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Complete List of Authors:	Chimara, Munyaradzi; University of Namibia Faculty of Health Sciences, Occupational Therapy & Physiotherapy Van Niekerk, Lana; Stellenbosch University Faculty of Medicine and Health Sciences, Health and Rehabilitation van Biljon, Hester Maria; Stellenbosch University Faculty of Medicine and Health Sciences, Health and Rehabilitation
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Title

A scoping review exploring vocational rehabilitation interventions for mental health service users with chronic mental illness in low to upper-middle-income countries

Author:	Munyaradzi Chimara (Corresponding Author)
Postal Address:	P.O. Box 50738, Bachbrecht, Windhoek, Namibia
Department:	Occupational Therapy and Physiotherapy
Institution:	University of Namibia
City:	Windhoek
Country:	Namibia
Email Address:	munyagreen@hotmail.com or mchimara@unam.na
Telephone:	+264 813 906 771 and +264 61 206 5083
ORCID	0000-0002-5720-3867
Co-author 1:	Lana van Niekerk
Department:	Division of Occupational Therapy, Department of Health and Rehabilitation Sciences, Faculty of Medicine and Health Sciences.
Institution:	Stellenbosch University
City:	Cape Town
Country:	South Africa
Email:	lanavn@sun.ac.za
ORCID	0000-0003-0003-6006
Co-author 2:	Hester Maria van Biljon
Department:	Division of Occupational Therapy, Department of Health and Rehabilitation Sciences, Faculty of Medicine and Health Sciences
Institution:	Stellenbosch University
City:	Cape Town
Country:	South Africa
Email:	hestermvanbiljon@gmail.com
ORCID	0000-0003-4433-6457

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Abstract

Introduction

Occupational therapists assist mental health service users (MHSUs) who have chronic mental illness gain or maintain a worker role through various vocational rehabilitation intervention strategies. The objective of this scoping review was to provide a summary of research undertaken on vocational rehabilitation interventions for MHSUs with chronic mental illness, within the occupational therapy scope of practice, in low to upper middle-income countries (L-UMIC).

Methods

The scoping review followed a five-stage methodological framework proposed by Arksey and O'Malley, in conjunction with the Preferred Reporting Items for Systematic Reviews extension for Scoping Reviews (PRISM-ScR) and Joanna Briggs scoping review guidelines. A comprehensive search was done covering the following databases: PsycInfo, EBSCOhost, HINARI, Google scholar, Medline, CINAHL, PubMed, Cochrane Library, Scopus, Science Direct and Wiley online Library. Mendeley referencing software was used for initial deduplication, whereas Rayyan open-source web platform was used for title, abstract and full text screening. Microsoft Excel was used for data extraction. Data was sifted and sorted by key categories and themes using a data charting form.

Results

Eight hundred and ninety-five (n=895) sources were identified after deduplication, of which 688 sources were excluded through title and abstract screening. Two hundred and seven (n=207) full text screening was done and 12 sources were included for qualitative synthesis. Types of vocational rehabilitation intervention identified included supported employment, case management and prevocational skills training. Client centeredness, support and empowerment were the key vocational rehabilitation principles identified. Teaching illness self-management, job analysis and matching, job coaching, trial placement, and vocational guidance and counseling, and work hardening were the main intervention strategies reported.

Conclusion

Vocational rehabilitation intervention in healthcare settings for MHSUs in L-UMIC acknowledged the multidimensional uniqueness of individual MHSU's vocational ability, needs and context. Such interventions allowed client centered approaches that offered support, and empowerment beyond the boundaries of the healthcare institutions. Institution based occupational therapists in VR need to implement their intervention in contexts where MHSUs are working or intending to work.

Ethics

Ethical clearance for this study was not required as secondary data was utilised and there was no MHSUs involved.

Strength and limitations of the study

- The study followed a scoping review protocol that was peer reviewed and published in BMJ Open on 14 July 2021.[1]
- Pre-scheduled weekly meetings among the three authors were used to promote momentum and discussions throughout the project.
- The authors used human and other library resources from two universities, namely the University of Namibia and Stellenbosch University.
- Authors concede that sources from non-English speaking countries might have been missed and that many such countries fall within the socio-economic inclusion criteria. The review was limited to English sources as there was no funding available for translation.
- Due to the dearth of publications from L-UMIC the evidence presented in this article cannot be seen to represent vocational rehabilitation for MHSUs within the scope of occupational therapy globally.

Key words: vocational rehabilitation, chronic mental illness, occupational therapy

Introduction

Vocational Rehabilitation (VR) of mental health service users (MHSUs) with chronic mental illness is an area of concern in low to upper middle-income countries (L-UMIC). The majority of global burden of mental disorders is located in L-UMIC[2], yet public expenditure on mental health, including rehabilitation services, is very low in these countries where less than one percent of total budget is allocated for mental health with resources predominantly directed to institution based care.[3,4]

The World Bank classifies countries according to their gross national income (GNI) per capita in United States (US) dollars.[5] There are four classes of economies. For the 2022 fiscal year the GNI per capita for low-income economies was $1046 or less; for lower middle income economies $1046 to $4095; upper middle-income economies ranged from $4096 to $12 695; and high-income economies were those with GNI per capita of $12 696 or more.[6]

Chronic mental illness can be defined using three criteria suggested by Bachrach[7], namely diagnostic criterion, duration of illness and disability criterion. The Diagnostic and Statistical Manual of Mental Disorders fifth edition (DSM-5) developed by the American Psychiatric Association is widely used in L-UMIC for the diagnostic criteria. Using the DSM-5, common mental conditions include schizophrenia spectrum and other psychotic conditions, bipolar and related disorders, depressive disorders and anxiety disorders.[8] In this review, duration of mental illness considered for chronicity was two years regardless of the number of relapses and remissions. The disability criterion, which is perhaps the most important of the three criteria for chronicity from the perspective of rehabilitation personnel, entails disturbing behavior, impairment in work and non-work activities and mild impairment in basic needs.[7]

Occupational therapists play an important role in vocational rehabilitation (VR) of mental health service users (MHSUs) with chronic mental illness who are either employed, unemployed or on sick leave.[9] Through VR occupational therapists help MHSUs to gain work, return to work or maintain an existing worker role.[10] Ross[10] highlights six stages followed in the VR process that are somewhat similar to the occupational therapy process. These are referral, assessment, prevocational phase, worksite visit, return to work plan, intervention, evaluation and discharge. Following the VR process, occupational therapists apply various VR strategies, and work with a variety of people and professions spanning both industrial and healthcare sectors.[9] They employ a variety of occupational therapy professional competencies that include activity analysis, job analysis, identification of essential job functions, knowledge of mental health conditions, functional capacity evaluations etc.[11] For the purposes of this review, intervention is seen as all aspects of VR when an occupational therapist interacts with a MHSU with the aim of addressing vocational occupation. In this review, institution-based VR is VR for MHSUs provided by occupational therapists stationed at a hospital, correctional facility, rehabilitation centre or healthcare centre. The receivers of VR service could be inpatients or outpatients.

There is limited consensus in the literature on the definition of the concept and categorization of VR intervention offered by occupational therapists. One plausible categorization of VR types is by van Biljon et al[12] who identified six types, namely, prevention, screening, assessment, intervention, placement and follow-up. VR intervention focuses on correcting or

compensating for work ability deficits and improve work performance.[12] Suijkerbuijk et al[13] identified four types of VR interventions. These are (i) prevocational training, (ii) transitional employment, (iii) supported employment, and (iv) augmented supported employment. Prevocational skills training includes job-related skills training and symptom-related skills training, with the latter comprising cognitive training and social skills training. Transitional employment is a highly structured intervention program where MHSUs who have expressed the desire to work are placed in the open labour market on a part-time basis for a period ranging from six to nine months.[14] During the period of transitional employment, MHSUs receive on-the-job and off-site support from the VR team. Unlike transitional employment, supported employment usually has no time limit, MHSUs follow a competitive interview process for the position, and they are paid at the prevailing wage of the position.[14] Supported employment is a career-oriented VR intervention where a MHSU is assisted accessing and being successful with employment through on-the-job and offsite support. Augmented supported employment is a combination of supported employment with either prevocational training or transitional employment. In addition to VR interventions identified by Suijkerbuijk et al[13], Swart and Buys[11] included work-hardening and case management. It is important to note that these VR intervention types do not necessarily follow a sequential process. Also, VR intervention categories seem to be overlapping. For example, Suijkerbuijk et al[13] categorized transitional and supported employment as VR intervention types, whereas van Biljon et al[12] categorized these under placement.

Vocational rehabilitation outcomes have been differentiated as hard outcomes or soft outcomes.[10] Ross[10] contends that soft outcomes are measures applicable to service users believed to be furthest away from labour market and therefore need a greater number of stepping stones. Examples of soft VR outcomes include engaging in voluntary work, doing a training course or achieving better quality of life. Examples of hard VR outcomes are; reduced number of days of absence from work, increased chances of returning to work, and improved benefit-to-cost ratios.[10] Other VR outcomes include improved self-esteem and self-concept, reduced symptoms of mental illness, increased personal empowerment and higher ratings of subjective wellbeing.[15]

Rationale

This scoping review comprises the first of four phases the authors will follow in developing a contextually relevant VR framework for MHSUs with chronic mental illness in Namibia. The purpose of this scoping review was to map the current evidence on institution-based VR for MHSUs with chronic mental illness that fall within the occupational therapy scope of practice and originate in L-UMIC. A scoping review was selected because it allows for exploring the breadth and depth of available evidence for the given population, concept and context.[16] The review findings will inform the second phase of the primary author's doctoral study, which will focus on engaging with stakeholders to explore factors that should be considered by clinical occupational therapists for their VR with MHSU's in Namibia.[1]

Traditional VR interventions for MHSUs that require institutionalization are still being used in some L-MIC. The first author, who is an occupational therapist, has ten years' experience in VR of MHSUs at a mental health care institution in Windhoek Namibia. The first author's experience and observation in the Namibian context is that occupational therapists who engage in VR practice are institution based. These institutions include hospitals, correctional facilities and healthcare centres. MHSUs who receive VR service are either in-patients or outpatients.

These services are offered without a contextually relevant VR framework to guide occupational therapists in settings such as Namibia.

Review Question

What is known from the existing literature about healthcare institution-based VR for MHSUs with chronic mental illness from L-UMIC?

Objectives

i. Provide a detailed overview of all the studies on institution-based VR of MHSUs with chronic mental illness, within the occupational therapy scope of practice, in L-UMIC.
ii. Identify the different types, principles and strategies of institution-based VR interventions within the occupational therapy scope of practice for MHSUs who have chronic mental illness in L-UMIC.

Methods

Study Design

This scoping review followed a protocol[1] that was peer reviewed and published in the BMJ Open. As highlighted in the protocol, the scoping review was guided by a methodological framework originally suggested by Arksey and O'Malley[17], and subsequently refined by Levac et al[18] and Colquhoun et al[19]. The framework follows five successive steps namely; (i) defining the research question, (ii) identifying relevant studies, (iii) study selection, (iv) charting the data, and finally (v) collating, summarizing and reporting the results. Reporting of the findings of this review was guided by the Preferred Reporting Items for Systematic Reviews extension for Scoping Reviews (PRISMA-ScR) proposed by Tricco et al.[20] The PRISMA-ScR checklist used is attached as annex A.

Eligibility Criteria

The population, concept and context (PCC) criteria[21] was used to define the eligibility criteria. The population (P) was MHSUs who have chronic mental illness. Chronic mental illness was based on three aspects, (i) diagnosis criteria, (ii) period of illness, and (iii) the disability criteria.[7] The concept (C) was institution-based VR within occupational therapy scope of practice. In this study, VR is defined as evidence-based approach that is provided in different settings, services and activities to working age individuals with mental health-related impairments, limitations or restrictions with work, and whose primary aim is to optimise work participation.[11] The context (C) was L-UMIC as defined by World Bank income grouping. Sources published in English only between 2011 and 2021 were eligible for inclusion.

Search Strategy

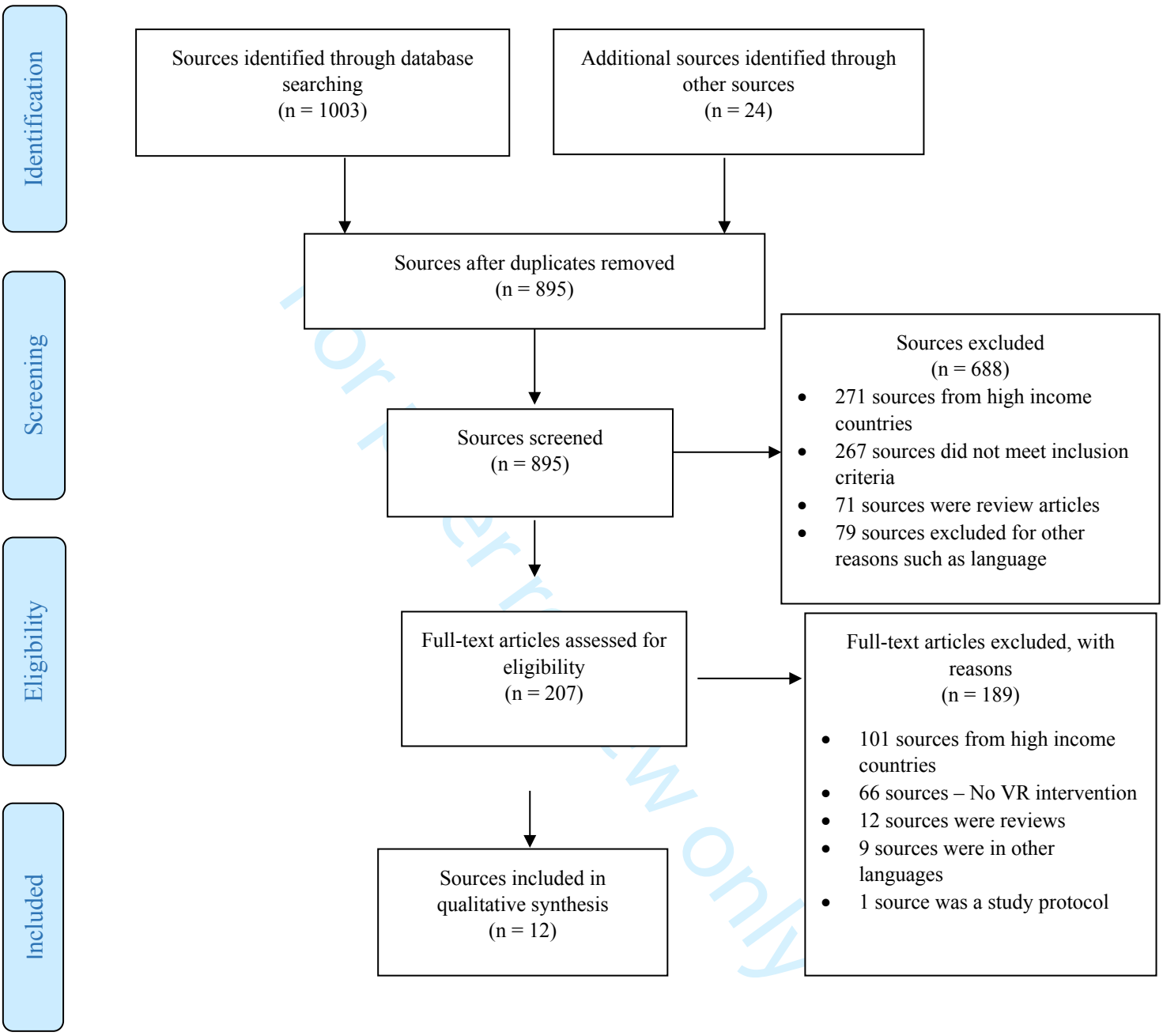
The search strategy was developed with the assistance of a qualified subject librarian from the University of Stellenbosch. A preliminary search was conducted on two databases, Pubmed and CINAHL. Results of the preliminary search led to the refinement of the search strategy covering all the three elements (PCC) of the scoping review question. The following main search string was used for identifying relevant sources*: (("Psychiatric Rehabilitation" OR "Rehabilitation, Vocational" OR "work rehabilitation" OR "Occupational Therapy") AND (mental disorders OR mental illness OR psychiatric disorders OR psychiatric illness) NOT (("North America" OR Europe*)) AND ((severe OR chronic OR long-term OR persistent)).* The search was carried out in each of the following electronic data bases; PsycInfo, EBSCOhost, Google Scholar, Medline, CINAHL, PubMed, Cochrane library, Scopus, Science

Direct, HINARI and Wiley online. Grey literature sources were searched through library links for universities subscribed to by all three authors engaged in this review. Additional search was done through checking bibliographies of all the included sources.

Source of Evidence Screening and Selection

Sources that were identified through the above mentioned search strategy were uploaded in Mendeley Reference Manager[22] and initial deduplication was done. Sources were then exported from Mendeley to Rayyan[23] web application for systematic reviews where second deduplication was conducted. The first and third authors independently performed title and abstract screening of the uploaded sources guided by the PCC and inclusion criteria. The authors included peer-reviewed sources on VR interventions that fit into the occupational therapy scope and were published in English between 2011 and 2021 from L-UMICs.[1] The second author resolved conflicts and her vote was final in making the decision to include or exclude a source. A second project was opened in Rayyan[23] where sources that were screened for title and abstract were loaded for full text screening. The first and third author did full text screening of first three sources together before they independently screened the rest of the sources. Conflicts where discussed and resolved with input from the second author, and the inclusion or exclusion criteria was regularly checked. Figure 1 below is the PRISMA flow diagram illustrating the process of searching and selecting sources for inclusion in this review.

Figure 1; PRISMA flow diagram



Extraction of Results

Data were extracted from each of the twelve included sources using a data extraction form that was develop by the first author and independently reviewed by the second and third authors. The template for intervention description and replication (TIDieR) checklist[24] was incorporated in the data extraction form. Extracted data covered the following; author (s), year of publication, country of origin, aim/purpose, study population and sample size, methodology, VR intervention type, VR intervention principles, VR intervention strategies, outcomes of the interventions, main conclusions and type of mental health care settings. The extracted data was transferred to spreadsheet and all three authors reviewed the information.

Results

Characteristics of Included Sources

A total of 12 sources from four L-UMIC from the continents of Africa, Asia and South America were included. The countries were South Africa – 8 sources, India – 2 sources, Brazil and Kenya – 1 source each. All 12 sources were published between 2011 and 2020. The total number of study participants reported in the included sources was 1581, and only two sources reported the combined attrition of 108 participants. Age of the participants ranged from 18 to 60 years. Four studies[25][26][27][28] were conducted in urban settings, one in both urban and rural settings[29], and the rest of the included sources did not report on this aspect. In terms of socio-economic status of the participants, two sources[26][28] reported that participants were from low socio-economic status stratum, whereas the rest of the included sources did not state this component. Diagnoses reported in the sources were: schizophrenia, schizoaffective disorder, anxiety disorder, bipolar type I disorder, intellectual disability, major depression and obsessive-compulsive disorder.

The included sources used the following study designs: qualitative design - 4, quantitative design – 3, mixed methods design – 2, and Delphi Method -1. Two sources did not clearly state the design used. Qualitative designs used included action research, phenomenology, interpretive biography, multiple collaborative research and focus group interviews. Single blinded randomized control and longitudinal descriptive designs were employed in quantitative designs. Table 1 below is a summary of the characteristics of included sources.

Table 1: Characteristics of Included Sources

Authors & year of publication	Country & Region	Study Design	Study Participants/target population	Sample size	Gender	Age of the study participants/target population	Location	Socio-economic status of the study participants/target population	Diagnosis of the study participants/target population
Adriana D.B. Vizzotto et al. 2016	Brazil, South America	Randomized controlled, single blind pilot study comparing the OGI method with craft activities.	Patients with Treatment Resistant Schizophrenia	30	Male 24, female 5.	18 - 55	Urban	Not stated	Schizophrenia
Hester van Biljon et al. 2015	South Africa, Africa	Action research phenomenology	Occupational therapists working in Gauteng's public healthcare, who were interested in vocational rehabilitation. Vocational rehabilitation experts	127 Occupational Therapists and 39 Vocational Rehabilitation experts	Not stated	Not stated	Not stated	Not stated	Not specified
Ikenna D. Ebuenyi et al. 2019	Kenya, Africa	A sequential mixed-method design	Persons with mental/psychosocial disabilities.	14 Individual interviews, 30 individuals in FGDs, 72 participated in quantitative study.	Males and females	Mean age of 40 years	Not stated	Not stated	Depression, schizophrenia, bipolar mood disorder
Chitra Khare et al 2020	India, Asia	Not specified	Psychiatric outpatients	552	Male 311, female 231	18-60	Rural & Urban	Not stated	schizophrenia, schizoaffective disorder, bipolar disorder, major depression
Reema Samuel, K. S. Jacob 2017	India, Asia	Narrative paper	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not specified
Hester M van Biljon et al 2016	South Africa, Africa	A multi-collaborative	Occupational therapists working in Gauteng's public healthcare, who	14 VRTT group, 242 OT clinicians	Not stated	Not stated	Not stated	Not stated	Not specified

		action research approach	were interested in vocational rehabilitation. Vocational rehabilitation experts	in Gauteng public sector, 26 OT working in Academics. 39 VR experts					
Tania Buys 2015	South Africa, Africa	A Delphi technique	Occupational Therapists	35	Not stated	Not stated	Not stated	Not stated	Not specified
Kreshnee Govender et al 2018	South Africa, Africa	Quantitative & Qualitative design using survey monkey	Qualified occupational therapists working in the private sector, those specializing in vocational rehabilitation in the private sector; working in health consulting and insurance sectors; occupational therapists involved in medico-legal work and work with RAF.	180	Not stated	Not stated	Not stated	Not stated	Not specified
Occupational Therapy Association of South Africa 2020	South Africa, Africa	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Injury, illness, impairment or congenital or acquired disability.
Madri Engelbrecht et al 2017	South Africa, Africa	Longitudinal descriptive design	Working age participants with a diagnosis of psychiatric disorder or intellectual disability	Group A - 25. Group B - 56.	Not stated	Working age but not specified	Urban	Low socio-economic group	Psychiatric disability, intellectual disability.
Lana Van Niekerk et al 2011	South Africa, Africa	Focus group interview	Service providers who had initiated SE programmes in the Cape	8	Not stated	Not stated	Urban	Not stated	Not specified
Lana Van Niekerk et al 2015	South Africa, Africa	longitudinal descriptive design	People with mental disabilities receiving SE in the Western Cape Province	Group A 29, Group B 56.	Not stated	Not stated	Urban	Low socio-economic group	Intellectual disability, Psychiatric disability (Schizophrenia,

									Schizoaffective disorder, Bipolar I).

Level of evidence of included sources

Levels of scientific evidence can be reliably used to summarize the quality of literature. There are five levels of scientific evidence.[30] Level 1 is the highest and it includes randomized control trials. Levels 2 and 3 include cohort and case control studies respectively, whereas level 4 encompasses non-experimental observational studies, case reports and case series.[30] Narrative reviews and expert opinions comprise the lowest level of scientific evidence i.e. level 5. In this study, one source by Vizzotto et al[25] is level 1, two sources by Engelbrecht et al[26] and van Niekerk et al[28] are level 2, and 7 sources[12,27,31–35] are level five. Two sources[29,36] did not specify methodology used.

Review Findings

Vocational Rehabilitation Intervention Types

The included sources reported different VR types. Supported employment was the most common VR intervention cited by four sources.[29][26][27][28] This is a VR intervention type that promotes the inclusion of persons with disabilities in competitive employment.[28] It is based on the assumption that people with the most severe disabilities can be integrated into competitive employment if they receive the right support.[28] The ongoing support can be provided by family members of the MHSU, the employer, occupational therapist or a job coach.[29][28][26]

Two sources[12][36] categorized VR intervention types into six categories that were quite similar. These were: (i) prevention, (ii) screening, (iii) assessment, (iv) intervention, (v) placement, and (vi) follow-up. Prevention includes providing educative services for the prevention of injury at work, to create an awareness of good work practice, as well as avoiding development and/or worsening of a condition. Screening entails a short prescriptive process to filter and refer MHSUs to more specialized occupational therapists or facilities, whereas intervention services are programs aimed at correcting or compensating for ability to work deficits.[12][36] Van Biljon et al[12] stated that placement services focus on the return of MHSUs to their own, alternative or new work area in the open labour market. Placement also include placement of MHSUs in sheltered or protected workshops.[12] Follow-up is done for MHSUs who used VR services and could be done with employers, referral sources, family members of MHSUs and MHSUs themselves.[12]

Case management and Goal Management Training (GMT) methods were also identified as possible VR intervention methods.[25][34] Case management can be utilized as an early intervention approach in VR of MHSUs once there has been an extended period of absence from work or a high rate of absence from work due to illness.[34] It involves developing a care plan, reskilling/training to aid in work re-entry, and work visits to liaise with employer to aid in the transition of the MHSU back to work.[34] Vizzotto et al[25] tested the efficacy of Occupational Goal Intervention Method for the improvement of executive functioning in MHSUs with Treatment Resistant Schizophrenia(TRS). This intervention was delivered over 15 weeks via 30 sessions with each session lasting 90 minutes. Focus of the intervention was on activities of daily living and instrumental activities of daily living including money management and use of transportation. Their study concluded that Occupational Goal Intervention Method appeared to improve social and functional aspects of MHSUs with TRS.

Other VR intervention types identified in this review were job seeker programs and related support, prevocational skills training and support, and social networks.[35][31]

Vocational Rehabilitation Intervention Principles

Five out of the 12 included sources stated a number of principles applied in VR.[32][33][34][27][28] Samuel and Jacob[32] in their study on the role of occupational therapy in bridging the gap between symptomatic improvement and functional recovery highlighted the following three principles; (i) patient and family empowerment, (ii) focus on achieving functional recovery, and (iii) optimizing the fit between an individual's abilities and the environmental demands. Buys[33] identified five principles in her study on professional competencies in VR, namely; client centered, objectivity, adaptability, professionalism and respect. Planning with the client, client advocacy and on-going individualized support are the principles specifically identified for case management and supported employment.[34][28] Van Niekerk et al[27] further reiterated the need to support MHSU goals and to empower them with choices and information, and they highlighted that support should be 'no more than needed and no less than necessary'.

Vocational Rehabilitation Intervention Strategies

All 12 included sources presented various VR intervention strategies. Khare et al[29] identified the following strategies; teaching illness self-management skills, systematic involvement of families and social networks to help with job finding, collaboration on mental illness management, and facilitating work in family business. Van Niekerk et al [27] and Engelbrecht et al[26] reported similar VR intervention strategies in their studies. These were job analysis and matching, job finding, job coaching, trial placement, simulated work, work in protective factories and sheltered workshops. Job analysis and matching involves evaluation of employment potential and goodness of job fit. Job advocacy at the job site with employers and co-workers was a strategy utilized in supported employment. Work visits were done to observe real work, to discuss reasonable accommodation and to assist with performance appraisals. Engelbrecht et al[26] further identified personal life skills training as an essential component of VR strategy. The personal life skills deemed essential in VR included money handling, grooming, use of transportation, time management and communication.

The Occupational Therapy Association of South Africa (OTASA)[36] position paper on VR stated a number of VR strategies that are applicable in various settings including mental healthcare settings. These strategies include sheltered workshops, entrepreneurship and self-employment initiatives, vocational guidance and counseling, as well as work adaptation. In addition, Buys[33] identified the following VR strategies, job description review, work hardening, work conditioning, stress management and job seeking skills training.

Vocational Rehabilitation Intervention Outcomes

VR intervention outcomes were reported for Supported Employment and Occupational Goal Intervention Method. Participants who engaged in supported employment earned more and worked more hours per month than those who had had prevocational training.[27] More so, supported employed allowed MHSUs to integrate into mainstream society, provided income and arena for social and personal development including improved self-esteem. Improved income lessens the economic burden for government. Reduction in the consumption of mental health services was reported for MHSUs who entered employment.[26] A study by Adriana et

al[25] showed that Occupational Goal Intervention Method appeared to improve social and functional aspects of patients with Treatment Resistant Schizophrenia.

Summary of conclusions and recommendations

Overall the included sources emphasized the need for contextually relevant vocational rehabilitation practice and advocated for the adoption of supported employment VR intervention for MHSUs. Van Biljon et al[35] concluded in their study by stating that having a comprehensive and contextually relevant tool that effectively indicate what VR services look like will be helpful to occupational therapists offering VR services in both public healthcare and in private practices. Khare et al[29] suggested in their conclusion that attention should be paid to adapting models of VR to the cultural context of developing countries to improve the employment outcomes of persons with serious mental illness. Buys[33] asserted the need for the occupational therapy profession to ensure that it provides competent, professional and contextually relevant VR services to clients which enables them to fulfil their roles as independent citizens. Similarly, the OTASA[36] position paper on VR concluded that the type of VR service that occupational therapists in South Africa offer should be dictated by the vocational needs and aspirations, social structures and contextual realities of MHSUs.

Three of the included sources concluded by advocating for supported employment as a model of choice in VR[26][27][28]. Engelbrecht et al[26] concluded that supported employment is cost effective and will combat unemployment, work towards poverty reduction and redress inequality for people with mental disabilities, hence it is a viable strategy for return to work endeavors. In addition to proposing supported employment as a model of choice to drive the process of economic empowerment for persons facing disabling conditions, van Niekerk et al[27] recommended a holistic approach to supported employment because it has components such as placement in suitable work and reasonable accommodation that do not necessarily follow a linear process. Van Niekerk[28] recommended the need for providers of supported employment to modify approaches in order to meet contextual realities.

Discussion

This study set out to scope the literature on VR of MHSUs with chronic mental illness, within the occupational therapy scope of practice, in L-UMICs. The study further identified the different types, principles and strategies of institution-based VR interventions for MHSUs. Overall, the majority of included sources were from South Africa with only one source from Kenya completing the representation from African continent. Only two sources from India and one from Brazil represented the Asian and South American continents respectively. The low number of sources possibly confirm limited research in the field of VR for MHSUs with chronic mental illness in L-UMIC, which could be attributed to a couple of factors. There is a high patient-therapist ratio in the field of mental health in L-UMICs, thus occupational therapists do not have sufficient time and skills to document and publish their work. Another possible contributing factor to low number of sources could be the limited resources such as funding, publishing journals and tertiary institutions providing occupational therapy training. As a result, occupational therapists cannot afford the cost of publishing in journals from high income countries and they lack academic support to help with their academic writing skills and ethical clearance for their research.

The main VR types identified in African and Asian sources were supported employment, case management, prevocational and vocational skills training. Goal Management Training Method[25] was the only intervention type identified from the one included source from South American continent. Using the categorization of VR types suggested by Van Biljon et al[12], supported employment fits in two categories, intervention and placement. Prevocational and vocational skills training fall under traditional VR intervention, which is a stepwise path that focuses on assessment and job matching prior to job search.[37] The included sources did not specify institution-based VR interventions. One possible reason for this observation could be due to the current set-up of occupational therapy practice in L-UMIC where occupational therapists tend to be institution based regardless of the VR intervention type that they provide. Also, institution based VR in L-UMIC lack human and capital resources such as therapists and transport needed to move beyond the institutions. Generally, as alluded above, there is dearth of documented evidence supporting occupational therapists involvement in VR.[38]

Vocational rehabilitation intervention principles identified in this review focused on client centredness, achieving functional recovery, as well as advocating for client and family support. These principles are well enshrined within the general occupational therapy intervention principles. Client centredness is a key element of occupational therapy practice that demands for the formation of partnerships with MHSUs, which allows for the exploration, understanding, and promotion of engagement in their chosen or expected occupations including work[39]. Applying the principle of client centredness in VR intervention five rules should be considered based on a framework suggested by Gretschel and Galvaan.[39] MHSUs should be considered holistically, they should be viewed as experts of their own occupational engagement, their values and goals must be respected, therapist-person partnerships should be facilitative and not directive, and contextual congruence must be inherent in the VR interventions designed.[39] Supportive relationship is another VR principle that is integral to the success of VR interventions. Occupational therapists, employers, coworkers and family members provide hope, empathy and encouragement, all resulting in enhanced confidence at work, increased work-related skills and greater ability of MHSUs to fit within a particular work/employment situation.[40] Also, given the reality that mental disability tends to be episodic and fluctuates over time, and due to limited understanding of mental illness in L-UMICs, it is imperative that VR intervention is structured to offer on-going support in and beyond institution boundaries.[11]

Regarding VR intervention strategies, the included sources clearly focused on simultaneously placing MHSUs in competitive work and providing support through networks and negotiating with employer and managing symptoms. This highlights a shift from the traditional VR strategies which focus on train-first-then-place. However, this strategy may pose a challenge in L-UMICs were unemployment rates are high resulting in MHSUs competing for employment with the mainstream community. Self-employment initiatives is therefore a realistic VR intervention strategy.[38] Occupational therapists are sufficiently skilled to facilitate self-employment, and can contribute towards alleviating unemployment among MHSUs with chronic mental illness by identifying potential and encouraging entrepreneurship and self-employment opportunities.[38] Swart and Buys[11] contend that in addition to the various VR intervention strategies that occupational therapists utilize, traditional psychosocial intervention such as stress management, conflict management and relaxation therapy should be considered depending on client needs.

Implication for Research

The findings of the scoping review provide the authors with thematic areas to consider when developing the semi-structured interview guide that will be utilized to explore factors to be considered for VR intervention in the Namibian context. The proposed thematic areas are; (i) VR interventions applicable to Namibia context, (ii) VR principles to be applied, (iii) VR intervention strategies, (iv) VR stakeholders to be engaged in Namibia including their roles, and (v) general recommendations for the implementation of VR in Namibia for MHSUs with chronic mental illness.

Implication for Practice

In terms of occupational therapy practice in VR, the findings of this review highlight the need to shift from the current practice to *place and train* models in L-UMIC. Institution based VR should take shorter time compared to the traditional VR approach and rather focus on identifying potential areas for placement and support in the natural work contexts for MHSUs. In the context of L-UMICs where unemployment rates are high, VR intervention may need to focus on strategies that support self-employment initiatives. Client centeredness is a key principle in planning for VR interventions and ensuring that intended VR outcomes are achieved. There is a need for occupational therapists to have insight into and adapt vocational rehabilitation intervention strategies to the demographic and socio-economic context of the L-UMIC in which they practice.[38] Occupational therapists and other VR stakeholders should provide the right level of individual support to MHSUs in VR and be able to adapt this support according to the needs of the client.

Strengths and Limitations

Strengths

- The study followed a scoping review protocol[1] that was peer reviewed and published in BMJ Open on 14 July 2021.
- Pre-scheduled weekly meetings among the three authors were used to promote momentum and discussions throughout the project.
- The authors used human and other library resources from two different universities, University of Namibia and Stellenbosch University.

Limitations

- Sources published in non-English languages were excluded from this review, therefore the authors concede that sources from L-UMIC in languages such as Spanish could have been missed.
- Due to the dearth of publications from L-UMIC the evidence presented in this article cannot be seen to represent VR for MHSUs within occupational therapy scope globally.

Conclusion

This review mapped the current evidence in VR for MHSUs with chronic mental illness in L-UMICs. Review findings indicate the need for institution based occupational therapists in L-UMICs to shift from a traditional vocational rehabilitation approach to interventions that do not cease upon discharge but include place-train-and-support approaches. VR interventions should extend their focus on supporting MHSUs in their natural work settings or potential work

settings. Such intervention should include factors such as getting to and from work, job seeking skills, upskilling within the larger labour market, and it should include placement considerations such as self-employment and unpaid work. The authors recommend further studies on VR interventions and outcomes for MHSUs in low resourced communities focusing on practical and unique realities experienced by such communities. More so, it is imperative that researchers in the field of occupational therapy, mental health and VR strive for levels 1 and 2 of scientific evidence to inform practice.

Author Contributions

Three authors were involved in conceptualizing, drafting and editing this scoping review. The first author, Munyaradzi Chimara, conducted this scoping review as part of his doctoral studies. Second and third authors, Professor Lana van Niekerk and Dr Hester Maria van Biljon respectively, were involved as academic supervisors in all the stages followed in this scoping review study.

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Competing interest statement

The authors hereby declare that there is no conflict of interest from the publication of this paper.

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Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	
Limitations	20	Discuss the limitations of the scoping review process.	
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

Summary of Findings

Authors & year of publication	Title	Aim of Study	Type of Mental Healthcare Institution	VR Intervention Type(s)	Duration of Intervention	VR Intervention Principles	VR Intervention Strategies	VR Intervention outcomes	Main Conclusion
Adriana D.B. Vizzotto et al. 2016	A pilot randomized controlled trial of the Occupational Goal Intervention method for the improvement of executive functioning in patients with treatment-resistant schizophrenia	To test the efficacy of the Occupational Goal Intervention (OGI) method for the improvement of EF in patients with TRS.	Schizophrenia Research Program of the institute of psychiatry - University of Sao Paulo School of Medicine. (Sao Paulo General Hospital)	Goal Management Training (GMT) method	15 weeks, 30 sessions, 90 minutes per session	Not stated	In the OGI group, the initial sessions targeted ADL (personal hygiene), followed by IADL (housework, money management, and use of transportation), social activities, and leisure. Each patient was given four homework assignments in order to practice the daily living tasks they had learned	Outcome measures correlate significantly with the total PANSS score, showing that the degree of severity of schizophrenia is inversely related to the improvement of EF (BADS), Functional Outcome (DAFS-BR) and patient autonomy (ILSS-BR). With regards to effect analysis, , over the course of the study period, there were no major changes regarding the clinical stability of the patients. Results suggest that the use of the OGI method is an effective strategy that can benefit patients with TRS. As expected, outcome measures were shown to be significantly intercorrelated.	"The OGI method has been shown to be reliable and effective for patients with TRS. In addition, the method appears to improve social and functional aspects of patients with TRS."
Hester van Biljon et al. 2015	An Action Research Approach to Profile an Occupational Therapy Vocational Rehabilitation Service in Public Healthcare	The aim of the project was to develop a tool that would allow occupational therapists doing vocational rehabilitation, to systematically and comprehensively profile their services	Not stated	Return to work program. Job-seeker programs and related support. Prevocational skills training and support.	Not stated	Not stated	Work-hardening, work readiness, conditioning.	Not stated	Having a comprehensive and contexually relevant tool that effectively indicates what a vocational rehabilitation service looks like, and /or should look like, will be helpful to occupational therapists that are offering, or wish to offer, vocational rehabilitation services in the public healthcare as well as in private practices. This allows them to set goals and develop their practices in a systematic and mindful manner.

Ikenna D. Ebuenyi et al. 2019	Employability of Persons With Mental Disability: Understanding Lived Experiences in Kenya	To highlight the barriers to employment experienced by persons with mental disabilities in Kenya and how they manage to find work against all the odds.	Not stated	Social networks for persons with mental disabilities. Provision of reasonable accommodation in the workplace and healthcare sectors.	Not stated	Not stated	Setting up social development programs that would provide individuals who want to opt for self-employment. Community based rehabilitation.	Not stated	Our study has highlighted that persons with mental disabilities in Kenya can work. We have also shed light on the various challenges (personal and environmental) affected persons encounter in their quest to enjoy their fundamental human right to employment.
Chitra Khare et al 2020	Employment functioning in people with severe mental illnesses living in urban vs. rural areas in India	To examine rates and patterns of work, interest in work, and perceived benefits and barriers to work in people with SMI.	Private Psychiatric outpatients department	Supported employment	Not stated	Not stated	Teaching illness self-management skills in supported employment. Systematic involvement of families in supported employment, including help with job finding through their extended social networks, collaboration on mental illness management, and facilitating work in family business.	Not stated	The findings suggest that attention should be paid to adapting models of vocational rehabilitation to the cultural context of developing countries to improve the employment outcomes of persons with SMI.
Lana van Niekerk 2016	Identity construction and participation in work: Learning from the experiences of persons with psychiatric disability	To discuss the concept of identity in relation to occupational engagement in the workplace.	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Participants who were able to absorb change and disruption by making accommodations and/ or allowances for changes in identity tended to continue their participation in valued roles, including the worker role.
Reema Samuel, K. S. Jacob 2017	Occupational therapy in India: focus on functional recovery and need for empowerment	To discuss the role of occupational therapy in bridging the gap between symptomatic improvement and functional recovery.	Not stated	Not stated	Not stated	Patient and family empowerment. Focus on achieving functional recovery. Optimizing the fit between an individual's	Group therapy. Motivational enhancement therapy. Rehabilitative and recovery model (prevocational evaluation, vocational training, life skills training). Cognitive therapy. Behaviour	Improved and enhanced self-esteem through graded tasks, improved goal setting, and problem-solving and decision-making skills.	While it can be argued that the Indian government should modify legislation, open more tertiary care hospitals, grant more educational institutions to train personnel, and likewise, it is time to look at

						abilities and the environmental demands.	therapy approaches. Graded exercises to manage deficient or maladaptive task and social and occupational skills.		modifiable factors from an individual perspective. The answer might lie in improving one's own understanding of the complexity of mental illness, increasing the repertoire of treatment models, liaising with the multidisciplinary team, changing our own attitudes about the treatment process, and practicing instead of preaching client-centeredness.
Hester M van Biljon et al 2016	Opinions of occupational therapists on the positioning of vocational rehabilitation services in Gauteng Public Healthcare	To report on the opinions of occupational therapists on the positioning of vocational rehabilitation services in the Gauteng province.	Not stated	Prevention is an educative service for the prevention of injury at work and to create an awareness of good work practice, averting the development and/or exacerbation of pathology. Screening of general or specific work related skills is a short prescriptive process used to filter and effectively refer patients to more specialised therapists or facilities and supports efficient service delivery. Assessment services involve the assessment of the ability of a person who has an injury or illness's, to be able to work. Intervention services are programmes aimed at correcting or compensating for	Not stated	Not stated	Stress management. Job modification, case management, pain management, work hardening, work preparation or readiness, work visits, work guidance, work-place accommodation, work adaptation, job seekers groups, self-employment initiatives, support groups and other return to work efforts. Job analysis. Vocational guidance and counselling, outpatient support groups, job acquainting, adaptation and accommodation efforts.	Not stated	The results of this survey showed a general lack of consensus amongst occupational therapists about what vocational rehabili tation services should be offered at the different levels of public healthcare. With singular exceptions the generic opinion was that occupational therapy's vocational rehabilitation services should be offered in public healthcare. No other opinions from this survey give guidance or insight to support planning and policy making.

				ability to work deficits. Placement services are the returning of patients to their own, alternative or new work in the open labour market; or to sheltered - or protected workshops. Follow up is done of patients who used the services offered, this could be with employers, referral sources, family members and the patients themselves					
Tania Buys 2015	Professional competencies in vocational rehabilitation: Results of a Delphi study	To identify professional competencies required to practice in the area of work by occupational therapists.	Not stated	Vocational training, placement and follow-up. Work readiness/ work preparation programmes	Not stated	Client centered, objectivity, adaptability, professionalism, respect.	Vocational guidance, job analysis, workplace visits, job description review, reasonable accommodations, work hardening, work conditioning, work simulation, life skills, stress management, prevocational skills, job-seeking skills training.	Not stated	We need to as an occupational therapy profession to ensure that we provide competent, professional, contextually relevant vocational rehabilitation services to clients which enables them to fulfil their roles as independent citizens in a democratic South Africa free from disability discrimination.
Kreshnee Govender et al 2018	The role of the occupational therapist in case management in South Africa	To identify the occupational therapist's role and scope of practice in case management in South Africa.	Not stated	Case management - appears to be utilised as part of an early intervention approach once there has been an extended period of absence from work or a high rate of absence due to illness (where the service entails comprehensive assessment to determine a care plan and coordinating and monitoring client care to prevent long term absenteeism thereby	Not stated	Planning with the client. Client advocacy.	Work site visits. Liaison with the employer to aid in the employee's transition back to work, client's reintergration in the work environment. Develop a care plan. Re-skilling/training to aid in a work re-entry.	Not stated	The study reveals that occupational therapists in South Africa are involved in case manager functions and are implementing case management as a strategy or approach to manage incapacity due to ill-health and disability in the workplace. Occupational therapists in South Africa that are positioned in various settings viz. insurance, private practice, health

				contributing to cost containment).					consult ing, and Workmen's Compensation, have indicated involvement in case management and this study confirmed the utilisation of this intervention in vocational rehabilitation and as an element of dis ability management.
Occupational Therapy Association Of South Africa 2020	Position paper on vocational rehabilitation	Not stated	Various settings including schools for learners with special needs transitioning to world of world.	Prevention is an educative service for the prevention of injury at work and to create an awareness of good work practice, averting the development and/or exacerbation of pathology. Screening of general or specific work related skills is a short prescriptive process used to filter and effectively refer patients to more expereinced therapists. Assessment and evaluation services. Intervention services are aimed at correcting adapting or compensating for ability to work deficits.	Not stated	Not stated	Skills trainig, sheltered workshops, entrepreneurial and self-employment initiatives. Job modification, case management, work trials, work hardening, work preparation/readiness, work visits, work/vocational guidance and counselling, work-palce accommodation, work adaption, job seekers groups, support groups. Job analysis,	Not stated	The primary aim of occupational therapy's vocational rehabilitation intervention needs to be relevant and of therapeutic value to the client so as to meet SDG9 as far as it is possible. The type of vocational rehabilitation service that occupational therapists in South Africa offer should be dictated by the vocational needs and aspirations, social structures and contextual realities of the clients. All occupational therapists can and should be able to offer basic vocational rehabilitation. Newly qualified occupational therapists have to be able to work independently at a basic level in a variety of vocational rehabilitation settings. Those vocational rehabilitation services that require competencies beyond a basic level need to be referred to therapists who have acquired, and can provide proof of the additional necessary

									competencies that provide ompetent, professional, contextually relevant vocational rehabilitation services to clients they see.
Madri Engelbrecht et al 2017	Supported Employment for people with mental disabilities in South Africa: cost calculation of service utilisation	To report on the cost and affordability of SE services offered to people with mental disabilities in South Africa.	Psychiatric hospital in Cape Town (clients from forensic wards, general wards and the outpatient department).	Supported employment	Not stated	Not stated	Job matching. Work in protective factories. Personal life skills training (money handling, grooming, use of transportation, management of symptoms, time management, communication). Simulated work. Trial placement, job advocacy (at job site with employers and co-workers). Evaluation of goodness of job fit. Evaluation of employment potential. Work visit (to observe real work, to discuss reasonable accommodation, to assist with performance appraisal). Job coaching and job support. Bridging programme in preparation for employment in the open labour market. Support group	Reduction in the consumption of mental health services by people who entered employment. SE promotes an outcome of open labour market employment with the ssociated monetary and non-monetary benefits.	Evidence from the study thus reflects the cost of SE services to people with mental disability as substantially lower than the current government investment in disability grants and protective workshops subsidies. SE will combat unemployment, work towards poverty reduction and redress inequality as it pertains to people with disabilities. engagement with funding sources that currently support traditional vocational rehabilitation approaches is needed to present SE as a viable alternative strategy for return-to-work endeavors.
Lana Van Niekerk et al 2011	Supported employment: Recommendations for successful implementation in South Africa	To report on the findings of a descriptive qualitative study in which supported employment (SE), as a potential strategy to facilitate the employment of persons with disability in the open labour	Not stated	Supported employment	Not stated	Competitive employment should always be the ultimate outcome. A client-centered approach should be used. Support should be provided to ensure long-	Job finding, job analysis, job matching, job coaching. On-going support that is determined by the worker's individual needs. Protective and sheltered workshops.	SE achieve participation in competitive employment. Participants in SE earned more and worked more hours per month than those who had had prevocational training. Person with disabilities have an opportunity to be an active and contributing member of the society. Lessen the	"The authors propose SE as a model of choice to drive the process of economic empowerment for persons facing disabling conditions. In developing a SE model suitable for South Africa, funding and infrastructure should be used in such a way that

		market in South Africa.				term sustainability employment. Support consumer goals and empower them with choices and information. No more support than needed and no less than necessary.		économic burden the government. Positively influence the disabled person's health and well-being. Provided income, personal development, provided arina for social development, self esteem and identity. Integration of persons with disability into mainstream society.	integrated career management is a viable option for persons with disability. A holistic approach is needed because components of SE, such as the assessment of work skills, placement in suitable work and reasonable accommodation do not necessarily follow a linear process."
Lana Van Niekerk et al 2015	Time utilisation trends of supported employment services by persons with mental disability in South Africa	To determine the feasibility of supported employment (SE) as a strategy with which to facilitate the employment of persons with disability in competitive work contexts.	Psychiatric hospital in Cape Town (clients from forensic wards, general wards and the outpatient department).	Supported employment (SE) is a return-to-work strategy promoting the inclusion of persons with dis abilities in competitive employment environments. Prepare work placement. Work visit.	Not stated	On-going support. Individualized support. Advocacy.	Job finding, Job analysis, Job matching and Job coaching. Reasonable accommodation. On-going support. Protective workshops. Non-job advocacy. Personal life skills. Simulated work. Trial placement, Person-centred instructional plans, Job advocacy - at job site with employers. Job advocacy - co-workers (and customers). Evaluation of employment potential. Evaluation of goodness of job fit. Work visit to observe real work. Work visit to discuss reasonable accommodation. Work visit to assist with performance appraisal.	To achieve employment outcomes for people with mental disabilities. Integration of mental health service users in the workplace.	SE services can be considered as a viable option for return to work in resource-constrained environments. Providers of SE services will need to modify approaches in order to meet contextual realities. Because the bulk of costs associated with SE are in the remuneration of service providers, understanding the number of provider hours necessary will be an important consideration for employers in middle income countries who are concerned with the feasibility of SE.

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A scoping review exploring vocational rehabilitation interventions for mental health service users with chronic mental illness in low-income to upper-middle-income countries

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Title

A scoping review exploring vocational rehabilitation interventions for mental health service users with chronic mental illness in low-income to upper-middle-income countries

Author:	Munyaradzi Chimara (Corresponding Author)
Postal Address:	P.O. Box 50738, Bachbrecht, Windhoek, Namibia
Department:	Occupational Therapy and Physiotherapy
Institution:	University of Namibia
City:	Windhoek
Country:	Namibia
Email Address:	munyagreen@hotmail.com or mchimara@unam.na
Telephone:	+264 813 906 771 and +264 61 206 5083
ORCID	0000-0002-5720-3867
Co-author 1:	Lana van Niekerk
Department:	Division of Occupational Therapy, Department of Health and Rehabilitation Sciences, Faculty of Medicine and Health Sciences.
Institution:	Stellenbosch University
City:	Cape Town
Country:	South Africa
Email:	lanavn@sun.ac.za
ORCID	0000-0003-0003-6006
Co-author 2:	Hester Maria van Biljon
Department:	Division of Occupational Therapy, Department of Health and Rehabilitation Sciences, Faculty of Medicine and Health Sciences
Institution:	Stellenbosch University
City:	Cape Town
Country:	South Africa
Email:	hestermvanbiljon@gmail.com
ORCID	0000-0003-4433-6457

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Abstract

Objective

To synthesize research published on vocational rehabilitation (VR) interventions offered in institutions, by occupational therapists, to mental health service users (MHSUs) with chronic mental illness, in low-income to upper middle-income countries (L-UMIC).

Design

Arksey and O'Malley's five-stage methodological framework, the Preferred Reporting Items for Systematic Reviews extension for Scoping Reviews (PRISMA-ScR) and Joanna Briggs scoping review guidelines were used.

Data Sources

PsycInfo, EBSCOhost, HINARI, Google scholar, Medline, CINAHL, PubMed, Cochrane Library, Scopus, Science Direct and Wiley online library were searched between 15 July and 31 August 2021.

Eligibility Criteria

Sources, published in English between 2011 and 2021, on institution-based VR in occupational therapy for MHSUs who have chronic mental illness in L-UMIC were included.

Data extraction and synthesis

Three reviewers used Mendeley to manage identified references, Rayyan for abstract and full text screening, and Microsoft Excel for data extraction. Data was sifted and sorted by key categories and themes.

Results

895 sources were identified, and their title and abstracts reviewed. 207 sources were identified, and their full texts reviewed. 12 articles were identified for this scoping review. Types of VR intervention included supported employment, case management and prevocational skills training. Client centeredness, support and empowerment were the key VR principles identified. Teaching of illness self-management, job analysis and matching, job coaching, trial placement, and vocational guidance and counseling, were the main intervention strategies reported.

Conclusions

VR intervention in institutions for MHSUs in L-UMIC revealed the multidimensional uniqueness of individual MHSU's vocational ability, needs and contexts. The interventions allowed client centered approaches that offered support, and empowerment beyond the boundaries of the institutions. Occupational therapists offering VR need to expand their interventions beyond their institutions to contexts where MHSUs are working or intending to work.

Strength and limitations of the study

- The study followed a scoping review protocol that was peer reviewed and published in BMJ Open on 14 July 2021.[1]
- Pre-scheduled weekly meetings among the three authors were used to promote momentum and discussions throughout the project.
- The authors used human and other library resources from two universities, namely the University of Namibia and Stellenbosch University.
- Authors concede that sources from non-English speaking countries might have been missed and that many such countries fall within the socio-economic inclusion criteria.
- The review was limited to English sources as there was no funding available for translation.
- Due to the dearth of publications from L-UMIC the evidence presented in this article cannot be seen to represent vocational rehabilitation for MHSUs within the scope of occupational therapy globally.

Key words: vocational rehabilitation, chronic mental illness, occupational therapy

Introduction

Vocational Rehabilitation (VR) of mental health service users (MHSUs) with chronic mental illness is an area of concern in low-income to upper middle-income countries (L-UMIC). The majority of global burden of mental disorders is located in L-UMIC[2], yet public expenditure on mental health, including rehabilitation services, is very low in these countries where less than one percent of total budget is allocated for mental health with resources predominantly directed to institution based care.[3,4] One such country is Namibia, located in the south-western part of Africa, and in which the first author (MC) resides. The burden of mental illness in Namibia is 2838,71 per 100 000 population.[4] This scoping review forms the first phase of a four phased project, and the envisaged main outcome of the project is a VR practice framework for MHSUs with chronic mental illness in Namibia.

The World Bank classifies countries according to their gross national income (GNI) per capita in United States (US) dollars.[5] There are four classes of economies. For the 2022 fiscal year the GNI per capita for low-income economies was $1046 or less; for lower middle income economies $1046 to $4095; upper middle-income economies ranged from $4096 to $12 695; and high-income economies were those with GNI per capita of $12 696 or more.[6] Namibia was ranked as upper middle-income country at the time of this study. Other countries ranked as upper middle income are South Africa, Botswana and Libya, whereas Zimbabwe, India and Kenya are examples of lower middle-income countries. Examples of low income countries are Malawi, Uganda and Burundi.[6]

Chronic mental illness can be defined using three criteria suggested by Bachrach[7], namely diagnostic criterion, duration of illness and disability criterion. The Diagnostic and Statistical Manual of Mental Disorders fifth edition (DSM-5) developed by the American Psychiatric Association is widely used in L-UMIC for the diagnostic criteria. Using the DSM-5, common mental conditions include schizophrenia spectrum and other psychotic conditions, bipolar and related disorders, depressive disorders and anxiety disorders.[8] In this review, duration of mental illness considered for chronicity was two years regardless of the number of relapses and remissions. The disability criterion, which is perhaps the most important of the three criteria for chronicity from the perspective of rehabilitation personnel, entails disturbing behavior, impairment in work and non-work activities and mild impairment in basic needs.[7]

Occupational therapists are healthcare professionals who use occupations or activities to restore or maintain function in the areas of work, self-care and leisure for people with physical and/or psychosocial dysfunctions.[1] Occupational therapists play an important role in vocational rehabilitation (VR) of mental health service users (MHSUs) with chronic mental illness who are either employed, unemployed or on sick leave.[9] Through VR occupational therapists help MHSUs to gain work, return to work or maintain an existing worker role.[10] Ross[10] highlights six stages followed in the VR process that are somewhat similar to the occupational therapy process. These are referral, assessment, prevocational phase, worksite visit, return to work plan, intervention, evaluation and discharge. Using the VR process, occupational therapists apply various VR strategies, and work with a variety of people and professions spanning both industrial and healthcare sectors.[9] They employ a variety of occupational therapy professional competencies that include activity analysis, job analysis, identification of essential job

functions, knowledge of mental health conditions, functional capacity evaluations etc.[11] In the Namibian context, occupational therapists who provide VR service are institution-based regardless of the clientele group they serve. MHSUs with chronic mental illness are an important clientele group for occupational therapist practicing VR because of their high level of vulnerability. Often, MHSUs with chronic mental illness have to compete for employment in a Namibian economy where broad unemployment rate stands at 33.4%.[12] It is therefore imperative that occupational therapists providing VR to MHSUs with chronic mental illness in L-UMIC such as Namibia are guided by a framework that is sensitive to contextual realities.

There is limited consensus in the literature on the definition of the concept and categorization of VR intervention offered by occupational therapists. One plausible categorization of VR types is by van Biljon et al[13] who identified six types, namely, prevention, screening, assessment, intervention, placement and follow-up. VR intervention focuses on correcting or compensating for work ability deficits and improve work performance.[13] Suijkerbuijk et al[14] identified four types of VR interventions. These are (i) prevocational training, (ii) transitional employment, (iii) supported employment, and (iv) augmented supported employment. Prevocational skills training includes job-related skills training and symptom-related skills training, with the latter comprising cognitive training and social skills training. Transitional employment is a highly structured intervention program where MHSUs who have expressed the desire to work are placed in the open labour market on a part-time basis for a period ranging from six to nine months.[15] During the period of transitional employment, MHSUs receive on-the-job and off-site support from the VR team. Unlike transitional employment, supported employment usually has no time limit, MHSUs follow a competitive interview process for the position, and they are paid at the prevailing wage of the position.[15] Supported employment is a career-oriented VR intervention where a MHSU is assisted accessing and being successful with employment through on-the-job and offsite support. Augmented supported employment is a combination of supported employment with either prevocational training or transitional employment. In addition to VR interventions identified by Suijkerbuijk et al[14], Swart and Buys[11] included work-hardening and case management. It is important to note that these VR intervention types do not necessarily follow a sequential process. Also, VR intervention categories seem to be overlapping. For example, Suijkerbuijk et al[14] categorized transitional and supported employment as VR intervention types, whereas van Biljon et al[13] categorized these under placement.

Vocational rehabilitation outcomes have been differentiated as hard outcomes or soft outcomes.[10] Ross[10] contends that soft outcomes are measures applicable to service users believed to be furthest away from labour market and therefore need a greater number of stepping stones. Examples of soft VR outcomes include engaging in voluntary work, doing a training course or achieving better quality of life. Examples of hard VR outcomes are; reduced number of days of absence from work, increased chances of returning to work, and improved benefit-to-cost ratios.[10] Other VR outcomes include improved self-esteem and self-concept, reduced symptoms of mental illness, increased personal empowerment and higher ratings of subjective wellbeing.[16]

Rationale

This scoping review comprises the first of four phases the authors will follow in developing a contextually relevant VR framework for MHSUs with chronic mental illness in Namibia. The purpose of this scoping review was to map the current evidence on institution-based VR for

MHSUs with chronic mental illness that fall within the occupational therapy scope of practice as defined by the World Federation of Occupational Therapists (WFOT), and originate in L-UMIC. The study identified VR interventions types, strategies, principles as well as VR outcomes. The authors focused on institution-based VR because of the current occupational therapy practice set-up in Namibia where therapists are institution-based. A scoping review was selected because it allows for exploring the breadth and depth of available evidence for the given population, concept and context.[16] The review findings will inform the second phase of the primary author's doctoral study, which will focus on engaging with stakeholders to explore factors that should be considered by occupational therapists for their VR with MHSU's in Namibia.[1]

Review Question

What is known from the existing literature about healthcare institution-based VR for MHSUs with chronic mental illness from L-UMIC?

Objectives

i. Provide a detailed overview of all the studies on institution-based VR of MHSUs with chronic mental illness, in occupational therapy, in L-UMIC.
ii. Identify institution-based VR interventions in occupational therapy for MHSUs who have chronic mental illness in L-UMIC.

Methods

Study Design

This scoping review followed a protocol[1] (Annex D) that was peer reviewed and published in the BMJ Open. As highlighted in the protocol, the scoping review was guided by a methodological framework originally suggested by Arksey and O'Malley[17], and subsequently refined by Levac et al[18] and Colquhoun et al[19]. The framework follows five successive steps namely; (i) defining the research question, (ii) identifying relevant studies, (iii) study selection, (iv) charting the data, and finally (v) collating, summarizing and reporting the results. Reporting of the findings of this review was guided by the Preferred Reporting Items for Systematic Reviews extension for Scoping Reviews (PRISMA-ScR) proposed by Tricco et al.[20] The PRISMA-ScR checklist used is attached as annex A.

Eligibility Criteria

The population, concept and context (PCC) criteria[21] was used to define the eligibility criteria. The population (P) was MHSUs who have chronic mental illness. Chronic mental illness was based on three aspects, (i) diagnosis criteria, (ii) period of illness, and (iii) the disability criteria.[7] In this review, chronic mental illness is non-organic and personality disorders; long history (2 years or more) of previous hospitalizations or outpatient treatment; and disability criterion including disturbing behavior, impairment in work and non-work activities and mild impairment in basic needs.[1,22] The concept (C) was institution-based VR provided for MHSUs by occupational therapists stationed at a facility. These facilities include clinics, hospitals or rehabilitation centres, day-care centres, half-way houses or home, sheltered employment facilities, correctional facilities and forensic mental healthcare settings.[1] In this study, VR is defined as evidence-based approach that is provided in different settings, services and activities to working age individuals with mental health-related impairments, limitations or restrictions with work, and whose primary aim is to optimise work participation.[11] The context (C) was L-UMIC as defined by World Bank income grouping. Sources published in English only

between 2011 and 2021 were eligible for inclusion The rationale for including sources from the last decade (2011 – 2021) was twofold. First, there was significant development that transpired in terms of VR during this period from 'train and place' to 'place first then train'. The second reason was that there has been an increase in the number of occupational therapists providing VR services to MHSUs in the last decade, therefore it was important for authors to focus on research produced in the same period.

Search Strategy

The search strategy was developed with the assistance of a qualified subject librarian from the University of Stellenbosch. A preliminary search was conducted on two databases, Pubmed and CINAHL. Results of the preliminary search led to the refinement of the search strategy covering all the three elements (PCC) of the scoping review question. The following main search string was used for identifying relevant sources*: (("Psychiatric Rehabilitation" OR "Rehabilitation, Vocational" OR "work rehabilitation" OR "Occupational Therapy") AND (mental disorders OR mental illness OR psychiatric disorders OR psychiatric illness) NOT (("North America" OR Europe*)) AND ((severe OR chronic OR long-term OR persistent)).* Medical Subject Heading (MeSH) terms, Boolean operators (i.e. AND, OR, NOT) and truncation strategy were used to refine the search.[1] The search was carried out in each of the following electronic data bases; PsycInfo, EBSCOhost, Google Scholar, Medline, CINAHL, PubMed, Cochrane library, Scopus, Science Direct, HINARI and Wiley online. Grey literature sources were searched through library links for universities subscribed to by all three authors engaged in this review. Additional search was done through checking bibliographies of all the included sources. The full search strategy is attached as annex B

Source of Evidence Screening and Selection

Sources that were identified through the above mentioned search strategy were uploaded in Mendeley Reference Manager[23] and initial deduplication was done. Sources were then exported from Mendeley to Rayyan[24] web application for systematic reviews where second deduplication was conducted. The first and third authors (LvN and HMvB) independently performed title and abstract screening of the uploaded sources guided by the PCC and inclusion criteria. The authors included peer-reviewed sources on VR interventions that fit into the occupational therapy scope and were published in English between 2011 and 2021 from L-UMICs.[1] The second author (LvN) resolved conflicts and her vote was final in making the decision to include or exclude a source. A second project was opened in Rayyan[24] where sources that were screened for title and abstract were loaded for full text screening. The first and third authors (MC and HMvB) did full text screening of first three sources together before they independently screened the rest of the sources. Conflicts where discussed and resolved with input from the second author (LvN), and the inclusion or exclusion criteria was regularly checked. Figure 1 below is the PRISMA flow diagram illustrating the process of searching and selecting sources for inclusion in this review.

[Figure 1: PRISMA Flow Diagram]

Extraction of Results

Data were extracted from each of the twelve included sources using a data extraction form that was develop by the first author and independently reviewed by the second and third authors. The template for intervention description and replication (TIDieR) checklist[25] was incorporated in the data extraction form. Extracted data covered the following; author (s), year of publication, country of origin, aim/purpose, study population and sample size, methodology, VR intervention type, VR intervention principles, VR intervention strategies, outcomes of the interventions, main conclusions and type of mental health care settings. Also, a summary of the levels of evidence of included sources was presented. The extracted data was transferred to spreadsheet and all three authors reviewed the information.

Ethics

Ethical clearance for this study was not required as secondary data was utilised and there was no MHSUs involved.

Patient and Public Involvement

There was no patient or public involvement.

Results

Characteristics of Included Sources

A total of 12 sources from four L-UMIC from the continents of Africa, Asia and South America were included. The countries were South Africa – 8 sources, India – 2 sources, Brazil and Kenya – 1 source each. All 12 sources were published between 2011 and 2020. The total number of study participants reported in the included sources was 1581, and only two sources reported the combined attrition of 108 participants. Age of the participants ranged from 18 to 60 years. Four studies[22][26][27][28] were conducted in urban settings, one in both urban and rural settings[29], and the rest of the included sources did not report on this aspect. In terms of socio-economic status of the participants, two sources[26][28] reported that participants were from low socio-economic status stratum, whereas the rest of the included sources did not state this component. Diagnoses reported in the sources were: schizophrenia, schizoaffective disorder, anxiety disorder, bipolar type I disorder, intellectual disability, major depression and obsessive-compulsive disorder.

The included sources used the following study designs: qualitative design - 4, quantitative design – 3, mixed methods design – 2, and Delphi Method -1. Two sources did not clearly state the design used. Qualitative designs included action research, phenomenology, interpretive biography, multiple collaborative research and focus group interviews. Single blinded randomized control and longitudinal descriptive designs were employed in quantitative designs. Table 1 below is a summary of the characteristics of included sources.

Table 1: Characteristics of Included Sources

Authors & year of publication	Country & Region	Study Design	Study Participants/target population	Sample size	Gender	Age of the study participants/target population	Location	Socio-economic status of the study participants/target population	Diagnosis of the study participants/target population
Adriana D.B. Vizzotto et al. 2016	Brazil, South America	Randomized controlled, single blind pilot study comparing the OGI method with craft activities.	Patients with Treatment Resistant Schizophrenia	30	Male 24, female 5.	18 - 55	Urban	Not stated	Schizophrenia
Hester van Biljon et al. 2015	South Africa, Africa	Action research phenomenology	Occupational therapists working in Gauteng's public healthcare, who were interested in vocational rehabilitation. Vocational rehabilitation experts	127 Occupational Therapists and 39 Vocational Rehabilitation experts	Not stated	Not stated	Not stated	Not stated	Not specified
Ikenna D. Ebuenyi et al. 2019	Kenya, Africa	A sequential mixed-method design	Persons with mental/psychosocial disabilities.	14 Individual interviews, 30 individuals in FGDs, 72 participated in quantitative study.	Males and females	Mean age of 40 years	Not stated	Not stated	Depression, schizophrenia, bipolar mood disorder
Chitra Khare et al 2020	India, Asia	Not specified	Psychiatric outpatients	552	Male 311, female 231	18-60	Rural & Urban	Not stated	schizophrenia, schizoaffective disorder, bipolar disorder, major depression
Reema Samuel, K. S. Jacob 2017	India, Asia	Narrative paper	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not specified
Hester M van Biljon et al 2016	South Africa, Africa	A multi-collaborative	Occupational therapists working in Gauteng's public healthcare, who	14 VRTT group, 242 OT clinicians	Not stated	Not stated	Not stated	Not stated	Not specified

		action research approach	were interested in vocational rehabilitation. Vocational rehabilitation experts	in Gauteng public sector, 26 OT working in Academics. 39 VR experts					
Tania Buys 2015	South Africa, Africa	A Delphi technique	Occupational Therapists	35	Not stated	Not stated	Not stated	Not stated	Not specified
Kreshnee Govender et al 2018	South Africa, Africa	Quantitative & Qualitative design using survey monkey	Qualified occupational therapists working in the private sector, those specializing in vocational rehabilitation in the private sector; working in health consulting and insurance sectors; occupational therapists involved in medico-legal work and work with RAF.	180	Not stated	Not stated	Not stated	Not stated	Not specified
Occupational Therapy Association of South Africa 2020	South Africa, Africa	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Injury, illness, impairment or congenital or acquired disability.
Madri Engelbrecht et al 2017	South Africa, Africa	Longitudinal descriptive design	Working age participants with a diagnosis of psychiatric disorder or intellectual disability	Group A - 25. Group B - 56.	Not stated	Working age but not specified	Urban	Low socio-economic group	Psychiatric disability, intellectual disability.
Lana Van Niekerk et al 2011	South Africa, Africa	Focus group interview	Service providers who had initiated SE programmes in the Cape	8	Not stated	Not stated	Urban	Not stated	Not specified
Lana Van Niekerk et al 2015	South Africa, Africa	longitudinal descriptive design	People with mental disabilities receiving SE in the Western Cape Province	Group A 29, Group B 56.	Not stated	Not stated	Urban	Low socio-economic group	Intellectual disability, Psychiatric disability (Schizophrenia,

									Schizoaffective disorder, Bipolar I).

Level of evidence of included sources

Levels of scientific evidence can be reliably used to summarize the quality of literature. There are five levels of scientific evidence.[30] Level 1 is the highest and it includes randomized control trials. Levels 2 and 3 include cohort and case control studies respectively, whereas level 4 encompasses non-experimental observational studies, case reports and case series.[30] Narrative reviews and expert opinions comprise the lowest level of scientific evidence i.e. level 5. In this study, one source by Vizzotto et al[22] is level 1, two sources by Engelbrecht et al[26] and van Niekerk et al[28] are level 2, and 7 sources[13,27,31–35] are level five. Two sources[29,36] did not specify methodology used.

Review Findings

The section presents the scoping review findings covering VR intervention types, VR intervention principles and outcomes, and recommendations from the included sources. A summary of the review findings is attached as Annex C.

Vocational Rehabilitation Intervention Types

The included sources reported different VR types. Supported employment was the most common VR intervention cited by four sources.[29][26][27][28] This is a VR intervention type that promotes the inclusion of persons with disabilities in competitive employment.[28] It is based on the assumption that people with the most severe disabilities can be integrated into competitive employment if they receive the right support.[28] The ongoing support can be provided by family members of the MHSU, the employer, occupational therapist or a job coach.[29][28][26]

Two sources[13][36] categorized VR intervention types into six categories that were quite similar. These were: (i) prevention, (ii) screening, (iii) assessment, (iv) intervention, (v) placement, and (vi) follow-up. Prevention includes providing educative services for the prevention of injury at work, to create an awareness of good work practice, as well as avoiding development and/or worsening of a condition. Screening entails a short prescriptive process to filter and refer MHSUs to more specialized occupational therapists or facilities, whereas intervention services are programs aimed at correcting or compensating for ability to work deficits.[13][36] Van Biljon et al[13] stated that placement services focus on the return of MHSUs to their own, alternative or new work area in the open labour market. Placement also include placement of MHSUs in sheltered or protected workshops.[13] Follow-up is done for MHSUs who used VR services and could be done with employers, referral sources, family members of MHSUs and MHSUs themselves.[13]

Case management and Goal Management Training (GMT) methods were also identified as possible VR intervention methods.[22][34] Case management can be utilized as an early intervention approach in VR of MHSUs once there has been an extended period of absence from work or a high rate of absence from work due to illness.[34] It involves developing a care plan, reskilling/training to aid in work re-entry, and work visits to liaise with employer to aid in the transition of the MHSU back to work.[34] Vizzotto et al[22] tested the efficacy of Occupational Goal Intervention Method for the improvement of executive functioning in MHSUs with Treatment Resistant Schizophrenia(TRS). This intervention was delivered over 15 weeks via 30 sessions with each session lasting 90 minutes. Focus of the intervention was

on activities of daily living and instrumental activities of daily living including money management and use of transportation. Their study concluded that Occupational Goal Intervention Method appeared to improve social and functional aspects of MHSUs with TRS. Other VR intervention types identified in this review were job seeker programs and related support, prevocational skills training and support, and social networks.[35][31]

Vocational Rehabilitation Intervention Principles

Five out of the 12 included sources stated a number of principles applied in VR.[32][33][34][27][28] Samuel and Jacob[32] in their study on the role of occupational therapy in bridging the gap between symptomatic improvement and functional recovery highlighted the following three principles; (i) patient and family empowerment, (ii) focus on achieving functional recovery, and (iii) optimizing the fit between an individual's abilities and the environmental demands. Buys[33] identified five principles in her study on professional competencies in VR, namely; client centered, objectivity, adaptability, professionalism and respect. Planning with the client, client advocacy and on-going individualized support are the principles specifically identified for case management and supported employment.[34][28] Van Niekerk et al[27] further reiterated the need to support MHSU goals and to empower them with choices and information, and they highlighted that support should be 'no more than needed and no less than necessary'.

Vocational Rehabilitation Intervention Strategies

All 12 included sources presented various VR intervention strategies. Khare et al[29] identified the following strategies; teaching illness self-management skills, systematic involvement of families and social networks to help with job finding, collaboration on mental illness management, and facilitating work in family business. Van Niekerk et al [27] and Engelbrecht et al[26] reported similar VR intervention strategies in their studies. These were job analysis and matching, job finding, job coaching, trial placement, simulated work, work in protective factories and sheltered workshops. Job analysis and matching involves evaluation of employment potential and goodness of job fit. Job advocacy at the job site with employers and co-workers was a strategy utilized in supported employment. Work visits were done to observe real work, to discuss reasonable accommodation and to assist with performance appraisals. Engelbrecht et al[26] further identified personal life skills training as an essential component of VR strategy. The personal life skills deemed essential in VR included money handling, grooming, use of transportation, time management and communication.

The Occupational Therapy Association of South Africa (OTASA)[36] position paper on VR stated a number of VR strategies that are applicable in various settings including mental healthcare settings. These strategies include sheltered workshops, entrepreneurship and self-employment initiatives, vocational guidance and counseling, as well as work adaptation. In addition, Buys[33] identified the following VR strategies, job description review, work hardening, work conditioning, stress management and job seeking skills training.

Vocational Rehabilitation Intervention Outcomes

VR intervention outcomes were reported for Supported Employment and Occupational Goal Intervention Method. Participants who engaged in supported employment earned more and worked more hours per month than those who had had prevocational training.[27] More so, supported employed allowed MHSUs to integrate into mainstream society, provided income and arena for social and personal development including improved self-esteem. Improved

income lessens the economic burden for government. Reduction in the consumption of mental health services was reported for MHSUs who entered employment.[26] A study by Adriana et al[22] showed that Occupational Goal Intervention Method appeared to improve social and functional aspects of patients with Treatment Resistant Schizophrenia.

Summary of conclusions and recommendations

Overall the included sources emphasized the need for contextually relevant vocational rehabilitation practice and advocated for the adoption of supported employment VR intervention for MHSUs. Van Biljon et al[35] concluded in their study by stating that having a comprehensive and contextually relevant tool that effectively indicate what VR services look like will be helpful to occupational therapists offering VR services in both public healthcare and in private practices. Khare et al[29] suggested in their conclusion that attention should be paid to adapting models of VR to the cultural context of developing countries to improve the employment outcomes of persons with serious mental illness. Buys[33] asserted the need for the occupational therapy profession to ensure that it provides competent, professional and contextually relevant VR services to clients which enables them to fulfil their roles as independent citizens. Similarly, the OTASA[36] position paper on VR concluded that the type of VR service that occupational therapists in South Africa offer should be dictated by the vocational needs and aspirations, social structures and contextual realities of MHSUs.

Three of the included sources concluded by advocating for supported employment as a model of choice in VR[26][27][28]. Engelbrecht et al[26] concluded that supported employment is cost effective and will combat unemployment, work towards poverty reduction and redress inequality for people with mental disabilities, hence it is a viable strategy for return to work endeavors. In addition to proposing supported employment as a model of choice to drive the process of economic empowerment for persons facing disabling conditions, van Niekerk et al[27] recommended a holistic approach to supported employment because it has components such as placement in suitable work and reasonable accommodation that do not necessarily follow a linear process. Van Niekerk[28] recommended the need for providers of supported employment to modify approaches in order to meet contextual realities.

Discussion

This study set out to scope the literature on VR for MHSUs with chronic mental illness, in occupational therapy, produced in L-UMICs. The study further identified the different types, principles and strategies of institution-based VR interventions for MHSUs. Types of vocational rehabilitation intervention identified included supported employment, case management and prevocational skills training. Client centeredness, support and empowerment were the key vocational rehabilitation principles identified. Teaching illness self-management, job analysis and matching, job coaching, trial placement, and vocational guidance and counseling, and work hardening were the main intervention strategies reported.

Overall, the majority of included sources were from South Africa with only one source from Kenya completing the representation from African continent. Only two sources from India and one from Brazil represented the Asian and South American continents respectively. The low number of sources possibly confirm limited research in the field of VR for MHSUs with chronic mental illness in L-UMIC, which could be attributed to a couple of factors. There is a high patient-therapist ratio in the field of mental health in L-UMICs, thus occupational

therapists do not have sufficient time and skills to document and publish their work. Another possible contributing factor to low number of sources could be the limited resources such as funding, publishing journals and tertiary institutions providing occupational therapy training. As a result, occupational therapists cannot afford the cost of publishing in journals from high income countries and they lack academic support to help with their academic writing skills and ethical clearance for their research.

The main VR types identified in African and Asian sources were supported employment, case management, prevocational and vocational skills training. Goal Management Training Method[22] was the only intervention type identified from the one included source from South American continent. Using the categorization of VR types suggested by Van Biljon et al[13], supported employment fits in two categories, intervention and placement. Prevocational and vocational skills training fall under traditional VR intervention, which is a stepwise path that focuses on assessment and job matching prior to job search.[37] The included sources did not specify institution-based VR interventions. One possible reason for this observation could be due to the current set-up of occupational therapy practice in L-UMIC. Occupational therapists tend to be institution based regardless of the VR intervention type that they provide. Also, institution-based VR in L-UMIC lack human and capital resources such as therapists and transport needed to move beyond the institutions. Generally, due to a variety of reasons as alluded above, there is dearth of documented evidence supporting occupational therapists involvement in VR.[38]

Vocational rehabilitation intervention principles identified in this review focused on client centredness, achieving functional recovery, as well as advocating for client and family support. These principles are well enshrined within the general occupational therapy intervention principles. Client centredness is a key element of occupational therapy practice that demands for the formation of partnerships with MHSUs, which allows for the exploration, understanding, and promotion of engagement in their chosen or expected occupations including work[39]. Applying the principle of client centredness in VR intervention five rules should be considered based on a framework suggested by Gretschel and Galvaan.[39] MHSUs should be considered holistically, they should be viewed as experts of their own occupational engagement, their values and goals must be respected, therapist-person partnerships should be facilitative and not directive, and contextual congruence must be inherent in the VR interventions designed.[39] Supportive relationship is another VR principle that is integral to the success of VR interventions. Occupational therapists, employers, coworkers and family members provide hope, empathy and encouragement, all resulting in enhanced confidence at work, increased work-related skills and greater ability of MHSUs to fit within a particular work/employment situation.[40] Also, given the reality that mental disability tends to be episodic and fluctuates over time, and due to limited understanding of mental illness in L-UMICs, it is imperative that VR intervention is structured to offer on-going support in and beyond institution boundaries.[11]

Regarding VR intervention strategies, the included sources clearly focused on simultaneously placing MHSUs in competitive work and providing support through networks and negotiating with employer and managing symptoms. This highlights a shift from the traditional VR strategies which focus on train-first-then-place. However, this strategy may pose a challenge in L-UMICs where unemployment rates are high resulting in MHSUs competing for employment with the mainstream community.[12] Self-employment initiatives is therefore a

realistic VR intervention strategy.[38] Occupational therapists are sufficiently skilled to facilitate self-employment, and can contribute towards alleviating unemployment among MHSUs with chronic mental illness by identifying potential and encouraging entrepreneurship and self-employment opportunities.[38] Swart and Buys[11] contend that in addition to the various VR intervention strategies that occupational therapists utilize, traditional psychosocial intervention such as stress management, conflict management and relaxation therapy should be considered depending on client needs.

Implication for Research

The findings of the scoping review provide the authors with thematic areas to consider when developing the semi-structured interview guide that will be utilized to explore factors to be considered for VR intervention in the Namibian context. The proposed thematic areas are; (i) VR interventions applicable to Namibia context, (ii) VR principles to be applied, (iii) VR intervention strategies, (iv) VR stakeholders to be engaged in Namibia including their roles, and (v) general recommendations for the implementation of VR in Namibia for MHSUs with chronic mental illness.

Implication for Practice

In terms of occupational therapy practice in VR, the findings of this review highlight the need to shift from the current practice to *place and train* models in L-UMIC. Institution based VR should take shorter time compared to the traditional VR approach and rather focus on identifying potential areas for placement and support in the natural work contexts for MHSUs. In the context of L-UMICs where unemployment rates are high, VR intervention may need to focus on strategies that support self-employment initiatives. Client centeredness is a key principle in planning for VR interventions and ensuring that intended VR outcomes are achieved. There is a need for occupational therapists to have insight into and adapt vocational rehabilitation intervention strategies to the demographic and socio-economic context of the L-UMIC in which they practice.[38] Occupational therapists and other VR stakeholders should provide the right level of individual support to MHSUs in VR and be able to adapt this support according to the needs of the client.

Strengths and Limitations

Strengths

The study followed a scoping review protocol[1] that was peer reviewed and published in BMJ Open on 14 July 2021. Pre-scheduled weekly meetings among the three authors were used to promote momentum and discussions throughout the project Also, the authors used human and other library resources from two different universities, University of Namibia and Stellenbosch University.Limitations

Sources published in non-English languages were excluded from this review, therefore the authors concede that sources from L-UMIC in languages such as Spanish could have been missed. Due to the dearth of publications from L-UMIC the evidence presented in this article cannot be seen to represent VR for MHSUs in occupational therapy globally. No quality appraisal was done on the included sources.

Conclusion

This review mapped the current evidence in VR for MHSUs with chronic mental illness in L-UMICs. Review findings indicate the need for institution based occupational therapists in L-UMICs to shift from a traditional vocational rehabilitation approach to interventions that do not cease upon discharge but include place-train-and-support approaches. VR interventions should extend their focus on supporting MHSUs in their natural work settings or potential work settings. Such intervention should include factors such as getting to and from work, job seeking skills, upskilling within the larger labour market, and it should include placement considerations such as self-employment and unpaid work. The authors recommend further studies on VR interventions and outcomes for MHSUs in low resourced communities focusing on practical and unique realities experienced by such communities. More so, it is imperative that researchers in the field of occupational therapy, mental health and VR strive for levels 1 and 2 of scientific evidence to inform practice.

Author Contributions

Three authors were involved in conceptualizing, drafting and editing this scoping review. The first author, Munyaradzi Chimara, conducted this scoping review as part of his doctoral studies. Second and third authors, Professor Lana van Niekerk and Dr Hester Maria van Biljon respectively, were involved as academic supervisors in all the stages followed in this scoping review study.

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Competing interest statement

The authors hereby declare that there is no conflict of interest from the publication of this paper.

Data availability statement

No additional data are available

List of Figures

Figure 1: PRISMA Flow Diagram

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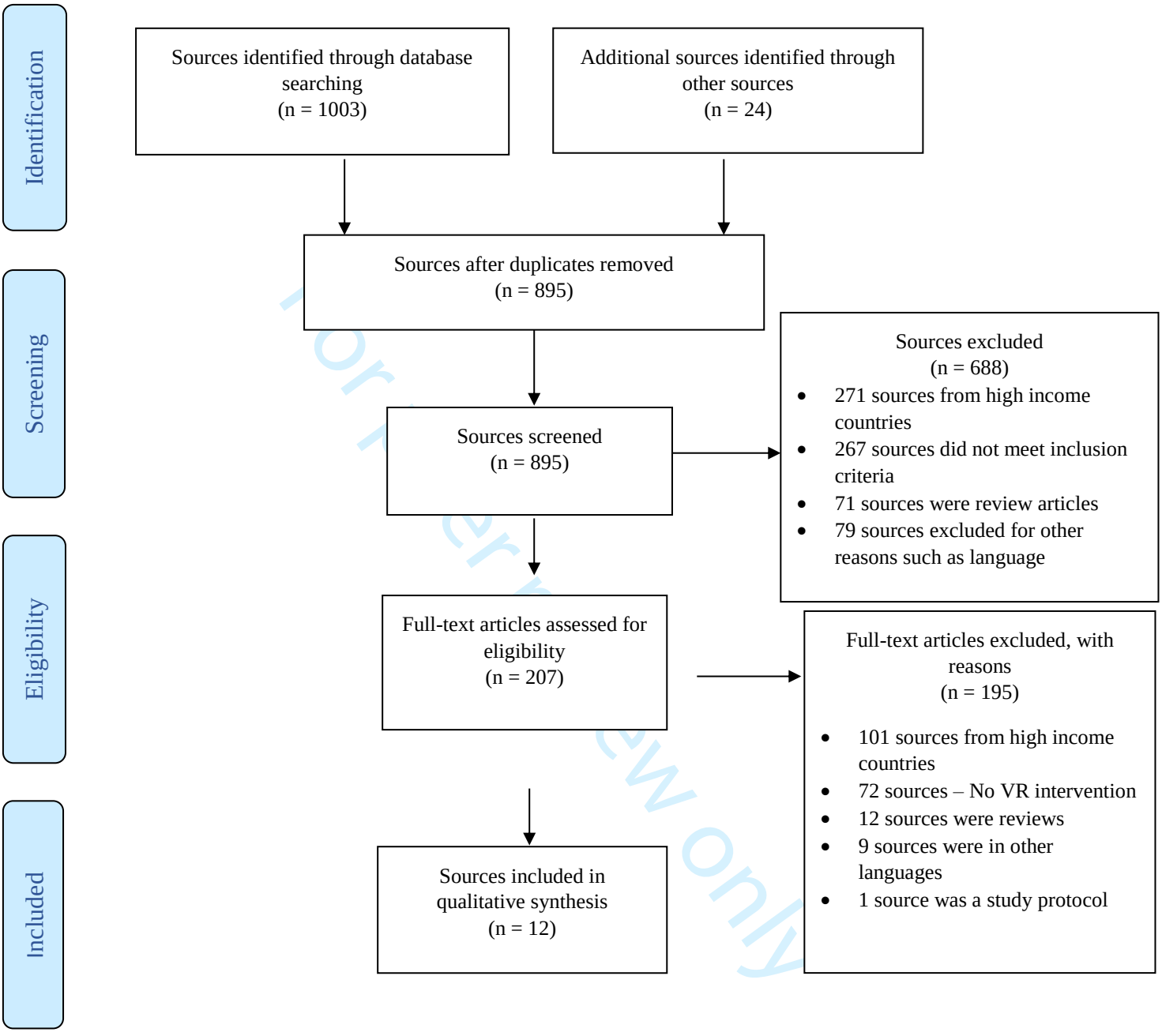
Figure 1; PRISMA flow diagram



Prisma flow diagram for a scoping review exploring vocational rehabilitation interventions for mental health service users with chronic mental illness in low-income to upper-middle-income countries.

Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	
Limitations	20	Discuss the limitations of the scoping review process.	
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

Annex B – Search Strategy Summary for the Scoping Review

Period search was conducted	15 July 2021 to 31 August 2021
Inclusion criteria	• Mental Health Service User • Psychiatric patients • Chronic mental illness • Vocational rehabilitation • Psychosocial rehabilitation • Occupational therapy • Low-income, low-middle- income and upper-middle-income countries • English language • Published from 2011 and later
Exclusion criteria	• Systematic and scoping reviews • Source published in other languages, not English. • Sources published prior to 2011. • Sources from high-income countries • Full-text not available
Libraries	Worldwide
Pubmed, Medline, CINAHL, PsycInfo, Science Direct,	"Mental disorders"[MESH] AND (Severe OR Chronic OR long-term OR persistent) AND ("Psychiatric Rehabilitation"[Mesh]) OR "Rehabilitation, Vocational"[Mesh] OR "work rehabilitation" OR "Occupational Therapy"[MESH])
Google Scholar, HINARI and Wiley online	("Vocational Rehab"* OR "Work Rehab*") AND ("Severe mental illness" OR "Chronic Mental illness") AND "Occupational Therapy" NOT ("North America" or Europe*)
EBSCOhost, Cochrane library, Scopus,	(("Psychiatric Rehabilitation" OR "Rehabilitation, Vocational" OR "work rehabilitation" OR "Occupational Therapy") AND (mental disorders OR mental illness OR psychiatric disorders OR psychiatric illness) NOT (("North America" OR Europe*)) AND ((severe OR chronic OR long-term OR persistent)).
Grey Literature Sources	https://libguides.sun.ac.za/medicine/e-theses https://wiki.lib.sun.ac.za/index.php/SUNScholar/Completed_theses_and_dissertations

Summary of Findings

Authors & year of publication	Title	Aim of Study	Type of Mental Healthcare Institution	VR Intervention Type(s)	Duration of Intervention	VR Intervention Principles	VR Intervention Strategies	VR Intervention outcomes	Main Conclusion
Adriana D.B. Vizzotto et al. 2016	A pilot randomized controlled trial of the Occupational Goal Intervention method for the improvement of executive functioning in patients with treatment-resistant schizophrenia	To test the efficacy of the Occupational Goal Intervention (OGI) method for the improvement of EF in patients with TRS.	Schizophrenia Research Program of the institute of psychiatry - University of Sao Paulo School of Medicine. (Sao Paulo General Hospital)	Goal Management Training (GMT) method	15 weeks, 30 sessions, 90 minutes per session	Not stated	In the OGI group, the initial sessions targeted ADL (personal hygiene), followed by IADL (housework, money management, and use of transportation), social activities, and leisure. Each patient was given four homework assignments in order to practice the daily living tasks they had learned	Outcome measures correlate significantly with the total PANSS score, showing that the degree of severity of schizophrenia is inversely related to the improvement of EF (BADS), Functional Outcome (DAFS-BR) and patient autonomy (ILSS-BR). With regards to effect analysis, , over the course of the study period, there were no major changes regarding the clinical stability of the patients. Results suggest that the use of the OGI method is an effective strategy that can benefit patients with TRS. As expected, outcome measures were shown to be significantly intercorrelated.	"The OGI method has been shown to be reliable and effective for patients with TRS. In addition, the method appears to improve social and functional aspects of patients with TRS."
Hester van Biljon et al. 2015	An Action Research Approach to Profile an Occupational Therapy Vocational Rehabilitation Service in Public Healthcare	The aim of the project was to develop a tool that would allow occupational therapists doing vocational rehabilitation, to systematically and comprehensively profile their services	Not stated	Return to work program. Job-seeker programs and related support. Prevocational skills training and support.	Not stated	Not stated	Work-hardening, work readiness, conditioning.	Not stated	Having a comprehensive and contexually relevant tool that effectively indicates what a vocational rehabilitation service looks like, and /or should look like, will be helpful to occupational therapists that are offering, or wish to offer, vocational rehabilitation services in the public healthcare as well as in private practices. This allows them to set goals and develop their practices in a systematic and mindful manner.

Ikenna D. Ebuenyi et al. 2019	Employability of Persons With Mental Disability: Understanding Lived Experiences in Kenya	To highlight the barriers to employment experienced by persons with mental disabilities in Kenya and how they manage to find work against all the odds.	Not stated	Social networks for persons with mental disabilities. Provision of reasonable accommodation in the workplace and healthcare sectors.	Not stated	Not stated	Setting up social development programs that would provide individuals who want to opt for self-employment. Community based rehabilitation.	Not stated	Our study has highlighted that persons with mental disabilities in Kenya can work. We have also shed light on the various challenges (personal and environmental) affected persons encounter in their quest to enjoy their fundamental human right to employment.
Chitra Khare et al 2020	Employment functioning in people with severe mental illnesses living in urban vs. rural areas in India	To examine rates and patterns of work, interest in work, and perceived benefits and barriers to work in people with SMI.	Private Psychiatric outpatients department	Supported employment	Not stated	Not stated	Teaching illness self-management skills in supported employment. Systematic involvement of families in supported employment, including help with job finding through their extended social networks, collaboration on mental illness management, and facilitating work in family business.	Not stated	The findings suggest that attention should be paid to adapting models of vocational rehabilitation to the cultural context of developing countries to improve the employment outcomes of persons with SMI.
Reema Samuel, K. S. Jacob 2017	Occupational therapy in India: focus on functional recovery and need for empowerment	To discuss the role of occupational therapy in bridging the gap between symptomatic improvement and functional recovery.	Not stated	Not stated	Not stated	Patient and family empowerment. Focus on achieving functional recovery. Optimizing the fit between an individual's abilities and the environmental demands.	Group therapy. Motivational enhancement therapy. Rehabilitative and recovery model (prevocational evaluation, vocational training, life skills training). Cognitive therapy. Behaviour therapy approaches. Graded exercises to manage deficient or maladaptive task and social and occupational skills.	Improved and enhanced self-esteem through graded tasks, improved goal setting, and problem-solving and decision-making skills.	While it can be argued that the Indian government should modify legislation, open more tertiary care hospitals, grant more educational institutions to train personnel, and likewise, it is time to look at modifiable factors from an individual perspective. The answer might lie in improving one's own understanding of the complexity of mental illness, increasing the repertoire of treatment models, liaising with the multidisciplinary team,

									changing our own attitudes about the treatment process, and practicing instead of preaching client-centeredness.
Hester M van Biljon et al 2016	Opinions of occupational therapists on the positioning of vocational rehabilitation services in Gauteng Public Healthcare	To report on the opinions of occupational therapists on the positioning of vocational rehabilitation services in the Gauteng province.	Not stated	Prevention is an educative service for the prevention of injury at work and to create an awareness of good work practice, averting the development and/or exacerbation of pathology. Screening of general or specific work related skills is a short prescriptive process used to filter and effectively refer patients to more specialised therapists or facilities and supports efficient service delivery. Assessment services involve the assessment of the ability of a person who has an injury or illness's, to be able to work. Intervention services are programmes aimed at correcting or compensating for ability to work deficits. Placement services are the returning of patients to their own, alternative or new work in the open labour market; or to sheltered - or protected workshops. Follow up is done of patients who used the services	Not stated	Not stated	Stress management. Job modification, case management, pain management, work hardening, work preparation or readiness, work visits, work guidance, work-place accommodation, work adaptation, job seekers groups, self-employment initiatives, support groups and other return to work efforts. Job analysis. Vocational guidance and counselling, outpatient support groups, job acquainting, adaptation and accommodation efforts.	Not stated	The results of this survey showed a general lack of consensus amongst occupational therapists about what vocational rehabili tation services should be offered at the different levels of public healthcare. With singular exceptions the generic opinion was that occupational therapy's vocational rehabilitation services should be offered in public healthcare. No other opinions from this survey give guidance or insight to support planning and policy making.

				offered, this could be with employers, referral sources, family members and the patients themselves					
Tania Buys 2015	Professional competencies in vocational rehabilitation: Results of a Delphi study	To identify professional competencies required to practice in the area of work by occupational therapists.	Not stated	Vocational training, placement and follow-up. Work readiness/ work preparation programmes	Not stated	Client centered, objectivity, adaptability, professionalism, respect.	Vocational guidance, job analysis, workplace visits, job description review, reasonable accommodations, work hardening, work conditioning, work simulation, life skills, stress management, prevocational skills, job-seeking skills training.	Not stated	We need to as an occupational therapy profession to ensure that we provide competent, professional, contextually relevant vocational rehabilitation services to clients which enables them to fulfil their roles as independent citizens in a democratic South Africa free from disability discrimination.
Kreshnee Govender et al 2018	The role of the occupational therapist in case management in South Africa	To identify the occupational therapist's role and scope of practice in case management in South Africa.	Not stated	Case management - appears to be utilised as part of an early intervention approach once there has been an extended period of absence from work or a high rate of absence due to illness (where the service entails comprehensive assessment to determine a care plan and coordinating and monitoring client care to prevent long term absenteeism thereby contributing to cost containment).	Not stated	Planning with the client. Client advocacy.	Work site visits. Liaison with the employer to aid in the employee's transition back to work, client's reintergration in the work environment. Develop a care plan. Re-skilling/training to aid in a work re-entry.	Not stated	The study reveals that occupational therapists in South Africa are involved in case manager functions and are implementing case management as a strategy or approach to manage incapacity due to ill-health and disability in the workplace. Occupational therapists in South Africa that are positioned in various settings viz. insurance, private practice, health consult ing, and Workmen's Compensation, have indicated involvement in case management and this study confirmed the utilisation of this intervention in vocational rehabilitation and as an element of dis ability management.

Occupational Therapy Association Of South Africa 2020	Position paper on vocational rehabilitation	Not stated	Various settings including schools for learners with special needs transitioning to world of world.	Prevention is an educative service for the prevention of injury at work and to create an awareness of good work practice, averting the development and/or exacerbation of pathology. Screening of general or specific work related skills is a short prescriptive process used to filter and effectively refer patients to more expereinced therapists. Assessment and evaluation services. Intervention services are aimed at correcting adapting or compensating for ability to work deficits.	Not stated	Not stated	Skills trainig, sheltered workshops, entrepreneurial and self-employment initiatives. Job modification, case management, work trials, work hardening, work preparation/readiness, work visits, work/vocational guidance and counselling, work-palce accommodation, work adaption, job seekers groups, support groups. Job analysis,	Not stated	The primary aim of occupational therapy's vocational rehabilitation intervention needs to be relevant and of therapeutic value to the client so as to meet SDG9 as far as it is possible. The type of vocational rehabilitation service that occupational therapists in South Africa offer should be dictated by the vocational needs and aspirations, social structures and contextual realities of the clients. All occupational therapists can and should be able to offer basic vocational rehabilitation. Newly qualified occupational therapists have to be able to work independently at a basic level in a variety of vocational rehabilitation settings. Those vocational rehabilitation services that require competencies beyond a basic level need to be referred to therapists who have acquired, and can provide proof of the additional necessary competencies that provide ompetent, professional, contextually relevant vocational rehabilitation services to clients they see.
Madri Engelbrecht et al 2017	Supported Employment for people with mental disabilities in South	To report on the cost and affordability of SE services offered to people with mental	Psychiatric hospital in Cape Town (clients from forensic	Supported employment	Not stated	Not stated	Job matching. Work in protective factories. Personal life skills training (money	Reduction in the consumption of mental health services by people who entered employment. SE	Evidence from the study thus reflects the cost of SE services to people with mental disability as

	Africa: cost calculation of service utilisation	disabilities in South Africa.	wards, general wards and the outpatient department).				handling, grooming, use of transportation, management of symptoms, time management, communication). Simulated work. Trial placement, job advocacy (at job site with employers and co-workers). Evaluation of goodness of job fit. Evaluation of employment potential. Work visit (to observe real work, to discuss reasonable accommodation, to assist with performance appraisal). Job coaching and job support. Bridging programme in preparation for employment in the open labour market. Support group	promotes an outcome of open labour market employment with the ssociated monetary and non-monetary benefits.	substantially lower than the current government investment in disability grants and protective workshops subsidies. SE will combat unemployment, work towards poverty reduction and redress inequality as it pertains to people with disabilities. engagement with funding sources that currently support traditional vocational rehabilitation approaches is needed to present SE as a viable alternative strategy for return-to-work endeavors.
Lana Van Niekerk et al 2011	Supported employment: Recommendations for successful implementation in South Africa	To report on the findings of a descriptive qualitative study in which supported employment (SE), as a potential strategy to facilitate the employment of persons with disability in the open labour market in South Africa.	Not stated	Supported employment	Not stated	Competitive employment should always be the ultimate outcome. A client-centered approach should be used. Support should be provided to ensure long-term sustainability employment. Support consumer goals and empower them with choices and information. No more support than needed and	Job finding, job analysis, job matching, job coaching. On-going support that is determined by the worker's individual needs. Protective and sheltered workshops.	SE achieve participation in competitive employment. Participants in SE earned more and worked more hours per month than those who had had prevocational training. Person with disabilities have an opportunity to be an active and contributing member of the society. Lessen the économic burden the government. Positively influence the disabled person's health and well-being. Provided income, personal development, provided arina for social development, self esteem and identity. Integration of persons with disability into mainstream society.	"The authors propose SE as a model of choice to drive the process of economic empowerment for persons facing disabling conditions. In developing a SE model suitable for South Africa, funding and infrastructure should be used in such a way that integrated career management is a viable option for persons with disability. A holistic approach is needed because components of SE, such as the assessment of work skills, placement in suitable work and reasonable

						no less than necessary.			accommodation do not necessarily follow a linear process."
Lana Van Niekerk et al 2015	Time utilisation trends of supported employment services by persons with mental disability in South Africa	To determine the feasibility of supported employment (SE) as a strategy with which to facilitate the employment of persons with disability in competitive work contexts.	Psychiatric hospital in Cape Town (clients from forensic wards, general wards and the outpatient department).	Supported employment (SE) is a return-to-work strategy promoting the inclusion of persons with dis abilities in competitive employment environments. Prepare work placement. Work visit.	Not stated	On-going support. Individualized support. Advocacy.	Job finding, Job analysis, Job matching and Job coaching. Reasonable accommodation. On-going support. Protective workshops. Non-job advocacy. Personal life skills. Simulated work. Trial placement, Person-centred instructional plans, Job advocacy - at job site with employers. Job advocacy - co-workers (and customers). Evaluation of employment potential. Evaluation of goodness of job fit. Work visit to observe real work. Work visit to discuss reasonable accommodation. Work visit to assist with performance appraisal.	To achieve employment outcomes for people with mental disabilities. Integration of mental health service users in the workplace.	SE services can be considered as a viable option for return to work in resource-constrained environments. Providers of SE services will need to modify approaches in order to meet contextual realities. Because the bulk of costs associated with SE are in the remuneration of service providers, understanding the number of provider hours necessary will be an important consideration for employers in middle income countries who are concerned with the feasibility of SE.

Open access Protocol

BMJ Open

Vocational rehabilitation for mental health service users with chronic mental illness in low-income to upper-middle-income countries: a scoping review protocol

Munyaradzi Chimara ,[1] Lana van Niekerk,[2] Hester Maria van Biljon[3]

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For numbered affiliations see end of article.

Correspondence to
Mr Munyaradzi Chimara; munyagreen@hotmail.com

ABSTRACT

Introduction Work is integral to the occupations of human beings and accounts for up to a third of time spent in an average adult life. Occupational therapists play a role in vocational rehabilitation of mental health service users (MHSUs) with the aim of optimising their work participation. It is advisable that occupational therapists providing vocational rehabilitation to MHSUs with chronic mental illness in mental healthcare settings are guided by a practice framework developed for that particular context. This scoping review aims to summarise existing evidence on vocational rehabilitation for MHSUs in low-income to upper-middle-income countries. The findings will inform subsequent phases of research undertaken to formulate a vocational rehabilitation practice framework for MHSUs in Namibia.

Methods and analysis The scoping review will employ the five stage methodological framework proposed by Arksey and O'Malley. This will be used in conjunction with the Preferred Reporting Items for Systematic Reviews extension for Scoping Reviews (PRISM-ScR) and Joanna Briggs scoping review guidelines. MESH terms, Boolean operators and truncation strategies will be employed for a comprehensive article search in electronic scholarly databases. These databases will include PsycINFO, EBSCOhost, HINARI, Google scholar, Medline, CINAHL, PubMed, Cochrane Library, Scopus, Science Direct and Wiley Online Library. Mendeley and Rayyan, both open source platforms, will be used for title, abstract and full-text screening, as well as data extraction. Data will be sifted and sorted by key categories and themes using a data charting form.

Ethics and dissemination The scoping review findings will be published in a peer-reviewed journal and presented at local and international conferences. Ethical clearance for this study will not be required as secondary data will be utilised and there are no patients involved.

Strengths and limitations of this study

- ► Regular peer debriefing with second and third authors will enhance credibility of the scoping review findings.
- ► A health sciences librarian have been consulted and will remain involved in the search strategy.
- ► The scoping review protocol have been submitted for registration and publication, thus exposing it to a rigorous peer review process.
- ► A key limitation is that the review will include sources published in English only due to lack of funding for this project.

INTRODUCTION

The first author (MC) for this scoping review protocol is pursuing doctoral studies of which the proposed scoping review forms the foundation. The envisaged outcome of the doctoral studies will be a vocational rehabilitation (VR) practice framework for mental health service users (MHSUs) with chronic mental illness in Namibia, which will be used by occupational therapists working in mental healthcare settings. The process of developing this practice framework will follow four sequential phases; (1) scoping review of VR of MHSUs in low-income to upper-middle income countries, (2) stakeholder engagement to explore factors to be considered for VR in Namibia, (3) expert consensus on guideline statements and (4) evidence synthesis to produce the draft occupational therapy VR framework for MHSU with chronic mental illness. The second and third authors are involved in the project as primary (LvN) and secondary (HMvB) supervisors, respectively.

Background

Work provides a significant life role that accounts for up to a third of an average adult life.[1] Work is also fundamental to the practice of occupational therapy, which is built on a belief in the necessity and value of occupation.[1] Occupational therapists use occupations or activities that are meaningful and purposeful to restore or maintain function in

the areas of work, self-care and leisure for people with physical and/or psychosocial dysfunction. The meaning of vocational or work rehabilitation is understood differently by different groups of people and professions. In occupational therapy practice, VR is defined as an evidence-based systematic process provided in different settings, services and activities to working age individuals with health-related impairments, limitations or restrictions with work functioning, and whose primary aim is to optimise work participation.[2] VR 'is whatever helps someone with a health problem to stay at, return to and remain in work'.[3] It enables persons with physical or mental impairments or disabilities to overcome barriers to accessing, maintaining or returning to employment or other useful occupations.[4] It is provided in different settings including hospitals, rehabilitation centres, workplace, sheltered employment facilities, etc. In the VR process, occupational therapists often provide a bridge that links clients to employers, doctors, and other stakeholders involved.[1]

van Biljon *et al*[5] identified six types of VR services specifically offered by occupational therapists. These are prevention, screening, assessment, intervention, placement and follow-up. Prevention focuses on providing education and raising awareness of good work practice to avoid development and/or worsening of illness. Vocational assessment entails measuring or determining the ability of a person who has an illness to be able to work whereas intervention aims at correcting or compensating for work ability deficits and improve work performance.[5] Intervention which is the focus of the proposed scoping review, therefore, include work preparation, readiness, work hardening, guidance, accommodation, adaptation, workplace visits, self-employment initiatives as well as support groups.[5] Placement entails facilitating clients' return to work while follow-up involves monitoring and evaluating progress made with clients who received VR service through telephonic or electronic communication or workplace visits.[5] Although the types of VR identified above seem to follow a sequential process from prevention to follow up, current evidence suggests a paradigm shift towards 'place first then train'.[6] Place first then train VR strategy promotes rapid placement of MHSUs in competitive work settings, followed by in vivo support, resources and training that helps the individual to successfully remain in those settings.[6] This means that placement and follow-up can be viewed as part of VR intervention. However, based on the first author's experience in and observation of VR for MHSUs in low-income to middle-income countries, the concept of 'place first then train' as well as supported employment is not well established in these settings.

For MHSUs with chronic mental illness, work is of particular importance to their mental health and well-being. Evidence indicates that engagement in employment or work by itself is 'associated with reduced symptoms, reduced hospital admissions, improved social skills, improved self-esteem, improved family atmosphere and greater personal independence'.[2] Moreover, work is a significant means for MHSUs to meet their basic needs and is relevant to their social status, feeling of personal accomplishment, freedom and security.[4] Work enables social inclusion and provides opportunity for MHSUs to make a meaningful contribution to the community.[7] Swart and Buys[2] assert that people with mental disabilities should work to get better rather than getting better to work. Lloyd[7] reported that 'people with chronic mental illness actively strive to obtain meaningful roles and an appropriate vocational place in the community'.

Occupational therapists play a central role in VR for MHSUs with chronic mental illness. They use their knowledge of pathology together with their ability to analyse activity to improve the occupational performance area of work.[5] Using a Delphi technique with a panel of 35 occupational therapists, Buys[8] identified 16 occupational therapy professional competencies that are essential in the delivery of VR services to workers with disabilities in South Africa. One of the key competencies identified by Buys[8] is that occupational therapists should understand various VR services and apply the VR process within a variety of contexts.

Ross[1] suggests five types of knowledge that occupational therapists use in occupation-focused VR. These include; (1) work and workplace knowledge; (2) occupational knowledge; (3) social equity knowledge; (4) condition-based knowledge and (5) other knowledge. Work and workplace knowledge entails the nature and demands of the job, employer perspective as well as legislation governing work. Occupational knowledge is drawn from the occupational science paradigm. It is centred on human occupation and enshrines the value of participation in meaningful occupations, worker identity as well as occupational justice. Social equity knowledge is about the impact of societal barriers on social inclusion, whereas condition-based knowledge entails the nature of individuals' condition or disability's potential impact on function. Finally, Ross[1] categorises other knowledge as sector-specific information such as the field of insurance and information technology.

Given the above background, it is indeed essential that occupational therapists providing VR to MHSUs with chronic mental illness in mental healthcare settings are guided by a framework developed for a particular context. This is aligned to the decoloniality concept, which stresses the need for contextually relevant practice that prioritises the physical, environmental, socioeconomic and cultural conditions of the people whom occupational therapists serve.[9] The proposed scoping review, therefore aims to gather evidence on VR strategies and interventions used in institutional settings for MHSUs in comparable contexts to Namibia. Countries to be considered as having comparable contexts to Namibia shall be based on income groups as defined by the World Bank. Three of the four income groups, namely low, low-middle-income and upper-middle-income countries will be considered for the proposed scoping review.

Review objectives

Given the above background, the key objectives of the proposed scoping review are:

1. Provide a detailed overview of all the studies on VR of MHSUs with chronic mental illness, within the occupational therapy scope of practice, in low-income to upper-middle-income countries.
2. Identify the different types, principles and strategies of institution-based VR interventions within the occupational therapy scope of practice for MHSUs who have chronic mental illness in low-income to upper-middle-income countries.

Review question

The following question will be considered in the scoping review: What is known from the existing literature about institution based VR for MHSUs who have chronic mental illness from low-income to upper-middle-income countries?

METHODS

Study design

The proposed scoping review will employ a methodological framework originally suggested by Arksey and O'Malley[10] and subsequently refined by Levac *et al*[11] and Colquhoun *et al*.[12] The framework is composed of five successive stages namely:

1. Defining the research question.
2. Identifying relevant studies.
3. Study selection.
4. Charting the data.
5. Collating, summarising and reporting the results.

The aforementioned framework will be used in conjunction with the Preferred Reporting Items for Systematic Reviews extension for Scoping Reviews (PRISMA-ScR) proposed by Tricco *et al*.[13] PRISMA-ScR provides a reporting guide that outlines a minimum set of items that should be included in scoping reviews.[13] The guideline consist of 20 essential reporting items and two[2] optional items applicable for scoping reviews. According to Tricco *et al*,[13] in addition to providing a reporting guidance for this specific type of knowledge synthesis, PRISMA-ScR increases methodological transparency and update of research findings.

Time frame

The scoping review will be conducted between June 2021 and August 2021. Additional time may be allocated to allow authors to incorporate changes to the scoping review protocol based on inputs from reviewers.

Stage I: defining the research question(s)

A clear review question helps the researcher to search literature effectively, and provides a sound structure for the development of the scoping review report.[14] A scoping review question should have three elements; population, concept and context (PCC).[14] Arksey and O'Malley[10] recommend that a wide approach should be maintained in phrasing the scoping review question in order to generate breadth of coverage. Subquestions may be necessary to justify mapping of the evidence by population or context.[14] Therefore, the broad question for this scoping review is; what is known from the existing literature about institution based CR fitting into the scope of occupational therapists for MHSUs who have chronic mental illness from low and middle income countries? Breaking down the question into PCC, the population is 'MHSUs with chronic mental illness', the concept is 'VR', and the context is 'institutions in low to upper middle income countries'.

Stage II: identifying relevant studies

In order for the scoping review to be as comprehensive as possible, the research evidence will be searched through different sources, namely, electronic databases, reference lists and handsearching of key journals.[10] A preliminary literature search on the scoping review topic to clarify the inclusion and exclusion criteria was conducted on a couple of databases including Pubmed with the assistance from a qualified subject librarian. A full search strategy is attached as online supplemental file Annexure A.

In order to refine the search, the librarian recommended the use of Medical Subject Heading (MeSH) terms, Boolean operators (ie, AND, OR, NOT) and truncation (*) strategy. The outcome of the preliminary literature search was a list of pertinent words and index terms to inform the subsequent structured search.[15] The identified primary and secondary search terms are as follows: vocational rehab*, work rehab*, occupational rehab*, psychosocial rehab*, psychiatric rehab*, mental disorders, chronic mental illness, persistent mental illness, severe mental illness, excluding Europe and North America. The next step will be a comprehensive structured search as suggested by the Joanna Briggs Institute (JBI).[14] The comprehensive structured search will be carried out on each of the following electronic scholarly databases; PsycInfo, EBSCOhost, Google Scholar, Medline, CINAHL, PubMed, Cochrane library, Scopus, Science Direct, HINARI and Wiley online library. Grey literature will be searched through library links such as 'libguides.sun.ac.za/medicine/e-thesis'. Search results will be exported from databases and imported to Mendeley citation management software where duplicates will be removed. Citations will be exported from Mendeley in a Research Information System format and imported to Rayyan for title and abstract screening. Bibliographies of studies identified through electronic database searches will be checked until saturation point is reached.[10] Saturation point will be reached when no new sources are identified from bibliographies of included sources. Full texts of articles will be reviewed if the researcher is not in a position to decide on the inclusion or exclusion of the study on the basis of the title and abstract.[15] Finally, the researcher

will handsearch key journals in order to identify articles that could have been missed in databases and reference list searches.[10]

Stage III: study selection

Rayyan, which is an open source web-based software platform, will be used for title and abstract screening, full-text screening and data extraction. Two reviewers, the first author and the third author, will be independently engaged in the screening process. Each reviewer will have three options when selecting the articles, that is, Yes, Maybe or No. A third reviewer, the second author, will be used if there is conflict in the selection process and her vote will be final. The Rayyan software for deduplication of citations and use of exclusion and inclusion key words will be used. During the selection process Rayyan detects, highlights and summarises keywords for include, keys words for exclude, as well as exclusion reasons. This function will help the author to identify sources that may be included or excluded, respectively.

Inclusion criteria

Studies meeting the PCC criteria will be considered for inclusion.[14] In this study, the type of participants (P) are MHSUs who have chronic mental illness, the concept (C) is VR within occupational therapy scope of practice, and the context (C) is institutions in low to upper middle income countries. Therefore, peer-reviewed sources on VR interventions that fit into the occupational therapy scope and performed in low-income to middle-income countries, available in English and published between 2010 and 2021 will be included in the scoping review. Additional inclusion criteria will include grey literature sources and sources that passed through the ethical clearance process.

Given the above mentioned criteria the following definition of terms will be used:

Chronic mental illness

Diagnostic criterion of non-organic and personality disorders; long history (2 years or more) of previous hospitalisations or outpatient treatment; and disability criterion including disturbing behaviour, impairment in work and non-work activities and mild impairment in basic needs.[16]

Vocational rehabilitation

A multiprofessional evidence-based approach that is provided in different settings, services, and activities to working age individuals with health-related impairments, limitations or restrictions with work functioning, and whose primary aim is to optimise work participation.[2]

Institutions

These are facilities where MHSUs may receive VR service. They include clinics, hospitals or rehabilitation centres, day-care centres, half-way houses or home, sheltered employment facilities, correctional facilities and forensic mental health settings.

Low-income to middle-income countries

Countries whose economies are classified as low income, low-middle income or high middle income by the World Bank.

The review will only include recent sources from the last decade (2011–2021) because of the significant development that has happened in terms of VR in this period from ‘train and place’ to ‘place first then train’. Also, there has been an increase in the number of occupational therapists providing VR services to MHSUs in the last decade hence the need to focus on research produced during this period. The sources will be limited to those published in English because of limited funding for this project.

Stage IV: charting the data

The fourth stage of the scoping review as proposed by Arksey and O’Malley[10] will entail charting the data of articles selected in stage three. The charting process involves synthesising and interpreting qualitative data by sifting and sorting information by key categories and themes.[10] In order to take a broader view on VR for MHSUs, at the same time applying a common analytical framework to all selected studies, a ‘descriptive-analytical’ method will be employed.[10] The first author will develop a data charting form which will be independently reviewed by the second and third authors. All 12 items from the Template for Interventions Description and Replication checklist[17] will be incorporated in the data charting form (online supplemental file Annexure B) which will be used to enter the data from selected sources using Microsoft Excel programme. The following information will be captured during this process; Author(s), year of publication, origin/country of origin, aims/purpose, study population and sample size, methodology/methods, intervention type, comparator and details of these, duration of the intervention, outcomes of interventions used and details of these, key findings that relate to the scoping review question.

Stage V: collating, Summarising and reporting the results

This stage entails three subphases; (1) data collation and analysis, (2) reporting of results and outcomes, (3) and relating the results to scoping review objectives and/or questions.[13 15] A flow diagram will be used to present the numbers of sources of evidence screened, assessed for eligibility and included in the review.[13] Basic numerical and descriptive qualitative analysis of the distribution of the studies by year of publication, countries of origin, VR intervention type/strategy and research methods adopted will be presented in a table format. Categories of VR intervention will be based on groups suggested by van Biljon *et al*.[5] These include work preparation, work readiness, work hardening, guidance, accommodation, adaptation, work placement, workplace visits, self-employment initiatives and support groups. In addition, study population, duration of intervention, outcomes of the intervention, key findings and the gaps in research will be presented

for each and every source included. Gaps in research will entail areas of further study identified by the sources. Given the above, it is envisaged that a comprehensive summary of evidence on institution based VR for MHSUs with chronic mental illness will be presented. However, analysis of extracted data is not expected to go beyond a basic descriptive analysis as this is not expected of this scoping review.

Stage VI: consultation exercise and Stakeholder involvement

Consultation and stakeholder involvement is an optional but essential sixth stage suggested by Arksey and O'Malley.[10] In order for the scoping review results to be made more useful key stakeholders should contribute through sharing insights otherwise not found in the scholarly literature.[10 15] Therefore, the researcher will engage international networks who have interest in VR for MHSUs such as the Occupational Therapy African Regional Group and the World Federation for Mental Health. Also, subsequent to this scoping review, the researcher will engage local stakeholders who will include MHSUs, their family members and occupational therapists providing VR to MHSUs with chronic mental illness, to apply the scoping review findings to the local context.

Patient and public involvement

No patients will be involved.

DISCUSSION

It is envisaged that through this scoping review the first author will gather and examine the nature and extent of available literature on VR of MHSUs in low-income to upper-middle-income countries. This will be a critical step that lays the foundation for the proceeding steps in the development of a VR framework for MHSUs in the Namibian context. A VR practice framework for MHSUs with chronic mental illness will be the main outcome of the first author's PhD study. Therefore, the scoping review findings will potentially inform the development of data collection tools that will be used during stakeholder consultations in phase two of the study. Thematic areas to be covered will include, but not limited to VR intervention types, duration of the intervention, intervention principles and strategies, as well as outcomes of the interventions. More so, scoping review findings will be published in a peer-reviewed journal and presented at local and international conferences. In addition to the expected contribution to scholarly literature, the findings will guide future research in the field of mental health and VR.

Strength and limitations

Methodological rigour is the key strength of the proposed scoping review. This scoping review protocol was developed using the latest evidence in scoping review methodology. The evidence used include JBI,[14] PRISMA extension for scoping reviews[13] and a scoping review framework proposed by Arksey and O'Malley.[10] Regular peer debriefing with the second and third authors will enhance credibility and hence trustworthiness of the study. More so, the scoping review protocol will be submitted for registration and publication, therefore, it will be exposed to rigorous peer review process. On the other hand, key limitation to this scoping review is the fact that non-English sources will be excluded mainly because of lack of funding for this project.

DISSEMINATION AND ETHICS

This scoping review will be the first step in the development of a VR framework for MHSUs with chronic mental illness in Namibia. It is anticipated that the scoping review findings will provide a summary of VR strategies in comparable contexts to Namibia. The researcher aims to submit written scoping review findings for possible publication by an international peer-reviewed journal. In addition, the findings will be presented at local and international scientific congresses and conferences. Ethical clearance for this study will not be required as secondary data will be used.

Author affiliations
[1]Physical Medicine and Rehabilitation, University of Namibia Faculty of Health Sciences, Windhoek, Namibia
[2]Occupational Therapy, Stellenbosch University Department of Medicine, Cape Town, Western Cape, South Africa
[3]Occupational therapy, Stellenbosch University Faculty of Medicine and Health Sciences, Cape Town, Western Cape, South Africa

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Contributors Three authors were involved in conceptualising, drafting and editing this protocol in preparation for scoping review. The first author, MC, drafted the protocol script as part of his doctoral studies. Second and third authors, LvN and HMvB, respectively, helped with protocol development and will continue with screening of sources and data extraction.

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ORCID iD
Munyaradzi Chimara http://orcid.org/0000-0002-5720-3867

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A scoping review exploring vocational rehabilitation interventions for mental health service users with chronic mental illness in low-income to upper-middle-income countries

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A scoping review exploring vocational rehabilitation interventions for mental health service users with chronic mental illness in low-income to upper-middle-income countries

Author: Munyaradzi Chimara (Corresponding Author)
Postal Address: P.O. Box 50738, Bachbrecht, Windhoek, Namibia
Department: Occupational Therapy and Physiotherapy
Institution: University of Namibia
City: Windhoek
Country: Namibia
Email Address: munyagreen@hotmail.com or mchimara@unam.na
Telephone: +264 813 906 771 and +264 61 206 5083
ORCID 0000-0002-5720-3867

Co-author 1: Lana van Niekerk
Department: Division of Occupational Therapy, Department of Health and Rehabilitation Sciences, Faculty of Medicine and Health Sciences.
Institution: Stellenbosch University
City: Cape Town
Country: South Africa
Email: lanavn@sun.ac.za
ORCID 0000-0003-0003-6006

Co-author 2: Hester Maria van Biljon
Department: Division of Occupational Therapy, Department of Health and Rehabilitation Sciences, Faculty of Medicine and Health Sciences
Institution: Stellenbosch University
City: Cape Town
Country: South Africa
Email: hestermvanbiljon@gmail.com
ORCID 0000-0003-4433-6457

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Abstract

Objective

To synthesize research published on vocational rehabilitation (VR) interventions offered in institutions, by occupational therapists, to mental health service users (MHSUs) with chronic mental illness, in low-income to upper middle-income countries (L-UMIC).

Design

This scoping review used Arksey and O'Malley's methodological framework, the Preferred Reporting Items for Systematic Reviews extension for Scoping Reviews (PRISMA-ScR) and Joanna Briggs scoping review guidelines.

Data sources

We searched PsycInfo, EBSCOhost, HINARI, Google scholar, Medline, CINAHL, PubMed, Cochrane Library, Scopus, Science Direct and Wiley online library between 15 July and 31 August 2021.

Eligibility criteria

Sources, published in English between 2011 and 2021, on institution-based VR in occupational therapy for MHSUs who had chronic mental illness in L-UMIC were included. We included primary studies of any design.

Data extraction and synthesis

Three reviewers used Mendeley to manage identified references, Rayyan for abstract and full text screening, and Microsoft Excel for data extraction. Data was sifted and sorted by key categories and themes.

Results

895 sources were identified, and their title and abstracts reviewed. 207 sources were included for full text screening. 12 articles from 4 countries (South Africa, India, Brazil & Kenya) were finally included. Types of VR intervention included supported employment, case management and prevocational skills training. Client centeredness, support and empowerment were the key VR principles identified. Teaching of illness self-management, job analysis and matching, job coaching, trial placement, and vocational guidance and counseling, were the main intervention strategies reported.

Conclusions

VR intervention in institutions for MHSUs in L-UMIC revealed the multidimensional uniqueness of individual MHSU's vocational ability, needs and contexts. The interventions allowed client-centered approaches that offer support, and empowerment beyond the boundaries of the institutions. Occupational therapists offering VR need to expand their interventions beyond their institutions to contexts where MHSUs are working or intending to work.

Keywords: vocational rehabilitation, chronic mental illness, occupational therapy.

Strengths and limitations of this study

- The study followed a scoping review protocol that was peer reviewed and published.
- Pre-scheduled weekly meetings among the three authors were used to promote momentum and discussions throughout the project.
- The authors used human and other library resources from two universities, namely the University of Namibia and Stellenbosch University.

- Sources from non-English speaking countries might have been missed and many such countries fall within the socio-economic inclusion criteria; the review was limited to English-language sources as there was no funding available for translation.
- Due to the dearth of publications from low-income to upper middle-income countries, the evidence presented in this article cannot be seen to represent vocational rehabilitation for mental health service users within the scope of occupational therapy globally.

Introduction

Vocational Rehabilitation (VR) among mental health service users (MHSUs) with chronic mental illness is an area of concern in low-income to upper middle-income countries (L-UMIC). The majority of global burden of mental disorders is located in L-UMIC[1], yet public expenditure on mental health, including rehabilitation services, is very low in these countries where less than one percent of total budget is allocated for mental health with resources predominantly directed to institution based care.[2,3] One such country is Namibia, located in the south-western part of Africa, and in which the first author (MC) resides. The estimated prevalence of mental illness in Namibia is 2838,71 per 100 000 population.[3] This scoping review forms the first phase of a four phased project, and the envisaged main outcome of the project is a VR practice framework for MHSUs with chronic mental illness in Namibia.

The World Bank classifies countries according to their gross national income (GNI) per capita in United States (US) dollars.[4] There are four classes of economies. For the 2022 fiscal year the GNI per capita for low-income economies was $1046 or less; for lower middle income economies $1046 to $4095; upper middle-income economies ranged from $4096 to $12 695; and high-income economies were those with GNI per capita of $12 696 or more.[5] Namibia was ranked as upper middle-income country at the time of this study. Other countries ranked as upper middle income are South Africa, Botswana and Libya, whereas Zimbabwe, India and Kenya are examples of lower middle-income countries. Examples of low income countries are Malawi, Uganda and Burundi.[5]

Chronic mental illness can be defined using three criteria suggested by Bachrach[6], namely diagnostic criterion, duration of illness and disability criterion. The Diagnostic and Statistical Manual of Mental Disorders fifth edition (DSM-5) developed by the American Psychiatric Association is widely used in L-UMIC for the diagnostic criteria. Using the DSM-5, common mental conditions include schizophrenia spectrum and other psychotic conditions, bipolar and related disorders, depressive disorders and anxiety disorders.[7] In this review, duration of mental illness considered for chronicity was two years regardless of the number of relapses and remissions. The disability criterion, which is perhaps the most important of the three criteria for chronicity from the perspective of rehabilitation personnel, entails disturbing behavior, impairment in work and non-work activities and mild impairment in basic needs.[6]

Occupational therapists are health and social care professionals who use occupations or activities to restore or maintain function in the areas of work, self-care and leisure for people with physical and/or psychosocial dysfunctions.[8] Occupational therapists play an important role in VR of MHSUs with chronic mental illness who are either employed, unemployed or on sick leave.[9] Through VR occupational therapists help MHSUs to gain work, return to work or maintain an existing worker role.[10] Ross[10] highlights six stages followed in the VR process

that are somewhat similar to the occupational therapy process. These are referral, assessment, prevocational phase, worksite visit, return to work plan, intervention, evaluation and discharge. Using the VR process, occupational therapists apply various VR strategies, and work with a variety of people and professions spanning both industrial and healthcare sectors.[9] They employ a variety of occupational therapy professional competencies that include activity analysis, job analysis, identification of essential job functions, knowledge of mental health conditions, functional capacity evaluations etc.[11] In the Namibian context, occupational therapists who provide VR service are institution-based regardless of the clientele group they serve. MHSUs with chronic mental illness are an important clientele group for occupational therapist practicing VR because of their high level of unemployment vulnerability. Often, MHSUs with chronic mental illness have to compete for employment in a Namibian economy where general unemployment rate stands at 33.4%.[12] It is therefore imperative that occupational therapists providing VR to MHSUs with chronic mental illness in L-UMIC such as Namibia are guided by a framework that is sensitive to contextual realities.

There is limited consensus in literature on the definition of the concept and categorization of VR interventions offered by occupational therapists. One plausible categorization of VR types is by van Biljon et al[13] who identified six types, namely, prevention, screening, assessment, intervention, placement and follow-up. VR interventions focus on correcting or compensating for work ability deficits and improve work performance.[13] Suijkerbuijk et al[14] identified four types of VR interventions. These are (i) prevocational training, (ii) transitional employment, (iii) supported employment, and (iv) augmented supported employment. Prevocational skills training includes job-related skills training and symptom-related skills training, with the latter comprising cognitive training and social skills training. Transitional employment is a highly structured intervention program where MHSUs who have expressed the desire to work are placed in the open labour market on a part-time basis for a period ranging from six to nine months.[15] During the period of transitional employment, MHSUs receive on-the-job and off-site support from the VR team. Unlike transitional employment, supported employment usually has no time limit, MHSUs follow a competitive interview process for the position, and they are paid at the prevailing wage of the position.[15] Supported employment is a career-oriented VR intervention where a MHSU is assisted accessing and being successful with employment through on-the-job and offsite support. Augmented supported employment is a combination of supported employment with either prevocational training or transitional employment. In addition to VR interventions identified by Suijkerbuijk et al[14], Swart and Buys[11] included work-hardening and case management. It is important to note that these VR intervention types do not necessarily follow a sequential process. Also, VR intervention categories seem to be overlapping. For example, Suijkerbuijk et al[14] categorized transitional and supported employment as VR intervention types, whereas van Biljon et al[13] categorized these under placement.

Vocational rehabilitation outcomes have been differentiated as hard outcomes or soft outcomes.[10] Ross[10] contends that soft outcomes are measures applicable to service users believed to be furthest away from labour market and therefore need a greater number of stepping stones. Examples of soft VR outcomes include engaging in voluntary work, doing a training course or achieving better quality of life. Examples of hard VR outcomes are; reduced number of days of absence from work, increased chances of returning to work, and improved benefit-to-cost ratios.[10] Other VR outcomes include improved self-esteem and self-concept,

reduced symptoms of mental illness, increased personal empowerment and higher ratings of subjective wellbeing.[16]

Rationale

This scoping review comprises the first of four phases the authors will follow in developing a contextually relevant VR framework for MHSUs with chronic mental illness in Namibia. The purpose of this scoping review was to map the current evidence on institution-based VR for MHSUs with chronic mental illness that fall within the occupational therapy scope of practice as defined by the World Federation of Occupational Therapists (WFOT), and originate in L-UMIC. The study aimed to identify VR interventions types, strategies, principles as well as VR outcomes. The authors focused on institution-based VR because of the current occupational therapy practice set-up in Namibia where therapists are institution-based. A scoping review was selected because it allowed for exploring the breadth and depth of available evidence for the given population, concept and context.[16] The review findings will inform the second phase of the primary author's doctoral study, which will focus on engaging with stakeholders to explore factors that should be considered by occupational therapists for their VR with MHSU's in Namibia.[8]

Review question

What is known from the existing literature about healthcare institution-based VR for MHSUs with chronic mental illness from L-UMIC?

Objectives

i. Provide a detailed overview of all the studies on institution-based VR of MHSUs with chronic mental illness, in occupational therapy, in L-UMIC.
ii. Identify institution-based VR interventions in occupational therapy for MHSUs who have chronic mental illness in L-UMIC.

Methods

Study design

This scoping review followed a protocol[8] that was peer reviewed and published. As highlighted in the protocol, the scoping review was guided by a methodological framework originally suggested by Arksey and O'Malley[17], and subsequently refined by Levac et al[18] and Colquhoun et al[19]. The framework follows five successive steps namely; (i) defining the research question, (ii) identifying relevant studies, (iii) study selection, (iv) charting the data, and finally (v) collating, summarizing and reporting the results. Reporting of the findings of this review was guided by the Preferred Reporting Items for Systematic Reviews extension for Scoping Reviews (PRISMA-ScR) proposed by Tricco et al.[20] The PRISMA-ScR checklist used is attached as Annex A (supplementary file 1). Two adjustments were done to the methodology thus creating minor discrepancies between this study and its protocol. The first adjustment was the delay in identifying relevant studies because the authors had to wait for the publication of the protocol. The second adjustment was the withdrawal of stakeholder engagement during the scoping review study. The authors will conduct a separate and comprehensive study where stakeholders in VR will be engaged to share their views on factors to be considered for institution-based VR of MHSUs with chronic mental illness in Namibia.

Eligibility criteria

The population, concept and context (PCC) criteria[21] was used to define the eligibility criteria. The population (P) was MHSUs who had chronic mental illness. Chronic mental illness was based on three aspects, (i) diagnosis criteria, (ii) period of illness, and (iii) the disability criteria.[6] In this review, chronic mental illnesses were identified as non-organic and personality disorders; long history (2 years or more) of previous hospitalizations or outpatient treatment; and disability criterion including disturbing behavior, impairment in work and non-work activities and mild impairment in basic needs.[8,22] The concept (C) was institution-based VR provided for MHSUs by occupational therapists stationed at a facility. These facilities include clinics, hospitals or rehabilitation centres, day-care centres, half-way houses or home, sheltered employment facilities, correctional facilities and forensic mental healthcare settings.[8] In this study, VR is defined as evidence-based approach that is provided in different settings, services and activities to working age individuals with mental health-related impairments, limitations or restrictions with work, and whose primary aim is to optimise work participation.[11] The context (C) was L-UMIC as defined by World Bank income grouping. Sources published in English only between 2011 and 2021 were eligible for inclusion The rationale for including sources from the last decade (2011 – 2021) was twofold. First, there was significant development that transpired in terms of VR during this period from 'train and place' to 'place first then train'. The second reason was that there has been an increase in the number of occupational therapists providing VR services to MHSUs in the last decade, therefore it was important for authors to focus on research produced in the same period. The authors included primary studies of any design that addressed VR interventions for MHSUs with chronic mental illness in L-UMIC.

Search strategy

The search strategy was developed with the assistance of a qualified subject librarian from the University of Stellenbosch. A preliminary search was conducted on two databases, Pubmed and CINAHL. Results of the preliminary search led to the refinement of the search strategy covering all the three elements (PCC) of the scoping review question. The following main search string was used for identifying relevant sources*: ((("Psychiatric Rehabilitation" OR "Rehabilitation, Vocational" OR "work rehabilitation" OR "Occupational Therapy") AND (mental disorders OR mental illness OR psychiatric disorders OR psychiatric illness) NOT (("North America" OR Europe*)) AND ((severe OR chronic OR long-term OR persistent)).* Medical Subject Heading (MeSH) terms, Boolean operators (i.e. AND, OR, NOT) and truncation strategy were used to refine the search.[8] The search strategy was refined and tailored to specific databases and run in each of the following electronic data bases; PsycInfo, EBSCOhost, Google Scholar, Medline, CINAHL, PubMed, Cochrane library, Scopus, Science Direct, HINARI and Wiley online. Grey literature sources were searched through library links for universities subscribed to by all three authors engaged in this review. Additional search was done through checking bibliographies of all the included sources. The full search strategy is attached as Annex B (supplementary file 2).

Screening and selection

Sources that were identified through the above mentioned search strategy were uploaded in Mendeley Reference Manager[23] and initial deduplication was done. Sources were then exported from Mendeley to Rayyan[24] web application for systematic reviews where second deduplication was conducted. The first and third authors (MC and HMvB) independently

performed title and abstract screening of the uploaded sources guided by the PCC and inclusion criteria. The authors included peer-reviewed sources on VR interventions that fit into the occupational therapy scope and were published in English between 2011 and 2021 from L-UMICs.[8] The second author (LvN) resolved conflicts and her vote was final in making the decision to include or exclude a source. A second project was opened in Rayyan[24] where sources that were screened for title and abstract were loaded for full text screening. The first and third authors (MC and HMvB) did full text screening of first three sources together before they independently screened the rest of the sources. Conflicts where discussed and resolved with input from the second author (LvN), and the inclusion or exclusion criteria was regularly checked. Figure 1 below is the PRISMA flow diagram illustrating the process of searching and selecting sources for inclusion in this review.

[Figure 1: PRISMA Flow Diagram]

Data extraction

Data were extracted from each of the twelve included sources using a data extraction form that was develop by the first author and independently reviewed by the second and third authors. The template for intervention description and replication (TIDieR) checklist[25] was incorporated in the data extraction form. Extracted data covered the following: author (s), year of publication, country of origin, aim/purpose, study population and sample size, methodology, VR intervention type, VR intervention principles, VR intervention strategies, outcomes of the interventions, main conclusions and type of mental health care settings. Also, a summary of the levels of evidence of included sources was presented. The extracted data was transferred to spreadsheet and all three authors reviewed the information.

Data analysis

On conclusion of data extraction, a basic numerical and qualitative thematic analysis was done in Microsoft Excel. All three authors were involved in the analysis and met weekly on-line and through WhatsApp group to discuss analysis issues and ensure uniform procedure. Qualitative data was extracted to show geographical origins of sources, demographic profile and socioeconomic features of participants, as well as methodological features of the sources. All three authors individually read and inductively coded the data, creating provisional categories. During discussions among the authors categories were refined, and through deductive thematic analysis themes were identified by consensus.

Ethics

Ethical clearance for this study was not required as secondary data was utilised and there were no MHSUs involved.

Patient and public involvement

There was no patient or public involvement.

Results

Characteristics of included sources

A total of 12 sources from four L-UMIC drawn from studies done in Africa, Asia and South America were included. The countries were South Africa – 8 sources, India – 2 sources, Brazil and Kenya – 1 source each. All 12 sources were published between 2011 and 2020. The total

number of study participants reported in the included sources was 1581, and only two sources reported the combined attrition of 108 participants. Age of the participants ranged from 18 to 60 years. Four studies[22][26][27][28] were conducted in urban settings, one in both urban and rural settings[29], and the rest of the included sources did not report on this aspect. In terms of socio-economic status of the participants, two sources[26][28] reported that participants were from low socio-economic status stratum, whereas the rest of the included sources did not state this component. Diagnoses reported in the sources were: schizophrenia, schizoaffective disorder, anxiety disorder, bipolar type I disorder, intellectual disability, major depression and obsessive-compulsive disorder.

The included sources used the following study designs: qualitative design - 4, quantitative design – 3, mixed methods design – 2, and Delphi Method -1. Two sources did not clearly state the design used. Qualitative designs included action research, phenomenology, interpretive biography, multiple collaborative research and focus group interviews. Single blinded randomized control and longitudinal descriptive designs were employed in quantitative designs. Table 1 below is a summary of the characteristics of included sources.

Table 1: Characteristics of included sources

Authors & year of publication	Country & Region	Study Design	Study Participants/target population	Sample size	Gender	Age of the study participants/target population	Location	Socio-economic status of the study participants/target population	Diagnosis of the study participants/target population
Adriana D.B. Vizzotto et al. 2016	Brazil, South America	Randomized controlled, single blind pilot study comparing the OGI method with craft activities.	Patients with Treatment Resistant Schizophrenia	30	Male 24, female 5.	18 - 55	Urban	Not stated	Schizophrenia
Hester van Biljon et al. 2015	South Africa, Africa	Action research phenomenology	Occupational therapists working in Gauteng's public healthcare, who were interested in vocational rehabilitation. Vocational rehabilitation experts	127 Occupational Therapists and 39 Vocational Rehabilitation experts	Not stated	Not stated	Not stated	Not stated	Not specified
Ikenna D. Ebuenyi et al. 2019	Kenya, Africa	A sequential mixed-method design	Persons with mental/psychosocial disabilities.	14 Individual interviews, 30 individuals in FGDs, 72 participated in quantitative study.	Males and females	Mean age of 40 years	Not stated	Not stated	Depression, schizophrenia, bipolar mood disorder
Chitra Khare et al 2020	India, Asia	Not specified	Psychiatric outpatients	552	Male 311, female 231	18-60	Rural & Urban	Not stated	schizophrenia, schizoaffective disorder, bipolar disorder, major depression
Reema Samuel, K. S. Jacob 2017	India, Asia	Narrative paper	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not specified
Hester M van Biljon et al 2016	South Africa, Africa	A multi-collaborative	Occupational therapists working in Gauteng's public healthcare, who	14 VRTT group, 242 OT clinicians	Not stated	Not stated	Not stated	Not stated	Not specified

		action research approach	were interested in vocational rehabilitation. Vocational rehabilitation experts	in Gauteng public sector, 26 OT working in Academics. 39 VR experts					
Tania Buys 2015	South Africa, Africa	A Delphi technique	Occupational Therapists	35	Not stated	Not stated	Not stated	Not stated	Not specified
Kreshnee Govender et al 2018	South Africa, Africa	Quantitative & Qualitative design using survey monkey	Qualified occupational therapists working in the private sector, those specializing in vocational rehabilitation in the private sector; working in health consulting and insurance sectors; occupational therapists involved in medico-legal work and work with RAF.	180	Not stated	Not stated	Not stated	Not stated	Not specified
Occupational Therapy Association of South Africa 2020	South Africa, Africa	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Not stated	Injury, illness, impairment or congenital or acquired disability.
Madri Engelbrecht et al 2017	South Africa, Africa	Longitudinal descriptive design	Working age participants with a diagnosis of psychiatric disorder or intellectual disability	Group A - 25. Group B - 56.	Not stated	Working age but not specified	Urban	Low socio-economic group	Psychiatric disability, intellectual disability.
Lana Van Niekerk et al 2011	South Africa, Africa	Focus group interview	Service providers who had initiated SE programmes in the Cape	8	Not stated	Not stated	Urban	Not stated	Not specified
Lana Van Niekerk et al 2015	South Africa, Africa	longitudinal descriptive design	People with mental disabilities receiving SE in the Western Cape Province	Group A 29, Group B 56.	Not stated	Not stated	Urban	Low socio-economic group	Intellectual disability, Psychiatric disability (Schizophrenia,

									Schizoaffective disorder, Bipolar I).

Level of evidence of included sources

Levels of scientific evidence can be reliably used to summarize the quality of literature. There are five levels of scientific evidence.[30] Level 1 is the highest and it includes randomized control trials. Levels 2 and 3 include cohort and case control studies respectively, whereas level 4 encompasses non-experimental observational studies, case reports and case series.[30] Narrative reviews and expert opinions comprise the lowest level of scientific evidence i.e. level 5. In this study, one source by Vizzotto et al[22] is level 1, two sources by Engelbrecht et al[26] and van Niekerk et al[28] are level 2, and 7 sources[13,27,31–35] are level five. Two sources[29,36] did not specify methodology used.

Review findings

The section presents the scoping review findings covering VR intervention types, VR intervention principles and outcomes, and recommendations from the included sources. A summary of the review findings is attached as Annex C (supplementary file 3).

(i) Intervention types

The included sources reported different VR types. Supported employment was the most common VR intervention cited by four sources.[29][26][27][28] This is a VR intervention type that promotes the inclusion of persons with disabilities in competitive employment.[28] It is based on the assumption that people with the most severe disabilities can be integrated into competitive employment if they receive the right support.[28] The ongoing support can be provided by family members of the MHSU, the employer, occupational therapist or a job coach.[29][28][26]

Two sources[13][36] categorized VR intervention types into six categories that were quite similar. These were: (i) prevention, (ii) screening, (iii) assessment, (iv) intervention, (v) placement, and (vi) follow-up. Prevention included providing educative services for the prevention of injury at work, to create an awareness of good work practice, as well as avoiding development and/or worsening of a condition. Screening entailed a short prescriptive process to filter and refer MHSUs to more specialized occupational therapists or facilities, whereas intervention services were programs aimed at correcting or compensating for ability to work deficits.[13][36] Van Biljon et al[13] stated that placement services focus on the return of MHSUs to their own, alternative or new work area in the open labour market. Placement also included placement of MHSUs in sheltered or protected workshops.[13] Follow-up was done for MHSUs who used VR services and could be done with employers, referral sources, family members of MHSUs and MHSUs themselves.[13]

Case management and Goal Management Training (GMT) methods were also identified as possible VR intervention methods.[22][34] Case management was utilized as an early intervention approach in VR of MHSUs once there had been an extended period of absence from work or a high rate of absence from work due to illness.[34] It involves developing a care plan, reskilling/training to aid in work re-entry, and work visits to liaise with employer to aid in the transition of the MHSU back to work.[34] Vizzotto et al[22] tested the efficacy of Occupational Goal Intervention Method for the improvement of executive functioning in MHSUs with Treatment Resistant Schizophrenia(TRS). This intervention was delivered over 15 weeks via 30 sessions with each session lasting 90 minutes. Focus of the intervention was on activities of daily living and instrumental activities of daily living including money

management and use of transportation. Their study concluded that Occupational Goal Intervention Method appeared to improve social and functional aspects of MHSUs with TRS. Other VR intervention types identified in this review were job seeker programs and related support, prevocational skills training and support, and social networks.[35][31]

(ii) Intervention principles

Five out of the 12 included sources stated a number of principles applied in VR.[32][33][34][27][28] Samuel and Jacob[32] in their study on the role of occupational therapy in bridging the gap between symptomatic improvement and functional recovery highlighted the following three principles; (i) patient and family empowerment, (ii) focus on achieving functional recovery, and (iii) optimizing the fit between an individual's abilities and the environmental demands. Buys[33] identified five principles in her study on professional competencies in VR, namely; client centered, objectivity, adaptability, professionalism and respect. Planning with the client, client advocacy and on-going individualized support were the principles specifically identified for case management and supported employment.[34][28] Van Niekerk et al[27] further reiterated the need to support MHSU goals and to empower them with choices and information, and they highlighted that support should be 'no more than needed and no less than necessary'.

(iii) Intervention strategies

All 12 included sources presented various VR intervention strategies. Khare et al[29] identified the following strategies; teaching illness self-management skills, systematic involvement of families and social networks to help with job finding, collaboration on mental illness management, and facilitating work in family business. Van Niekerk et al [27] and Engelbrecht et al[26] reported similar VR intervention strategies in their studies. These were job analysis and matching, job finding, job coaching, trial placement, simulated work, work in protective factories and sheltered workshops. Job analysis and matching involved evaluation of employment potential and goodness of job fit. Job advocacy at the job site with employers and co-workers was a strategy utilized in supported employment. Work visits were done to observe real work, to discuss reasonable accommodation and to assist with performance appraisals. Engelbrecht et al[26] further identified personal life skills training as an essential component of VR strategy. The personal life skills deemed essential in VR included money handling, grooming, use of transportation, time management and communication.

The Occupational Therapy Association of South Africa (OTASA)[36] position paper on VR stated a number of VR strategies that are applicable in various settings including mental healthcare settings. These strategies included sheltered workshops, entrepreneurship and self-employment initiatives, vocational guidance and counseling, as well as work adaptation. In addition, Buys[33] identified job description review, work hardening, work conditioning, stress management and job seeking skills training as other VR strategies.

(iv) Intervention outcomes

VR intervention outcomes were reported for Supported Employment and Occupational Goal Intervention Method. Participants who engaged in supported employment earned more and worked more hours per month than those who had had prevocational training.[27] More so, supported employed allowed MHSUs to integrate into mainstream society, provided income and arena for social and personal development including improved self-esteem. Improved income lessens the economic burden for government. Reduction in the consumption of mental health services was reported for MHSUs who entered employment.[26] A study by Adriana et

al[22] showed that Occupational Goal Intervention Method appeared to improve social and functional aspects of patients with Treatment Resistant Schizophrenia.

(v) Summary of conclusions and recommendations

Overall the included sources emphasized the need for contextually relevant vocational rehabilitation practice and advocated for the adoption of supported employment VR intervention for MHSUs. Van Biljon et al[35] concluded in their study by stating that having a comprehensive and contextually relevant tool that effectively indicate what VR services look like will be helpful to occupational therapists offering VR services in both public healthcare and in private practices. Khare et al[29] suggested in their conclusion that attention should be paid to adapting models of VR to the cultural context of developing countries to improve the employment outcomes of persons with serious mental illness. Buys[33] stressed the need for the occupational therapy profession to ensure that it provides competent, professional and contextually relevant VR services to clients which enables them to fulfil their roles as independent citizens. Similarly, the OTASA[36] position paper on VR concluded that the type of VR service that occupational therapists in South Africa offer should be dictated by the vocational needs and aspirations, social structures and contextual realities of MHSUs.

Three of the included sources concluded by advocating for supported employment as a model of choice in VR[26][27][28]. Engelbrecht et al[26] concluded that supported employment was cost effective and would combat unemployment, work towards poverty reduction and redress inequality for people with mental disabilities, hence it was a viable strategy for return to work endeavors. In addition to proposing supported employment as a model of choice to drive the process of economic empowerment for persons facing disabling conditions, van Niekerk et al[27] recommended a holistic approach to supported employment because it has components such as placement in suitable work and reasonable accommodation that do not necessarily follow a linear process. Van Niekerk[28] recommended the need for providers of supported employment to modify approaches in order to meet contextual realities.

Discussion

This study set out to scope the literature on VR for MHSUs with chronic mental illness, in occupational therapy, in L-UMICs. The study further identified the different types, principles and strategies of institution-based VR interventions for MHSUs. Types of vocational rehabilitation intervention identified included supported employment, case management and prevocational skills training. Client centeredness, support and empowerment were the key vocational rehabilitation principles identified. Teaching illness self-management, job analysis and matching, job coaching, trial placement, and vocational guidance and counseling, and work hardening were the main intervention strategies reported.

Overall, the majority of included sources were from South Africa with only one source from Kenya completing the representation from African continent. Only two sources from India and one from Brazil represented the Asian and South American continents respectively. The low number of sources possibly confirm limited research in the field of VR for MHSUs with chronic mental illness in L-UMIC, which could be attributed to a couple of factors. There is a high patient-therapist ratio in the field of mental health in L-UMICs, thus occupational therapists do not have sufficient time and skills to document and publish their work. Another possible contributing factor to low number of sources could be the limited resources such as

funding, publishing journals and tertiary institutions providing occupational therapy training. As a result, occupational therapists cannot afford the cost of publishing in journals from high income countries and they lack academic support to help with their academic writing skills and ethical clearance for their research.

The main VR types identified in African and Asian sources were supported employment, case management, prevocational and vocational skills training. Goal Management Training Method[22] was the only intervention type identified from the one included source from South American continent. Using the categorization of VR types suggested by Van Biljon et al[13], supported employment fits in two categories, intervention and placement. Prevocational and vocational skills training fall under traditional VR intervention, which is a stepwise path that focuses on assessment and job matching prior to job search.[37] The included sources did not specify institution-based VR interventions. One possible reason for this observation could be due to the current set-up of occupational therapy practice in L-UMIC. Occupational therapists tend to be institution based regardless of the VR intervention type that they provide. Also, institution-based VR in L-UMIC lack human and capital resources such as therapists and transport needed to move beyond the institutions. Generally, due to a variety of reasons as alluded above, there is dearth of documented evidence supporting occupational therapists involvement in VR.[38]

Vocational rehabilitation intervention principles identified in this review focused on client centredness, achieving functional recovery, as well as advocating for client and family support. These principles are well enshrined within the general occupational therapy intervention principles. Client centredness is a key element of occupational therapy practice that demands for the formation of partnerships with MHSUs, which allows for the exploration, understanding, and promotion of engagement in their chosen or expected occupations including work[39]. Applying the principle of client centredness in VR intervention five rules should be considered based on a framework suggested by Gretschel and Galvaan.[39] MHSUs should be considered holistically, they should be viewed as experts of their own occupational engagement, their values and goals must be respected, therapist-person partnerships should be facilitative and not directive, and contextual congruence must be inherent in the VR interventions designed.[39] Supportive relationship is another VR principle that is integral to the success of VR interventions. Occupational therapists, employers, coworkers and family members provide hope, empathy and encouragement, all resulting in enhanced confidence at work, increased work-related skills and greater ability of MHSUs to fit within a particular work/employment situation.[40] Also, given the reality that mental disability tends to be episodic and fluctuates over time, and due to limited understanding of mental illness in L-UMICs, it is imperative that VR intervention is structured to offer on-going support in and beyond institution boundaries.[11]

Regarding VR intervention strategies, the included sources clearly focused on simultaneously placing MHSUs in competitive work and providing support through networks and negotiating with employer and managing symptoms. This highlights a shift from the traditional VR strategies which focus on train-first-then-place. However, this strategy may pose a challenge in L-UMICs where unemployment rates are high resulting in MHSUs competing for employment with the mainstream community.[12] Self-employment initiatives is therefore a realistic VR intervention strategy.[38] Occupational therapists are sufficiently skilled to facilitate self-employment, and can contribute towards alleviating unemployment among

MHSUs with chronic mental illness by identifying potential and encouraging entrepreneurship and self-employment opportunities.[38] Swart and Buys[11] contend that in addition to the various VR intervention strategies that occupational therapists utilise, traditional psychosocial intervention such as stress management, conflict management and relaxation therapy should be considered depending on client needs.

Implications for research

The findings of the scoping review provide the authors with thematic areas to consider when developing the semi-structured interview guide that will be utilized to explore factors to be considered for VR intervention in the Namibian context. The proposed thematic areas are; (i) VR interventions applicable to Namibia context, (ii) VR principles to be applied, (iii) VR intervention strategies, (iv) VR stakeholders to be engaged in Namibia including their roles, and (v) general recommendations for the implementation of VR in Namibia for MHSUs with chronic mental illness.

Implications for practice

In terms of occupational therapy practice in VR, the findings of this review highlight the need to shift from the current practice to *place and train* models in L-UMIC. Institution based VR should take shorter time compared to the traditional VR approach and rather focus on identifying potential areas for placement and support in the natural work contexts for MHSUs. In the context of L-UMICs where unemployment rates are high, VR intervention may need to focus on strategies that support self-employment initiatives. Client centeredness is a key principle in planning for VR interventions and ensuring that intended VR outcomes are achieved. There is a need for occupational therapists to have insight into and adapt vocational rehabilitation intervention strategies to the demographic and socio-economic context of the L-UMIC in which they practice.[38] Occupational therapists and other VR stakeholders should provide the right level of individual support to MHSUs in VR and be able to adapt this support according to the needs of the client.

Strengths and limitations

Our study has several strengths. The authors followed a scoping review protocol[8] that was subject to peer review and was published in July 2021. Pre-scheduled weekly meetings among the three authors were used to promote momentum and discussions throughout the project. In addition, the authors used human and other library resources from two different universities, University of Namibia and Stellenbosch University. However, there are also limitations to the present study. First, authors did not include studies published in languages other than English, therefore we concede that sources from L-UMIC in languages such as Spanish could have been missed. Second, due to the dearth of publications from L-UMIC the evidence presented in this article cannot be seen to represent VR for MHSUs in occupational therapy globally. The third limitation is that no quality appraisal was done on the included sources.

Conclusion

This review mapped the current evidence in VR for MHSUs with chronic mental illness in L-UMICs. Review findings indicate the need for institution based occupational therapists in L-UMICs to shift from a traditional vocational rehabilitation approach to interventions that do not cease upon discharge but include place-train-and-support approaches. VR interventions should extend their focus on supporting MHSUs in their natural work settings or potential work

settings. Such intervention should include factors such as getting to and from work, job seeking skills, upskilling within the larger labour market, and it should include placement considerations such as self-employment and unpaid work. The authors recommend further studies on VR interventions and outcomes for MHSUs in low resourced communities focusing on practical and unique realities experienced by such communities. More so, it is imperative that researchers in the field of occupational therapy, mental health and VR strive for levels 1 and 2 of scientific evidence to inform practice.

Contributors

Three authors were involved in conceptualizing, drafting and editing this scoping review. The first author, Munyaradzi Chimara, conducted this scoping review as part of his doctoral studies. Second and third authors, Professor Lana van Niekerk and Dr Hester Maria van Biljon respectively, were involved as academic supervisors in all the stages followed in this scoping review study.

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Competing interests

The authors hereby declare that there is no conflict of interest from the publication of this paper.

Data availability statement

No additional data are available.

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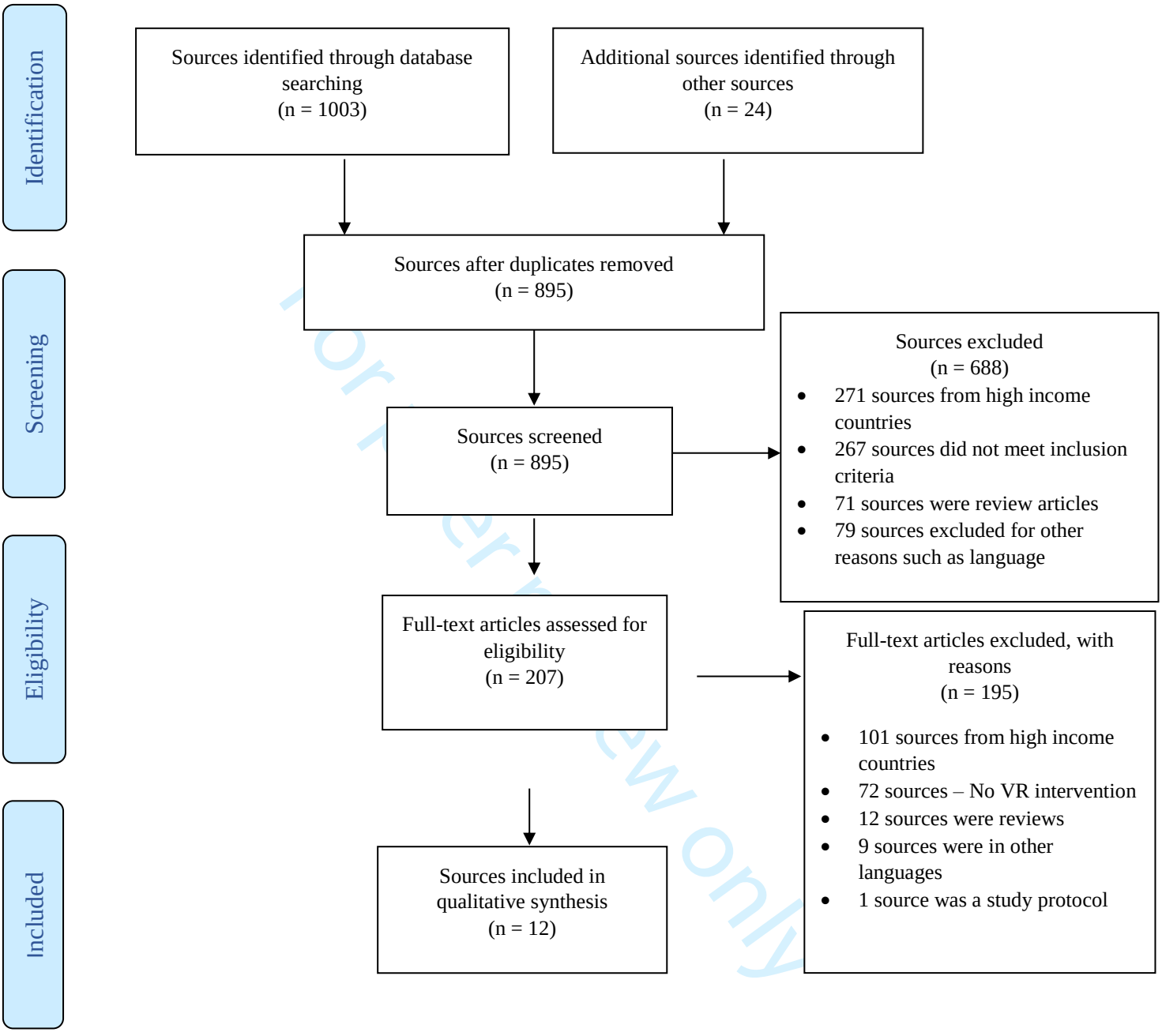
List of Figures

Figure 1: PRISMA flow diagram

Figure 1; PRISMA flow diagram



Prisma flow diagram for a scoping review exploring vocational rehabilitation interventions for mental health service users with chronic mental illness in low-income to upper-middle-income countries.

Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	
Limitations	20	Discuss the limitations of the scoping review process.	
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

Annex B – Search Strategy Summary for the Scoping Review

Period search was conducted	15 July 2021 to 31 August 2021
Inclusion criteria	• Mental Health Service User • Psychiatric patients • Chronic mental illness • Vocational rehabilitation • Psychosocial rehabilitation • Occupational therapy • Low-income, low-middle- income and upper-middle-income countries • English language • Published from 2011 and later
Exclusion criteria	• Systematic and scoping reviews • Source published in other languages, not English. • Sources published prior to 2011. • Sources from high-income countries • Full-text not available
Libraries	Worldwide
Pubmed, Medline, CINAHL, PsycInfo, Science Direct,	"Mental disorders"[MESH] AND (Severe OR Chronic OR long-term OR persistent) AND ("Psychiatric Rehabilitation"[Mesh]) OR "Rehabilitation, Vocational"[Mesh] OR "work rehabilitation" OR "Occupational Therapy"[MESH])
Google Scholar, HINARI and Wiley online	("Vocational Rehab"* OR "Work Rehab*") AND ("Severe mental illness" OR "Chronic Mental illness") AND "Occupational Therapy" NOT ("North America" or Europe*)
EBSCOhost, Cochrane library, Scopus,	(("Psychiatric Rehabilitation" OR "Rehabilitation, Vocational" OR "work rehabilitation" OR "Occupational Therapy") AND (mental disorders OR mental illness OR psychiatric disorders OR psychiatric illness) NOT (("North America" OR Europe*)) AND ((severe OR chronic OR long-term OR persistent)).
Grey Literature Sources	https://libguides.sun.ac.za/medicine/e-theses https://wiki.lib.sun.ac.za/index.php/SUNScholar/Completed_theses_and_dissertations

Summary of Findings

Authors & year of publication	Title	Aim of Study	Type of Mental Healthcare Institution	VR Intervention Type(s)	Duration of Intervention	VR Intervention Principles	VR Intervention Strategies	VR Intervention outcomes	Main Conclusion
Adriana D.B. Vizzotto et al. 2016	A pilot randomized controlled trial of the Occupational Goal Intervention method for the improvement of executive functioning in patients with treatment-resistant schizophrenia	To test the efficacy of the Occupational Goal Intervention (OGI) method for the improvement of EF in patients with TRS.	Schizophrenia Research Program of the institute of psychiatry - University of Sao Paulo School of Medicine. (Sao Paulo General Hospital)	Goal Management Training (GMT) method	15 weeks, 30 sessions, 90 minutes per session	Not stated	In the OGI group, the initial sessions targeted ADL (personal hygiene), followed by IADL (housework, money management, and use of transportation), social activities, and leisure. Each patient was given four homework assignments in order to practice the daily living tasks they had learned	Outcome measures correlate significantly with the total PANSS score, showing that the degree of severity of schizophrenia is inversely related to the improvement of EF (BADS), Functional Outcome (DAFS-BR) and patient autonomy (ILSS-BR). With regards to effect analysis, , over the course of the study period, there were no major changes regarding the clinical stability of the patients. Results suggest that the use of the OGI method is an effective strategy that can benefit patients with TRS. As expected, outcome measures were shown to be significantly intercorrelated.	"The OGI method has been shown to be reliable and effective for patients with TRS. In addition, the method appears to improve social and functional aspects of patients with TRS."
Hester van Biljon et al. 2015	An Action Research Approach to Profile an Occupational Therapy Vocational Rehabilitation Service in Public Healthcare	The aim of the project was to develop a tool that would allow occupational therapists doing vocational rehabilitation, to systematically and comprehensively profile their services	Not stated	Return to work program. Job-seeker programs and related support. Prevocational skills training and support.	Not stated	Not stated	Work-hardening, work readiness, conditioning.	Not stated	Having a comprehensive and contextually relevant tool that effectively indicates what a vocational rehabilitation service looks like, and /or should look like, will be helpful to occupational therapists that are offering, or wish to offer, vocational rehabilitation services in the public healthcare as well as in private practices. This allows them to set goals and develop their practices in a systematic and mindful manner.

Ikenna D. Ebuenyi et al. 2019	Employability of Persons With Mental Disability: Understanding Lived Experiences in Kenya	To highlight the barriers to employment experienced by persons with mental disabilities in Kenya and how they manage to find work against all the odds.	Not stated	Social networks for persons with mental disabilities. Provision of reasonable accommodation in the workplace and healthcare sectors.	Not stated	Not stated	Setting up social development programs that would provide individuals who want to opt for self-employment. Community based rehabilitation.	Not stated	Our study has highlighted that persons with mental disabilities in Kenya can work. We have also shed light on the various challenges (personal and environmental) affected persons encounter in their quest to enjoy their fundamental human right to employment.
Chitra Khare et al 2020	Employment functioning in people with severe mental illnesses living in urban vs. rural areas in India	To examine rates and patterns of work, interest in work, and perceived benefits and barriers to work in people with SMI.	Private Psychiatric outpatients department	Supported employment	Not stated	Not stated	Teaching illness self-management skills in supported employment. Systematic involvement of families in supported employment, including help with job finding through their extended social networks, collaboration on mental illness management, and facilitating work in family business.	Not stated	The findings suggest that attention should be paid to adapting models of vocational rehabilitation to the cultural context of developing countries to improve the employment outcomes of persons with SMI.
Reema Samuel, K. S. Jacob 2017	Occupational therapy in India: focus on functional recovery and need for empowerment	To discuss the role of occupational therapy in bridging the gap between symptomatic improvement and functional recovery.	Not stated	Not stated	Not stated	Patient and family empowerment. Focus on achieving functional recovery. Optimizing the fit between an individual's abilities and the environmental demands.	Group therapy. Motivational enhancement therapy. Rehabilitative and recovery model (prevocational evaluation, vocational training, life skills training). Cognitive therapy. Behaviour therapy approaches. Graded exercises to manage deficient or maladaptive task and social and occupational skills.	Improved and enhanced self-esteem through graded tasks, improved goal setting, and problem-solving and decision-making skills.	While it can be argued that the Indian government should modify legislation, open more tertiary care hospitals, grant more educational institutions to train personnel, and likewise, it is time to look at modifiable factors from an individual perspective. The answer might lie in improving one's own understanding of the complexity of mental illness, increasing the repertoire of treatment models, liaising with the multidisciplinary team,

									changing our own attitudes about the treatment process, and practicing instead of preaching client-centeredness.
Hester M van Biljon et al 2016	Opinions of occupational therapists on the positioning of vocational rehabilitation services in Gauteng Public Healthcare	To report on the opinions of occupational therapists on the positioning of vocational rehabilitation services in the Gauteng province.	Not stated	Prevention is an educative service for the prevention of injury at work and to create an awareness of good work practice, averting the development and/or exacerbation of pathology. Screening of general or specific work related skills is a short prescriptive process used to filter and effectively refer patients to more specialised therapists or facilities and supports efficient service delivery. Assessment services involve the assessment of the ability of a person who has an injury or illness's, to be able to work. Intervention services are programmes aimed at correcting or compensating for ability to work deficits. Placement services are the returning of patients to their own, alternative or new work in the open labour market; or to sheltered - or protected workshops. Follow up is done of patients who used the services	Not stated	Not stated	Stress management. Job modification, case management, pain management, work hardening, work preparation or readiness, work visits, work guidance, work-place accommodation, work adaptation, job seekers groups, self-employment initiatives, support groups and other return to work efforts. Job analysis. Vocational guidance and counselling, outpatient support groups, job acquainting, adaptation and accommodation efforts.	Not stated	The results of this survey showed a general lack of consensus amongst occupational therapists about what vocational rehabili tation services should be offered at the different levels of public healthcare. With singular exceptions the generic opinion was that occupational therapy's vocational rehabilitation services should be offered in public healthcare. No other opinions from this survey give guidance or insight to support planning and policy making.

				offered, this could be with employers, referral sources, family members and the patients themselves					
Tania Buys 2015	Professional competencies in vocational rehabilitation: Results of a Delphi study	To identify professional competencies required to practice in the area of work by occupational therapists.	Not stated	Vocational training, placement and follow-up. Work readiness/ work preparation programmes	Not stated	Client centered, objectivity, adaptability, professionalism, respect.	Vocational guidance, job analysis, workplace visits, job description review, reasonable accommodations, work hardening, work conditioning, work simulation, life skills, stress management, prevocational skills, job-seeking skills training.	Not stated	We need to as an occupational therapy profession to ensure that we provide competent, professional, contextually relevant vocational rehabilitation services to clients which enables them to fulfil their roles as independent citizens in a democratic South Africa free from disability discrimination.
Kreshnee Govender et al 2018	The role of the occupational therapist in case management in South Africa	To identify the occupational therapist's role and scope of practice in case management in South Africa.	Not stated	Case management - appears to be utilised as part of an early intervention approach once there has been an extended period of absence from work or a high rate of absence due to illness (where the service entails comprehensive assessment to determine a care plan and coordinating and monitoring client care to prevent long term absenteeism thereby contributing to cost containment).	Not stated	Planning with the client. Client advocacy.	Work site visits. Liaison with the employer to aid in the employee's transition back to work, client's reintergration in the work environment. Develop a care plan. Re-skilling/training to aid in a work re-entry.	Not stated	The study reveals that occupational therapists in South Africa are involved in case manager functions and are implementing case management as a strategy or approach to manage incapacity due to ill-health and disability in the workplace. Occupational therapists in South Africa that are positioned in various settings viz. insurance, private practice, health consult ing, and Workmen's Compensation, have indicated involvement in case management and this study confirmed the utilisation of this intervention in vocational rehabilitation and as an element of dis ability management.

Occupational Therapy Association Of South Africa 2020	Position paper on vocational rehabilitation	Not stated	Various settings including schools for learners with special needs transitioning to world of world.	Prevention is an educative service for the prevention of injury at work and to create an awareness of good work practice, averting the development and/or exacerbation of pathology. Screening of general or specific work related skills is a short prescriptive process used to filter and effectively refer patients to more expereinced therapists. Assessment and evaluation services. Intervention services are aimed at correcting adapting or compensating for ability to work deficits.	Not stated	Not stated	Skills trainig, sheltered workshops, entrepreneurial and self-employment initiatives. Job modification, case management, work trials, work hardening, work preparation/readiness, work visits, work/vocational guidance and counselling, work-palce accommodation, work adaption, job seekers groups, support groups. Job analysis,	Not stated	The primary aim of occupational therapy's vocational rehabilitation intervention needs to be relevant and of therapeutic value to the client so as to meet SDG9 as far as it is possible. The type of vocational rehabilitation service that occupational therapists in South Africa offer should be dictated by the vocational needs and aspirations, social structures and contextual realities of the clients. All occupational therapists can and should be able to offer basic vocational rehabilitation. Newly qualified occupational therapists have to be able to work independently at a basic level in a variety of vocational rehabilitation settings. Those vocational rehabilitation services that require competencies beyond a basic level need to be referred to therapists who have acquired, and can provide proof of the additional necessary competencies that provide ompetent, professional, contextually relevant vocational rehabilitation services to clients they see.
Madri Engelbrecht et al 2017	Supported Employment for people with mental disabilities in South	To report on the cost and affordability of SE services offered to people with mental	Psychiatric hospital in Cape Town (clients from forensic	Supported employment	Not stated	Not stated	Job matching. Work in protective factories. Personal life skills training (money	Reduction in the consumption of mental health services by people who entered employment. SE	Evidence from the study thus reflects the cost of SE services to people with mental disability as

	Africa: cost calculation of service utilisation	disabilities in South Africa.	wards, general wards and the outpatient department).				handling, grooming, use of transportation, management of symptoms, time management, communication). Simulated work. Trial placement, job advocacy (at job site with employers and co-workers). Evaluation of goodness of job fit. Evaluation of employment potential. Work visit (to observe real work, to discuss reasonable accommodation, to assist with performance appraisal). Job coaching and job support. Bridging programme in preparation for employment in the open labour market. Support group	promotes an outcome of open labour market employment with the ssociated monetary and non-monetary benefits.	substantially lower than the current government investment in disability grants and protective workshops subsidies. SE will combat unemployment, work towards poverty reduction and redress inequality as it pertains to people with disabilities. engagement with funding sources that currently support traditional vocational rehabilitation approaches is needed to present SE as a viable alternative strategy for return-to-work endeavors.
Lana Van Niekerk et al 2011	Supported employment: Recommendations for successful implementation in South Africa	To report on the findings of a descriptive qualitative study in which supported employment (SE), as a potential strategy to facilitate the employment of persons with disability in the open labour market in South Africa.	Not stated	Supported employment	Not stated	Competitive employment should always be the ultimate outcome. A client-centered approach should be used. Support should be provided to ensure long-term sustainability employment. Support consumer goals and empower them with choices and information. No more support than needed and	Job finding, job analysis, job matching, job coaching. On-going support that is determined by the worker's individual needs. Protective and sheltered workshops.	SE achieve participation in competitive employment. Participants in SE earned more and worked more hours per month than those who had had prevocational training. Person with disabilities have an opportunity to be an active and contributing member of the society. Lessen the économic burden the government. Positively influence the disabled person's health and well-being. Provided income, personal development, provided arina for social development, self esteem and identity. Integration of persons with disability into mainstream society.	"The authors propose SE as a model of choice to drive the process of economic empowerment for persons facing disabling conditions. In developing a SE model suitable for South Africa, funding and infrastructure should be used in such a way that integrated career management is a viable option for persons with disability. A holistic approach is needed because components of SE, such as the assessment of work skills, placement in suitable work and reasonable

						no less than necessary.			accommodation do not necessarily follow a linear process."
Lana Van Niekerk et al 2015	Time utilisation trends of supported employment services by persons with mental disability in South Africa	To determine the feasibility of supported employment (SE) as a strategy with which to facilitate the employment of persons with disability in competitive work contexts.	Psychiatric hospital in Cape Town (clients from forensic wards, general wards and the outpatient department).	Supported employment (SE) is a return-to-work strategy promoting the inclusion of persons with dis abilities in competitive employment environments. Prepare work placement. Work visit.	Not stated	On-going support. Individualized support. Advocacy.	Job finding, Job analysis, Job matching and Job coaching. Reasonable accommodation. On-going support. Protective workshops. Non-job advocacy. Personal life skills. Simulated work. Trial placement, Person-centred instructional plans, Job advocacy - at job site with employers. Job advocacy - co-workers (and customers). Evaluation of employment potential. Evaluation of goodness of job fit. Work visit to observe real work. Work visit to discuss reasonable accommodation. Work visit to assist with performance appraisal.	To achieve employment outcomes for people with mental disabilities. Integration of mental health service users in the workplace.	SE services can be considered as a viable option for return to work in resource-constrained environments. Providers of SE services will need to modify approaches in order to meet contextual realities. Because the bulk of costs associated with SE are in the remuneration of service providers, understanding the number of provider hours necessary will be an important consideration for employers in middle income countries who are concerned with the feasibility of SE.