a range of community-based, recovery-oriented treatment and support services.[4] The beginnings of such initiatives, and as noted by Jones *et al.,*[5] are exemplified in the Substance Abuse and Mental Health Services Administration-funded Consumer Operated Services Program (COSP) Multisite Research initiative, which rigorously examines the effectiveness of COSPs on various psychological, social, and objective and subjective functioning domains among individuals who receive traditional mental health services.[6,7] The Principal Investigator (Dr. Jean Campbell) is a service user, and multisite research decisions were made collaboratively through a steering committee with a consumer (i.e., service user) advisory panel. This managerial structure empowered service users as decision makers and added to the innovation and significance of the project.

Jones *et al.*[5] make a compelling moral case that "those [service users] most impacted should be most involved" in the research enterprise. The authors present clear historical and current examples of where and how service users are underrepresented, and they present model examples in the United States[6-8] and abroad of how service users can be meaningfully and substantively part of research (Figures 1 and 2 in Jones *et al.*[5]) at multiple levels (e.g., stakeholder and investigator) and throughout the research process (e.g., planning, implementation, and knowledge translation).

Jones *et al.* also call attention to longstanding tensions between service users and researchers and research funders. Key areas include but are not limited to the selection of meaningful research outcomes,[9,10] portfolio balance at NIMH between basic and clinical/services research,[11,12] level of service user involvement in research,[13] and the "neoliberal" and ableist culture of academia[14,15] that can be unforgiving to competing life demands.[16,17] The tensions are variations on a theme and reflect a set of interests and business processes that although may represent the status quo, are not immutable.

NIH recognizes the need to involve service users and communities in research. NIH's National Center for Advancing Translational Sciences (NCATS), for example, recently spotlighted the value of end-users, with its former director

stating, "one of the most effective 'disruptive technologies' in translational science is the involvement of patients and communities in the development and implementation of new health interventions, which can bring increased relevance, urgency, applicability, and ultimately adoption of interventions successfully developed." However, like "many aspects of translational science, this aspiration is more easily stated than achieved".[18]

In a recent paper published by NIH-affiliated authors, Cruz *et al.*[19] state that, "[o]ne effort to advance a social model of disability is to study ableism, which is defined as discrimination and social prejudice against people with disabilities and people who are perceived as being disabled." The authors report on findings from a workshop which (among many findings) state that, "[a]bleism is pervasive in biomedical and behavioral research. It influences who enters the workforce, what research questions are asked, who is included in research, and the generalizability and utility of the research." Also, the "need to include people with disabilities as leaders or members of research teams will increase the relevance of research studies. Most of the NIH's budget is reserved for investigator-initiated research, meaning principal investigators (PIs) propose their own questions and ideas for research that are evaluated on scientific merit in peer review. Therefore, who asks the questions is a major driver in what research gets conducted. People with disabilities are underrepresented in science and as NIH PIs. If people with disabilities are not included in those circles, then what perspectives and talent are we losing?" Beyond workshop recommendations, NIH recently issued this funding announcement to further study ableism and commits resources to doing so: RFA-HD-24-007: Understanding and Mitigating Health Disparities experienced by People with Disabilities caused by Ableism (R01 Clinical Trial Optional).

NIMH specifically has recognized and continues to recognize the importance of services research and the meaningful inclusion of end users in the research process. Estimates generated by the thesaurus-based text mining process through the Research, Condition, and Disease Categorization (RCDC) system[20,21] shows that NIMH's investment in Health Services Research was $105,793,762 in FY2016 and increased to $223,769,106 in FY2022, the most current year that institute-level data is available. This investment co-occurs with an uptick of "therapeutics development and services research" since 2016.[22]

Engagement with end users gives more voice to those most likely to be impacted by research (e.g., service users and communities) but also those most likely to use findings to effect change. The NIMH Strategic Plan for Research Goal 4,[1] along with a range of mental health services-oriented initiatives, strongly encourage inclusion of end users to inform the development of research designs and inform research procedures and changes throughout the project period. In 2006, for example, NIMH issued PAR-07-133 to invite R01-level Community-Based Participatory Research at NIMH: "...this funding opportunity announcement (FOA) represents the first concerted and targeted effort to utilize the community-based participatory research (CBPR) approach and methods in addressing various content areas across the NIMH mission including basic behavioral sciences, preventive and treatment interventions, and services and clinical epidemiology." NIMH continues to issue funding announcements (e.g., PAR-23-095; PAR-21-130 for R01-level clinical trial and non-clinical trial research), including announcements for high profile P50 Centers (e.g., PAR-24-210), that explicitly call for service user engagement so that all aspects of the research project are informed by stakeholder perspectives (e.g., patients, providers, administrators or payors), and stakeholder involvement is evaluated by reviewers as a scored criterion (e.g., in RFA-MH-22-175).

As Jones *et al.*'s vision is realized, it will be important to disentangle doing the right thing—including service users in all aspects of the research enterprise—from prematurely assuming that doing so will be readily affordable. The COSP identified by Jones *et al.* is an excellent example of a service user-led multi-site trial that tested the addition of COSP models (drop-in centers, mutual support, and education/advocacy training) to traditional mental health services on a number of relevant outcomes. The trial included a cost evaluation[7] motivated, in part, by recognition that COSPs relied heavily on volunteer/donated resources, which may undervalue services that COSPs provide. If valued equitably, costs of COSPs may more closely approximate those of traditional mental health services. The parallel between estimating costs of COSPs and Jones *et al.*'s vision is recognition that doing the right thing by equitably valuing—and compensating—service users in research might mean larger research budgets for staffing, all else equal.

Realizing Jones *et al.*'s vision also means recognizing that some models of service user engagement may be effective, others may not, and that we can thoughtfully develop and test approaches to effectively and meaningfully integrate service users in research. Pulling again from the COSP literature, Segal *et al.*[23] randomized service users to receive care from a community mental health agency versus care from the agency plus a COSP. Outcomes were unexpectedly (given the extant literature favorable to COSPs) and significantly worse for service users randomized to the more intensive intervention arm. The authors posit that the management structure of the COSP may have contributed to the outcomes. They note that while COSPs have common components, the literature distinguishes between two management structures: (i) board-and-staff run (which are easier to set up and where authority is consumer-run but hierarchical) and (ii) participatory democratic self-help (which is resource intensive to set up and maintain and where authority resides within collective decision making). The COSP in Segal *et al.*[23] was board-and-staff run. The authors contrast negative findings here with the positive findings of combining community mental health services with democratically run consumer self-help agencies.[24] The Segal studies remind us that through research we can identify outcome-driving components of organizational models that meaningfully include service users.

NIMH recognizes that to fulfill its mission, it needs to ensure that the brightest ideas are examined by skilled scientists who provide a variety of perspectives on the complex problems we strive to solve. Accordingly, achieving a diverse, equitable, and inclusive mental health research workforce

will require a sustained, purposeful, and multidimensional effort.[25] Jones *et al.* tell us that those diverse perspectives must meaningfully involve those people most impacted by research—service users.

To advance the field of participatory research, Jones *et al.* offer a path forward. That path includes a critical and data informed examination of the scope of the problem[26] and constructive recommendations and opportunities to effect structural change at multiple points and at multiple levels along the continuum from research idea generation to dissemination and implementation of findings.[27] Jones *et al.* amplify a decades long mantra in the consumer empowerment movement - nothing about us without us - and flanks that message with actionable steps forward that will advance the research enterprise in ways that are consistent with NIMH's Strategic Plan for Research.[25,28]

Implementation of the 988 Suicide & Crisis Lifeline: Estimating State-Level Increases in Call Demand Costs and Financing

Suicide is a pressing public health problem that exacts tremendous individual, familial, and societal burden. In 2021, over 48,000 individuals died by suicide,[29] and it was ranked in the same year as the 11th cause of death across age groups.[30] The 988 Suicide & Crisis Lifeline, which is built upon the previously established National Suicide Prevention Lifeline, was enacted to provide no-cost emotional support and facilitate connections to services through a network of 200 centers located throughout the United States.[31]

In order to simplify access and capture additional mental health issues, 988 replaced the prior 11-digit number in 2022. The purpose of the current study was to examine whether there was an increase in 988 Lifeline call volume across states after this change, as well as provide an estimate of the cost for the increase and determine whether states had the capital to meet demand.

Purtle *et al.*[32] conducted a pre/post study, comparing state-level call volume data from two four-month periods; prior to (August through November, 2021), and after implementation (August through November, 2022). Data from all 50 states were analyzed. Results found there was an increase in volume across the nation; the mean percent change was 32.8% (*SD=20.5%*). The cost associated with this increase in volume was approximately $46 million dollars, a within state mean individual increase of $0.16 *(SD=$0.11*) per resident. Only approximately half of states had adequate state funding to accommodate the increased volume.

While acknowledging the limitations of this study, findings suggest a substantial increase in call volume, which aligns with the uptick in suicide. However, only half of states were found to be fiscally prepared to respond to the increase in demand. Downstream, the discrepancy in fiscal readiness has the potential to reinforce access inequities, particularly given the rise in suicide rates among non-Hispanic American Indian and Alaska Native and non-Hispanic black people.[29] Touching on two of NIMH's areas of interest (suicide and mental health disparities), there are multiple NIMH initiatives that aim to reduce access inequities and suicide risk, particularly amongst health disparity populations.

Future research is needed on multiple fronts. In addition to assessing volume over a longer period of time, there is a need to understand who is utilizing the 988 hotline, whether it is reaching populations disproportionately at risk, and, critically, if there is an association between utilization of the crisis hotline and reductions in suicide risk both proximally through the provision of emotional support given through 988, and more distally through engagement in mental health services.

Machine Learning with Human Resources Data: Predicting Turnover among Community Mental Health Center Employees

Fukui *et al.*[33] address an important and widespread problem that is seldom studied with rigor: the severe shortage of mental health clinicians in community practice settings. They focus specifically on clinician turnover, which can degrade the continuity and quality of mental health care delivered. Their pilot study took a novel approach in applying machine learning (ML) methods to two community mental health centers' (CMHCs) human resources (HR) records data to estimate an individual employee's turnover probability in the next 12 months. The researchers then cross-validated their predictive models and found a good level of predictive accuracy for clinician turnover, with the model identifying several important turnover predictors, including past work years, wage, work hours, age, job position, training hours, and marital status. Of practical importance, HR administrators deemed the HR data extraction process feasible.

In its updated Strategic Plan for Research,[1] the NIMH calls for "conducting research to better understand, predict, and reduce mental health workforce shortages" and to reduce workforce shortages, particularly for underserved communities. Fukui *et al.*'s study aligns with NIMH's stated interests in this area.

This innovative study has many strengths. It is the first study to apply ML methods to HR records to examine mental health clinician turnover. Second, it capitalizes on readily available but seldom utilized historical employee data that is routinely collected by HR departments. Third, rigor is strengthened by its comparison of two different ML approaches—parametric versus nonparametric methods.

Additionally, the authors acknowledge some limitations of their approach. They caution that if the HR model input data are systematically biased, then the models will produce biased predictions. For example, if employee demographic characteristics were associated with employment in positions with higher turnover, or with poorer performance evaluations, this could bias these prediction models. Additionally, the authors are to be commended for considering the ethical implications of identifying employees who are at high risk for turnover. They note that, as these ML approaches are used, it must be done with consideration for how to help employees in the mental health sector, rather than used against employees at risk of turnover.

Additional limitations of the study, as noted by the authors,

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include: (i) the relatively small sample size of 654 employee cases, (ii) that the interpretations of the predictors are restricted to the two specific CMHCs studied, and (iii) the acknowledgement that HR data alone may not be sufficient to fully address the mechanisms of mental health clinician turnover.

In sum, this study represents a practical, data-driven approach for addressing mental health clinician turnover in CMHCs and other organizations delivering mental health care, particularly to underserved populations. Additional organization-based strategies using ML methods can build the evidence needed to address clinician turnover and contribute to relevant policy making and workforce development efforts more broadly. By predicting turnover, this study offers healthcare leaders and policy makers an opportunity to proactively intervene in efforts to maintain continuity of staffing.

Conclusions

These three papers illustrate key areas in which economic and policy research can help to promote quality mental health care and help to improve outcomes for people with serious mental illnesses (SMI) and their families. One notable common theme is that of the role that end users play in the research enterprise. Jones focuses on service users and the value they bring to informing the practice of research. Purtle focuses on policy makers and the information they need to make evidence-informed decisions. Fukui focuses on provider organization leadership, by using an innovative machine learning process to help organizations identify and address excessive staff turnover to maintain service quality for clients. Each of these papers illustrates ways in which economic and policy analysis can be applied to improve our understanding of effective and efficient mental health service delivery.

The research presented at MHSR 2022 reflects a sample of the research interests as laid out in the NIMH Strategic Plan for Research. In addition, and of particular interest to economic and policy-focused investigators, the NIH published a Notice in Fiscal Year 2016 on *Clarifying NIH Priorities for Health Economics Research* (https://grants.nih.gov/grants/guide/notice-files/not-od-16-025.html). This Notice indicates that NIH is interested in economic studies that aim to support health-related outcomes, and in a recent analysis, publication of the Notice was associated with an increase in economic-focused applications and subsequent awards.[34]

NIMH currently offers a number of funding mechanisms that are particularly focused on health economics research, notably the Innovative Mental Health Services Research funding announcement (https://grants.nih.gov/grants/guide/pa-files/PAR-23-095.html), which solicits research in mutable patient-, provider-, organizational-, and policy-level factors that influence the degree to which evidence-based interventions are implemented with fidelity and sustained over time. In addition, there have been some recent topic-focused funding announcements, including funding announcements focusing on the role of work in disparities (https://grants.nih.gov/grants/guide/pa-files/PAR-21-275.html), and promoting the development of outcome-focused mental health quality measures (https://grants.nih.gov/grants/guide/rfa-files/RFA-MH-23-265.html), as well as a Notice of Special Interest (NOSI) on social, behavioral and economic effects of COVID (https://grants.nih.gov/grants/guide/notice-files/NOT-MH-21-330.html). These provide just a few examples of recent NIMH interest in health economics-related research.

NIMH has a long history of supporting mental health services research, including economic and policy focused research.[2] As stated in relevant funding announcements, NIMH intends to continue to fund innovative services research that aims to improve health care delivery, quality and outcomes for people with SMI. We look forward to seeing readers of this journal at the next MHSR.

References

1. National Institute of Mental Health (NIMH) *NIMH Strategic Plan Goal 4: Advance Mental Health Services to Strengthen Public Health*; 2023. NIMH » Goal 4: Advance Mental Health Services to Strengthen Public Health (nih.gov)

2. Rupp A, Freed MC, Juliano-Bult D. Insurance Markets, Labor Markets, and the Mental Health Services Delivery System. *J Mental Health Policy Econ* 2019; **22**: 1-4.

3. McLean A. Empowerment and the psychiatric consumer/ex-patient movement in the United States: contradictions, crisis and change. *Soc Sci Med* 1995; **40**(8):1053-1071.

4. President's New Freedom Commission. *New Freedom Commission on Mental Health: Achieving the Promise: Transforming Mental Health Care in America*. DHHS pub no SMA-03–3832. Rockville MD: Department of Health and Human Services, 2003.

5. Jones N, Mascayano F, Susser E, Yang YH. PERSPECTIVE Forecasting the Future: Lived Experience and the Transformation of Mental Health Services Research in the United States. *J Ment Health Policy Econ* 2023*;* **26**: 77-83.

6. Campbell J, Johnsen M, Lichtenstein C, Noel JG, Sonnefeld LJ, Yates BT.,... Teague, G. *The Consumer-Operated Service Program (COSP) Multisite Research Initiative: Final Report*. Saint Louis, MO: Coordinating Center at the Missouri Institute of Mental Health, UM-Columbia, 2006.

7. Yates BT, Mannix D, Freed MC, Campbell J, Johnsen M, Jones K, Blyler CR. Consumer-Operated Service Programs: monetary and donated costs and cost-effectiveness *Psychiatr Rehabil J* 2011; **35**(2):91-99.

8. Rogers ES, Teague GB, Lichtenstein C, Campbell C, Lyass A, Chen R, Banks S. Effects of participation in consumer-operated service programs on both personal and organizationally mediated empowerment: results of multisite study. *J Rehabil Res Dev* 2007; **44**(6):785-799.

9. Crawford MJ, Robotham D, Thana L, Patterson S, Weaver T, Barber R, Wykes T, Rose D. Selecting outcome measures in mental health: the views of service users. *J Mental Health* 2011; **20**(4): 336-346.

10. Rose D, Evans J, Sweeney A, Wykes T. A model for developing outcome measures from the perspectives of mental health service users. *Int Rev Psychiatry* 2011; **23**(1): 41-46.

11. Canady VA. NIMH research on schizophrenia, balanced funding emphasized. *Mental Health Weekly* 2022; **32**(11): 5-5.

12. Markowitz JC, Friedman RA. NIMH's straight and neural path: the road to killing clinical psychiatric research. *Psychiatr Serv* 2020; **71**(11): 1096-1097.

13. Ghisoni M, Wilson CA, Morgan K, Edwards B, Simon N, Langley E, Rees H, Wells A, Tyson PJ, Thomas P, Meudell A, Kitt F, Mitchell B, Bowen A, Celia J. Priority setting in research: user led mental health research. *Res Involv Engagem* 2017; **3**: 4.

14. Brown N, Ramlackhan K. Exploring experiences of ableism in academia: a constructivist inquiry. *Higher Educ* 2022; **83**(6): 1225-1239.

15. Papoulias SC, Callard F. Material and epistemic precarity: It's time to talk about labour exploitation in mental health research. *Soc Sci Med* 2022; **306**:115102.

16. Rosa R. The trouble with 'work–life balance' in neoliberal academia: A systematic and critical review. *Journal of Gender Studies* 2022; **31**(1): 55-73.

17. Lindsay S, Fuentes K. It Is Time to Address Ableism in Academia: A Systematic Review of the Experiences and Impact of Ableism among Faculty and Staff. *Disabilities* 2022; **2**(2): 178-203.

18. Austin CP. Opportunities and Challenges in Translational Science. *Clin Transl Sci* 2021; **14**(5): 1629-1647.

19. Cruz TH, Bonner J, Bambrick L, Donohue C, King R, King T, Kukke S, Koepke KM, Nurminskaya M, Politis A, Wiggs C. Ableism in Biomedical and Behavioral Research at NIH. *Health Affairs* 2023. 10.1377/forefront.20230731.988897.

20. National Institute of Health. *The Research, Condition, and Disease Categorization Process* 2023. https://report.nih.gov/funding/categorical-spending/rcdc

21. National Institute of Health. *The Research, Condition, and Disease Categorization (RCDC) System* 2023. https://report.nih.gov/funding/categorical-spending/rcdc-process

22. National Institute of Mental Health. *Balancing the NIMH Portfolio* 2022. https://www.nimh.nih.gov/about/director/messages/2022/balancing-the-nimh-portfolio

23. Segal SP, Silverman CJ, Temkin TL. Outcomes From Consumer-Operated and Community Mental Health Services: A Randomized Controlled Trial *Psychiatr Serv* 2011; **62**(8): 915-921.

24. Segal SP, Silverman CJ, Temkin TL. Self-help and community mental health agency outcomes: a recovery-focused randomized controlled trial. *Psychiatr Serv* 2010;**61**(9):905-910.

25. Hill LD, Avenevoli S, & Gordon JA. The Role of the National Institute of Mental Health in Promoting Diversity in the Psychiatric Research Workforce. *Psychiatr Clin North Am* 2022; **45** (2): 303-312.

26. Jones N, Callejas L, Brown M, Carras MC, Croft B, Pagdon S, Sheehan L, Oluwoye O, Zisman-Ilani Y. Barriers to Meaningful Partici-patory Mental Health Services Research and Priority Next Steps: Findings from a National Survey. *Psychiatr Serv* 2023 ; doi: 10.1176/appi.ps.20220514.

27. Colder Carras M, Machin K, Brown M, Marttinen TL, Maxwell C, Frampton B, Jackman M, Jones N. Strengthening review and publication of participatory mental health research to promote empowerment and prevent co-optation. *Psychiatr Serv* 2023;**74**(2):166-172.

28. National Institute of Mental Health. *A Plan for Mental Health Research* 2020. https://www.nimh.nih.gov/about/director/messages/2020/a-plan-for-mental-health-

29. Centers for Disease Control and Prevention. *Suicide data and statistics* 2023. https://www.cdc.gov/suicide/facts/disparities-in-suicide.html.

30. Garnett MF, Curtin SC. *Suicide Mortality in the United States, 2001-2021*. NCHS data brief, (464), 1-8. 2023

31. Lifeline988. *The lifeline and 988* 2023. https://988lifeline.org/current-events/the-lifeline-and-988/

32. Purtle J, Ortego JC, Bandara S, Goldstein A, Pantalone J, Goldman ML. Implementation of the 988 Suicide & Crisis Lifeline: Estimating State-Level Increases in Call Demand Costs and Financing. *J Mental Health Policy Econ* 2023; **26**: 85-95.

33. Fukui S, Greenfield J, Salyers MP, Morse G, Garabrant J, Bass E, Kyere E, Dell N. Machine learning with human resources data: Predicting turnover among community mental health center employees. *J Mental Health Policy Econ* 2023*;* **26:** 63-76.

34. Bergdorf CE, Riley WT, Akbar F, Zuehlke AD, Bibb K, Eshleman HD, Shah A, Belis D, Spittel M, Fearon P. *Analysis of the Health Economics Portfolio Funded by the National Institutes of Health in Response to Published Guidance* 2023. MedRxiv Preprint available at https://www.medrxiv.org/content/10.1101/2023.03.28.23287876v1.full.pdf.

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