Assessing diversity and inclusivity is the next frontier in mental health recovery narrative research and practice

Yasuhiro Kotera, Stefan Rennick-Egglestone, Fiona Ng, Joy Llewellyn-Beardsley, Yasmin Ali, Christopher Newby, Caroline Yeo, Emily Slade, Simon Bradstreet, Julian Harrison, Donna Franklin, Olamide Todowede, Mike Slade

Submitted to: JMIR Mental Health
on: November 25, 2022

Table of Contents

Assessing diversity and inclusivity is the next frontier in mental health recovery narrative research and practice

Yasuhiro Kotera[1] PhD; Stefan Rennick-Egglestone[1] PhD; Fiona Ng[1] PhD; Joy Llewellyn-Beardsley[1] MA; Yasmin Ali[1] MSc; Christopher Newby[2] PhD; Caroline Yeo[1] PhD; Emily Slade[3]; Simon Bradstreet[4] PhD; Julian Harrison[5] MA; Donna Franklin[5] BSc; Olamide Todowede[1] PhD; Mike Slade[1] PhD

[1]School of Health Sciences University of Nottingham Nottingham GB
[2]School of Medicine Queen's Medical Centre University of Nottingham Nottingham GB
[3]Department of Computer Science University of Oxford Oxford GB
[4]School of Health & Wellbeing University of Glasgow Glasgow GB
[5]NEON Lived Experience Advisory Panel Nottingham GB

Corresponding Author:
Yasuhiro Kotera PhD
School of Health Sciences
University of Nottingham
Institute of Mental Health
Triumph Road
Nottingham
GB

Abstract

Demand for digital health interventions is increasing in many countries. The use of recorded mental health recovery narratives in digital health interventions is becoming more widespread in clinical practice. Mental health recovery narratives are first-person lived experience accounts of recovery from mental health problems, including struggles and successes over time. Helpful impacts of recorded mental health recovery narratives include connectedness with the narrative and validation of experiences. Possible harms include feeling disconnected and excluded from others. Diverse narrative collections from many types of narrators and describing multiple ways to recover are important, to maximize the opportunity for service users to benefit through connection, and to minimize the likelihood of harm. Mental health clinicians need to know whether narrative collections are sufficiently diverse to recommend to service users. However, no method exists for assessing diversity and inclusivity of existing or new narrative collections. We argue assessing diversity and inclusivity is the next frontier in mental health recovery narrative research and practice. This is important but methodologically and ethically complex. In this viewpoint article, we evaluated one diversity and two inclusivity assessment methods. The diversity assessment method used Simpson's Diversity Index. The two inclusivity assessment methods were based on comparator demographic rates and arbitrary thresholds. These methods were applied to four narrative collections as a case study. Refinement needs to be made regarding a narrative assessment tool, practicality and cultural adaptation.

(JMIR Preprints 25/11/2022:44601)
DOI: https://doi.org/10.2196/preprints.44601

Preprint Settings

1) Would you like to publish your submitted manuscript as preprint?

✓ **Please make my preprint PDF available to anyone at any time (recommended).**
Please make my preprint PDF available only to logged-in users; I understand that my title and abstract will remain visible to all users.
Only make the preprint title and abstract visible.
No, I do not wish to publish my submitted manuscript as a preprint.

2) If accepted for publication in a JMIR journal, would you like the PDF to be visible to the public?

✓ **Yes, please make my accepted manuscript PDF available to anyone at any time (Recommended).**
Yes, but please make my accepted manuscript PDF available only to logged-in users; I understand that the title and abstract will remain v
Yes, but only make the title and abstract visible (see Important note, above). I understand that if I later pay to participate in <a href="http

Original Manuscript

Assessing diversity and inclusivity is the next frontier in mental health recovery narrative research and practice

Yasuhiro Kotera[1]*, Stefan Rennick-Egglestone[1], Fiona Ng[1], Joy Llewellyn-Beardsley[1], Yasmin Ali[1], Christopher Newby[2], Caroline Yeo[3], Emily Slade[4], Simon Bradstreet[5], Julian Harrison[6], Donna Franklin[6], Olamide Todowede[1], Mike Slade[1,7]

[1] School of Health Sciences, Institute of Mental Health, University of Nottingham, Nottingham, NG7 2TU, UK

[2] School of Medicine, Queen's Medical Centre, University of Nottingham, Nottingham, NG7 2UH, UK

[3] Faculty of Engineering, University of Nottingham, Nottingham, NG7 2RD, UK.

[4] Department of Computer Science, University of Oxford, Oxford, OX1 3QG, UK.

[5] School of Health & Wellbeing, University of Glasgow, Glasgow, G20 0XA, UK

[6] NEON Lived Experience Advisory Panel, Nottingham, NG7 2TU, UK

[7] Faculty of Nursing and Health Sciences, Health and Community Participation Division, Nord University, Postboks 474, 7801 Namsos, Norway

ORCID

YK: 0000-0002-0251-0085 / SRE: 0000-0003-4187-011X / FN: 0000-0002-8656-8830 / JLB: 0000-0003-0525-6358 / YA: 0000-0002-0228-6562 / CN: 0000-0002-2936-8592 / CY: 0000-0003-3399-4729 / ES: 0000-0001-6794-5461 / SB: 0000-0002-0339-1882 / JH: 0000-0003-4868-2605 / DF: 0000-0002-9755-870X / OT: 0000-0002-5785-1426 / MS: 0000-0001-7020-3434

*Corresponding author: yasuhiro.kotera@nottingham.ac.uk / +44(0)115 823 1294

Abstract

Demand for digital health interventions is increasing in many countries. The use of recorded mental health recovery narratives in digital health interventions is becoming more widespread in clinical practice. Mental health recovery narratives are first-person lived experience accounts of recovery from mental health problems, including struggles and successes over time. Helpful impacts of recorded mental health recovery narratives include connectedness with the narrative and validation of experiences. Possible harms include feeling disconnected and excluded from others. Diverse narrative collections from many types of narrators and describing multiple ways to recover are important, to maximize the opportunity for service users to benefit through connection, and to minimize the likelihood of harm. Mental health clinicians need to know whether narrative collections are sufficiently diverse to recommend to service users. However, no method exists for assessing diversity and inclusivity of existing or new narrative collections. We argue assessing diversity and inclusivity is the next frontier in mental health recovery narrative research and practice. This is important but methodologically and ethically complex. In this viewpoint article, we evaluated one diversity and two inclusivity assessment methods. The diversity assessment method used Simpson's Diversity Index. The two inclusivity assessment methods were based on comparator demographic rates and arbitrary thresholds. These methods were applied to four narrative collections as a case study. Refinement needs to be made regarding a narrative assessment tool, practicality and cultural adaptation.

Keywords: recovery narrative; web-based mental health interventions; inclusivity; diversity; collective action; curation

Introduction

Background

Demand for digital mental health interventions (DMHIs) has been increasing in many countries [1]. For example, 76% of the Australian general public are interested in using DMHIs [2], and US$2.4 billion were invested in these interventions in 2020 alone in the USA [3]. A Singaporean mental health app, Intellect, is now used by over 3 million people in 20 mostly Asian countries [4]. A large-scale education program about ethics in DMHIs has been launched [5], and more active use of DMHIs is expected in Africa [6]. The advantages of DMHIs include accessibility, cost-effectiveness, and personalization [7], which can address key barriers for mental health recovery such as low help-seeking and stigma associated with mental health problems [8]. Effectiveness of DMHIs has been generally reported in diverse populations (e.g., children, young people, older adults, university students, healthcare workers, people with neurodevelopmental disabilities) and on diverse mental health experiences [2, 9-12]. DMHIs have become an important domain in medical internet research [13-15].

Recorded mental health recovery narratives (RRNs) have been used in DMHIs. Mental health recovery narratives can be defined as “first-person lived experience accounts of recovery from mental health problems, which refer to events or actions over a period of time, and which include elements of both adversity/struggle and of self-defined strengths/successes/survival” [16]. Whilst narratives can be shared in person, such as when a peer support worker tells their story [17], RRNs are those presented in recorded formats such as written texts, audio, and videos. RRNs are often disseminated online [18], and have been used in a range of clinical and societal interventions [19]. For example, the Narrative Story Bank was created by the Scottish Recovery Network to inspire hope and offer tools and technologies for recovery [20]. Content from the Narrative Story Bank helped to inform Scotland’s mental health strategy [21]. In Scotland, the use of recovery narratives has been incorporated into clinical practice, such as the production of written RRNs to support self-reflection [21]. Similarly, RRNs have been used in clinical training to enhance communication skills and empathy of healthcare workers [22]. RRNs are used in national anti-stigma campaigns [23], which aim to reduce stigma associated with mental health problems [24].

The impact of RRNs on recipients has been evaluated. For example, students who listened to recovery narratives of people with anorexia nervosa showed more understanding of the mental illness and a less stigmatized view towards these individuals [25]. Eating disorder memoirs offered validation of personal experience and created a positive affective response among people with eating difficulties [26]. Helpful outcomes of accessing both live and recorded recovery narratives include connection with others, validation of own experiences, empowerment, hopefulness, gratitude, and stigma reduction [27]. Mechanisms of impact from RRNs include comparison with the narrative and narrator, learning about the experiences of others, and feeling empathy, all of which create a sense of connection [28]. Accessing RRNs can thus support personal recovery, by increasing hope, meaning and a sense of fulfillment [18, 29].

RRNs are often grouped and presented as collections [19], which have been presented on bespoke websites [30] and in books composed of recovery narratives linked by a theme such as psychosis [31] or men’s eating disorders [32]. The people who assemble RRN collections do so for a range of reasons, including providing education about mental health and recovery, supporting others in their recovery journey, and campaigning for change in health service provision [33].

Clinicians who use RRNs as part of treatment need to know the possible impact of the RRN collections they recommend to their service users [34]. Given their broad range of clinical applications, the ability to characterize a narrative collection is important, because not all RRNs are helpful to all people. An interview study reported that recovery narratives can be harmful if recipients feel disconnected from the narrative, resulting in distancing themselves from the narrator [27]. For instance, if a “right” way to recover is communicated by the RRNs, this implicit message can cause a recipient to feel disconnected [35, 36] if that particular pathway is in some way ‘outside’ that person’s scope, experience and perspective. A feeling of being disconnected is detrimental because connection is the central mechanism supporting recovery after access to RRNs [28, 37].

Diversity and Inclusivity

Providing diversity in RRN collections may be one approach to maximizing benefit and minimizing harms, enabling a sense of connection to people with different backgrounds and experiences. A diverse set of narratives will increase the opportunity for the recipient to feel connected to a narrative [38]. Further, a lack of diversity in RRN collections may give rise to stereotyping [39], leaving recipients feeling excluded and disconnected [18] or suggest that there is only one way or a “right” way to recover [35, 40] which may not fit with their own beliefs, experiences and needs. Recipient characteristics and narrative characteristics moderate the impact of a narrative on a sense of connection [28]. For example, people in ethnic minority groups felt a lower level of connection when a RRN collection marginalized these groups [41]. Diverse narratives are needed to ensure that recipients from different backgrounds and with different identities have the greatest opportunity to feel connected with both a narrative and a narrator, as both types of connection are known to maximize the positive effects of RRNs [39]. One exception might be collections of RRNs targeted at specific groups experiencing structural inequalities or marginalization (e.g., refugees), where the selection of narrators who belong to those groups might be an appropriate strategy for maximizing beneficial impact.

Two types of variation in a narrative collection can be differentiated: diversity and inclusivity [42]. **Diversity** is defined as heterogeneity in narrative characteristics, such as a spread of narrator demographics and ‘protected characteristic’ identities as defined by the Equality Act 2010 (e.g. age, gender, sexual orientation) or types of narrative content (e.g. trajectory, genre). **Inclusivity** is defined as representativeness of narrative characteristics in relation to a broader population [43].

Diversity and inclusivity concepts can be applied to a specific characteristic of an RRN collection, such as narrator age or narrative focused on a certain demographic characteristic (e.g., race, disability). Diversity is present when there are a meaningful number of narratives within each sub-category [44]. For example, diversity in narrator age is present when there is a spread of younger, middle-aged, and older narrators. Diversity is a feature of the collection, so a diversity metric will be a constant for a given collection. By contrast, inclusivity is present when the proportion of narratives within each sub-category is similar to the proportion in a wider comparison population at a given time [45]. For example, inclusivity in narrator age is present when there are similar proportions of each narrator age group in the collection and in a comparison population, such as other people on the caseload of the mental health service, or in the general population. Inclusivity is a function of the collection when used in a specific context, so an inclusivity metric will vary based on context.

We argue assessing diversity and inclusivity of narrative collections is the next frontier in mental health recovery narrative research and practice. A tool to characterize individual RRNs has been developed. The Inventory of Characteristics of Recovery Stories (INCRESE) is a standardized 77-

item instrument characterizing narrative mode, narrator and narrative characteristics, content warnings, turning points and narrative content [46]. Whilst INCRESE is used to characterize individual RRNs, no method currently exists to assess the diversity and inclusivity of an RRN collection.

We now discuss aspects of measuring diversity and inclusivity in recovery narrative collections. The Narrative Experiences Online (NEON) study has used INCRESE to characterize a large collection of 687 recovery narratives, with ethical approval from a UK National Health Service Research Ethics Committee (West London and GTAC, 18/LO/0991). Because we had a large dataset of narrative characteristics measured using INCRESE available to us, we used this dataset in the analysis.

What are the relevant characteristics?

To develop diversity and inclusivity metrics, characteristics for the evaluation of diversity and inclusivity need to be identified. To establish a theoretical and cross-culturally valid understanding of important diversity and inclusivity characteristics, we analyzed policy and research in order to identify characteristics agreed internationally as requiring protection from discrimination. Three data sources were used. First, national policy documents relating to equality, diversity and inclusivity were reviewed, to identify characteristics protected by law in each country. Policy documents were collated from a purposive sample of 20 predefined countries shown in Table 1, chosen for variation in (a) region, (b) income level as classified by the World Bank and (c) status as a Western, Educated, Individualized, Rich and Democratic (WEIRD) versus non-WEIRD country [47] (see Supplementary File 1 for income levels and WEIRD/non-WEIRD status). Policy documents were retrieved using Google searches with the terms “anti-discrimination [country]” and “human rights [country]”. At least one source of information was identified for each country. Where the governmental information was not available in English (e.g. Iran, Yemen, Morocco), online sources such as information websites (e.g. The Academic Network of European Disability Experts, Human Rights Watch, European Commission, International Labour Organization) or reports (e.g. Human Rights Committee report, Human Rights Watch report) written in English about protected characteristics in the country were reviewed. The identified characteristics were grouped, and Table 1 shows the frequency across the 20 countries of the 13 identified characteristics protected by law and policy.

Table 1. Characteristics (n=13) protected by law and policy in 20 countries

Characteristic:	Sex and gender	Beliefs	Origin	Family	Disability	Sexuality	Age	Economics	Employment	Pregnancy	Education	Language	Military veteran
Components:	Sex Gender	Religious Political Philosophical	Race Ethnicity Migration	Marriage Carer				Social class					
Australia	x		x		x	x	x		x				
Brazil	x	x	x	x	x	x	x		x	x			
Cuba	x	x											
Greece	x	x	x	x					x				
Guyana	x	x	x	x	x		x	x	x	x			
Iran	x	x	x			x						x	
Ireland	x	x	x	x	x	x	x	x					
Italy	x	x	x					x				x	
Japan	x	x	x	x				x			x		
Libya	x	x	x										
Morocco	x	x		x									
Netherlands	x	x	x	x	x	x	x	x	x				
Norway	x	x	x	x	x	x	x			x			
Palestine	x	x									x		
Spain	x	x	x		x								
Suriname	x	x	x					x			x	x	
Tunisia	x		x		x			x					
United Kingdom	x	x	x	x	x	x	x			x			
United States	x	x	x	x	x	x	x			x			x
Yemen	x	x	x	x				x					

20	18	17	11	10	8	8	8	5	5	3	3	1

Some characteristics collapse complex and contested components, where terms are used inconsistently internationally. For example, “Sex and gender” refers to both biological sex assigned at birth and the social construct gender, with sub-categories including “Female”, “Male” and “Non-binary” [48]. Therefore, the theme is categorized as “Sex and gender” [49].

The five characteristics with the highest international consensus are Sex and gender (e.g. assigned sex at birth, socially constructed gender, Female/Male/Non-binary), Beliefs (e.g. political, religious, philosophical), Origin (e.g. race, ethnicity), Family (e.g. marital status, carer responsibilities), and Disability (mental, physical, learning and sensory).

To maximize cross-cultural validity, four multinational documents were reviewed, comprising two international human right treaties (Universal Declaration of Human Rights (UDHR), Convention on the Rights of Persons with Disabilities (CRPD)), and two relevant systematic reviews about diversity and inclusivity [50, 51]. The presence of each of the 13 identified characteristics in these four documents was tabulated to identify the most widely agreed characteristics relevant to diversity and inclusivity (Table 2). In both tables, the authors YK and FN independently reviewed the documents and discussed rating until consensus was reached, which was then confirmed by the other authors.

Table 2. Candidate diversity and inclusivity characteristics mapped against international treaties and systematic reviews

Characteristic	UDHR Article	CRPD Article	Yadav & Lenka [50]	Manoharan & Singal [51]
Sex and gender	x	x		x
Beliefs	x	x		
Origin	x		x	x
Family	x	x		x
Disability		x		
Sexuality			x	
Age		x	x	x
Economics	x	x		
Employment	x	x		
Pregnancy				
Education	x	x		
Language	x			x
Military veteran				

All characteristics apart from “Pregnancy” were identified by at least one of the four sources. Finally, to maximize relevance to mental health recovery narratives, a systematic review making recommendations for best practice in curating mental health lived experience narrative collections was assessed [39]. “Positioning” was added as a mental health narrative-specific characteristic to assess if a collection includes both positive and negative narratives about mental health services, to capture whether a broad range of perspectives are included [39]. In total, these 14 characteristics were identified as relevant to the diversity and inclusivity of RRN collections.

Mapping against a narrative characterization tool

To enable an assessment of the appropriateness of INCRESE in assessing diversity and inclusivity, the 77 INCRESE items were mapped against the 14 diversity and inclusivity

characteristics (Table 3).

Table 3. INCRESE items mapped against the diversity and inclusivity characteristics

Characteristic	Corresponding INCRESE items				
Sex and gender	11 Gender				
Beliefs	71 Activism	72 Spiritual/religious activities			
Origin	13 Ethnicity	15 Location			
Family	49 Family	53 Relationships	74 Caring responsibilities	75 Family experiences of mental health issues	
Disability	17 Visual difficulties	18 Hearing difficulties	19 Mobility/stamina difficulties	20 Cognitive difficulties	21 Self-care difficulties
Sexuality	16 Sexuality				
Age	12 Age				
Economics	54 Income	55 Housing			
Employment	56 Work				
Pregnancy	48 Pregnancy/birth				
Education	51 Education				
Language					
Military veteran					
Positioning	32 Positioning				

Twenty-two INCRESE items were able to be mapped against the diversity and inclusivity characteristics. No INCRESE items were identified relevant to the characteristics of Language and Military veteran. Twelve characteristics, including all five most supported characteristics and Positioning, can be measured using the INCRESE items. Our INCRESE database enabled a preliminary investigation of diversity and inclusivity, despite INCRESE not being a perfect tool for assessing them. It may be refined in the future by including items regarding language and military status.

Quantifying each characteristic

To quantify the diversity and inclusivity of RRN collections, each characteristic needs to be assessed using its sub-categories (e.g., for the Sex and gender characteristic, the INCRESE characterization choices of “Male”, “Female” and “Other” may be the sub-categories). Measuring diversity involves characterizing the spread of narratives across each sub-category. For example, an RRN collection that includes no narrator categorized as “Other” in the Sex and gender characteristic is less diverse than an RRN collection that does include such narrators. By contrast, measuring inclusivity involves establishing the same two parameters of characteristics and sub-categories, and additionally identifying the comparison population. For example, presence of an Origin category of “White” may not increase an inclusivity metric in the UK general population as much as it does in many other populations.

Measurement of diversity and inclusivity

We present one option for measuring diversity and two options for measuring inclusivity for recovery narrative collections. The two options for measuring inclusivity have different properties, enabling people assessing inclusivity to make a choice over which to use.

Measuring diversity: Simpson's Diversity Index

Simpson's Diversity Index (SDI) is an established index used in the natural sciences to assess biodiversity [44]. SDI considers the number of species present and the abundance in each species, in order to indicate the variance in species. SDI is calculated by deducting the Simpson's Index (SI) from 1, where SI = $\Sigma n(n\text{-}1)$ / N(N-1). When used to assess narrative collection diversity in relation to a particular characteristic (e.g. "narrator gender"), n means the total number of narratives within each option of the characteristic (e.g. "female narrator") and N means the total number of narratives across all options. See Supplementary File 2 for example calculations. SDI ranges from 0 (low diversity) to 1 (high diversity).

Measuring inclusivity option 1: demographic rates as comparison population

Inclusivity captures the extent to which minority groups in a comparison population (e.g., a country population, a service user cohort at one mental health service) are included in a collection [52]. One approach to assess inclusivity is to identify the categories which are minoritized in the comparison population, and compare their proportion in the narrative collection. For example, the Origin characteristic is measured by INCRESE item 13 "Ethnicity", with categories of "Not identifiable", "Asian", "Black/African/Caribbean", "Dual/multiple ethnic group", "Other ethnic group", and "White". When used in the UK, all choices apart from "White" are minority groups (a limitation of this categorization is that some "White" communities, such as the Traveller, Gypsy and Roma community, are also very socially excluded). In the UK, 13% of the population are non-White [53]. In a collection, among all narratives, if the ratio of non-White narratives is higher than 13%, the collection can be considered as inclusive with respect to ethnicity in the UK. If inclusivity is being assessed in a different comparison population, such as a different country, then alternative choices for minority categories would be made.

Measuring inclusivity option 2: arbitrary threshold as benchmark

A second approach to measuring inclusivity is to set an arbitrary benchmark. One approach is to decide that five narratives are enough to satisfy a benchmark for a certain characteristic. A stronger approach, as often used for external examination in the university sector [54, 55], is to decide both a minimum rate (e.g. 10%) and number (e.g. 5), and choose whichever is greater.

Case study

The three methods above were applied to the Narrative Experiences Online (NEON) Collection as a case study. Four characteristics matching INCRESE items were considered: Sex and gender, Origin, Disability, and Positioning. The NEON Collection is a curated collection of mental health RRNs. All narratives are included in the NEON Collection with permission [56]. Each narrative is characterized using INCRESE by multiple raters [46].

The candidate approaches were applied to four groups: the entire NEON Collection, two of the larger collections chosen for difference in source, and the individual donations contained in the NEON Collection. In September 2022, the NEON Collection comprised 687 narratives compiled from 34 public collections and from individual donations. One of the two larger collections, which we call in this paper "Statutory Service" (78 narratives), was compiled by a statutory mental health service. The other, we call in this paper "Ethnic Minority Book" (19 narratives), was published as a book focusing on the mental health of ethnic minority groups. Individual donations (n=29) comprised narratives collected directly from individuals as

donations to the NEON Collection.

To evaluate diversity using SDI, because the Origin and Disability characteristics consist of multiple INCRESE items, the mean SDI scores were calculated. The SDI scores for each collection group are shown in Table 4.

Table 4. Diversity scores for Sex and gender, Positioning, Origin and Disability using Simpson's Diversity Index

Characteristic	**Sex and gender**	**Positioning**	**Origin**			**Disability**					
INCRESE Item	Gender	Positioning	Ethnicity	Location	**Mean**	Visual	Hearing	Mobility	Cognitive	Self-care	**Mean**
NEON Collection	0.58	0.61	0.58	0.70	**0.64**	0.01	0.01	0.01	0.01	0.05	**0.04**
Statutory Service	0.60	0.56	0.07	0.50	**0.37**	0.00	0.00	0.03	0.07	0.05	**0.03**
Ethnic Minority	0.29	0.56	0.61	0.20	**0.51**	0.00	0.00	0.00	0.00	0.11	**0.02**
Book Donations	0.64	0.53	0.46	0.57	**0.52**	0.00	0.00	0.00	0.07	0.00	**0.01**

Bold figures = Mean scores where multiple INCRESE items are attached to one characteristic.

Of the four groups assessed, the NEON Collection is the most diverse in terms of Positioning, Origin and Disability. Individual donations are the most diverse in terms of Sex and gender. Statutory Service is the most diverse in the Cognitive difficulties, a sub-characteristic of the Disability characteristic. Ethnic Minority Book is the most diverse in Ethnicity, a sub-characteristic of the Origin characteristic.

To evaluate inclusivity using option 1 (demographic rates), the comparison population used was the UK general population. The Positioning characteristic was excluded as there is no demographic data of narrative positioning available. Minority groups in each characteristic were identified, and the proportion of narratives from each minority group was calculated. The proportion of minority groups in the comparison UK general population were obtained for gender [57], ethnicity [53] and each disability component [58-62]. For Location, the number of British nationals living outside Europe was identified, then the proportion against the UK population was calculated [63]. For Self-care, the prevalence of self-neglect was identified [62]. The findings are shown in Table 5.

Table 5. Inclusivity option 1: minority group proportions compared to the UK general population

Characteristic	INCRESE item	Response categories		Proportion of minority narratives (%)				Minority proportion in UK general population (%)
		Non-minority	Minority	NEON Collection	Statutory Service	Ethnic Minority Book	Donations	
Sex and gender	Gender	Not identifiable Female Male	Other	1	0	0	0	3
Origin	Ethnicity	Not identifiable White	Asian Black/African/Caribbean Dual/multiple ethnic group Other ethnic group	10	0	**47**	0	13
	Location	Europe	Africa Asia Australasia North America South America	**36**	0	3	3	7
Disability	Visual difficulties	Not identified	Yes	0.4	0	0	0	3
	Hearing difficulties	Not identified	Yes	0.3	0	0	0	17
	Mobility	Not identified	Yes	3	1	0	0	46
	Cognitive difficulties	Not identified	Yes	**4**	**4**	0	**3**	2

Self-care	Not identified	Yes	**2**	**3**	**5**	0	0.2

Bold figures = Above proportion in UK general population

The NEON Collection met the inclusivity benchmark of being above the UK general population for the Location in the Origin characteristic, and two sub-characteristics in the Disability characteristic: Cognitive difficulties and Self-care. Likewise, Statutory Service met the inclusivity benchmarks for Cognitive difficulties and Self-care. Ethnic Minority Book met the inclusivity benchmarks for Ethnicity in the Origin characteristic and Self-care in the Disability characteristic. Individual donations met the inclusivity benchmark for Cognitive difficulties. No collections met the inclusivity benchmarks for the Sex and gender characteristic, and the Disability sub-characteristics of Visual difficulties, Hearing difficulties, and Mobility. The largest inclusivity score was for Ethnicity in Ethnic Minority Book, followed by Location in the NEON Collection.

To evaluate inclusivity using option 2 (arbitrary threshold), benchmarks were set at a minimum proportion of 10% of the number of narratives in a collection and a minimum number of 5 narratives. Whichever was the higher number was used as the threshold, as shown in Table 6.

Table 6. Inclusivity option 2: arbitrary thresholds

Characteristic	**Sex and gender**	**Origin**		**Disability**					**Positioning**
INCRESE Item	Gender	Ethnicity	Location	Visual	Hearing	Mobility	Cognitive	Self-care	Positioning
NEON Collection (n=687) Threshold: n=69	4	**69**	**245**	3	2	18	26	17	**97**
Statutory Service (n=78) Threshold: n=8	0	0	0	0	0	1	3	2	5
Ethnic Minority Book (n=19) Threshold: n=5	0	**9**	0	0	0	0	0	1	4
Individual Donations (n=29) Threshold: n=5	0	1	1	0	0	0	1	0	2

Bold figures = Above threshold

The NEON Collection met the inclusivity benchmarks for both Ethnicity and Location in the Origin characteristic and the Positioning characteristic. Ethnic Minority Book met the inclusivity benchmark for Ethnicity in the Origin characteristic. Neither Statutory Service nor Individual donations met any of the characteristics nor sub-characteristics. Similar to the inclusivity option 1, the scores for Location in the NEON Collection and Ethnicity in Ethnic Minority Book markedly exceeded the benchmarks.

Strengths and limitations of each approach

Simpson's Diversity Index

A strength of calculating the diversity scores using SDI is practicality; to calculate SDI only the frequencies for each characteristic are required [64]. Less practical measures exist. For example, the Shannon Diversity Index is another established biodiversity index, which requires more data such as a rate of each species present out of the total organism population [65]. Likewise, the Social Choice Methods were proposed in computer science, however the methods require more data than SDI (e.g., social structures of power and influence) [66].

Three major weaknesses need to be noted. One is that there are no interpretation scores to indicate a level of the diversity in SDI (e.g., high, medium, and low). Another limitation is reliance on INCRESE data, which do not map onto all protected characteristics identified. There are no INCRESE items for language and military status. Moreover, even where an INCRESE item and a characteristic have the same label, the meaning may be different. For example, in this analysis, we chose an INCRESE item for Location as part of the Origin characteristic. However, the response choices of this item are placed at a global level (e.g., Europe, Asia, Africa) whereas the international treaties and national policies often regard the location of where people are from or live at a local level (e.g., housing discrimination in the UK [67] and "buraku" (roughly defined as a defiled area) in Japan [68]). Both items and response choices in INCRESE can be extended to enable calculation of the diversity from the INCRESE dataset. Lastly, whilst appealing as a simple and comprehensible metric, it may misleadingly simplify the complex issue of diversity. For example, the diversity scores should not be treated as a target, which can be deprioritized once hit [69]. The diversity scores should be used as part of helping recipients from different backgrounds and with different identities feel connected with both a narrative and a narrator, maximizing the positive effects of RRNs [39].

Inclusivity option 1

A strength of inclusivity option 1 is that it is a logical approach, comparing the proportion between a collection and its comparable population. This method allows a direct comparison with different contexts as far as the demographic data are available, and tailors the assignment of minoritized status to categories to the comparison population.

Weaknesses include the time required, modest collection sizes, and comparator choice. Firstly, the inclusivity option 1 requires more time than the option 2, because of the difficulties with finding the comparable data. There would be a health service resource allocation implication of choosing option 1 rather than option 2. Busy practitioners may not have time to identify comparable demographic data. For example, for Self-care, finding the demographic proportion of people with self-care difficulties required a great amount of time. We used the demographic proportion of people suffering from self-neglect. Self-care difficulties and self-neglect may be similar, however self-neglect can indicate a wider set of behaviors than self-care, such as hoarding and unwillingness to receive support [70, 71]. Secondly, RRN collections often do not have many narratives, e.g., the largest collection in

the NEON Collection includes 78 narratives. Only a few narratives can meet the benchmarks in small collections. For example, in Ethnic Minority Book (*n*=19), only one narrative is enough to meet the benchmarks for the sub-characteristics of Gender, Visual, Cognitive and Self-care difficulties, despite them having different demographic proportions. Lastly, a decision needs to be made on what an appropriate comparator is for this method. We used the UK general population, however if a statutory mental health service uses this method, the entire cohort of their service users may be more meaningful as a comparative tool. Identifying a meaningful comparator and retrieving comparison information may be complex [72].

Inclusivity option 2

Strengths of inclusivity option 2, based on the arbitrary threshold, include practicality and representation. This approach allows a reasonable minimum number to be present, addressing the need for individuals from minority communities to "see themselves" [73] in the narrative collection.

However, weaknesses include the difficulty in justifying the benchmark numbers. Relatedly, it produces a binary outcome: the collection is either inclusive in a particular characteristic or it is not. This does not differentiate between a collection that just meets the benchmark versus one that markedly exceeds it.

Overall, the diversity and inclusivity of the NEON Collection are higher than the three sub-groups. One explanatory attribute is its size, as the three sub-groups are part of the NEON Collection. Because the size is large, the NEON Collection has an inherent advantage with respect to diversity [74]. The more narratives a collection has, the more likely the collection has different types of narratives. The size advantage also relates to the high inclusivity of the NEON Collection. The NEON Collection marked low yet above-benchmark scores in the characteristics where the benchmarks were low, whereas the other three collections did not (e.g. scored a zero; no relevant narrative identified).

Our case study has three implications. First, the diversity and inclusivity can be measured, though each metric has limits on its meaningfulness. For example, the diversity metric has no interpretation scores to indicate a level of the diversity. Inclusivity option 1 highlights a mismatch between INCRESE items and characteristics, and a question about what an appropriate comparator is. Inclusivity option 2 requires justification for the benchmark. Second, larger collections in general are more diverse and inclusive. Third, collections which have a specific focus, e.g., on ethnicity, can be differentiated using these metrics.

Finally, how the output is presented needs to be discussed. A challenge with all measurement approaches is how to present the results [75]. One approach is a radar chart, used in the Four Layers of Diversity Model [76]. For example, the Sex and gender, Origin (Ethnicity and Location) and Positioning characteristics can be presented as in Figure 1. The items in the Disability characteristic were excluded as all five items included a zero, which is already visible in the table format.

[Please insert Figure 1 about here]

One advantage of the radar chart is that the uniqueness of each collection can be visually highlighted [77]. Moreover, compared to a table format, chart formats such as a radar chart are often more reader-friendly and inclusive, e.g., for people with dyslexia [78, 79]. A

disadvantage is that not many characteristics can be included to maintain a reader-friendly presentation [77].

Conclusion

Several knowledge gaps exist. First, there is a mismatch between the INCRESE items and the identified characteristics. Candidate new items for INCRESE are language and military veteran. Moreover, there are currently only three characterization choices for sex and gender in INCRESE (“Male”, “Female” and “Other”). More diverse and inclusive choices are needed (e.g. “Transgender”, “Non-binary/Non-conforming”). The content of INCRESE might be reviewed to enhance its use in diversity and inclusivity metrics. Second, the assessment of inclusivity requires a development of a reliable and context-sensitive approach to identifying minority groups in each characteristic. Third, the optimal approach to inform clinical practice needs to be identified. In addition to concerns about comprehensibility of these candidate metrics, there may be specific clinical priorities, for example some clinicians may not want to recommend a collection that includes many narratives about poor service experiences to their service users. Lastly, cultural adaptation of these metrics needs to be considered. For example, the Military veteran characteristic may hold more cultural importance in the United States than many other countries [80]. In cultures such as Japan and South Korea, where age plays an important role [81], the Age characteristic may be more relevant. The next stages of research include refinement of each metric with attention paid to minimizing the burden of calculation and developing interpretation guidance, the involvement of key stakeholders – people living with mental health issues and mental health clinicians – in arbitrating between the candidate approaches, and real-world evaluation of the impact of more diverse and inclusive RRN collections.

Acknowledgements

Author Contributions: Conceptualization, YK, SB and MS; methodology, YK, FN and MS; investigation, all authors; resources, SRE and MS; data curation, YK, SRE, FN, JLB and CY; writing—original draft preparation, YK and MS; writing—review and editing, all authors; project administration, YK and MS.

This paper is independent research funded by the National Institute for Health and Care Research (NIHR) under its Programme Grants for Applied Research Programme (Programme Grants for Applied Research, Personal Experience as a Recovery Resource in Psychosis: NEON Programme, RP-PG-0615-20016). MS acknowledges the support of the NIHR Nottingham Biomedical Research Centre. FN acknowledges funding from a NIHR Advanced Fellowship (NIHR302218) and a University of Nottingham Anne McLaren Research Fellowship. The views expressed are those of the authors and not necessarily those of the NIHR or the Department of Health and Social Care.

Conflicts of Interest

None declared.

Abbreviations

CRPD: Convention on the Rights of Persons with Disabilities
DMHI: Digital Mental Health Intervention
INCRESE: Inventory of Characteristics of Recovery Stories
NEON: Narrative Experiences Online
SDI: Simpson’s Diversity Index
SI: Simpson’s Index
UDHR: Universal Declaration of Human Rights
UK: United Kingdom
WEIRD: Western, Educated, Individualized, Rich and Democratic

References

1. Philippe TJ, Sikder N, Jackson A, Koblanski ME, Liow E, Pilarinos A, et al. Digital Health Interventions for Delivery of Mental Health Care: Systematic and Comprehensive Meta-Review. JMIR Ment Health. 2022 2022/5/12;9(5):e35159. doi: 10.2196/35159.
2. Donker T, Petrie K, Proudfoot J, Clarke J, Birch M-R, Christensen H. Smartphones for Smarter Delivery of Mental Health Programs: A Systematic Review. J Med Internet Res. 2013 2013/11/15;15(11):e247. doi: 10.2196/jmir.2791.
3. Weir K. The age of digital interventions. Monitor on Psychology [Internet]. 2021 24 August 2022; 52(1). Available from: https://www.apa.org/monitor/2021/10/news-digital-interventions.
4. Project Design. Asia's most popular mental health care app, Intellect enters Japan [Japanese]. Author. 2022 24 August 2022.
5. University of Oxford. Ethics in Mental Health Digital Innovations for Young People in Africa: Digital Campaign. Department of Psychiatry News [Internet]. 2022 24 August 2022. Available from: https://www.psych.ox.ac.uk/news/ethics-in-mental-health-digital-innovations-for-young-people-in-africa-digital-campaign.
6. Adepoju P. Africa turns to telemedicine to close mental health gap. The Lancet Digital Health. 2020 2020-11-01;2(11):e571-e2. doi: 10.1016/s2589-7500(20)30252-1.
7. Balcombe L, De Leo D. Digital Mental Health Challenges and the Horizon Ahead for Solutions. JMIR Ment Health. 2021 2021/3/29;8(3):e26811. doi: 10.2196/26811.
8. Kotera Y, Gilbert P, Asano K, Ishimura I, Sheffield D. Self-criticism and selfreassurance as mediators between mental health attitudes and symptoms: Attitudes towards mental health problems in Japanese workers. Asian Journal of Social Psychology. 2018. doi: 10.1111/ajsp.12355.
9. Cuijpers P, Donker T, van Straten A, Li J, Andersson G. Is guided self-help as effective as face-to-face psychotherapy for depression and anxiety disorders? A systematic review and meta-analysis of comparative outcome studies. Psychological Medicine. 2010;40(12):1943-57. doi: 10.1017/S0033291710000772.
10. Andrews G, Cuijpers P, Craske MG, McEvoy P, Titov N. Computer Therapy for the Anxiety and Depressive Disorders Is Effective, Acceptable and Practical Health Care: A Meta-Analysis. PLoS ONE. 2010;5(10):e13196. doi: 10.1371/journal.pone.0013196.
11. Riadi I, Kervin L, Dhillon S, Teo K, Churchill R, Card KG, et al. Digital interventions for depression and anxiety in older adults: a systematic review of randomised controlled trials. The Lancet Healthy Longevity. 2022;3(8):e558-e71. doi: 10.1016/s2666-7568(22)00121-0.
12. Khan K, Hall CL, Davies EB, Hollis C, Glazebrook C. The Effectiveness of Web-Based Interventions Delivered to Children and Young People With Neurodevelopmental Disorders: Systematic Review and Meta-Analysis. J Med Internet Res. 2019 Nov 1;21(11):e13478. PMID: 31682573. doi: 10.2196/13478.
13. Borghouts J, Eikey E, Mark G, De Leon C, Schueller SM, Schneider M, et al. Barriers to and Facilitators of User Engagement With Digital Mental Health Interventions: Systematic Review. J Med Internet Res. 2021 2021/3/24;23(3):e24387. doi: 10.2196/24387.
14. Bergin AD, Vallejos EP, Davies EB, Daley D, Ford T, Harold G, et al. Preventive digital mental health interventions for children and young people: a review of the design and reporting of research. npj Digital Medicine. 2020;3(1). doi: 10.1038/s41746-020-00339-7.
15. Lattie EG, Adkins EC, Winquist N, Stiles-Shields C, Wafford QE, Graham AK. Digital Mental Health Interventions for Depression, Anxiety, and Enhancement of Psychological Well-Being Among College Students: Systematic Review. J Med Internet Res. 2019 2019/07/22;21(7):e12869. doi: 10.2196/12869.
16. Llewellyn-Beardsley J, Rennick-Egglestone S, Callard F, Crawford P, Farkas M, Hui A, et al. Characteristics of mental health recovery narratives: Systematic review and narrative synthesis. PLoS One. 2019;14(3):e0214678. PMID: 30921432. doi: 10.1371/journal.pone.0214678.
17. Mind. Borderline personality disorder (BPD) and recovery | Sarah's Mental Health Story | Mind. 2015.
18. Rennick-Egglestone S, Morgan K, Llewellyn-Beardsley J, Ramsay A, McGranahan R, Gillard S, et al. Mental Health Recovery Narratives and Their Impact on Recipients: Systematic Review and Narrative Synthesis. Can J Psychiatry. 2019 Oct;64(10):669-79. PMID: 31046432. doi:

10.1177/0706743719846108.
19. McGranahan R, Rennick-Egglestone S, Ramsay A, Llewellyn-Beardsley J, Bradstreet S, Callard F, et al. Curation of Mental Health Recovery Narrative Collections: Systematic Review and Qualitative Synthesis. JMIR Ment Health. 2019 Oct 4;6(10):e14233. PMID: 31588912. doi: 10.2196/14233.
20. Scottish Revocery Network. Scottish Recovery Network. Glasgow: Author; 2022 [cited 2022 23 August]; Available from: https://www.scottishrecovery.net/.
21. Smith-Merry J, Freeman R, Sturdy S. Implementing recovery: an analysis of the key technologies in Scotland. Int J Ment Health Syst. 2011 May 15;5(1):11. PMID: 21569633. doi: 10.1186/1752-4458-5-11.
22. Repper J, Breeze J. User and carer involvement in the training and education of health professionals: a review of the literature. Int J Nurs Stud. 2007 Mar;44(3):511-9. PMID: 16842793. doi: 10.1016/j.ijnurstu.2006.05.013.
23. Pinfold V, Thornicroft G, Huxley P, Farmer P. Active ingredients in anti-stigma programmes in mental health. Int Rev Psychiatry. 2005 Apr;17(2):123-31. PMID: 16194782. doi: 10.1080/09540260500073638.
24. Thornicroft G, Mehta N, Clement S, Evans-Lacko S, Doherty M, Rose D, et al. Evidence for effective interventions to reduce mental-health-related stigma and discrimination. Lancet. 2016 Mar 12;387(10023):1123-32. PMID: 26410341. doi: 10.1016/s0140-6736(15)00298-6.
25. Sheens E, Rhodes P, Dawson L. Encountering anorexia: challenging stigma with recovery stories. Advances in Eating Disorders. 2016;4(3):315-22. doi: 10.1080/21662630.2016.1217495.
26. Shaw L-K, Homewood J. The Effect of Eating Disorder Memoirs in Individuals With Self-Identified Eating Pathologies. The Journal of Nervous and Mental Disease. 2015;203(8):591-5. PMID: 00005053-201508000-00005. doi: 10.1097/nmd.0000000000000347.
27. Rennick-Egglestone S, Ramsay A, McGranahan R, Llewellyn-Beardsley J, Hui A, Pollock K, et al. The impact of mental health recovery narratives on recipients experiencing mental health problems: Qualitative analysis and change model. PLoS One. 2019;14(12):e0226201. PMID: 31834902. doi: 10.1371/journal.pone.0226201.
28. Ng F, Charles A, Pollock K, Rennick-Egglestone S, Cuijpers P, Gillard S, et al. The mechanisms and processes of connection: developing a causal chain model capturing impacts of receiving recorded mental health recovery narratives. BMC Psychiatry. 2019 2019/12/21;19(1):413. doi: 10.1186/s12888-019-2405-z.
29. Leamy M, Bird V, Boutillier CL, Williams J, Slade M. Conceptual framework for personal recovery in mental health: systematic review and narrative synthesis. British Journal of Psychiatry. 2011;199(6):445-52. doi: 10.1192/bjp.bp.110.083733.
30. OC 87 Inc. Oc87 Recovery Diaries. 2022 [cited 2022 2 November]; Available from: https://oc87recoverydiaries.org/.
31. Cordle H, Fradgley J, Carson J, Holloway F, Richards P. Psychosis: Stories of Hope and Recovery. London: Quay Books; 2011. ISBN: 1-85642-420-0.
32. Bartel H. Writing for Healthcare. Men Writing Eating Disorders: Autobiographical Writing and Illness Experience in English and German Narratives: Emerald Publishing Limited; 2021. p. 115-40.
33. Yeo C, Rennick-Egglestone S, Armstrong V, Borg M, Charles A, Duke LH, et al. The Influence of Curator Goals on Collections of Lived Experience Narratives: A Qualitative Study. J Recovery Ment Health. 2021 Summer;4(2):16-28. PMID: 34988285.
34. Roe J, Brown S, Yeo C, Rennick-Egglestone S, Repper J, Ng F, et al. Opportunities, Enablers, and Barriers to the Use of Recorded Recovery Narratives in Clinical Settings. Frontiers in Psychiatry. 2020 2020-October-30;11. doi: 10.3389/fpsyt.2020.589731.
35. Woods A, Hart A, Spandler H. The Recovery Narrative: Politics and Possibilities of a Genre. Culture, Medicine, and Psychiatry. 2022 2022/06/01;46(2):221-47. doi: 10.1007/s11013-019-09623-y.
36. Kaiser BN, Varma S, Carpenter-Song E, Sareff R, Rai S, Kohrt BA. Eliciting recovery narratives in global mental health: Benefits and potential harms in service user participation. Psychiatr Rehabil J. 2020 Jun;43(2):111-20. PMID: 31355653. doi: 10.1037/prj0000384.
37. Rennick-Egglestone S, Elliott R, Smuk M, Robinson C, Bailey S, Smith R, et al. Impact of receiving recorded mental health recovery narratives on quality of life in people experiencing

psychosis, people experiencing other mental health problems and for informal carers: Narrative Experiences Online (NEON) study protocol for three rand. Trials. 2020;21(1). doi: 10.1186/s13063-020-04428-6.
38. Rennick-Egglestone S, Ramsay A, McGranahan R, Llewellyn-Beardsley J, Hui A, Pollock K, et al. The impact of mental health recovery narratives on recipients experiencing mental health problems: Qualitative analysis and change model. 2019.
39. Yeo C, Rennick-Egglestone S, Armstrong V, Borg M, Franklin D, Klevan T, et al. Uses and Misuses of Recorded Mental Health Lived Experience Narratives in Healthcare and Community Settings: Systematic Review. Schizophrenia Bulletin. 2021;48(1):134-44. doi: 10.1093/schbul/sbab097.
40. Costa L, Voronka J, Landry D, Reid J, Mcfarlane B, Reville D, et al. "Recovering our Stories": A Small Act of Resistance. Studies in Social Justice. 2012;6(1):85-101. doi: https://doi.org/10.26522/ssj.v6i1.1070.
41. Ng F, Newby C, Robinson C, Llewellyn-Beardsley J, Yeo C, Roe J, et al. How do recorded mental health recovery narratives create connection and improve hopefulness? Journal of Mental Health. 2022:1-8. doi: 10.1080/09638237.2021.2022627.
42. United Nations. Leaving no one behind: The imperative of inclusive development. New York, NY: Author; 2016. Available from: https://www.un.org/esa/socdev/rwss/2016/full-report.pdf.
43. Roberson QM. Disentangling the Meanings of Diversity and Inclusion in Organizations. Group & Organization Management. 2006;31(2):212-36. doi: 10.1177/1059601104273064.
44. Magurran A, McGill B. Biological Diversity : Frontiers in Measurement and Assessment. Oxford: Oxford University Press; 2011. ISBN: 9780199580668.
45. Thompson S. Defining and measuring 'inclusion' within an organisation. Brighton, UK: Institute of Development Studies; 2017.
46. Llewellyn-Beardsley J, Barbic S, Rennick-Egglestone S, Ng F, Roe J, Hui A, et al. INCRESE: Development of an Inventory to Characterize Recorded Mental Health Recovery Narratives. Journal of Recovery in Mental Health. 2020;3(2):25-44.
47. Henrich J. The weirdest people in the world: How the West became psychologically peculiar and particularly prosperous. Dublin: Penguin Random House; 2020. 680- p. ISBN: 1846147964.
48. Office for National Statistics. What is the difference between sex and gender?2019 21 September 2022. Available from: https://www.ons.gov.uk/economy/environmentalaccounts/articles/whatisthedifferencebetweensexandgender/2019-02-21.
49. Heidari S, Babor TF, De Castro P, Tort S, Curno M. Sex and Gender Equity in Research: rationale for the SAGER guidelines and recommended use. Research Integrity and Peer Review. 2016 2016/05/03;1(1):2. doi: 10.1186/s41073-016-0007-6.
50. Yadav S, Lenka U. Diversity management: a systematic review. Equality, Diversity and Inclusion: An International Journal. 2020;39(8):901-29. doi: 10.1108/EDI-07-2019-0197.
51. Manoharan A, Singal M. A systematic literature review of research on diversity and diversity management in the hospitality literature. International Journal of Hospitality Management. 2017 2017/09/01/;66:77-91. doi: https://doi.org/10.1016/j.ijhm.2017.07.002.
52. Jimenez MF, Laverty TM, Bombaci SP, Wilkins K, Bennett DE, Pejchar L. Underrepresented faculty play a disproportionate role in advancing diversity and inclusion. Nature Ecology & Evolution. 2019;3(7):1030-3. doi: 10.1038/s41559-019-0911-5.
53. UK Government. Ethnicity facts and figures2011 1 August 2022. Available from: https://www.ethnicity-facts-figures.service.gov.uk/.
54. University of Chichester. Handbook for External Examiners. West Sussex: Author; 2021. Available from: https://www.chi.ac.uk/app/uploads/2021/12/External-Examiners-Handbook-21-22.pdf.
55. University of Exeter. External Examining Handbook2022 11 August 2022.
56. Slade M, Rennick-Egglestone S, Llewellyn-Beardsley J, Yeo C, Roe J, Bailey S, et al. Recorded Mental Health Recovery Narratives as a Resource for People Affected by Mental Health Problems: Development of the Narrative Experiences Online (NEON) Intervention. JMIR Formative Research. 2021;5(5):e24417. doi: 10.2196/24417.
57. Office for National Statistics. Sexual orientation, UK: 2019. In: Office for National Statistics,

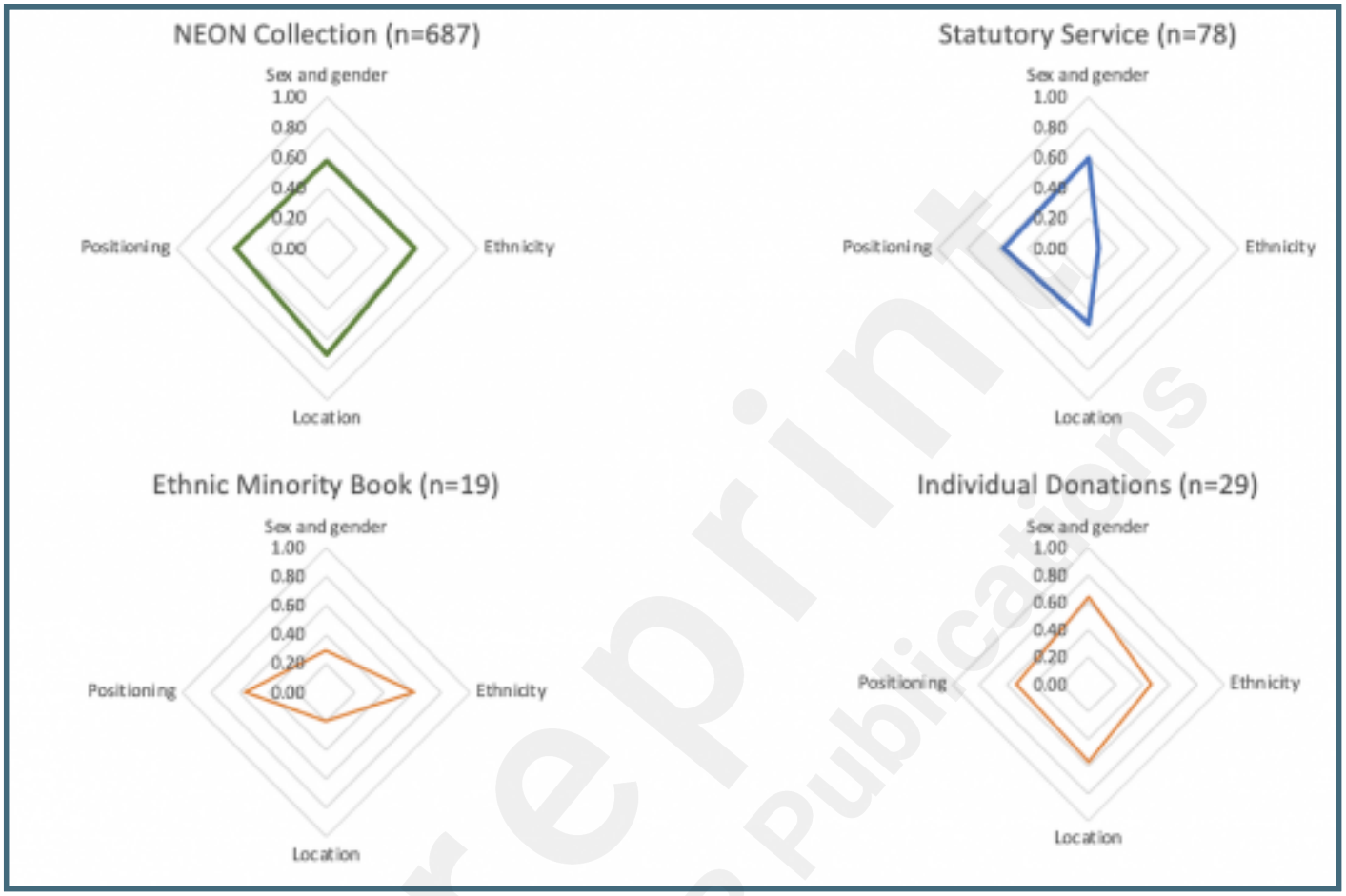
editor. London: Office for National Statistics,; 2021.
58. Statista. Number of individuals affected with vision loss in the United Kingdom from 1990 to 2020, by severity2020 23 September 2022. Available from: https://www.statista.com/statistics/1200836/vision-impairments-in-the-uk/.
59. Hearing Link Services. Deafness & hearing loss facts2022 23 September 2022. Available from: https://www.hearinglink.org/your-hearing/about-hearing/facts-about-deafness-hearing-loss/#:~:text=Hearing%20loss%20statistics%20in%20the,common%20disability%20in%20the%20UK.
60. Kirk-Wade E. UK disability statistics: Prevalence and life experiences London: House of Commons; 2022. Available from: https://researchbriefings.files.parliament.uk/documents/CBP-9602/CBP-9602.pdf.
61. Mencap. How common is learning disability?2021 23 September 2022. Available from: https://www.mencap.org.uk/learning-disability-explained/research-and-statistics/how-common-learning-disability.
62. Lauder W, Roxburgh M. Self-neglect consultation rates and comorbidities in primary care. International Journal of Nursing Practice. 2012;18(5):454-61. doi: https://doi.org/10.1111/j.1440-172X.2012.02065.x.
63. British in Europe. Facts & Figures2017 23 September 2022. Available from: https://www.britishineurope.org/page/1076136-facts-figures.
64. He F, Hu X-S. Hubbell's fundamental biodiversity parameter and the Simpson diversity index. Ecology Letters. 2005;8(4):386-90. doi: https://doi.org/10.1111/j.1461-0248.2005.00729.x.
65. Morris EK, Caruso T, Buscot F, Fischer M, Hancock C, Maier TS, et al. Choosing and using diversity indices: insights for ecological applications from the German Biodiversity Exploratories. Ecol Evol. 2014 Sep;4(18):3514-24. PMID: 25478144. doi: 10.1002/ece3.1155.
66. Mitchell M, Baker D, Moorosi N, Denton E, Hutchinson B, Hanna A, et al. Diversity and Inclusion Metrics in Subset Selection. Proceedings of the AAAI/ACM Conference on AI, Ethics, and Society: Association for Computing Machinery; 2020. p. 117–23.
67. Gulliver K. Racial discrimination in UK housing has a long history and deep roots2017 23 September 2022. Available from: https://blogs.lse.ac.uk/politicsandpolicy/racial-discrimination-in-housing/.
68. Kobayakawa A. Japan's Modernization and Discrimination: What are Buraku and Burakumin? Critical Sociology. 2021;47(1):111-32. doi: 10.1177/0896920520915493.
69. Trawalter S, Driskell S, Davidson MN. What Is Good Isn't Always Fair: On the Unintended Effects of Framing Diversity as Good. Analyses of Social Issues and Public Policy. 2016 2016/12/01;16(1):69-99. doi: https://doi.org/10.1111/asap.12103.
70. Lamkin J, Nguyen PT, Coverdale JH, Gordon MR. Towards a Definition of "Self-Neglect" in Psychiatric Patients: Descriptions of a Case Series. Psychiatric Quarterly. 2017 2017/09/01;88(3):553-60. doi: 10.1007/s11126-016-9467-6.
71. Kotera Y. De-stigmatising self-care: impact of self-care webinar during COVID-19. https://doiorg/101080/2472173520211892324. 2021:1-5. doi: 10.1080/24721735.2021.1892324.
72. Rennick-Egglestone S, Mawson S. Homes of Stroke Survivors Are a Challenging Environment for Rehabilitation Technologies. JMIR Rehabil Assist Technol. 2021 2021/6/17;8(2):e12029. doi: 10.2196/12029.
73. Chowdhury R. Self-Representation of Marginalized Groups: A New Way of Thinking through W. E. B. Du Bois. Business Ethics Quarterly. 2021;31(4):524-48. doi: 10.1017/beq.2021.5.
74. Lawson CA, Fisher AV. It's in the sample: The effects of sample size and sample diversity on the breadth of inductive generalization. Journal of Experimental Child Psychology. 2011 2011/12/01/;110(4):499-519. doi: https://doi.org/10.1016/j.jecp.2011.07.001.
75. Mishra P, Pandey CM, Singh U, Gupta A. Scales of measurement and presentation of statistical data. Ann Card Anaesth. 2018 Oct-Dec;21(4):419-22. PMID: 30333338. doi: 10.4103/aca.ACA_131_18.
76. Gardenswartz L, Rowe A. Diverse teams at work : capitalizing on the power of diversity. Alexandria, Va.: Society for Human Resource Management; 2008. ISBN: 1586440365 9781586440367.
77. Lee AJT, Yang F-C, Chen C-H, Wang C-S, Sun C-Y. Mining perceptual maps from consumer reviews. Decision Support Systems. 2016 2016/02/01/;82:12-25. doi:

https://doi.org/10.1016/j.dss.2015.11.002.
78. Franzen L, Stark Z, Johnson AP. Individuals with dyslexia use a different visual sampling strategy to read text. Scientific Reports. 2021 2021/03/19;11(1):6449. doi: 10.1038/s41598-021-84945-9.
79. Kotera Y, Cockerill V, Green P, Hutchinson L, Shaw P, Bowskill N. Towards another kind of borderlessness: online students with disabilities. Distance Education. 2019;40(2). doi: 10.1080/01587919.2019.1600369.
80. Knoester C, Davis EA. Patriotism, competition, nationalism, and respect for the military in US sports: Public recognition of American institutionalized sports nationalism. International Review for the Sociology of Sport. 2021 2022/11/01;57(7):1021-43. doi: 10.1177/10126902211048769.
81. Froese FJ, Sekiguchi T, Maharjan MP. Human Resource Management in Japan and South Korea. In: Cooke FL, Kim S, editors. Routledge Handbook of Human Resource Management in Asia. London: Taylor & Francis; 2018. p. 275-94.

Supplementary Files

Figures

Radar charts to present the diversity scores for the Sex and gender, Origin (Ethnicity and Location) and Positioning characteristics in four collections. The radar chart presentation can visually highlight the uniqueness of each collection, and be more reader-friendly and inclusive, but cannot present many characteristics.



Multimedia Appendixes

Supplementary File 1: Income level and WEIRD/non-WEIRD status of 20 countries.
URL: http://asset.jmir.pub/assets/042810e874213473a6a2b98eb457f9ad.docx

Supplementary File 2: Example calculations of Simpson's Diversity Index.
URL: http://asset.jmir.pub/assets/b545cc1aef26d65a078c39ae8c7d299a.docx