

A Picture Worth More than 1000 Words:

A 30-Year Review of Photovoice Representation Disparities in Psychiatric Research

Maria Metaweh, M.S., M.S.¹, Rachel Ouellette, Ph.D.², Jacqueline Moses, Ph.D.³, and Stacy L. Frazier, PhD¹.

¹ Department of Psychology, Florida International University, Miami, FL

² Department of Psychiatry, Yale University, New Haven, CT

³ Department of Psychiatry, University of Illinois, Chicago, IL

Abstract

This 30-year review examined demographic representation in psychiatric research with Photovoice, and the degree to which studies complete Photovoice goals. Studies with individuals diagnosed with severe mental illness, internalizing disorders, or substance use disorders in the United States were included. Search terms were informed by the DSM-5 and previous research; the search year began with 1992 when Photovoice was created. Fourteen studies met criteria. Participant social identities (race and ethnicity, economic position, and gender), psychiatric diagnoses, and policy-related action and advocacy steps were documented. Results revealed: (1) schizophrenia spectrum disorders are most represented in Photovoice (33.33%) whereas most substance related and addictive disorders (11.51%), depressive disorders (13.49%), bipolar disorders (8.33%), anxiety disorders (4.76%), and trauma or stressor disorders (3.57%) were less studied and obsessive-compulsive and related disorders were not represented, (2) major U.S. Census-defined minoritized racial and ethnic groups are nearly, if not entirely, absent, (3) an ethics and social-justice approach to collecting and reporting thorough demographic data (Call et al., 2022) is lacking, and (4) although just below three-quarters of studies initiate the action and advocacy component of Photovoice to mobilize collective change, what happens next regarding policy outcomes is not well-examined. Results also reveal the emergence of augmented Photovoice (28.5%), which supplemented or integrated Photovoice with behavioral or therapeutic interventions. This study illuminates significant disparities in participant representation, points the field towards a post-Photovoice examination, and provides recommendations for leveraging augmented Photovoice among all three tiers of a public mental health model.

Keywords: *Photovoice, psychiatric illness, substance use, financial strain, racial/ethnic disparities, policy goals*

Public Policy Relevance Statement: Photovoice aims to elevate voices of marginalized groups in science and advocacy; however, this 30-year review revealed how major U.S Census-defined minoritized racial and ethnic groups are significantly underrepresented in Photovoice within psychiatric research. An ethics and social justice approach to collecting and reporting thorough demographic data (Call et al., 2022) is critically needed. Findings point to need for examining social and policy impact following Photovoice and opportunities to integrate Photovoice within all three tiers of a public health framework.

A Picture Worth More than 1000 Words:

A 30-Year Review of Photovoice Representation Disparities in Psychiatric Research

Photovoice is both a qualitative research methodology and innovative method of community-based participatory research (CBPR) through which participants photograph areas of personal or community concern and strengths. The methodology is rooted in principles of feminism, social constructivism and documentary photography (Hergenrather, 2009).

Participants receive cameras to capture images that expose their perspective and understanding of the world based in their lived experience. Then, participatory data analysis of their photo-narratives yield critical group dialogues, where participants are active co-scientists in qualitative analysis, interpretation, and dissemination (Fountain et al., 2021; Nykiforuk et al., 2011). In addition to photos being published in research articles, public displays and exhibitions help disseminate photovoice research, enabling and encouraging community members and politicians to engage with the results (Nichols et al., 2014). Common themes may inspire collaboration with community leaders and collective action plans for social change (Hergenrather, 2009).

Photovoice may offer particular value for individuals living with mental illness and / or substance use disorders to illustrate their lived experiences (Han & Oliffe, 2016) toward destigmatizing mental illness, increasing public awareness, and facilitating the design of clinical services and public policies that promote recovery and well-being (Han & Oliffe, 2016). Despite its potential, the extent to which Photovoice is incorporated into mental health research or routine care, with full embrace of its original goals, remains largely unknown. This review investigated representation disparities in Photovoice studies of mental illness and substance use disorders, and to what extent studies implement Photovoice goals and yield action plans for social change.

Mental Illness Disparities and Stigma for Minoritized Groups

Amongst developed countries, mental illness is a leading cause of disease burden, annually affecting tens of millions of people in the United States alone, only half of whom receive treatment, resulting in substantial personal, social, and economic burden (National Institute of Mental Health [NIMH], 2019; World Health Organization [WHO], 2019). The American Psychiatric Association (APA) defines mental illness as “health conditions implicating changes in affect, cognition, and behavior that may be associated with distress and/or problems with functioning in the social, vocational, and familial settings” (2022). Mental illness is bidirectionally associated with social isolation, discrimination, poor physical health, stressful work environments, and human right violations (WHO, 2019). Despite the volume of “evidence-based” psychosocial interventions represented in the literature, rates of mental illness and demand for treatment still exceed the availability and supply of mental health providers (Atkins & Frazier, 2011; Kazdin & Blase, 2011). Moreover, Healthy People 2020’s Midcourse Review suggests that only nominal improvements have been made to address racial and ethnic inequities in mental health, specifically with regard to depression screenings, alcohol use disorders, and suicide rates in youth (Shim & Compton, 2017). Indeed, compared to White, persons of color groups receive fewer services and bear disproportionately higher rates of burden and risk for mental health problems (Creedon & Cook, 2016; Shim et al., 2018; National Center for Health Statistics, 2019; Mechammil et al., 2019) and its related challenges with employment (Waghorn & Lloyd, 2005; Thomas et al., 2019; Shankar et al., 2021), relationships (Reupert & Maybery, 2007; Baker & Proctor, 2015; Hall et al., 2019), and healthy living (Evans et al., 2007; McGuinness & Follan, 2016; Hochman et al., 2022).

The intersecting experiences of minoritization and financial strain also may increase vulnerabilities to mental illness (Myers, 2009; Waldron et al., 2018). Notably, individuals from marginalized racial and ethnic groups experience between double and triple the rates of poverty compared to non-Hispanic Caucasians (Bullock, 2019; U.S. Census Bureau, 2018a, 2018b). Poverty and mental illness also interact in a negative cycle: adults living with mental illness are more likely to drift into or stay in poverty, and poverty is itself a risk factor for mental illness (Peeverill et al., 2021; Lepi ce, et al., 2015; Lund et al., 2011). Nearly one in five U.S. children live in poverty, with rates higher for children of color (Bullock, 2019; U.S. Census Bureau, 2018a, 2018b), and early childhood poverty negatively impacts adult mental health, independent of socio-economic status (Costello et al., 2003; Evans & Cassells, 2014). Despite higher rates of unmet need, service access and utilization remain low (Christidis et al., 2018), rates of attrition remain high (Roseborough et al., 2016), wait times are significantly high (Williams et al, 2008; Edbrooke-Childs & Deighton, 2020), and patients report less satisfaction (Alegria et al., 2010).

Experiences of stigma and discrimination around mental illness account in part for low service utilization (Saxena et al., 2007). In addition to the lack of diverse and culturally “competent” mental health care providers (Kazdin & Blase, 2011), stigma exacerbates symptoms and interferes with recovery (Corrigan et al., 2012a; Russinova et al., 2018), especially for adults identifying with racial and ethnic minoritized groups (Gary, 2009). Efforts to reduce stigma related to mental illness via public campaigns have been only minimally effective (Corrigan et al., 2012a; Corrigan et al., 2012b), highlighting its profound and pervasive impact (Parcesepe & Cabassa, 2013). Of note, *public stigma* reifies negative societal stereotypes about mental illness that engender prejudicial thoughts and discriminatory behaviors (Corrigan et al., 2012); whereas, *personal stigma* reflects a greater range and diversity of subjective experiences from daily life

interactions within society (Gerlinger et al., 2013; Lysaker et al., 2012; Russinova et al., 2018). Befittingly, Photovoice offers a unique lens through which to capture the public and personal stigmas of those suffering with mental illness, particularly individuals from underserved and underrepresented populations with multiple intersecting underrepresented social identities.

Photovoice Promotes Representation of Marginalized Groups in Research

Photovoice encourages participants to showcase strengths or concerns by integrating photography with narrative accounts (Catalani & Minkler, 2010; Hergenrather, 2009) intended to facilitate group discussion around community interests and needs (Russinova et al., 2018). As a research method, Photovoice yields data comprised of both photographs (that capture individual and community realities) and transcripts of photo-elicited group discussions and/or individual interviews (Catalani & Minkler, 2010). “Participants drive the analysis – from the selection of their own photographs... to the decoding or descriptive interpretation of the images” (Wang & Pies, 2004), allowing participants to select their preferred photos, contextualize them by sharing their personal stories and coding them by identifying significant issues or themes that emerge through participatory data analysis (Wang & Burris, 1997). The process embraces core principles of individual agency and community empowerment centered in CBPR (Catalani & Minkler, 2010).

Introduced in the mid-1990s by Caroline Wang and colleagues, Photovoice is “a process by which people can identify, represent, and enhance their community.” The last few decades bear a steep rise in application of Photovoice to elevate inclusion and visibility in research of diverse, under-represented, and underserved populations (Booth & Booth, 2003; Russinova et al., 2018, Wang & Burris, 1997) and to highlight their expertise and lived experiences (Wang et al., 2004; Lee et al., 2022). Full implementation encompasses three goals: (1) Record and reflect on

community strengths and weaknesses, (2) Stimulate critical group dialogue about key concerns via photographs and accounts, and (3) Engage policymakers (Wang & Burris, 1997). Compared to traditional qualitative research methods, reliance on photography makes Photovoice more engaging and accessible to participants with a wide range of cognitive, verbal, reading and writing abilities (Wang & Burris, 1994, 1997), particularly those who may be impacted by severe mental illness (Rusinova et al., 2018). As a research tool for science and care it may remove communication barriers for some while for others, perhaps elevate a sense of vulnerability (Gorbenko et al., 2021).

Photovoice Studies of Mental Illness

Published nearly a decade ago, Han and Oliffe's (2016) scoping review of nine Photovoice studies of mental illness revealed themes of marginalization and recovery. Several themes reflected how external and internalized stigma further ostracized and marginalized those with mental illness (Han and Oliffe, 2016). Indeed, several previous studies similarly exposed how often participants felt invisible and misinterpreted by society (Thompson et al., 2008); how absence of social support and close relationships fostered mistrust and existential loneliness, exacerbating symptoms of mental illness (Erdner et al., 2009); how stigma negatively impacted identities and self-confidence, perpetuating social isolation (Fleming et al, 2009); and, for women in particular, how loneliness and negative self-concept (due to race, ethnicity, gender, and environment), exacerbated by insufficient community resources, contributed to their mental illness (Panazzola & Leipert, 2013).

Despite prominent themes of loneliness and hardship, some studies also revealed themes related to self-care and recovery through social and community support (Han and Oliffe, 2016). For instance, in a Canadian sample of aging women over the age of 65, Panazzola and Leipert

(2013) demonstrated how social support from family and friends may promote resilience through healthy lifestyles. In another study, African American older adults illustrated how illegal drugs had deteriorated their mental health, livelihoods, and communities and their aspirations to reach sobriety and restore their communities (Rosen et al., 2011). Finally, some Photovoice studies exploring treatment and recovery programs have revealed the importance of intervention flexibility and facilitation (e.g., peer- or expert-led), and emphasis on lifestyle behaviors (e.g., healthy eating and physical activities; Cabassa et al., 2013b), and participant preferences for programs that value educational and work-related opportunities, social support and networking, and spirituality (Cabassa et al, 2013a). Altogether, these themes – and opportunities for social activity, adaptive coping, and physical and emotional support – were perceived as critical towards nurturing self-identity and enabling participants to focus on managing and recovering from mental illness (Clements, 2012; Han and Oliffe, 2016; Thompson et al., 2008). Ultimately, findings are intended to empower stakeholders by promoting critical dialogue with policymakers to initiate collective change. It remains unknown, however, to what extent Photovoice research conducted in the United States promotes wider community dialogue and / or informs policy change, particularly for groups suffering from mental illness who stand to benefit most from the humanization of their lived experience.

Photovoice and Public Health

Photovoice embraces a social justice framework, and correspondingly is well represented across several public health disciplines, including infectious disease epidemiology (Grosselink & Myllykangas, 2007; Mamary et al., 2007), chronic health disease (Allotey et al., 2003; Oliffe & Bottorff, 2007), discrimination (Graziano, 2004), and political violence (Lykes et al, 2003). Studies have included many age groups (Catalani & Minkler, 2010), from early adolescence

(Wilson et al, 2007) to active older adults (Baker & Wang, 2006; Killion & Wang, 2000) and underserved communities across five continents (Catalani & Minkler, 2010).

In their systematic review of Photovoice in public health literature ($k= 42$ studies from 1994 to 2007), Catalani and Minkler (2010) highlighted three key outcomes. First, *individual empowerment* increased as participation scores increased among samples. Second, *community needs and assets* were better understood when multiple stakeholder groups (e.g., Photovoice partners, service providers, local policy makers, community members, “hard to reach” groups) were present and engaged in transparent discussions. Third, a majority of studies culminated with an *action and advocacy plan* to resolve concerns revealed through community documentation and discussion, and nearly all of them included an organized public photography exhibit that convened the broader community, policymakers, and other influential leaders. Despite widespread enthusiasm for advocacy, and the design of Photovoice to mobilize groups and influence policy (Wang & Burris, 1997), none of the studies reviewed examined the implementation or impact of action plans, and the authors pointed to the inherently complicated and lengthy nature of policymaking as a major challenge.

Catalani and Minkler also highlighted how Photovoice methods may help reconcile trust between members of underserved communities of color and the scientific community (2010). This is distinctly vital given the history in the United States of a research process that intentionally exploited, disenfranchised, and misinformed communities of color. Research mistrust is deeply rooted in systemic biases and historical injustices of misconduct and unethical practices toward marginalized groups. Examples include the exploitation of African American men in the Tuskegee Syphilis study (Scharff et al., 2010), the racialization of schizophrenia during the civil rights movement (Metzl, 2010), and the ethnocentric bias toward minoritized

groups, by which they are perceived as tolerating higher levels of pain compared to White counterparts (Hoffman et al., 2016; Nnoli, 2023). Historic mistreatment and ongoing bias in science and care have had lasting impacts including sustained mistrust among marginalized communities (Smirnoff et al., 2018) that contribute to underrepresentation in research and further exacerbates racial and ethnic disparities in care (Suite et al, 2007).

What We Know, What We Don't Know, and the Current Study

To summarize, we know that historically marginalized communities, particularly those of racial and ethnic minoritized groups, are more likely to endure disproportionately high rates of mental illness burden. We know that the intersection of persons of color status and financial strain elevates vulnerability, and that discrimination and stigma associated with having a mental illness are barriers to care and recovery. We also know that Photovoice is widely used across disciplines to represent and empower underserved communities, to advocate for personal and community concerns and strengths, and to engage policymakers to legislate structural change. What we do not know, however, informs the research questions for the current study: (1) To what extent are racial and ethnic minoritized groups suffering from mental illness in the United States represented in and benefiting from Photovoice research? and (2) To what extent have all three goals of Photovoice been applied in the literature, with particular attention to action and policy influence and impact in the United States?

Method

This review was guided by the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) guidelines (Moher et al., 2015).

Search Strategy

We conducted a systematic search of the literature in June 2022 utilizing a search string matching inclusion criteria (see Table 1). We searched titles, abstracts, and keyword terms across the following electronic bases: PsycINFO, MEDLINE, ASSIA, and CINAHL from January 1992, when Photovoice was created, to June 2022, for a 30-year review. For quality control, we limited search results to research articles from peer-reviewed journals. To supplement, we also reviewed the reference lists of articles from included publications.

Inclusion Criteria and Study Selection Process

Studies were required to meet the following inclusion criteria: (a) an original, peer-reviewed journal article (b) described by the authors exclusively as Photovoice, (c) at least 50% of participants met DSM diagnostic criteria for a severe mental illness (SMI), internalizing disorder, or substance use disorder (confirmed by use of a screener, previous health records, or self-report), (d) written or translated into English, and (e) conducted in the United States.

Keywords were systematically informed and derived from *Section II Diagnostic Criteria and Codes* of the DSM-IV or DSM-5 from subsections *Shizophrenia Spectrum and Other Psychotic Disorders, Bipolar and Related Disorders, Depressive Disorders, Anxiety Disorders, Obsessive-Compulsive and Related Disorders, Trauma- and Stressor-Related Disorders, and Substance-Related and Addictive Disorders*. Excluded were hoarding Disorder, trichotillomania, and excoriation, categorized under *obsessive-compulsive and related disorders*, because their features relate more to externalizing disorders.

The a priori decision to include studies with samples where at least 50% of participants met DSM criteria for selected psychiatric diagnoses inserted heterogeneity into the sample but ensured that eligible studies were designed with intention to serve and study individuals with mental health need (clinical and subclinical levels). Notably, psychiatric illness is both over- and

under-diagnosed in racially and ethnically minoritized populations (Cook et al., 2017), and bias in evaluation and care have contributed to well-documented mistrust of mental health studies, services, and systems in historically marginalized communities (Whaley, 2001). With this in mind, we especially wanted to retain community engaged studies that may not require formal diagnostic interviews (to remove barriers to interest and enrollment, and elevate the voices of those often excluded from research and practice), aligning with CBPR principles. Ultimately, two studies (14%) would have been excluded if 100% of participants were required to have met diagnostic criteria.

For experimental studies (i.e., RCTs and quasi-experimental designs assigning participants to conditions), we included the full sample if both experimental and control groups engaged with the Photovoice process. We included only the experimental group of participants if 1. control group participants did not engage with Photovoice (e.g., waitlist control) and 2. authors provided sample characteristics separately by condition. Furthermore, as we were interested in Photovoice implementation (i.e., completion of social change goals), we only included studies depicted as Photovoice, which excluded studies described as photo-novella or photo-elicitation. Finally, we geographically restricted search criteria to the United States because 1. minoritized racial and ethnic groups have distinct histories and experiences in this country and 2. mental health stigma and service barriers are also unique here.

Study selection proceeded in two phases. Phase one included a review (by the first and second authors) of all titles, abstracts, and keywords to identify studies that may meet all inclusion criteria using Review Manager (i.e., RevMan5). Studies were screened out if they examined variables not relevant to this review. If the authors were not sure if the study met inclusion criteria, the full article was selected for phase two, or a complete text-review, in

addition to the articles selected from phase one. Phase two included full article reviews to identify studies meeting all inclusion criteria. First, the first, second and third authors each independently reviewed a random batch of five articles to establish 80% reliability. This process was repeated with another random batch of five articles to establish 100% reliability. The first author then assigned unique batches of five articles each to the second and third authors. The first author also double-reviewed 20% of articles from each batch (reliability was 100%). All reviewers documented inclusion criteria that were met and unmet. The senior author assisted in refining inclusion criteria and resolving discrepancies.

Data Extraction and Analysis

Phase three involved data extraction from the set of full-length manuscripts that met criteria. To begin, the first, second and third authors each independently reviewed the same two randomly selected articles to build consensus towards the parameters and definitions of each variable to be extracted. Following consensus, the first author assigned a unique batch of three articles each to the second and third authors for data extraction. The first author double-extracted each article to assess reliability (100% between second and first authors; 80% between third and first authors). Remaining articles were distributed randomly and in equal numbers to second and third authors, and the first author double-extracted all articles. Extracted data included description of the target sample (e.g., Black men navigating substance use recovery), sample size, study purpose, psychiatric diagnoses (and percent confirmed by screening, health records, or self-report meeting clinical criteria), identity characteristics (i.e., participant race and ethnicity, financial strain, age, gender) and extent to which each Photovoice goal was met. Sample descriptions varied across studies (e.g., demographic categories, specificity), but efforts to reach first authors of included articles (to request unreported information and bring

consistency) were unsuccessful.

Results

Initial electronic search across PsycInfo, ASSIA, Medline, and CINAHL revealed 612 studies (after removing 211 duplicates) for initial review (Preferred Reporting Items for Systematic Reviews and Meta-analyses [PRISMA] for flow diagram in Figure 1). A phase one thorough read of titles, abstracts, and keywords of those 612 studies by the first and second authors revealed 90 articles (all available electronically and written in or translated to English) that met criteria for Phase two full manuscript review. Additional search strategies (i.e., reviewing the reference lists for recent meta-analyses) added no further studies for full manuscript review. Of the 90 articles, 14 met all inclusion criteria and were reviewed. Of the 76 excluded studies, seven were not published in a peer-reviewed journal (0.08%), 13 were not described by authors as Photovoice (14%), 23 were conducted outside of the United States (26%), and 41 described samples where fewer than 50% of participants met clinical diagnostic criteria for a serious mental illness, internalizing disorder, or substance use disorder (46%). Table 3 (Diagnostic and Demographic Characteristics of Participants Across Studies) summarizes the range of mental health disorders and demographic variables pertinent to this review.

Mental Health Disorders of Participants Across All Studies

A total of 252 participants across all 14 studies presented a psychiatric condition within the range of severe mental illnesses, internalizing disorders, and/or substance use disorders. As summarized in Table 3, of these 252 participants, approximately 70% received specified diagnoses (30% unspecified) reflecting DSM-5's classifications of *Schizophrenia Spectrum & Other Psychotic Disorders* (33.33%), *Bipolar Spectrum Disorders* (8.33%), *Depressive Disorders* (13.49%), *Anxiety Disorders* (4.76%), *Obsessive-Compulsive and Related Disorders*

(0%), *Trauma- and -Stressor-Related Disorders* (3.57%), and *Substance Related and Addictive Disorders* (11.51%). Percentages also reflect comorbidities (e.g., depression and anxiety).

Altogether, 12 of 14 studies (~86%) confirmed that 100% of their sample met diagnostic threshold for a mental health disorder; the remaining two studies (~14%) confirmed at least 50% of their samples met clinical threshold.

Demographic Characteristics of Participants Across All Studies

Race and Ethnicity. Of the total sample ($N = 252$), almost half (48.02%) were White / Caucasian, about 15.08% were Not Reported, about 13.49% were described by authors as “Non-White”, “Minority”, or “Non-Caucasian”, 9.92% were Black / African American, 8.73% were Asian American, 3.97% were Native Hawaiian and Other Pacific Islander, 3.17% were Hispanic / Latin American, and fewer than one-half of one percent (0.40%) were American Indian / Native American. Notably, Middle Eastern and North Africans (MENA) was not represented at all (0.0%). There was also no representation of a Biracial or Multiracial category.

Age and Gender. Approximately 89% of the total sample were adults (10.71% did not report age). Of these, 29.76% were between the ages of 18 – 56 years, and 6.40% were 56 and older (the remainder described as 18 and older, but otherwise unspecified). Approximately 35.51% of the total sample were male, 52.78% were female, and 11.71% were non-reported.

Economic position. Since numeric income levels were not reported in any of the 14 studies, proxies for financial strain (i.e., indicators of unemployment, low-income, homelessness and poverty) were extrapolated. About 18.25% of the total sample were unemployed, 17.85% were described as low-income, and 7.14% were living in homelessness or poverty. Low-income participants reported meeting one or more of the following descriptions: supplemental security income, social security disability income, and living in economically disadvantaged

neighborhoods. Finally, about one-third of the total sample (33.73%) did not report any variables that could be used to distill economic position or financial strain.

Photovoice Goals

The three main goals of Photovoice are to guide participants to: (1) photograph and reflect on personal and / or community strengths and weaknesses, (2) engage in group dialogue about key concerns presented through photo-accounts, and (3) engage stakeholders and policymakers (Wang and Burris, 1994). As summarized in Table 2, all 14 studies (100%) completed goal one, 13 (93%) completed goal two, and 10 (71%) completed goal three.

For all studies, goal one included educational sessions or orientations to describe Photovoice and instruct participants about what to photograph and how to document their corresponding narrative as related to each study's unique aims. For participants without access to a camera, disposable cameras were typically provided. Notably, for one study (Neace et al., 2020), participants created (and emailed the investigators) a video with their photo-narratives. The authors distributed the video "in public places and clinics" to engage stakeholders but did not complete goals two or three.

All 13 studies that reported goal two asked participants to select a specified number of photographs (usually one) to accompany their corresponding narratives for discussion using the SHOWeD mnemonic technique (1. What do you *See* here?, 2. What is really *Happening* here?, 3. How does this relate to *Our* lives?, 4. *Why* does this concern, situation, strength exist?, 5. How can we become *Empowered* through our new understanding?, 6. What can we *Do*?). These discussions produced qualitative data that were systematically coded to produce themes.

For the 10 studies that completed goal three, there was wide variability in execution. Engaged stakeholders included community members, families, friends, police, and both

healthcare and mental health providers. Engaged policymakers included state legislators, governors, representatives from state offices of mental health or public health, college administrators, student service representatives, and policy directors. Action and advocacy included photography exhibits or public speeches in community spaces (e.g., church) and at community events (e.g., advocacy demonstrations), published story books, classroom exhibits, and monthly educational series. Additional examples of proposed goal three activities (i.e., described as planned but not completed) included presentation of findings at the American Psychiatric Nurses Association conference (Thompson et al., 2018), and display of photo-narratives (of lived experiences of sexual assault survivorship and academic life) during the university's annual sexual assault awareness month (Rolbiecki et al., 2016).

Augmented Photovoice. Four studies (28.5%) supplemented or integrated Photovoice with other behavioral or therapeutic intervention components. Frist, Russinova et al. (2018) tested a vocational empowerment component to support adults with psychiatric disabilities to gain employment. Second, Russinova et al. (2017) engaged adults with SMI from a larger anti-stigma psychoeducational intervention. Third, Mizock and Russinova (2014) created a recovery narrative photovoice intervention to promote recovery and identity likewise for adults with SMI. Finally, although not an intervention by design, Rolbiecki et al. (2016) leveraged the photo-narrative component of Photovoice as a therapeutic tool for participants to process traumatic events (i.e., sexual assault) similar to emotional disclosure interventions.

Discussion

The purpose of this 30-year review is to document who is (and is not) represented in Photovoice studies of mental illness and substance use disorders in the United States, and the extent to which all three goals of Photovoice have been applied in the literature, with particular

attention to action and policy influence achieved in the United States. Despite its purpose and capacity to give voice to marginalized individuals and experiences, results underscore: (1) compared to schizophrenia spectrum disorders, internalizing and substance use disorders were less represented in Photovoice studies although they affect a higher proportion of the general population, (2) major U.S. Census-defined racial and ethnic minoritized groups are nearly, if not entirely, absent from this literature, (3) an ethics and social-justice approach to collecting and reporting thorough demographic data (Call et al., 2022) is lacking, and (4) although just below three-quarters of studies engage the action and advocacy component of Photovoice (e.g., goal three) to mobilize collective voice and change, what happens beyond this stage (i.e., post-Photovoice) in regard to policy outcomes is not well-examined. Results also reveal the emergence of augmented Photovoice, reflecting its potential utility at all three tiers of a public mental health framework.

Psychiatric Diagnoses

To our knowledge, this is the first review of Photovoice to examine the psychiatric diagnoses of those living with SMI, internalizing disorders, and substance use disorders. Schizophrenia spectrum disorders was the most frequent represented category of mental illness. Photovoice may be especially beneficial for individuals with these diagnoses, as they are underrepresented in the literature and their psychotic features are harder to capture via traditional self-report measures. Findings also highlight a need for more Photovoice research on internalizing and substance use disorders, given their lifetime prevalence, and on obsessive compulsive and trauma-related disorders which were nearly absent. Notably, Photovoice (and CBPR generally) commonly avoid diagnosing or pathologizing participants; thus, an artifact of the inclusion criteria is that there may be more literature (perhaps missed in this review)

incorporating Photovoice in ways that are mental health promoting. Receiving a diagnosis may help some participants to gain insight about their condition, seek care, and connect with social supports who may also have, or understand, the experience of living with their condition. However, assigning (or requiring for study enrollment) a diagnosis may risk pathologizing behaviors that reflect more the social determinants of mental health, where one's social gradient modulates both risk for disorder, access to services, and outcomes (Alegría et al., 2018).

Cultural and contextual factors are central to assessing and interpreting indicators of psychopathology. In fact, "mental health" itself is a cultural construct, where Western-majority society – via cultural agents such as psychiatrists, psychologists, and legal systems – have defined mental illness through its cultural lens (Alegría et al., 2010). Thus, the DSM-5, as a Western-based diagnostic paradigm, has made only limited progress (e.g., culture-bound syndromes, cultural formation interview) in the theoretical and practical considerations on how culture and ethnicity affect the assessment and treatments of disorders (Canino & Alegría, 2008). Previous versions of the DSM have questioned "cultural or race/ethnicity-related factors that might limit the universal applicability of the diagnostic criteria" for disorders like social anxiety disorder, specific phobia, agoraphobia, panic attacks, generalized anxiety disorder, and obsessive-compulsive disorder (Lewis-Fernández et al., 2002, p. 212). A combined relativistic and universalistic approach in diagnostic classification systems for psychopathology acknowledges that some disorders, like schizophrenia spectrum disorders, are more likely to be universal across cultures because they are based on neural pathology (Rutter & Nikapota, 2002). However, other more prevalent disorders, although they may share a biological or genetic substrate, are more likely shaped by cultural norms, social contexts, and developmental stages (Rutter & Nikapota, 2002; Canino & Alegría, 2008). Thus, clinicians are encouraged to

recognize the impact of intersectionality in their patients' lived experiences (Yu et al., 2019) to inform assessment and treatment planning. Practitioners who practice this kind of cultural humility may enhance their therapeutic alliance with patients, specifically, by equipping and empowering them in alignment with their own cultural beliefs and, broadly, helping to dissolve structural biases and hegemonic perspectives that often influence healthcare perspectives (Herk et al., 2022).

Race and Ethnicity

Although Photovoice as a scientific tool aims to reach marginalized groups, including minoritized racial and ethnic groups, approximately half of total participants in the reviewed psychiatric studies identified as White. These results corroborate how White samples are overrepresented in psychological research proportional to their representation in the general population, whereas racial and ethnic minoritized samples remain underrepresented (George et al., 2014; Cundiff, 2012; Scharff et al., 2010; Miranda et al., 2003; Walsh & Ross 2003). Moreover, race and ethnicity were not reported for an estimated one-quarter of participants, substantiating a historical trend in mental health science of homogenizing minoritized groups. For instance, a recent analysis of 1,148 psychological articles across 11 scientific journals found that 73% of studies neglected to report the race or ethnicity of their participants from 2015 to 2016 (DeJesus et al., 2019). Furthermore, despite elevated mental health need among minoritized groups (Stanley et al., 2012; Alegria et al., 2002; Evans-Campbell, 2008; Hawkins et al., 2004), present findings reflected a near absence in samples of Black / African Americans and Asian Americans (< 10%), Native Hawaiian / Other Pacific Islanders and Hispanic / Latino Americans (< 5%), and American Indians / Native Americans (< 1%). Furthermore, there was no representation of Alaska Natives and Middle Eastern North Africans (MENA) despite strong

evidence of mental health need (Gone & Trimble, 2012; Hawkins et al., 2004; Awad et al., 2020; Awad et al., 2019).

Additionally, results demonstrate that nearly one-quarter of participants were aggregated as “Non-White”, “Non-Caucasian”, or “Minority”. To treat the most privileged group as a monolith, and as the standard of comparison and control, homogenizes and reifies routine bias toward White norms (Read et al., 2021). Furthermore, it aggregates and homogenizes racial and ethnic minoritized groups when in fact their differences are clinically significant (Call et al., 2022; Buchanan et al., 2021; Noroña & Bush, 2021; Burlew et al., 2019; Cundiff, 2012). Indeed, psychological science has long equated White norms and samples with objectivity. The bedrock of clinical assessment and treatment is formed on normed tests that are generalized and implemented across all populations for diagnostic evaluation that ignore the broader systemic (e.g., housing, nutrition, education, employment), contextual (e.g., psychological climate), sociocultural (e.g., acculturation) and environmental (i.e., exposure to community violence) inequities disproportionately impacting minoritized communities (Byrd & Rivera-Mindt, 2022; Lewis, 2021). Deleterious downstream effects are reflected in stereotype threat and deficit models that over-psychopathologize (Barnett et al., 2019).

Also notable is the risk of conventional racial and ethnic category labels determined by the U.S. Office for Management and Budget for use in the Census and by national funding agencies (e.g., NIH). These labels (and the corresponding collection of race and ethnicity data in the United States) are marked with controversy; likewise, some legally recognized categories have shifted over time to respond to changing sociopolitical climates (e.g., shifts to Asian and MENA replacing Mongol and White, respectively; Awad et al., 2022). Labeling conventions facilitate generalizability to the broader population (Burlew et al., 2019) while also providing a

“common language” for comparing across or aggregating research to enable scientific growth (Call et al., 2022). They highlight commonalities of human experience, allowing exploration of cultural mechanisms that may contribute to group differences (Hall et al., 2016). However, conventions also homogenize the human experience, and ignore within group differences in historical, cultural, and contextual factors that may contribute to or explain variability within and between conventional groups.

Relatedly, conventional reporting also ignores intersectionality; for example, a sample may be described by its percentage of Black participants and women participants, but ignore the possible absence altogether of Black women (and their nuanced experiences). Intersectionality is a powerful analytical tool to elucidate how interlocking systems of privilege and oppression shape lived experience for individuals and groups (Shin et al., 2017). Indeed, the interaction of factors such as age, disability, area of residence, race and ethnicity, language, occupation, gender and sex, religion, education, socioeconomic position, sexual orientation, and social capital may position a person to experience disadvantage, advantage, or even both concurrently (Crenshaw, 1991; Hankivsky, 2014).

Given these drawbacks to conventional labeling, demographic data collection, analysis, and reporting may improve with consideration for other race- and ethnicity-related data points (e.g., nationality, country of origin, ethno-religious group, immigration status, acculturative stress, ethnic identity) that enrich sample descriptions and analyses by elevating within group heterogeneity. Furthermore, documenting how data were collected (e.g., self-report, open-ended, census-defined, parent-reported) may help bring transparency and minimize potential bias in data reporting (Buchanan et al., 2021). Altogether, findings on race and ethnicity underscore an urgency for researchers to be rewarded for engaging historically excluded groups, rather than

penalized for time spent repairing trust, increasing collaboration, dismantling structural barriers to participation within psychiatric science.

Economic Position, Age, and Gender

Financial Strain. There was no consistent measuring or reporting of income or need, mirroring findings from a previous systematic review examining poverty as a potential moderator of psychosocial treatment efficacy on ADHD (Ogle et al., 2017). Several proxy variables included information on employment, family structure, education, receipt of social services, incarceration history, and housing or food insecurity. Although an estimated one-third of the full sample did not report evidence of any financial strain, we extrapolated that nearly 20% were characterized as unemployed, 18% as low-income earners, and 7% as living in poverty or homelessness. Collectively, these results point to the impact of financial hardship – the extent of deprivation that a person experiences from the lack of financial resources relative to their own needs – on mental health (Mack & Lansley, 1985). Moreover, they underscore the need for valid and reliable measurement of financial strain, reinforcing results from a recent systematic review of psychological factors relating to financial hardship and mental health (Frankham et al., 2020).

Age. No studies serving youth met criteria; thus, youth with mental illness were absent from this review. However, Photovoice is less stigmatizing than other approaches to care and may facilitate service utilization, particularly for adolescents who seek creative outlets to express themselves when suffering (Vélez Grau, 2018). There was also minimal representation of aging adults (< 7% of individuals 57+), highlighting the near absence of voice for another vulnerable population at risk for mental health problems. Findings also demonstrated a general lack of detail in describing adult age groups, reflecting limited attention to heterotypic continuity of disorders that may manifest differently across developmental stages (Canino & Alegría, 2011). Future

research may benefit from more detailed age description as adult developmental periods help inform clinical presentations, disorder trajectories, and effective treatment planning.

Gender. Approximately half of the reported sample were women (gender was not reported for 12% of participants, and gender diverse reporting beyond binary categories was absent). Analogous to human developmental stage, sex and gender impact clinical presentation, illness course, and treatment planning. Additionally, female representation in clinical trials is critical as psychotropic medications have historically been developed and tested primarily on young fit males (Smith, 2010). In fact, the female sex has been identified as a risk factor for clinically relevant adverse drug interactions, reflecting that women receive disproportionately more prescriptions as well as higher doses than men (Anderson, 2008). Sex differences in drug kinetics and dynamics also explain significant sex differences in antipsychotic treatment response (Smith, 2010). As the sociocultural construct of gender has changed over the past three decades, future measurement and reporting should be more detailed, adhering to updated recommendations (Call et al. 2022).

Photovoice Goals

Photovoice is aimed toward personal and community empowerment and policy change. Seventy-one percent of studies reported creative action and advocacy mirroring Catalani and Minkler's systematic review findings for Photovoice in public health (2010). In addition to standard community photo exhibits, there were culturally aligned storybooks, videos, presentations with Q&A, and monthly educational series. Participants and a diverse range of community stakeholders (e.g., family, friends, college students, police, physical and mental health providers, etc.) engaged in community outreach, public demonstrations and letter writing to government officials to mobilize their collective voice when high-stakes policy decisions were

being made. Notably, the implementation and impact of actions plans on policy-related outcomes were not well-documented. Only one study reported a policy-related change (McCulloh et al., 2016) in which university and nursing department officials administered peer mentorship and stress management programs to support nursing students at risk for alcoholism. Overall, results demonstrate the need to better understand precursors to lasting change by identifying gaps in action steps and outcomes, paralleling findings from a literature review on intentionality in action planning in Photovoice (Lofton & Grant, 2021). It is perhaps paradoxical how Photovoice as a research tool has both a small sample design and the goal of impacting policy (given that policymakers rely more heavily on large sample, epidemiological and population health level findings that are perceived more generalizable). Given their explicit policy goals and procedures, Photovoice studies are well positioned to educate policymakers on the value and contribution of small sample designs, to highlight cultural richness and contextual nuance. This aligns with growing calls for mixed methods research (recognizing that both small and large sample designs, and qualitative and quantitative studies, have unique strengths and limitations).

Notably, policymaking occurs at many levels (e.g., school boards, programs, local, state, and national) and is complex and extensive. Because some of the opportunity and impact of Photovoice lies in the extent to which dialogue and change with policymakers ensues, ongoing research may benefit from examining post-study impact. Post-Photovoice impact studies may explore stakeholder and policymaker lessons learned and perceptions of barriers and facilitators to impact through surveys, interviews or focus groups. Future research also may elucidate for policymakers more about the sociopolitical determinants of mental health (Bhugra & Ventriglio, 2023), as Photovoice captures these well. In turn, more opportunity for dialogue between decision-makers and community stakeholders may ensue.

Augmented Photovoice. More than one-quarter of studies augmented traditional Photovoice with components of therapeutic or behavioral intervention, and just fewer than half of studies (~43%) were sampled from routine care settings. These findings suggest that Photovoice may offer a supplement to, or mechanism for, mental health care. The ethos of Photovoice is to share stories of barriers and supports to community inclusion; thus, its infusion in routine care may also help bridge cultural barriers and facilitate stronger therapeutic alliance between providers and their patients from minoritized groups. In turn, this may help to close the science-to-service gap resulting, in part, from “evidence”-based treatments failing to adequately represent patients and providers in routine care (Shumway & Sentell, 2004; Weisz et al., 2005). Moreover, augmented Photovoice highlights opportunities for its integration across all three tiers of a public mental health model (Atkins & Frazier, 2011), including universal (i.e., available in natural settings, e.g., afterschool youth programs; Bashore et al., 2017, e.g., faith-based settings; Schwingel et al., 2015), targeted (i.e., individuals identified at-risk; e.g., early Head Start recipients; McAllister et al., 2005; Latina immigrants; Perez et al., 2016), and intensive levels (i.e., individuals receiving individualized mental health care; e.g., rural aging women experiencing mental health issues; Panazzola & Leipert, 2013). Synergy generated by distinctive but complementary efforts along the continuum from prevention to intervention may help diminish the longstanding science to-service gap toward alleviating the enormous national mental health burden (Atkins & Frazier, 2011).

Limitations

We prioritized internalizing disorders, and excluded externalizing disorders, aligned with a Photovoice goal to make invisible lived experiences more visible. Although we recognize Photovoice may remove communication barriers for some, it may increase a sense of

vulnerability for others, contributing to self-selection bias. Future research should examine the predictors of participation, including, for instance, patient characteristics, severity of symptoms, timing of care, or level of rapport between participants and practitioners. Furthermore, this review was limited to the United States because of cultural nuances in diagnostic labels and interpretations as well as Photovoice's goal to influence policy and advocacy, which also looks different across national borders. Notably, some percentages reflecting sample demographics may under-estimate representation as there was no uniform reporting across studies. We also did not conduct an independent assessment of quality as it was outside the parameters of this review to examine outcomes. Additionally, while reviews are designed in part to elevate and synthesize literature, they come with the risk of perpetuating the minimization of data not collected, which may lead to further neglect of marginalized groups. Finally, we did not code for status characteristics related to educational level, marital status, sexual orientation, religion, disability, occupation, place of residence, or primary language to keep this review focused predominately on themes of race and culture, clinical pathology, and Photovoice implementation in the United States. Though beyond the scope of this review, additional reporting on participant identities (and intersectionality) in future research may help to illuminate how social structures foster unique lived experiences in relation to power dynamics and inequities, which ultimately influence health outcomes (Kelly et al., 2022).

Conclusion

Marginalization and disenfranchisement contribute to poorer health outcomes, and exclusion, correlating to systemic economic, social, and political deprivation (Shattell & Cleary, 2014). This review of Photovoice was the first (to our knowledge) to assess the clinical diagnoses and participant demographics of those living with SMI, internalizing disorders, and

substance use disorders. Photovoice may help (and is designed) to promote inclusion; however, findings reveal limited participation (and missed opportunities for participating in research or receiving care) by many groups most vulnerable to higher rates of mental health problems (e.g., indigenous, immigrant, returning combat veterans, aging adults, those living with chronic illness or experiencing homelessness). Representation of a few uniquely targeted groups (e.g., Black men, Women survivors of sexual assault) is promising and offers a roadmap for bringing an intersectional framework into ongoing programs of research and routine care. We hope that findings may inspire post-Photovoice impact studies with key stakeholders and policymakers as well as integration of augmented Photovoice across three tiers of a public mental health model.

References

- Alegria, M., Atkins, M., Farmer, E., Slaton, E., & Stelk, W. (2010). One Size Does Not Fit All: Taking Diversity, Culture and Context Seriously. *Administration and Policy in Mental Health and Mental Health Services Research*, 37(1–2), 48–60.
<https://doi.org/10.1007/s10488-010-0283-2>
- Alegría, M., NeMoyer, A., Falgàs Bagué, I., Wang, Y., & Alvarez, K. (2018). Social Determinants of Mental Health: Where We Are and Where We Need to Go. *Current Psychiatry Reports*, 20(11), 95. <https://doi.org/10.1007/s11920-018-0969-9>
- Alegría, M., Canino, G., Ríos, R., Vera, M., Calderón, J., Rusch, D., & Ortega, A. N. (2002). Mental Health Care for Latinos: Inequalities in Use of Specialty Mental Health Services Among Latinos, African Americans, and Non-Latino Whites. *Psychiatric Services*, 53(12), 1547–1555. <https://doi.org/10.1176/appi.ps.53.12.1547>
- Allotey, P., Reidpath, D., Kouame, A., & Cummins, R. (2003). The DALY, context and the Determinants of the severity of disease: An exploratory comparison of paraplegia in Australia and Cameroon. *Social Science & Medicine*, 57(5), 949-958.
- Anderson, G. D. (2008). Chapter 1 Gender Differences in Pharmacological Response. In *International Review of Neurobiology* (Vol. 83, pp. 1–10). Elsevier.
[https://doi.org/10.1016/S0074-7742\(08\)00001-9](https://doi.org/10.1016/S0074-7742(08)00001-9)
- Atkins, M. S., & Frazier, S. L. (2011). Expanding the Toolkit or Changing the Paradigm: Are We Ready for a Public Health Approach to Mental Health? *Perspectives on Psychological Science*, 6(5), 483–487. <https://doi.org/10.1177/1745691611416996>
- Awad, G. H., Abuelezam, N. N., Ajrouch, K. J., & Stiffler, M. J. (2022). Lack of Arab or Middle Eastern and North African Health Data Undermines Assessment of Health Disparities.

- American Journal of Public Health*, 112(2), 209–212.
<https://doi.org/10.2105/ajph.2021.306590>
- Awad, G. H., Nguyen, H., Castellanos, F., Payne, T., & Hashem, H. (2020). Mental health considerations for immigrants of Arab/MENA descent. *In Mental and Behavioral Health of Immigrants in the United States* (pp. 201-215). Academic Press.
- Awad, G. H., Kia-Keating, M., & Amer, M. M. (2019). A model of cumulative racial–ethnic trauma among Americans of Middle Eastern and North African (MENA) descent. *American Psychologist*, 74(1), 76–87. <https://doi.org/10.1037/amp0000344>
- Baker, T. A., & Wang, C. C. (2006). Photovoice: Use of a participatory action research method to explore the chronic pain experience in older adults. *Qualitative Health Research*, 16(10), 1405-1413.
- Baker, A. E., & Procter, N. G. (2015). ‘You just lose the people you know’: relationship loss and mental illness. *Archives of Psychiatric Nursing*, 29(2), 96-101.
- Barnett, A. P., del Río-González, A. M., Parchem, B., Pinho, V., Aguayo-Romero, R., Nakamura, N., Calabrese, S. K., Poppen, P. J., & Zea, M. C. (2019). Content analysis of psychological research with lesbian, gay, bisexual, and transgender people of color in the United States: 1969–2018. *American Psychologist*, 74(8), 898–911.
<https://doi.org/10.1037/amp0000562>
- Bashore, L., Alexander, G. K., Jackson, D. L., & Mauch, P. (2017). Improving health in at-risk youth through Photovoice. *Journal of Child Health Care*, 21(4), 463–475. CINAHL Plus with Full Text. <https://doi.org/10.1177/1367493517734391>
- Bhugra, D., & Ventriglio, A. (2023). Political determinants of mental health. *International Journal of Social Psychiatry*, 69(3), 521–522.

<https://doi.org/10.1177/00207640231168544>

Booth, T., & Booth, W. (2003). In the Frame: Photovoice and mothers with learning difficulties.

Disability & Society, 18(4), 431–442. <https://doi.org/10.1080/0968759032000080986>

Buchanan, N. T., Perez, M., Prinstein, M. J., & Thurston, I. B. (2021). Upending racism in psychological science: Strategies to change how science is conducted, reported, reviewed, and disseminated. *American Psychologist*, 76(7), 1097–1112.

<https://doi.org/10.1037/amp0000905>

Bullock, H. E. (2019). Psychology's contributions to understanding and alleviating poverty and economic inequality: Introduction to the special section. *American Psychologist*, 74(6), 635. <https://doi.org/10.1037/amp0000532>

Burlew, A. K., Peteet, B. J., McCuistian, C., & Miller-Roenigk, B. D. (2019). Best practices for researching diverse groups. *American Journal of Orthopsychiatry*, 89(3), 354–368.

<https://doi.org/10.1037/ort0000350>

Byrd, D. A., & Rivera-Mindt, M. G. (2022). Neuropsychology's race problem does not begin or end with demographically adjusted norms. *Nature Reviews Neurology*, 18, 125–126

<https://doi.org/10.1038/s41582-021-00607-4>

Cabassa, L. J., Nicasio, A., & Whitley, R. (2013a). Picturing Recovery: A Photovoice Exploration of Recovery Dimensions Among People With Serious Mental Illness.

Psychiatric Services, 64(9), 837–842. <https://doi.org/10.1176/appi.ps.201200503>

Cabassa, L. J., Parcesepe, A., Nicasio, A., Baxter, E., Tsemberis, S., & Lewis-Fernández, R. (2013b). Health and Wellness Photovoice Project: Engaging Consumers With Serious Mental Illness in Health Care Interventions. *Qualitative Health Research*, 23(5), 618–630. <https://doi.org/10.1177/1049732312470872>

- Call, C. C., Eckstrand, K. L., Kasparek, S. W., Boness, C. L., Blatt, L., Jamal-Orozco, N., Novacek, D. M., & Foti, D. (2022). An Ethics and Social-Justice Approach to Collecting and Using Demographic Data for Psychological Researchers. *Perspectives on Psychological Science*, 17456916221137350
<https://doi.org/10.1177/17456916221137350>
- Canino, G., & Alegría, M. (2008). Psychiatric diagnosis – is it universal or relative to culture? *Journal of Child Psychology and Psychiatry*, 49(3), 237–250.
<https://doi.org/10.1111/j.1469-7610.2007.01854.x>
- Catalani, C., & Minkler, M. (2010). Photovoice: A Review of the Literature in Health and Public Health. *Health Education & Behavior*, 37(3), 424–451.
<https://doi.org/10.1177/1090198109342084>
- Christidis, P. C., Lin, L. L., & Stamm, K. S. (2018, April). *DATAPOINT An unmet need for mental health services*. <https://www.apa.org/monitor/2018/04/datapoint>. Retrieved June 2022, from <https://www.apa.org/monitor/2018/04/datapoint>
- Cleary, M., Horsfall, J., & Escott, P. (2014). Marginalization and Associated Concepts and Processes in Relation to Mental Health/Illness. *Issues in Mental Health Nursing*, 35(3), 224–226. <https://doi.org/10.3109/01612840.2014.883792>
- Clements, K. (2012). Participatory action research and photovoice in a psychiatric nursing/clubhouse collaboration exploring recovery narrative: Exploring recovery using photovoice. *Journal of Psychiatric and Mental Health Nursing*, 19(9), 785–791.
<https://doi.org/10.1111/j.1365-2850.2011.01853.x>
- Cook, B. L., Trinh, N. H., Li, Z., Hou, S. S., & Progovac, A. M. (2017). Trends in Racial-Ethnic

- Disparities in Access to Mental Health Care, 2004-2012. *Psychiatric services (Washington, D.C.)*, 68(1), 9–16. <https://doi.org/10.1176/appi.ps.201500453>
- Corrigan, P. W., Morris, S. B., Michaels, P. J., Rafacz, J. D., & Rüsch, N. (2012a). Challenging the public stigma of mental illness: A meta-analysis of outcome studies. *Psychiatric Services*, 63, 963–973. <http://dx.doi.org/10.1176/appi.ps.201100529>
- Corrigan, P. W., Powell, K. J., & Rüsch, N. (2012b). How does stigma affect work in people with serious mental illnesses? *Psychiatric Rehabilitation Journal*, 35, 381–384. <http://dx.doi.org/10.1037/h0094497>
- Costello, E. J., Compton, S. N., Keeler, G., & Angold, A. (2003). Relationships Between Poverty and Psychopathology: A Natural Experiment. *JAMA*, 290(15), 2023. <https://doi.org/10.1001/jama.290.15.2023>
- Creedon, T. B., & Cook, B. L. (2016). Access To Mental Health Care Increased But Not For Substance Use, While Disparities Remain. *Medical Benefits*, 33(13), 9–9
- Crenshaw K. Mapping the margins: intersectionality, identity politics, and violence against women of color. *Stanford Law Rev.* 1991;43(6):1241 [cited 2020 Oct 15]. Available from: http://dc.msvu.ca:8080/xmlui/bitstream/handle/10587/942/Crenshaw_article.pdf.
- Cundiff, J. L. (2012). Is mainstream psychological research “womanless” and “raceless”? An updated analysis. *Sex Roles*, 67(3), 158–173. <https://doi.org/10.1007/s11199-012-0141-7>
- DeJesus, J. M., Callanan, M. A., Solis, G., & Gelman, S. A. (2019). Generic language in scientific communication. *Proceedings of the National Academy of Sciences of the United States of America*, 116(37), 18370–18377. <https://doi.org/10.1073/pnas.1817706116>
- Erdner, A., Andersson, L., Magnusson, A., & Lütznén, K. (2009). Varying views of life among

- people with long-term mental illness. *Journal of Psychiatric and Mental Health Nursing*, 16(1), 54–60. <https://doi.org/10.1111/j.1365-2850.2008.01329.x>
- Evans, G. W., & Cassells, R. C. (2014). Childhood Poverty, Cumulative Risk Exposure, and Mental Health in Emerging Adults. *Clinical Psychological Science*, 2(3), 287–296. <https://doi.org/10.1177/2167702613501496>
- Evans, S., Banerjee, S., Leese, M., & Huxley, P. (2007). The impact of mental illness on quality of life: A comparison of severe mental illness, common mental disorder and healthy population samples. *Quality of Life Research: An International Journal of Quality of Life Aspects of Treatment, Care & Rehabilitation*, 16(1), 17-29. <https://doi.org/10.1007/s11136-006-9002-6>
- Evans-Campbell, T. (2008). Historical Trauma in American Indian/Native Alaska Communities: A Multilevel Framework for Exploring Impacts on Individuals, Families, and Communities. *Journal of Interpersonal Violence*, 23(3), 316–338. <https://doi.org/10.1177/0886260507312290>
- Fleming, J., Mahoney, J., Carlson, E., & Engebretson, J. (2009). An Ethnographic Approach to Interpreting a Mental Illness Photovoice Exhibit. *Archives of Psychiatric Nursing*, 23(1), 16–24. <https://doi.org/10.1016/j.apnu.2008.02.008>
- Fountain, S., Hale, R., Spencer, N., Morgan, J., James, L. P., & Stewart, M. K. (2021). A 10-year systematic review of photovoice projects with youth in the united states. *Health Promotion Practice*, 22(6), 767-777. <https://doi.org/10.1177/15248399211019978>
- Frankham, C., Richardson, T., & Maguire, N. (2020). Psychological factors associated with financial hardship and mental health: A systematic review. *Clinical Psychology Review*, 77, 101832. <https://doi.org/10.1016/j.cpr.2020.101832>

- Gary, F. A. (2005). Stigma: Barriers to Mental Health Care among Ethnic Minorities. *Issues in Mental Health Nursing, 26*(10), 979–999. <https://doi.org/10.1080/01612840500280638>
- George, S., Duran, N., & Norris, K. (2014). A systematic review of barriers and facilitators to minority research participation among African Americans, Latinos, Asian Americans, and Pacific Islanders. *American Journal of Public Health, 104*(
- Gerlinger, G., Hauser, M., De Hert, M., Lacluyse, K., Wampers, M., & Correll, C. U. (2013). Personal stigma in schizophrenia spectrum disorders: A systematic review of prevalence rates, correlates, impact and interventions. *World Psychiatry, 12*, 155–164.
- Gone, J. P., & Trimble, J. E. (2012). American Indian and Alaska Native mental health: diverse perspectives on enduring disparities. *Annual review of clinical psychology, 8*, 131–160. <https://doi.org/10.1146/annurev-clinpsy-032511-143127>
- Gorbenko, K., Riggs, A., Koeppel, B., Phlegar, S., Dubinsky, M., Ungaro, R. C., ... & Keefer, L. (2021). Photovoice as a tool to improve patient—provider communication in inflammatory bowel disease clinic: a feasibility study. *Journal of Evaluation in Clinical Practice, 28*(1), 159-168. <https://doi.org/10.1111/jep.13609>
- Graziano, K. J. (2004). Oppression and resiliency in a post-apartheid South Africa: Unheard voices of Black gay men and lesbians. *Cultural Diversity and Ethnic Minority Psychology, 10*(3), 302-316.
- Grosselink, C., & Myllykangas, S. (2007). The leisure experiences of older US women living with HIV/AIDS. *Health Care for Women International, 28*(1), 3-20.
- Hall, G. C. N., Yip, T., & Zárate, M. A. (2016). On becoming multicultural in a monocultural research world: A conceptual approach to studying ethnocultural diversity. *American*

- Psychologist*, 71(1), 40–51. <https://doi.org/10.1037/a0039734>
- Hall, T., Kakuma, R., Palmer, L., Minas, H., Martins, J., & Kermode, M. (2019). Social inclusion and exclusion of people with mental illness in Timor-Leste: a qualitative investigation with multiple stakeholders. *BMC public health*, 19, 1-13.
- Han, C. S., & Oliffe, J. L. (2016). Photovoice in mental illness research: A review and recommendations. *Health: An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine*, 20(2), 110–126.
<http://dx.doi.org.ezproxy.fiu.edu/10.1177/1363459314567790>
- Hawkins, E. H., Marlatt, G. A., & Cummins, L. H. (2004). Preventing substance abuse in American Indian and Alaska Native youth: Promising strategies for healthier communities. *Psychological Bulletin*, 130, 304–323.
- Hergenrather, K. (2009). Photovoice as Community-Based Participatory Research: A Qualitative Review. *American Journal of Health Behavior*, 33(6).
<https://doi.org/10.5993/AJHB.33.6.6>
- Hochman, L., Moran, G. S., Gelkopf, M., Roe, D., & Shadmi, E. (2022). Prospectively identifying adults with serious mental illness at risk for poor physical health: The role of person reported outcomes. *International Journal for Quality in Health Care*, 34(Supplement_1), ii65-ii69.
- Kazdin, A. E., & Blase, S. L. (2011). Rebooting Psychotherapy Research and Practice to Reduce the Burden of Mental Illness. *Perspectives on Psychological Science*, 6(1), 21–37.
<https://doi.org/10.1177/1745691610393527>
- Kelly, C., Dansereau, L., Sebring, J., Aubrecht, K., FitzGerald, M., Lee, Y., ... & Hamilton-Hinch, B. (2022). Intersectionality, health equity, and EDI: What’s the difference for

- health researchers?. *International Journal for Equity in Health*, 21(1), 182.
- Killion, C. M., & Wang, C. C. (2000). Linking African American mothers across life stage and station through photovoice. *Journal of Health Care for the Poor and Underserved*, 11(3), 310-325.
- Lee, G., Kim, K., Ryu, J., Park, S., Chung, H., & Butler, M. (2022). Exploring perceived barriers to physical activity in Korean older patients with hypertension: photovoice inquiry. *International Journal of Environmental Research and Public Health*, 19(21), 14020. <https://doi.org/10.3390/ijerph192114020>
- Lepièce, B., Reynaert, C., Jacques, D. I. B., & Zdanowicz, N. (2015). Poverty and mental health: What should we know as mental health professionals? *Psychiatria Danubina*, 27(Suppl),
- Lewis, N. A., Jr. (2021). What counts as good science? How the battle for methodological legitimacy affects public psychology. *American Psychologist*, 76(8), 1323–1333. <https://doi.org/10.1037/amp0000870>
- Lewis-Fernandez R, Guarnaccia PJ, Martinez IE, Salman E, Schmidt A, Liebowitz M. Comparative phenomenology of ataques de nervios, panic attacks, and panic disorder. *Culture, Medicine and Psychiatry*. 2002; 26:199–223.
- Lofton, S., & Grant, A. K. (2021). Outcomes and Intentionality of Action Planning in Photovoice: A Literature Review. *Health Promotion Practice*, 22(3), 318–337. <https://doi.org/10.1177/1524839920957427>
- Lund, C., De Silva, M., Plagerson, S., Cooper, S., Chisholm, D., Das, J., ... Patel, V. (2011). Poverty and mental disorders: Breaking the cycle in low-income and middle-income countries. *The Lancet*, 378(9801), 1502–1514. [https://doi.org/10.1016/S0140-6736\(11\)60754-X](https://doi.org/10.1016/S0140-6736(11)60754-X)
- Lykes, M. B., Blanche, M. T., & Hamber, B. (2003). Narrating survival and change in

- Guatemala and South Africa: The politics of representation and a liberatory community psychology. *American Journal of Community Psychology*, 31(1-2), 79-90.
- Lysaker PH, Davis LW, Warman DM, et al. (2007) Stigma, social function and symptoms in schizophrenia and schizoaffective disorder: Associations across 6 months. *Psychiatry Research* 149(1–3): 89–95.
- Lysaker, P. H., Tunze, C., Yanos, P. T., Roe, D., Ringer, J., & Rand, K.(2012). Relationships between stereotyped beliefs about mental illness, discrimination experiences, and distressed mood over 1 year among persons with schizophrenia enrolled in rehabilitation. *Social Psychiatry and Psychiatric Epidemiology*, 47, 849–855.
<http://dx.doi.org/10.1007/s00127-011-0396-2>
- Mack, J., & Lansley, S. (1985). *Poor Britain*. London: Allen & Unwin.
- Mamary, E., McCright, J., & Roe, K. (2007). Our lives: An examination of sexual health issues using photovoice by non-gay identified African American men who have sex with men. *Culture, Health & Sexuality*, 9(4), 359-370.
- McAllister, C. L., Wilson, P. C., Green, B. L., & Baldwin, J. L. (2005). “Come and Take a Walk”: Listening to Early Head Start Parents on School-Readiness as a Matter of Child, Family, and Community Health. *American Journal of Public Health*, 95(4), 617–625.
<https://doi.org/10.2105/AJPH.2004.041616>
- McGuinness, H., & Follan, M. (2016). Severe mental illness and physical health care. *British Journal of Mental Health Nursing*, 5(2), 81-86.
- Mechammil, M., Boghosian, S., & Cruz, R. A. (2019). Mental health attitudes among Middle Eastern/North African individuals in the United States. *Mental Health, Religion & Culture*, 22(7), 724–737. <https://doi.org/10.1080/13674676.2019.1644302>

Metzl, J. M. (2010). *The protest psychosis: How schizophrenia became a black disease*. Beacon Press.

Moher, D., Shamseer, L., Clarke, M., Ghersi, D., Liberati, A., Petticrew, M., et al. (2015).

Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P).2015: Elaboration and explanation. *British Medical Journal*, 349, 1–25.

<https://doi.org/10.1136/bmj.g7647>

Myers, H. F. (2009). Ethnicity- and socio-economic status-related stresses in context: An

Integrative review and conceptual model. *Journal of Behavioral Medicine*, 32(1), 9–19.

<https://doi.org/10.1007/s10865-008-9181-4>

Miranda, J., Nakamura, R., & Bernal, G. (2003). Including ethnic minorities in mental health

intervention research: A practical approach to a long-standing problem. *Culture,*

Medicine and Psychiatry, 27(4), 467–486.

<https://doi.org/10.1023/B:MEDI.00000005484.26741.79>

National Institute of Mental Health (2019). Retrieved October 18, 2019, from

<https://www.nimh.nih.gov/health/statistics/index.shtml>

Nichols, T. R., Biederman, D. J., & Gringle, M. R. (2014). Using research poetics “responsibly”:

applications for health promotion research. *International Quarterly of Community Health*

Education, 35(1), 5-20. <https://doi.org/10.2190/iq.35.1.b>

Noroña-Zhou, A., & Bush, N. R. (2021). Considerations regarding the responsible use of

categorical race/ethnicity within health research.

<https://doi.org/10.31234/osf.io/kfa57>

Nykiforuk, C. I. J., Vallianatos, H., & Nieuwendyk, L. M. (2011). Photovoice as a method for

revealing community perceptions of the built and social environment. *International*

- Journal of Qualitative Methods*, 10(2), 103-124.
<https://doi.org/10.1177/160940691101000201>
- Ogle, R. R., Frazier, S. L., Helseth, S. A., Cromer, K., & Lesperance, N. (2017). Does Poverty Moderate Psychosocial Treatment Efficacy for ADHD? A Systematic Review. *Journal of Attention Disorders*, 108705471770704. <https://doi.org/10.1177/1087054717707044>
- Oliffe, J. L., & Bottorff, J. L. (2007). Further than the eye can see? Photo elicitation and research with men. *Qualitative Health Research*, 17(6), 850-858.
- Palinkas, L.A., Zatzick, D. Rapid Assessment Procedure Informed Clinical Ethnography (RAPICE) in Pragmatic Clinical Trials of Mental Health Services Implementation: Methods and Applied Case Study. *Adm Policy Ment Health* 46, 255–270 (2019).
<https://doi.org/10.1007/s10488-018-0909-3>
- Panazzola, P., & Leipert, B. (2013). Exploring mental health issues of rural senior women residing in southwestern Ontario, Canada: A secondary analysis photovoice study. *Rural and Remote Health* 13: 2320.
- Parcesepe, A. M., & Cabassa, L. J. (2013). Public Stigma of Mental Illness in the United States: A Systematic Literature Review. *Administration and Policy in Mental Health and Mental Health Services Research*, 40(5), 384–399. <https://doi.org/10.1007/s10488-012-0430-z>
- Perez, G., Della Valle, P., Paraghamian, S., Page, R., Ochoa, J., Palomo, F., Suarez, E., Thrasher, A., Tran, A. N., & Corbie-Smith, G. (2016). A Community-Engaged Research Approach to Improve Mental Health Among Latina Immigrants. *Health Promotion Practice*, 17(3), 429–439. CINAHL Plus with Full Text. <https://doi.org/10.1177/1524839915593500>
- Peverill, M., Dirks, M. A., Narvaja, T., Herts, K. L., Comer, J. S., & McLaughlin, K. A. (2021). Socioeconomic status and child psychopathology in the United States: A meta-analysis of

- population-based studies. *Clinical Psychology Review*, 83, 101933.
<https://doi.org/10.1016/j.cpr.2020.101933>
- Reupert, A., & Maybery, D. (2007). Families affected by parental mental illness: A multiperspective account of issues and interventions. *American Journal of Orthopsychiatry*, 77(3), 362-369.
- Ritchie, H., & Roser, M. (2018). Mental Health. *Our World in Data*. Retrieved from <https://ourworldindata.org/mental-health>
- Rosen, D., Goodkind, S., & Smith, M. L. (2011). Using Photovoice to Identify Service Needs of Older African American Methadone Clients. *Journal of Social Service Research*, 37(5), 526–538. <https://doi.org/10.1080/01488376.2011.607369>
- Russinova, Z., Mizock, L., & Bloch, P. (2018). Photovoice as a tool to understand the experience of stigma among individuals with serious mental illnesses. *Stigma and Health*, 3(3), 171–185. <https://doi.org/10.1037/sah0000080>
- Rutter, M.; Nikapota, A. Culture, ethnicity, society and psychopathology. In: Rutter, M.; Taylor, E., editors. *Child and adolescent psychiatry*. 4. Vol. 16. Oxford: Blackwell Publications; 2002. p. 277-286.
- Saxena, S., Thornicroft, G., Knapp, M., & Whiteford, H. (2007). Resources for mental health: Scarcity, inequity, and inefficiency. *The Lancet*, 370(9590), 878–889.
[https://doi.org/10.1016/S0140-6736\(07\)61239-2](https://doi.org/10.1016/S0140-6736(07)61239-2)
- Scharff, D. P., Mathews, K. J., Jackson, P., Hoffsuemmer, J., Martin, E., & Edwards, D. (2010). More than Tuskegee: Understanding mistrust about research participation. *Journal of Health Care for the Poor and Underserved*, 21(3), 879–897.
<https://doi.org/10.1353/hpu.0.0323>

- Schwengel, A., Linares, D. E., Gálvez, P., Adamson, B., Aguayo, L., Bobitt, J., Castañeda, Y., Sebastião, E., & Marquez, D. X. (2015). Developing a Culturally Sensitive Lifestyle Behavior Change Program for Older Latinas. *Qualitative Health Research, 25*(12), 1733–1746. <https://doi.org/10.1177/1049732314568323>
- Shankar, J., Li, L., & Tan, S. (2021). Work experiences and challenges to employment sustainability for people with mental illness in supported employment programs. *SAGE Open, 11*(3), 21582440211033558.
- Shim, R. S., & Compton, M. T. (2017). Measuring Up on Mental Health? Lessons Learned From the Healthy People 2020 Midcourse Review. *Psychiatric Times, 34*(12), 16E-16F.
- Shim, R. S., Kho, C. E., & Murray-García, J. (2018). Inequities in Mental Health and Mental Health Care: A Review and Future Directions. *Psychiatric Annals, 48*(3), 138–142. <https://doi.org/10.3928/00485713-20180213-01>
- Shumway, M., & Sentell, T. L. (2004). An examination of leading mental health journals for evidence to inform evidence-based practice. *Psychiatric Services, 55*(6), 649-653.
- [Singh, H., Haghayegh, A.T., Shah, R. et al. A qualitative exploration of allied health providers' perspectives on cultural humility in palliative and end-of-life care. BMC Palliat Care 22, 92 \(2023\). https://doi.org/10.1186/s12904-023-01214-4](https://doi.org/10.1186/s12904-023-01214-4)
- Smith, S. (2010). Gender differences in antipsychotic prescribing. *International Review of Psychiatry, 22*(5), 472–484. <https://doi.org/10.3109/09540261.2010.515965>
- Sue, S., Cheng, J. K. Y., Saad, C. S., & Chu, J. P. (2012). Asian American mental health: A call to action. *American Psychologist, 67*(7), 532–544. <https://doi.org/10.1037/a0028900>
- Suite, D. H., La Bril, R., Primm, A., & Harrison-Ross, P. (2007). Beyond misdiagnosis, misunderstanding and mistrust: Relevance of the historical perspective in the medical and

- mental health treatment of people of color. *Journal of the National Medical Association*, 99(8), 879–885. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2574307/>
- Sumlin, E., Hill, R., Asim, N., Busby, D., Brown, J. L., & Sharp, C. (2023). Quantifying the Representation of Black Adolescents in Suicide Intervention Research. *Research on Child and Adolescent Psychopathology*, 1-10.
- Thomas, T. L., Muliya, K. P., Jayarajan, D., Angothu, H., & Thirthalli, J. (2019). Vocational challenges in severe mental illness: A qualitative study in persons with professional degrees. *Asian journal of psychiatry*, 42, 48-54.
- Thompson, N. C., Hunter, E. E., Murray, L., Ninci, L., Rolfs, E. M., & Pallikkathayil, L. (2007). The Experience of Living With Chronic Mental Illness: A Photovoice Study: The Experience of Living With Chronic Mental Illness: A Photovoice Study. *Perspectives in Psychiatric Care*, 44(1), 14–24. <https://doi.org/10.1111/j.1744-6163.2008.00143.x>
- U.S. Census Bureau. (2018a). Income and poverty in the United States: 2017 (P60-263). Retrieved from <https://www.census.gov/library/publications/2018/demo/p60-263.html>
- U.S. Census Bureau. (2018b). Selected population profile in the United States: 2017 American community survey 1-year estimates. Retrieved from <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?srcbkmk>
- Vélez-Grau, C. (2018). Using Photovoice to examine adolescents' experiences receiving mental health services in the United States. *Health Promotion International*. <https://doi.org/10.1093/heapro/day043>
- Waldron, E. M., Hong, S., Moskowitz, J. T., & Burnett-Zeigler, I. (2018). A Systematic Review of the Demographic Characteristics of Participants in US-Based Randomized Controlled Trials of Mindfulness-Based Interventions. *Mindfulness*, 9(6), 1671–1692.

<https://doi.org/10.1007/s12671-018-0920-5>

Walsh, C., & Ross, L. F. (2003). Are minority children under- or overrepresented in pediatric research? *Pediatrics*, 112(4), 890–895. <https://doi.org/10.1542/peds.112.4.890>

Wang, C., & Burris, M. A. (1994). Empowerment through Photo Novella: Portraits of Participation. *Health Education Quarterly*, 21(2), 171–186.

<https://doi.org/10.1177/109019819402100204>

Wang, C., & Burris, M. A. (1997). Photovoice: Concept, methodology, and use for participatory needs assessment. *Health Education & Behavior*, 24, 369–387.

<http://dx.doi.org/10.1177/109019819702400309>

Wang, C. C., Morrel-Samuels, S., Hutchison, P. M., Bell, L., & Pestronk, R. M. (2004). Flint Photovoice: Community Building Among Youths, Adults, and Policymakers. *American Journal of Public Health*, 94(6), 911–913. <https://doi.org/10.2105/AJPH.94.6.911>

Wang, C. C., & Pies, C. A. (2004). Family, maternal, and child health through photovoice. *Maternal and Child Health Journal*, 8(2), 95-102.

Wang, C. C., Yi, W. K., Tao, Z. W., & Carovano, K. (1998). Photovoice as a Participatory Health Promotion Strategy. *Health Promotion International*, 13(1), 75–86.

<https://doi.org/10.1093/heapro/13.1.75>

Waghorn, G., & Lloyd, C. (2005). The employment of people with mental illness. *Australian e-journal for the Advancement of Mental Health*, 4(2), 129-171.

Weisz, J. R., Doss, A. J., & Hawley, K. M. (2005). Youth Psychotherapy Outcome Research: A Review and Critique of the Evidence Base. *Annual Review of Psychology*, 56, 337–

363. <https://doi.org/10.1146/annurev.psych.55.090902.141449>

Whaley, A. L. (2001). Cultural mistrust of white mental health clinicians among african

americans with severe mental illness.. *American Journal of Orthopsychiatry*, 71(2), 252-256. <https://doi.org/10.1037/0002-9432.71.2.252>

What is Mental Illness? (n.d.). Retrieved November 6, 2023, from

<https://www.psychiatry.org:443/patients-families/what-is-mental-illness>

Williams, M. E., Latta, J., & Conversano, P. (2008). Eliminating The Wait For Mental Health Services. *The Journal of Behavioral Health Services & Research*, 35(1), 107–114.

<https://doi.org/10.1007/s11414-007-9091-1>

Wilson, N., Dasho, S., Martin, A. C., Wallerstein, N., Wang, C. C., & Minkler, M. (2007).

Engaging young adolescents in social action through Photovoice—The Youth

Empowerment Strategies (YES!) project. *Journal of Early Adolescence*, 27(2), 241-261.

World Health Organization (2019) Mental Health: Strengthening our response. Retrieved

October 18, 2019, from

<https://www.who.int/news-room/fact-sheets/detail/mental-health-strengthening-our-response>

Ethical Statement: The article is a review; thus, the work completed did not require protection for human subjects review or IRB approval.

Data Transparency Statement: This manuscript has not been previously published and is not currently under consideration by another journal; there are no previously published or currently in press works stemming from the data. We also confirm that we have no competing interests to disc