

Development and validation of the Needs in Recovery Assessment (NiRA): a clinical tool for assessing the needs of individuals recovering from a first-episode of mental illness

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Abstract

Recovering from a first-episode of mental illness entails unique challenges and often includes experiencing unmet needs. The availability of a formal, structured and valid means of assessing the needs of individuals recovering from a first-episode of mental illness may improve mental health service delivery. This article describes the development of a new needs assessment tool: the Needs in Recovery Assessment (NiRA), and presents the results of processes used to validate the tool. The NiRA was developed using data collected in a previous literature review and focus groups with mental health service users. It contains three sections for the identification, prioritisation, planning and re-evaluation of a broad array of needs. It was presented in two workshops, where mental health service users and clinicians evaluated its validity, acceptability and usability. Items of need and the format of the NiRA were evaluated using Likert-scale questions, open-ended short answer and closed questions. Each item of need was evaluated for its validity by a panel of experts via an online survey. Descriptive statistics were used to analyse data, including means, percentages and the Content Validity Index (CVI). Streiner and Kottner's scale development and testing guidelines were used in the reporting of this study. 48-items of need were evaluated as valid by mental health service users, clinicians and academics. Most items received an I-CVI of greater than .93. The scale CVI/Avg was .96. The NiRA is perceived as a valid and acceptable tool for assessing the needs of people recovering from a first-episode of mental illness.

Introduction

Individuals recovering from a first-episode of mental illness often experience one or more unmet needs (Boeing et al. 2007; Davies et al. 2018; Landolt et al. 2012b). These needs can be challenging for individuals and clinicians to identify, prioritise and address (Davies et al. 2019; de Haan et al. 2001). Mental health service users have expressed a desire to be involved in the assessment of their own needs (Davies et al. 2019). To aid the formal identification, prioritisation and discussion of needs, the Needs in Recovery Assessment (NiRA) tool has been developed. The NiRA was established on previous literature regarding needs, and the input of service users recovering from a first-episode of mental illness (Davies et al. 2018; Davies et al. 2019; Taylor 2011). The development and validation of the NiRA are described in this paper.

Background

The first experience of a mental illness has the potential to profoundly affect an individual and those around them (Hancock et al. 2018; MacDonald et al. 2005). Secondary and tertiary education, vocational training, employment and the development and maintenance of social relationships are often disrupted, adding to psychological stress and unmet needs that may have already been experienced (Ramsay et al. 2011).

In the health care setting, needs have been described as “the prerequisite for maintaining or restoring an acceptable level of social independence and quality of life” (Landolt et al. 2012a, p.1462; McCrone et al. 2001). This description highlights a number of key concepts that are important to this research project: not every individual will have the same needs; the degree to which an individual experiences needs will vary; and individuals will have differing opinions and beliefs regarding what constitutes an acceptable level of social independence and quality of life (Landolt et al. 2012a).

People encounter many types of need, and for the most part, meet these unconsciously and habitually (Roychowdhury 2011). Needs are dynamic and may alter with time, stage of development, relationships and through personal growth. Despite these changes, individuals are usually able to adapt to changes in their needs (Fitch 2008; Roychowdhury 2011). However, some life events, such as the onset of a physical or mental illness can reduce an individual's capacity to cope, function and meet a broad range of needs (Andresen, Oades & Caputi 2003; Fitch 2008), hence, an option that may assist service users in their recovery is to identify needs that are being experienced as a result of altered circumstances (Andresen, Oades & Caputi 2003; Green et al. 2013; Roychowdhury 2011).

Recovering from a mental illness not only presents considerable challenges that may last months to years, but also presents considerable opportunity for positive intervention (Andresen, Caputi & Oades 2006). Recovery as a concept has been considered by mental health service users, clinicians, researchers and policy makers over the past four decades and yet a universally accepted or acceptable definition for recovery in the context of mental illness has not been secured (Hyde 2014; Slade & Longden, 2015). While the term 'recovery', in the mental health context, has been difficult to define, there seems little doubt that stakeholders believe 'recovery' is a process to be undertaken in the aftermath of an episode of mental illness and that mental health services have a responsibility to adopt recovery-oriented practices to support the recovery journey for service users (Andresen, Caputi & Oades 2006; Davidson et al. 2005; Leamy et al. 2011; Slade & Longden 2015).

A number of frameworks have been developed to facilitate the understanding of recovery processes. Examples include the CHIME framework (Bird et al. 2014; Leamy et al. 2011), where processes include: connectedness; hope and optimism about the future; identity; meaning in life; and empowerment, and Andresen, Caputi and Oades's stages of recovery model (2006) where the processes of recovery (hope, identity, meaning and responsibility) are experienced across five stages

of recovery (moratorium; awareness; preparation; rebuilding; and growth). The focus of this project is on what may hamper recovery efforts and processes, specifically the unmet needs people may experience when they are recovering from a first episode of mental illness.

Assessment tools which evaluate needs have been used clinically and in research over several decades. They have enabled unmet needs to be recognised and addressed at times of significant life change, where physical, emotional or mental impairment reduce the ability of individuals to meet their own needs (Fitch 2008). Additionally, use of needs assessment tools has been found to strengthen rapport and therapeutic relationships between service users and clinicians (Fitch 2008; Oliveira-Maia et al. 2016). Furthermore, needs assessments can enable services to better direct resources (Fleury et al. 2013). Needs assessments can be undertaken in many ways, with examples including face-to-face interviews, Likert-scale and short-answer questionnaires. They are usually targeted for specific populations, such as the elderly, cancer patients, or those who experience mental illness (Fitch 2008; Fleury et al. 2013; Taylor 2011).

Needs assessment tools for mental health service users have previously been developed and include the Camberwell Assessment of Needs (CAN), the modified Cardinal Needs Schedule (mCNS) and the Need for Care Assessment Schedule (NFCAS) (Brewin et al. 1987; Marshall et al. 1995; Phelan et al. 1995). Despite these being validated tools, they have not been established as standard assessments in most public mental health settings in Australia. Additionally, they were developed for people with chronic and persistent mental illnesses and may not reflect needs experienced by service users recovering from a first episode. The development of an assessment tool that reflects the broad array of needs experienced by people recovering from a first-episode of mental illness was therefore undertaken.

Prior to the development of the NiRA, a scoping review of the literature was completed to determine what is already known about the needs of individuals recovering from a first-episode of mental illness and what assessment tools have been used to previously evaluate these needs (Davies et al. 2018). In excess of 80 relevant needs were identified in the literature broadly comprising; emotional, functional, informational, physical, psychological and symptom-related needs (Davies et al. 2018). To further understand the needs experienced by this population and to determine the acceptability of a formal needs assessment tool, focus groups were held with individuals who had experienced a first-episode of mental illness within the previous three years (Davies et al. 2019). Results of this study provided a richer understanding of experienced needs and provided evidence of the desire of service users to participate in discussions with mental health clinicians regarding their needs and how these may be addressed. Needs identified in these studies have been considered in the development of the NiRA.

Methods

The aim of this study was to develop and evaluate the validity and acceptability of a new needs assessment tool, the NiRA, for individuals recovering from a first-episode of mental illness in Australian mental health services. Recommendations from Streiner and Kottner's scale development and testing guidelines (2014) have been adhered to in the reporting of this study. Specifically, it is acknowledged that validity is not a fixed property of a scale, and that data which relate to validity in this study represents the beliefs and values of the participants in their current circumstances (Streiner & Kottner 2014).

In approaching the development and evaluation of the NiRA, previous projects which have endeavoured to develop similar assessment tools or frameworks were reviewed. These included the CAN (Phelan et al. 1995), the Northern Ireland Single Assessment Tool (NISAT) (Taylor 2011) and the Supportive Care Framework (Fitch 2008). The CAN was developed for people diagnosed with a

chronic and persistent mental illness and is a widely known and used needs assessment tool in mental health research (Phelan et al. 1995). The NISAT was developed to assess the needs of older persons receiving health and well-being services from multi-disciplinary teams (McCormack et al. 2007; Taylor 2011). Several methods for developing and evaluating the NISAT have been adapted for the development of the NiRA. (McCormack et al. 2007; Taylor 2011). The Supportive Care Framework was developed to assess the needs of individuals recovering from cancer and provides a holistic overview of needs experienced by people facing a major life event (Fitch 2008).

When approaching the construction and evaluation of the NiRA, foundational principles which would guide the process were developed. These derived from the abovementioned tools and frameworks and other recent literature relating to assessments and mental health services. A final set of 12 guiding principles were compiled and categorised into five domains, including: 1) evidence base; 2) stakeholders; 3) scope; 4) current models of care; and 5) functional requirements.

Objectives of the NiRA were aligned with these guiding principles and can be seen in Table 1. Of particular importance was the goal of developing a tool which could be completed collaboratively, as it is known that mental health clinicians do not always prioritise needs in the same way as service users (Comtois 1998; deHaan 2001).

With reference to the guiding principles and using results of the scoping review (Davies et al. 2018) and focus groups (Davies et al. 2019), a first draft of the NiRA was developed. Three sections were included in the draft. Section one was designed to identify and rate items of need on a scale of 1-5. Each rating point was on a sliding scale ranging from one to five with one equating to 'I already have this' and five equating to 'I urgently need support with this'. Initially, 51 items were arranged into seven categories: practical needs; informational needs; relationship needs; daily activity needs; physical health needs; emotional needs and; psychological needs (Table 5). Each of these categories

was defined by the research team using the overarching definition of needs adopted in the project and are documented in Table 2.

Table 1: Guiding principles for design and development

Domain	Principles	Objectives of the new assessment tool
Evidence-base	1. Best-practice is established and maintained through conducting rigorous research and adjusting services to incorporate new knowledge into clinical practice.	The assessment tool will reflect current knowledge about the broad array of needs experienced by individuals recovering from a first-episode of mental illness.
	2. Service users should be invited to direct or participate in research which is relevant to therapeutic processes and assessments in mental health settings (Banfield et al. 2018).	
Stakeholders	3. Mental health clinicians have a mandate to assess and address the unmet clinical and social needs of service users and may benefit from a valid and reliable assessment tool to do this (Commonwealth of Australia 2009, 2013, 2017).	Relevant stakeholders will be involved in the development and evaluation process. The new assessment tool will facilitate the identification of needs across populations
	4. Mental health services must be able to demonstrate that services are being provided in alignment with current policies and accepted standards of practice (Commonwealth of Australia 2009, 2013, 2017).	
Scope	5. Individuals recovering from a first-episode of mental illness are not a homogenous population (Cocchi et al. 2014; de Haan et al. 2001). Assessment tools should reflect the diverse contexts, circumstances and experiences of service users (Davies et al. 2018).	The assessment tool will be relevant to service users who are recovering from a first-episode of mental illness, are >16 years and designed for individuals who present to tertiary and community mental health services.
Models of care	6. Assessment tools should consider current models and frameworks of care (Taylor 2011; Wand et al. 2019). In mental health settings these include the recovery-oriented, person-centred and trauma-informed paradigms.	The assessment tool will be designed as an adjunct to current frameworks of care in mental health services.
Functional requirements	7. Assessment tools used in health settings should facilitate rapport and alliance building between mental health clinicians and service users (Fitch 2008; Wand et al. 2019).	The assessment tool will be designed to facilitate a holistic assessment of needs and facilitate supported decision making for service users. It will be designed to suit varied mental health practice settings, recognising time and resource pressures.
	8. The process of participating in formal and systematic discussions with health professionals should assist service users to feel empowered and supported (Fitch 2008; Tambuyzer & Van Audenhove 2015; Taylor 2011).	
	9. As mental health services in Australia currently rely on multi-disciplinary teams to provide services, mental health clinicians from diverse professional backgrounds should be able to use all assessment tools which are developed.	
	10. A needs assessment tool should improve the capacity of health services to report on the volume and type of needs being experience by service users (Fitch 2008; Taylor 2011).	
	11. Assessments need to be completed within a timely manner.	
	12. A needs assessment tool should provide direction for referrals to be made to appropriate services.	

Table 2: Defining categories of need

Category of need	Definition
Practical	Needs relating to the resources required for maintaining an acceptable [†] level of quality of life, social independence and safety, such as safe and stable accommodation, adequate food and income
Daily activity	Needs relating to developing or applying skills that enable individuals to live with an acceptable [†] level of quality of life and social independence
Physical health	Needs relating to the maintenance of physical health and the treatment and management of physical illness, including medication side-effects
Informational	Needs relating to the provision and reception of information relating to diagnosis, prognosis, symptoms, treatment and support services
Emotional and psychological	Needs relating to the understanding, expression and management of one's feelings, such as anger, hope, fear and happiness and; needs relating to coping with experiences and thoughts, exploring and expressing identity, the desire to be understood and to belong, and the management of psychological symptoms
Relationship	Needs relating to the quality of interactions with family, friends, colleagues, employers and peers, and the ability to navigate social contexts effectively and independently

[†] from the perspective of the mental health service user being assessed

Section two was designed to facilitate the prioritisation of needs. In this section, the service user and mental health clinician are guided to discuss the approach for meeting needs with prompt questions and statements including: approach for meeting need; person/organisation who may assist with meeting the need and the timeframe for addressing the need.

Section three was designed to prompt and facilitate a follow-up session where service users and mental health clinicians could reflect on the approach(es) taken to meet needs and resolve any issues, complications or barriers using three prompt questions: 1) what has gone well with meeting this need; 2) what has not gone so well with meeting this need; and 3) what are the next steps for meeting this need. The NiRA was evaluated for its acceptability and validity in workshops with service users and mental health clinicians and via an online survey, completed by clinical and academic experts.

Recruitment

Diverse recruitment strategies were adopted throughout this study due to the different populations.

Inclusion criteria and recruitment strategies for each group of participants are outlined in Table 3.

Service user participants received a \$40 voucher at the conclusion of the workshop. Mental health clinicians who could attend the workshop within work hours received a certificate of attendance and appreciation.

Table 3: Recruitment strategies

Group	Population	Inclusion criteria	Strategy
Workshop 1	Service users	- 18 years + - Experienced a first-episode of mental illness >4 weeks and <3 years previously - Currently or previously a service user within tertiary mental health services - No current ITO, CTO, forensic orders - No history of previous ABI or intellectual disability - Capacity to provide informed consent	Service users were purposively invited to participate in workshops. Initially, service users who participated in previous focus groups and who nominated to be contacted for workshops were telephoned. Service users who had not participated in previous focus groups and met inclusion criteria were contacted by the Head of Unit and co-author (KH) in the first instance, and if permission was given, were contacted by the lead author (ED) for the enrolment process.
Workshop 2	Mental health clinicians	- Current employee of SALHN mental health services - Employed within the service as a mental health clinician	Mental health clinicians from across a metropolitan region of South Australia were contacted via email on three occasions by the office of the district service director and opted in to attend this workshop.
Online questionnaire	Mental health clinicians	- Mental health clinician or academic with extensive experience working with or conducting research with individuals who are recovering from a first-episode of mental illness	Email invitations were sent to mental health clinicians and academics from Australia and internationally. Potential participants included individuals who were both known and unknown to the research team. Two reminder emails were sent to improve the response rate.

Abbreviations: ABI – acquired brain injury; CTO – community treatment order; ITO – inpatient treatment order; SALHN – Southern Adelaide Local Health Network

Workshops commenced with a presentation detailing the NiRA's development and purpose. Due to reduced attendance in the service user workshop, participants remained in one group and discussed their thoughts about the NiRA with research team members (ED, AE, KH). Participants in Workshop 2 were divided into small groups with a member of the research team to facilitate discussions about the NiRA. Discussions were semi-structured and guided by an informal list of reflective questions relating to usability, acceptability and impressions of the assessment tool.

Data collection

Data from workshop participants were collected via a paper-based questionnaire which included Likert-scale and short answer questions. In the first section, participants were asked to rate the validity of items within each category on a Likert scale. Also rated on a Likert scale were questions relating more generally to the appearance, usability and acceptability of the NiRA (Figure 1). Short answer questions were reflective in nature, and asked participants to consider items which could be removed, included or re-worded and any improvements which could be incorporated. Mental health clinicians were additionally asked about their attitude towards the appropriateness for use of the NiRA in different mental health settings; their likelihood of choosing to use it in their own workplace and the type of education they would like to receive prior to its use.

A panel of mental health clinical and academic experts completed an online survey via Google Forms. Participants were asked to rate each item of need on a 3-point Likert scale (1=not valid; 2=potential valid; 3=valid) addressing the question: 'How valid do you think each of the following items are as a measure of the [category name] which may be experienced by an individual recovering from a first episode of mental illness?'. Survey participants were also provided with an opportunity to comment on the items and to suggest categories or items of need that could be considered for inclusion in the NiRA.

Data analysis

Data from Likert-scale questions were analysed using descriptive statistics, including percentages, medians, interquartile ranges and the content validity index (CVI) and calculated using Microsoft® Excel, version 16.29.1. The CVI was used to calculate data collected from the online survey as per recommendations of Polit, Beck and Owen (2007). Validity of each item (I-CVI), and of the NiRA as a whole (S-CVI) are reported. The I-CVI was calculated by dividing the number of raters who rated each item as potentially valid or valid by the number of raters (n=15). S-CVI/Avg was selected to

evaluate the validity of the scale (Polit, Beck and Owen 2007). Results of the I-CVI for each item were divided by the total number of items (Polit, Beck & Owen 2007).

Short answer responses provided by participants in workshops and online were collated. Responses were divided into two categories: data which provided information relevant to the further development of the NiRA and data which provided information about the attitude of service users and mental health clinicians towards the NiRA.

Ethical approval for this research project was granted by the Southern Adelaide Human Research Ethics Committee (HREC/17/SAC/316) and the University of South Australia Human Research Ethics Committee (200779). All individuals who participated in this research gave their informed consent prior to study inclusion and signed a participant consent form.

Results

Ten participants were recruited into Workshop 1 (service users) however, only half ($n = 5$) attended on the day, and one participant had to excuse themselves from the process due to a medical illness and did not complete the feedback form. Three had participated in previous focus groups. All participants of Workshop 1 were female, aged between 18 and 20, and self-identified as being in recovery from a first-episode of mental illness. Participants reported being diagnosed with a combination of two or more of the following mental illnesses: post-traumatic stress disorder; borderline personality disorder; type 1 bipolar disorder; first-episode psychosis; generalised anxiety disorder and; depression. Participants in Workshop 2 included 12 mental health clinicians of various professional backgrounds (Table 4). All were employed in public tertiary or community mental health services in the southern region of metropolitan Adelaide. Fifteen mental health clinicians and

mental health academics from four states in Australia, and of varying professional backgrounds (Table 4) were recruited to complete the online survey.

Table 4: Participants

Activity	Participants <i>n</i> (%)
Workshop 1 (service users)	4 (100)
Workshop 2 (mental health clinicians)	12 (100)
Professional background	
<i>Nursing</i>	4 (33.3)
<i>Occupational therapy</i>	1 (8.3)
<i>Psychiatry</i>	1 (8.3)
<i>Psychology</i>	1 (8.3)
<i>Social work</i>	5 (41.7)
Setting	
<i>Community mental health team</i>	5 (41.7)
<i>Mental health rehabilitation center</i>	1 (8.3)
<i>Mobile assertive community team</i>	1 (8.3)
<i>Youth mental health team</i>	5 (41.7)
Online questionnaire (mental health clinicians/mental health academics)	15 (100)
Professional background	
<i>Nursing</i>	7 (46.7)
<i>Occupational therapy</i>	2 (13.3)
<i>Psychiatry</i>	2 (13.3)
<i>Psychology</i>	1 (6.7)
<i>Social work</i>	3 (20.0)
Setting	
<i>Academia</i>	3 (20.00)
<i>Clinical</i>	5 (33.3)
<i>Combination academia & clinical</i>	7 (46.7)
Location	
<i>New South Wales</i>	2 (13.3)
<i>Queensland</i>	1 (6.7)
<i>South Australia</i>	9 (60.0)
<i>Victoria</i>	2 (13.3)

The NiRA was well received by participants in the service user workshop. Most categories of need were rated as representative of the needs experienced whilst recovering from a first episode of mental illness (Table 5). The exception to this was the informational needs category, which received the lowest rating. One participant explained the lower rating of this category in the following statement:

‘...Based on my experience with psychosis, I found that being informed on my diagnosis

actually made my experience worse, however at that time I did want to know the

information (prior to finding out). Obviously, choices are important when in a severely mentally unhealthy state, but in a stable mind, I would have chosen to have had my diagnosis withheld.' (service user participant)

Attitudes of participants in the service user workshop were generally positive:

'I think this is an excellent tool for hospitals, psychologists, psychiatrists, GP, counsellors!! Even schools. It will start many in depth and open discussions around individual needs.'
(service user participant)

Participants did raise concerns about the dynamic between mental health clinicians and service users when the tool was being used:

'I love this tool, however it is hard to comment on mental health clinicians' (mental health clinician) understanding, as in some situations a patient may be dealing with a less compassionate mental health clinician, or someone they can't identify with in any way (e.g. POC, queer, disabled/a minority) BUT!! I am very positive that this tool will start these conversations/discussions.' (service user participant)

Improvements were suggested, including the option of having a 'revisit later' box so that questions could be skipped if a service user felt that it was too difficult to answer, or wanted more time to consider the item. Also suggested was a comments section after each section so that clarification and additional information could be documented. Participants suggested changing the language used to describe some items including: enough food, understanding your prognosis and exploring own identity. Additional items were suggested, including managing medications, ability to access specific doctors, weight loss/gain and sexual health.

Mental health clinician participants in Workshop 2 varied in professional background and clinical settings. The majority (n=10, 83.3%) did not use a formal needs assessment tool in their current practice and instead used ad hoc methods to identify the needs of service users. The two remaining participants used the CAN to assess needs of individuals recovering from a first episode of mental illness.

When reflecting on the NiRA, the majority of mental health clinicians believed the NiRA could be used to assess needs across all levels of mental health services, including acute inpatient units, community mental health teams, GP clinics and within secondary health care services and non-government organisations. This was caveated with several concerns that centred around time and resource constraints within mental health services. Mental health clinicians expressed feeling pressured to discharge service users from their services and reported concerns that they would not have time to complete a comprehensive needs assessment such as the NiRA. Furthermore, mental health clinicians felt that even if they had time to complete the NiRA with service users, they would not have the resources to meet any identified needs. Whilst some mental health clinicians viewed this as barrier to implementation, others thought that it was more valuable to do the assessment and explain limitations to service users:

'It would be important, before using the tool with a person, particularly a young person, to be clear that as the clinician completing the assessment with them, you may be able to help them directly with some needs, or if you can't help them link them in with other services/supports who may be able to, to avoid setting up false expectations/giving false hope you may be able to assist them to meet all their needs. I would suggest this is built into the training and even included in the instructions on the form.' (mental health clinician, mental health nurse)

Clinicians offered suggestions regarding the format and use of language to describe items of need.

One consideration was for people who don't have a diagnosis as one of the items of need is understanding information which you have received about your diagnosis. The need to ask questions prior to rating some of the items of needs was discussed. All suggestions were collated and evaluated by authors and alterations were made to the draft NiRA prior to it being evaluated via the electronic survey. Alterations included the renaming of some items, the inclusion of 'managing loneliness' as an item and the reordering of categories to assist with the flow of the assessment.

Mental health clinician participants were provided with an opportunity to provide any other comments regarding the NiRA. Whilst some concerns regarding implementation were briefly reiterated, feedback comments were mostly positive:

'Assessment tool is good, but if some of the needs cannot be met the client may feel let down. It could set them up to feel yet another failure if their expectations are high.' (mental health clinician, mental health nurse)

'Would be great to have it integrated into current data systems (CBIS). Also service-user app to review priority areas.' (mental health clinician, psychologist)

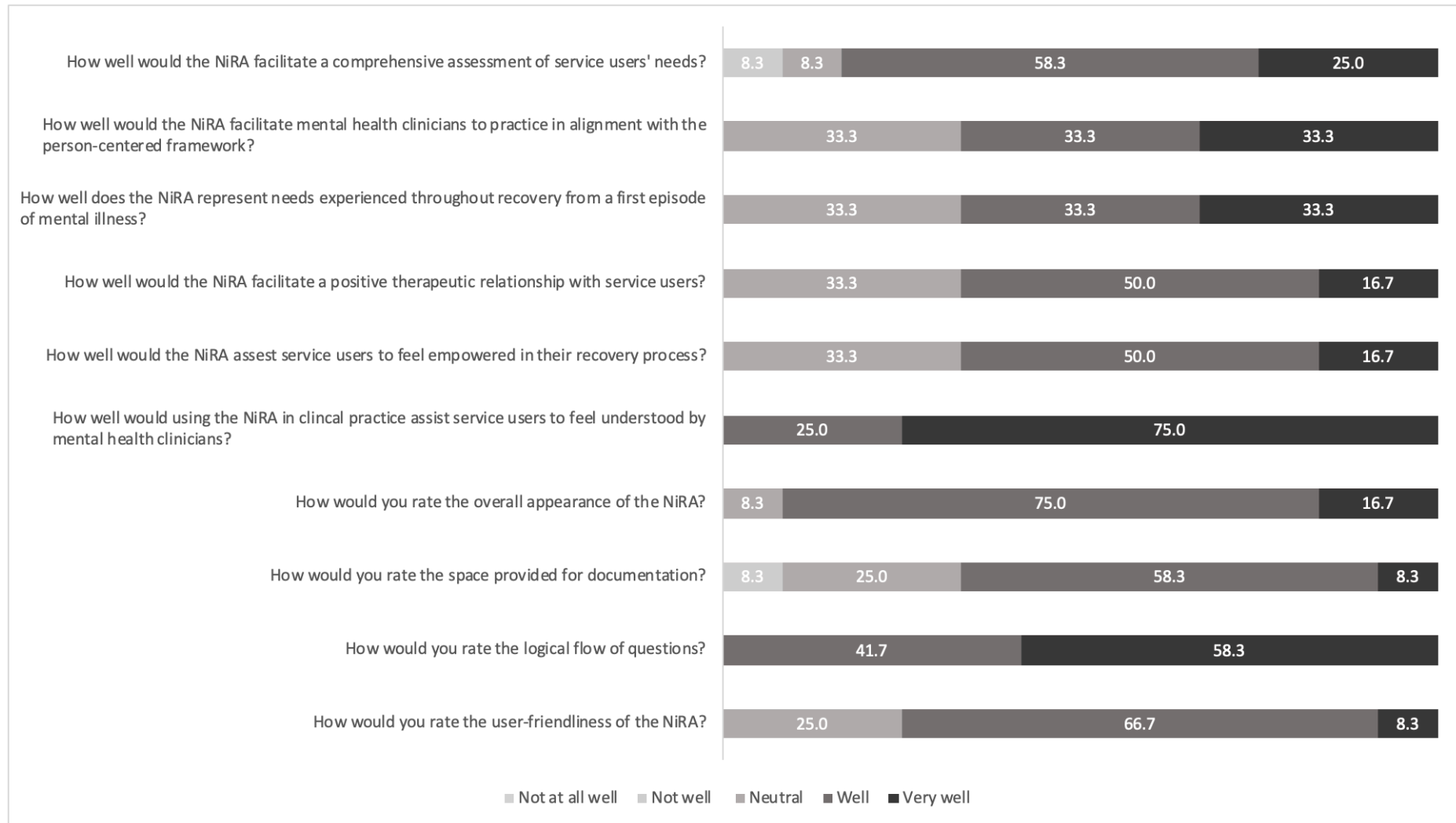
'A really important and useful measure. Systematic barriers to meeting mental health consumers' needs are acknowledged but should not be a barrier to the development and implementation. I hope this can be used to identify unmet needs that mental health services can't currently provide to assist in advocacy and funding efforts' (mental health clinician, mental health nursing).

'Really good tool! Definitely resonates well with social work profession/principle.' (mental health clinician, social worker)

'I really like the tool. For young people, I think they will feel heard, their needs acknowledged, and I think the focus of care will be relevant. They are more likely to engage.' (mental health clinician, mental health nurse)

Data from the first section of the questionnaire presented in Workshop 2 is presented in Figure 1. When asked to consider on a scale of one to ten (1=not likely; 10=very likely) how likely is it that you would choose to use the NiRA in your own clinical practice, mental health clinicians who attended workshop 2 provided an overall positive response, with a Median rating of 9 (interquartile range 2.5).

Figure 1: Mental health clinician evaluation of NiRA



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Fifteen expert mental health clinicians and academics completed the online survey. The majority of items were rated as potentially valid or valid and the S-CVI/Avg for the revised NiRA was .96 (refer to Table 5).

Table 5: Validity of categories and items of need in the NiRA

	Workshop 1		Workshop 2		Survey
	Median [†]	IQR	Median [‡]	IQR	I-CVI
Practical needs	4.50	1.00	4.00	1.00	
1. Safe accommodation					1.00
2. Stable accommodation					1.00
3. Method to contact people					1.00
4. Sufficient income					1.00
5. Support with social services					1.00
Daily activity needs	4.50	1.00	4.00	1.00	
6. Preparing or getting meals					1.00
7. Shopping for household goods					1.00
8. Cleaning and maintenance of your home					1.00
9. Managing income					.93
10. Self-care					1.00
11. Transportation					1.00
12. Attending place of work or study					1.00
13. Performing well at place of work or study					.93
14. Attending appointments					1.00
15. Knowing what to do during the day					1.00
16. Care of dependents					1.00
Physical health needs	4.50	1.25	4.00	1.00	
17. Managing physical health and/or illness					1.00
18. Managing side-effects of medications					1.00
19. Maintaining a healthy body weight					1.00
20. Maintaining healthy eating habits					.93
21. Maintaining healthy sleeping habits					1.00
22. Attending regular GP appointments					1.00
23. Reducing/abstaining from alcohol/substance use					1.00
Informational needs	3.50	1.25	4.00	1.00	
24. Understanding information which you have received about your: - diagnosis					1.00
25. - treatment plan					1.00
26. - medications					1.00
27. - recovery and how this could be enhanced					1.00
28. Finding more information which you have received about your: - diagnosis					.93
29. - treatment plan					1.00
30. - medications					1.00
31. - recovery and how this could be enhanced					1.00
Emotional and psychological needs	5.00	1.00	4.00	.00	
32. Understanding, expressing and managing your emotions					1.00
33. Understanding, expressing and managing your thoughts					1.00
34. Managing psychological symptoms					.93
35. Feeling safe when experiencing thoughts of self-harm					1.00
36. Feeling safe when experiencing thoughts of suicide					1.00
37. Coping with other people's expectations§					.93
38. Behaving appropriately in different social contexts§					.87
39. Exploring your own identity§					.87
40. Managing loneliness					.93
41. Having a creative outlet§					.87
Relationship needs	4.00	.25	4.00	1.00	
42. Discussing diagnosis and recovery with your: - spouse/partner					.93
43. - family members					1.00
44. - friends					1.00
45. - peers					.87
46. - employer/school authorities					.87
47. Changing or improving your relationship with your:					.93

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	Workshop 1		Workshop 2		Survey
	Median [†]	IQR	Median [‡]	IQR	I-CVI
- spouse/partner					
48. - family members					1.00
49. - friends					.93
50. - peers					.87
51. - employer, school authorities					.80
S-CVI/Avg					.95
S-CVI/Avg (Revised NiRA, with items 37, 38, 39, and 41 omitted)					.96

Abbreviations: GP – general practitioner; IQR – interquartile range

[†] 'Items included in the NiRA relating to [category name] needs capture the [category name] which I have experienced while recovering from a first-episode of mental illness.' Range: 1=strongly disagree; 5=strongly agree

[‡] 'Items included in the [category name] needs capture the [category name] which service users, recovering from a first-episode of mental illness have reported or discussed with me.' Range: 1=strongly disagree; 5=strongly agree

§ Removed in revised Needs in Recovery Assessment

After considering the results and suggestions from workshops and surveys, a revised NiRA was finalised. The revised NiRA retained the three sections of the original tool. Section 1 included 48 items of need, of these, 47 were in the original tool. 'Peer support' was an item of need added as suggested by participants in the online survey. The rating scale was altered to include names for each of the rating numbers, such that 1=no need; 2=some need; 3=moderate need; 4=significant need and; 5=urgent need. As suggested by workshop participants, a 'revisit later' box was added to each item. Section 2 was expanded to include a column to record obstacles and barriers to meeting needs. Section 3 was not altered.

Mental health clinicians considered the form of training that would be required to facilitate a NiRA with service users. All mental health clinicians believed that training would be required, and the majority preferred the option of face-to-face training. Suggestions for training content were provided and, in brief, included using role play, discussing a standardised introduction for service users so that false expectations about how needs may be met were avoided and providing a combination of audio-visual and written materials to trainees.

Discussion

The aims of the study were threefold: to develop the NiRA for individuals recovering from a first episode of mental illness, to evaluate the validity of the tool and to evaluate its acceptability to service users and mental health clinicians as a means of formally and systematically assessing needs. In its current form, the NiRA is a 48-item tool which includes three sections: one where needs can be identified and rated, a second where needs can be prioritised and a final section where mental health clinicians and service users can reflect on the status of needs over time. The validity of each item in the NiRA has been demonstrated, with most scoring .93 or greater on the I-CVI and an overall S-CVI/Avg of .96. This is not unexpected, as most of the included needs have previously been identified in literature, other needs assessment tools and in focus groups with people recovering from a first-episode of mental illness (Brewin et al. 1987; Davies et al. 2018; Davies et al. 2019; Marshall et al. 1995; Phelan et al. 1995). It is, however, significant that they have been validated by individuals from both lived experience and clinical backgrounds in this study.

In considering each section of the NiRA, comparison with previously developed assessment tools, including the CAN, mCNS and the NFCAS, highlights the depth and breadth of the NiRA, and the applicability to the wider experiences and circumstances of Service users recovering from a first episode of mental illness. For example, 'accommodation' is an item in the CAN, whereas 'safe accommodation' and 'stable accommodation' are included in the NiRA. Safe and stable accommodation are two distinct and important aspects relating to individuals' living arrangements that are known to be important to service users (Davies et al. 2019), and that may not be adequately identified without further prompting. Similarly, needs relating to finances in previous assessment tools include 'benefits' and 'money' in the CAN (Phelan et al. 1995), 'money/own affairs' in the mCNS (Marshall et al. 1995), and 'weekly budget' in the NFCAS (Brewin et al. 1987). We believe our items 'sufficient income' and 'managing income' in the NiRA better describe the needs reported by

individuals recovering from a first episode of mental illness as they do not pre-suppose that individuals are receiving or qualify for welfare payments, and better define needs relating to income and income management. Other differences include informational needs, which are listed as one item in the CAN and as 'knowledge of mental health and treatment' in the mCNS (Marshall et al. 1995; Phelan et al. 1995). Informational needs is a distinct category in the NiRA, reflecting the significance to this population as reported in a number of studies, where the delivery and reception of adequate information has been found to be insufficient or inappropriate (Davies et al. 2019; Heron et al. 2012; Lal, Nguyen & Theriault 2016).

Physical health is increasingly becoming the focus of research and intervention in mental health settings (McCloughen et al. 2012; Rodgers et al. 2018). Maintaining a healthy body weight, healthy eating and sleeping patterns and having regular appointments with a GP have been included in the NiRA to reflect evidence that people who experience a mental illness have a much higher risk of developing co-morbid physical illnesses. These items have not previously been included in needs assessment tools used in mental health settings.

The sections of the NiRA that most deviate from previous needs assessment tools are the Emotional and Psychological Needs and Relationship Needs categories. In previous tools, needs relating to these needs focused on symptoms of illness, risk and 'inappropriate behaviour' (Brewin et al. 1987; Marshall et al. 1995; Phelan et al. 1995). The emotional and psychological needs included in the NiRA reflect needs for safety and personal capacity to cope with, understand and express emotions and thoughts. Needs incorporated into the Relationship Needs category of the NiRA prompt discussion regarding varied relationships with people who may be involved in the service user's life, acknowledging challenges that may exist in different relationships.

Although the NiRA in its current form is lengthier than each of the previously developed tools, it is anticipated that it will facilitate a more accurate evaluation of needs. Its items prompt more specific discussions around needs reported in previous literature and from focus groups that proceeded the development of the NiRA (Davies et al. 2018; Davies et al. 2019). The time to complete the NiRA is likely to be longer than for previously developed tools but is not expected to exceed 45 minutes.

Ensuring needs are assessed and addressed is integral to Australia's current mental health policy, strategic plan and recovery-oriented framework (Commonwealth of Australia 2009, 2013, 2017). There is a clear mandate for mental health services to be responsive to the clinical and support needs of people who experience mental illness, and yet needs are not routinely formally or systematically assessed. The NiRA has been developed and evaluated by service users and mental health clinicians from a variety of contexts, professional backgrounds and workplace settings. It has perceived benefits and applications across a range of clinical settings, including primary, secondary and tertiary services. Despite clinician's acknowledgement of the difficulties which may be faced in implementing this type of assessment, the majority rated their willingness to implement the NiRA into their own clinical practice. Of significance, 75% of participants in Workshop 2 believed that using the NiRA would assist service users to feel better understood by mental health clinicians and commented that it may contribute to service users engagement with services.

Notably, it is significant that the NiRA is a collaboratively completed assessment tool. At present, assessment tools used in mental health settings are completed separately by either the mental health clinician or the service user. A recent study found that assessment tools used in mental health services across Australia and New Zealand are not fit for purpose in the changing landscape of mental health service delivery (Wand et al. 2019). Assessment tools were found to be biomedically focussed and did not provide prompts which reflected service users preferences, needs,

perspectives and expectations (Wand et al. 2019). It is hoped that through using this new model of assessment, where service users and mental health clinicians collaboratively complete the NiRA, services can demonstrate better alignment with supported-decision making and recovery-oriented principles and frameworks of care.

Limitations exist within this study. It is limited to participants' cultural, socio-economic, geographical, language and lived experience circumstances and so may vary in other contexts (Streiner & Kottner 2014). Ongoing evaluation of the validity of the tool across contexts and over time is required as the tool is considered and integrated into services. Significantly, only a very small number of service users took part in Workshop 1. It is encouraging that service user participants felt that this would be a valuable tool to introduce into services, but it is acknowledged that not all service users may want to participate in this type of assessment. Future studies will explore the acceptability of the NiRA to service users, consumer academics, consultants and peer workers from a broader range of services, contexts and circumstances.

The next stage of NiRA testing will include reliability evaluation. If it proves a reliable tool, a clinical practice pilot study will be commenced. Considerations in further evaluations of the NiRA will include its capacity to facilitate broader themes of need that have previously been identified in focus: namely, that it facilitates service users feeling safe, stable and secure; that it facilitates service users to understand what is happening in their lives and assists in their feelings of being understood by others and that it facilitates the meeting of needs relating to social networks and healthcare services (Davies et al. 2019). Input from a broader range of people from the lived experience community and workforce will be sought throughout this process. Recovering from a first-episode of mental illness is not an easy undertaking. The social and clinical impacts can be overwhelming. The

NiRA appears to be a valid tool for assessing needs experienced at this time and will continue to be evaluated as an adjunct to current models of care in mental health services.

Relevance for clinical practice

There is an established body of literature highlighting the challenges associated with a first episode of mental illness and the needs that may arise prior to, during and after acute symptoms are experienced (Davies et al. 2018; Davies et al. 2019; Fleury et al. 2013; Hancock et al. 2018). These needs, if left unmet, are likely to impede recovery. The NiRA has been designed to fill a gap in current mental health service delivery to ensure that needs are identified, prioritised and addressed. The central positioning of this type of assessment, may increase service users' sense of autonomy, self-determination and capacity in recovery, particularly as it is a collaboratively completed assessment. It is hoped that the introduction of the NiRA into clinical practice will reduce poor outcomes, including relapse and will improve engagement from all stakeholders in collaborative, person-centred approaches to recovery.

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