



## REFUGEE HEALTH AND REHABILITATION: CHALLENGES AND RESPONSE

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**Background:** The current global refugee crisis poses major challenges in providing effective healthcare to refugees, particularly for non-communicable diseases management and disability. This article provides an overview of refugee health and potential challenges from the rehabilitation perspective.

**Methods:** A literature search (both academic and grey literature) was conducted using medical and health science electronic databases and internet search engines (2001–2016). Both authors independently selected studies. Due to heterogeneity amongst identified articles, a narrative analysis was performed for best-evidence synthesis to outline the current health and rehabilitation status of refugees and existing gaps in care.

**Results:** Data suggest that infectious diseases requiring treatment in refugees are a minority; whilst non-communicable diseases, musculoskeletal conditions are prevalent. Many refugees arrive with complex health needs. One in 6 refugees have a physical health problem severely affecting their lives and two-thirds experience mental health problems, signifying the important role of rehabilitation. Refugees face continued disadvantage, poverty and dependence due to lack of cohesive support in their new country, which are determinants of both poor physical and mental health. This is compounded by language barriers, impoverishment, and lack of familiarity with the local environment and healthcare system. In Australia, there are concerns about sexual and gender-based violence in off-shore detention camps. Targeted physical and cognitive rehabilitative strategies have much to offer these vulnerable people to allow for improved activity and participation.

**Conclusion:** Strong leadership and effective action from national and international bodies is urgently needed to develop comprehensive rehabilitation-inclusive medical care for refugees.

**Key words:** refugee health; function; disability; rehabilitation.

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The United Nations High Commissioner for Refugees (UNHCR) defines a refugee as: “a person who is

outside their country of nationality due to a well-founded fear of persecution for reasons of race, religion, nationality, particular social group membership or political opinion and is unable or unwilling to avail themselves of the protection of their country or return to it” (1). The current refugee crisis poses major challenges worldwide. According to the UNHCR, in 2016, there were more than 60 million refugees worldwide (2). It is estimated that more than 1 million refugees crossed the Mediterranean into Europe in 2015 alone, and more than 3,000 died in the attempt (2). These figures are a fraction of an estimated more than 4 million registered refugees displaced to countries neighbouring Syria, including 2.1 million in Turkey and 1.1 million in Lebanon (3, 4).

Australia as a developed country accepts refugees under the UNHCR resettlement program. Since 1945, Australia legitimately settled over 75,000 refugees, mainly from Africa, Asia-Pacific and Middle Eastern regions (5–7). In 2014–2015, a total of 13,756 visas were granted for the Humanitarian Program (11,009 visas for the offshore component and 2747 for the onshore component) (8). Furthermore, in September 2015, the Australian Government announced an additional 12,000 Humanitarian Program places for people displaced by conflicts in Syria and Iraq (9).

Refugees and people seeking asylum, particularly in Australia, are not a homogenous population, they arrive from different countries and cultures (10–12) with complex health needs, and many experience trauma before, and during their deleterious journey (11–13). Furthermore, they may face the effects of continued disadvantage, poverty and dependence in their new country, which are determinants of both poor physical and mental health. This is compounded by difficulty/lack of communication due to language barriers, unfamiliarity with the local environment and healthcare systems, and cultural differences (13). These have consequences for provision of various services, including access to healthcare and a requirement for comprehensive screening and cohesive medical support systems (5, 6, 14).

Many refugees miss out on routine healthcare and face difficulties in accessing health services (14–16). Although the majority of refugees adapt to a new life and successfully integrate into the community, many face long-term healthcare challenges due to ongoing and existing health conditions. Drastic and frequent

reforms in government policies and practices, and/or variability in classification of refugees and their entitlements make access to healthcare problematic, and under certain circumstances some refugees are denied rights to both employment and welfare benefits (12, 16). The international community faces numerous challenges in this regard. Empirical evidence on medical rehabilitation in refugee settings is lacking. There are limited studies evaluating medical rehabilitation interventions in this area. This narrative review assesses the current status of refugee health from the rehabilitation perspective and explores gaps in existing evidence in order to identify challenges for medical rehabilitation in this population.

## METHODS

A desktop literature search (academic and grey literature, 2001–2016) using available medical and health science electronic databases (PubMed, EMBASE, CINAHL, AMED, LILACS and the Cochrane Library); internet search engines (such as the System for Information on Grey Literature in Europe; New York Academy of Medicine Grey Literature Collection, National Quality Measures Clearinghouse and Google Scholar); and the websites of various governmental and non-governmental organizations, was conducted for relevant publications for current status on rehabilitation in refugees. Combinations of multiple search terms for 3 themes were used: rehabilitation, refugee and outcome/recovery. Known experts in this field were contacted for further information on refugee-related policies and legislation.

All studies, irrespective of study design, which reported rehabilitation interventions and associated data in refugees, were included. Both authors independently screened all identified study titles and abstracts for inclusion; and any disagreements were resolved by consensus discussion. A standard *pro forma* created *a priori* was used to extract data from studies, which included study characteristics (publication date and country, study type, objectives, key findings and themes).

## RESULTS

Based on the aforementioned multi-pronged approach to obtaining data, a limited number of published articles that reported refugee health issues in rehabilitation context were identified. Of the 196 articles identified from an extensive literature search only 11 published articles were selected as appropriate. The included studies were conducted in different continents: 5 in Australia; 5 in Europe (2 in Denmark and 1 each in the UK, Germany and Switzerland); and 1 in the USA. Due to heterogeneity amongst identified articles (in terms of study design, objectives and population), it was not possible to pool data for analytical purposes, therefore a narrative analysis was used for evidence synthesis, based on the reported themes in the included articles. Table I sets out the characteristics of the

studies on refugee health issues and challenges from the rehabilitation perspective.

### Health problems

Many refugees are at risk of complex physical, mental and social problems, which contribute to poor health outcomes and impede successful social integration. In many developed countries, such as Australia, all refugees undergo health checks before migration; however, many have ongoing health issues and concerns (14). There is limited evidence on the prevalence of disability amongst refugees and asylum seekers, with reported estimated disability rate varying from 3% to 10% (17, 18). This is compounded by a lack of documentation (e.g. past medical history, treatment) to attend comprehensively to their needs (19, 20). In many parts of the world there is little or no commissioning of services for refugees and asylum seekers with disabilities (17, 18).

### Physical health

There is a strong perception that refugees are vectors of communicable diseases; however, data suggests that refugees with infectious diseases needing care and treatment are a minority (10, 21). Studies report that 1 in 6 refugees have a physical health problem severely impacting their life (10). The common physical health problems reported include: various injuries, infectious diseases and under-managed non-communicable diseases (NCDs), such as diabetes, hypertension, coronary heart diseases and musculoskeletal problems (e.g. backache, non-specific body pain) (21, 22). A high prevalence of NCDs during routine medical screening of refugees (30–90 days post-arrival) is widely reported, with musculoskeletal disease and pain problems (consequence of trauma, muscular tension, or emotional distress), cardiovascular disease (CVD), diabetes and chronic respiratory disease being the most common (21, 23). NCDs now represent the primary burden of disease, and are recognized as a major challenge in refugee healthcare management (21, 24); this has significant implication for rehabilitation medicine.

### Psychological disorders

Refugees and asylum seekers are vulnerable to psychological disorders, mainly due to various traumas experienced before, during and after migration (25). Many face continued disadvantage and/or are isolated in their new countries. It is estimated that almost two-thirds of refugees experience mental health problems (such as anxiety, depression, post-traumatic stress disorder (PTSD), panic attacks or agoraphobia) (10,

**Table I.** Characteristics of the studies addressing refugees' health issues and challenges

Study year/Country	Design	Objective	Key themes/findings
Alprem et al. (20) 2016 USA	Survey ( <i>n</i> = 199) medical residents in Internal Medicine & Pediatrics	Assess perceived knowledge, attitudes, & experience with immigrant & refugees	<ul style="list-style-type: none"> <li>• Most (82%) enjoyed caring for immigrants/refugees</li> <li>• 65% planned to care for this population after residency</li> <li>• 54% were uncomfortable with their knowledge regarding immigrant/refugee health</li> <li>• Specific challenges included: language (98%), cultural barriers (92%), time constraints (72%), &amp; limited knowledge of tropical medicine (69%)</li> <li>• 82% wanted more training in refugee/migrant health</li> </ul>
Amara et al. (21) Germany	2014 Narrative review	Determine prevalence & distribution of chronic NCDs amongst urban refugees living in developing countries; to report refugee access to healthcare for NCDs	<ul style="list-style-type: none"> <li>• Prevalence varied by refugees' region or country of origin</li> <li>• Most common NCDs: hypertension, musculoskeletal disease, diabetes and chronic respiratory disease</li> <li>• Most urban refugees in developing countries have adequate access to primary healthcare services, however, access to secondary &amp; tertiary healthcare remains problematic</li> <li>• Financial barrier identified as main reason not seeking healthcare</li> <li>• Have different experiences &amp; expectations of health &amp; of healthcare</li> <li>• Symptoms of psychological distress are common, but do not necessarily signify psychiatric disorders</li> <li>• Many have difficulty expressing healthcare needs &amp; problems accessing healthcare</li> <li>• Poverty &amp; social exclusion have a negative impact</li> <li>• Trained interpreters or advocates, (rather than family members or friends), should be used wherever possible</li> <li>• Community organizations provide invaluable support &amp; reduce the isolation experienced by refugees</li> <li>• Many issues, such as women's health and child health issues, often not acknowledged</li> </ul>
Burnett A (10) UK	2001 Narrative review	Overview of health needs of asylum seekers and refugees	<ul style="list-style-type: none"> <li>• Persistent barriers included: <ul style="list-style-type: none"> <li>• Language</li> <li>• Cultural differences</li> <li>• Difficulties with transport to health centres</li> <li>• Long wait times</li> <li>• Cost of care, limited government funding</li> </ul> </li> <li>• Common symptoms reported: <ul style="list-style-type: none"> <li>• Psychological symptoms relate to their experience of torture &amp; trauma: intense anxiety, poor sleeping pattern, depression</li> <li>• Post-traumatic stress disorder: poor concentration, heightened arousal &amp; loss of memory</li> <li>• Children often suffer prolonged psychological distress</li> <li>• These compounded by effects of detention, discrimination, lack of social support &amp; unemployment</li> <li>• Physical sequelae of torture or trauma: mal-united fractures, osteomyelitis, epilepsy or deafness from head injuries, or non-specific musculoskeletal pain or weakness</li> </ul> </li> <li>• Infectious &amp; nutritional diseases</li> <li>• Chronic illnesses including hypertension, heart disease, diabetes peptic ulcer disease</li> <li>• Access improved by multidisciplinary staff, use of interpreters &amp; bilingual staff, no-cost or low-cost services, outreach services, free transport to &amp; from appointments, longer clinic opening hours, patient advocacy, &amp; use of gender-concordant providers</li> <li>• Provide services, which are affordable, appropriate &amp; acceptable to target groups</li> <li>• Coordination between the different healthcare services &amp; those responding to social needs of clients improved through case-management by specialist workers</li> <li>• Quality of care improved by training staff in cultural sensitivity &amp; appropriate use of interpreters</li> </ul>
Cheng et al. (32) Australia	2015 Qualitative case study	Analyse factors influencing Afghan refugees' access to primary care	<ul style="list-style-type: none"> <li>• Persistent barriers included: <ul style="list-style-type: none"> <li>• Language</li> <li>• Cultural differences</li> <li>• Difficulties with transport to health centres</li> <li>• Long wait times</li> <li>• Cost of care, limited government funding</li> </ul> </li> <li>• Common symptoms reported: <ul style="list-style-type: none"> <li>• Psychological symptoms relate to their experience of torture &amp; trauma: intense anxiety, poor sleeping pattern, depression</li> <li>• Post-traumatic stress disorder: poor concentration, heightened arousal &amp; loss of memory</li> <li>• Children often suffer prolonged psychological distress</li> <li>• These compounded by effects of detention, discrimination, lack of social support &amp; unemployment</li> <li>• Physical sequelae of torture or trauma: mal-united fractures, osteomyelitis, epilepsy or deafness from head injuries, or non-specific musculoskeletal pain or weakness</li> </ul> </li> <li>• Infectious &amp; nutritional diseases</li> <li>• Chronic illnesses including hypertension, heart disease, diabetes peptic ulcer disease</li> <li>• Access improved by multidisciplinary staff, use of interpreters &amp; bilingual staff, no-cost or low-cost services, outreach services, free transport to &amp; from appointments, longer clinic opening hours, patient advocacy, &amp; use of gender-concordant providers</li> <li>• Provide services, which are affordable, appropriate &amp; acceptable to target groups</li> <li>• Coordination between the different healthcare services &amp; those responding to social needs of clients improved through case-management by specialist workers</li> <li>• Quality of care improved by training staff in cultural sensitivity &amp; appropriate use of interpreters</li> </ul>
Harris & Zwar (28) 2005 Australia	Narrative review	Outline range of problems in refugee patients in general practice & some approaches to dealing with them	<ul style="list-style-type: none"> <li>• Persistent barriers included: <ul style="list-style-type: none"> <li>• Language</li> <li>• Cultural differences</li> <li>• Difficulties with transport to health centres</li> <li>• Long wait times</li> <li>• Cost of care, limited government funding</li> </ul> </li> <li>• Common symptoms reported: <ul style="list-style-type: none"> <li>• Psychological symptoms relate to their experience of torture &amp; trauma: intense anxiety, poor sleeping pattern, depression</li> <li>• Post-traumatic stress disorder: poor concentration, heightened arousal &amp; loss of memory</li> <li>• Children often suffer prolonged psychological distress</li> <li>• These compounded by effects of detention, discrimination, lack of social support &amp; unemployment</li> <li>• Physical sequelae of torture or trauma: mal-united fractures, osteomyelitis, epilepsy or deafness from head injuries, or non-specific musculoskeletal pain or weakness</li> </ul> </li> <li>• Infectious &amp; nutritional diseases</li> <li>• Chronic illnesses including hypertension, heart disease, diabetes peptic ulcer disease</li> <li>• Access improved by multidisciplinary staff, use of interpreters &amp; bilingual staff, no-cost or low-cost services, outreach services, free transport to &amp; from appointments, longer clinic opening hours, patient advocacy, &amp; use of gender-concordant providers</li> <li>• Provide services, which are affordable, appropriate &amp; acceptable to target groups</li> <li>• Coordination between the different healthcare services &amp; those responding to social needs of clients improved through case-management by specialist workers</li> <li>• Quality of care improved by training staff in cultural sensitivity &amp; appropriate use of interpreters</li> </ul>
Joshi et al. (30) Australia	2013 Systematic review	Identify components of primary healthcare service delivery models for refugees effective in improving access, quality & coordination of care	<ul style="list-style-type: none"> <li>• Persistent barriers included: <ul style="list-style-type: none"> <li>• Language</li> <li>• Cultural differences</li> <li>• Difficulties with transport to health centres</li> <li>• Long wait times</li> <li>• Cost of care, limited government funding</li> </ul> </li> <li>• Common symptoms reported: <ul style="list-style-type: none"> <li>• Psychological symptoms relate to their experience of torture &amp; trauma: intense anxiety, poor sleeping pattern, depression</li> <li>• Post-traumatic stress disorder: poor concentration, heightened arousal &amp; loss of memory</li> <li>• Children often suffer prolonged psychological distress</li> <li>• These compounded by effects of detention, discrimination, lack of social support &amp; unemployment</li> <li>• Physical sequelae of torture or trauma: mal-united fractures, osteomyelitis, epilepsy or deafness from head injuries, or non-specific musculoskeletal pain or weakness</li> </ul> </li> <li>• Infectious &amp; nutritional diseases</li> <li>• Chronic illnesses including hypertension, heart disease, diabetes peptic ulcer disease</li> <li>• Access improved by multidisciplinary staff, use of interpreters &amp; bilingual staff, no-cost or low-cost services, outreach services, free transport to &amp; from appointments, longer clinic opening hours, patient advocacy, &amp; use of gender-concordant providers</li> <li>• Provide services, which are affordable, appropriate &amp; acceptable to target groups</li> <li>• Coordination between the different healthcare services &amp; those responding to social needs of clients improved through case-management by specialist workers</li> <li>• Quality of care improved by training staff in cultural sensitivity &amp; appropriate use of interpreters</li> </ul>
Lamb & Smith (31) 2002 Australia	Narrative review	Describe problems that refugees face in accessing effective healthcare & health service response	<ul style="list-style-type: none"> <li>• Barriers to attendance: <ul style="list-style-type: none"> <li>• Language</li> <li>• Lack of resource, interpreters</li> <li>• Financial constraints</li> <li>• Limited trust of health service</li> <li>• Lack of familiarity with available services</li> <li>• Gaps in health service provision</li> <li>• Inadequate reimbursement to healthcare professionals</li> <li>• Lack of specialized services, mainly in rural areas</li> <li>• Lack of model of care for special groups such as children, aged and second-generation refugees</li> <li>• Lack of standardization of eligibility for healthcare services due to different visa categories</li> </ul> </li> <li>• Refugees had different, mostly positive expectations of the pain rehabilitation program</li> <li>• Positive outcomes, such as improved health, improved coping ability and decreased pain, were expected</li> <li>• Positive general expectations of trust and hope in the rehabilitation professionals</li> </ul>
Persson & Gunvor (40) 2013 Denmark	Explorative qualitative interview study	Explore tortured refugees' expectations of the multidisciplinary pain rehabilitation program offered at rehabilitation centre	<ul style="list-style-type: none"> <li>• Refugees had different, mostly positive expectations of the pain rehabilitation program</li> <li>• Positive outcomes, such as improved health, improved coping ability and decreased pain, were expected</li> <li>• Positive general expectations of trust and hope in the rehabilitation professionals</li> </ul>
Stade et al. (39) Denmark	2015 Qualitative before-after study	Explore the compliance, acceptability and treatment satisfaction using group basic body awareness therapy (BBAT) in traumatized refugees	<ul style="list-style-type: none"> <li>• High acceptability, compliance and satisfaction with BBAT</li> <li>• Reduction of somatic and psychiatric symptoms &amp; improved QoL, level of functioning and quality of movement</li> </ul>
Uribe Guajardo et al. (25) 2016 Australia	Retrospective observational study	Explore psychological distress in 2 samples of Iraqi refugees, those who recently arrived ( <i>n</i> = 225, average length of stay = 0.55 months) & those with a longer period of resettlement ( <i>n</i> = 225, average length of stay = 58.5 months)	<ul style="list-style-type: none"> <li>• Both group have significantly higher psychological distress compared with the general Australian population</li> <li>• Significant difference between groups, indicating study participants with longer periods of resettlement experienced higher levels of psychological distress than recent arrivals</li> <li>• Provision of assistance programs beyond the initial arrival period are required</li> </ul>

Table I cont.

Study year/Country	Design	Objective	Key themes/findings
Walsh NE & Walsh WS (33) 2003 Switzerland	Narrative review	Rehabilitation consequences of landmine injuries	Factor that impede adequate treatment: <ul style="list-style-type: none"> <li>• Limited accessibility of medical centres &amp; transport</li> <li>• Lack of protection for wounded people from travelling to disputed areas where hospitals are located</li> <li>• Lack of security</li> <li>• Politics &amp; administration constraints result in hindrance of delivery of appropriate medical care</li> <li>• Poverty</li> <li>• Limited education &amp; social structure</li> <li>• Financial constraints</li> <li>• Lack of interagency coordination</li> </ul>

BBAT: basic body awareness therapy; *n*=total number; NCDs: non-communicable diseases; QoL: quality of life; UK: United Kingdom; USA: United States of America.

26). A systematic review reported PTSD rates varying from 8% to 37.2% and depression from 28.3% to 75% in refugees of Iraqi background resettled in western countries (27). Many develop other mental symptoms and behaviour issues to avoid stimuli that remind them of past experiences. Furthermore, social isolation and/or poverty, hostility, discrimination and racism might have compounding negative effects on their mental well-being (28). Insomnia, poor sleep pattern, memory and concentration problems are commonly reported, which hinder learning and capacity for adaptation in their new environment (25). Health issues, particularly mental health, may be exacerbated by financial instability, unemployment, lack of education; and concern for family members who remain in their native countries and in refugee camps.

#### Other issues

Difficulty accessing healthcare services by refugees is well documented. Many are either unaware of available services (such as primary healthcare) (29–31), and/or specific health services (such as rehabilitation). At many times, they lack continuity of care for pre-existing health conditions. Concerns have been raised about risk of sexual, domestic and gender-based violence, whilst many refugees are separated from families and have limited protection and community support (29). Other health needs include: nutritional deficiencies, infectious diseases, under-immunization, poor dental and optical health, delayed growth and developmental milestones in children (29, 32). Furthermore, lack of security and political/administration constraints result in hindrance of delivery of appropriate medical care (33).

#### Role of rehabilitation

Medical care of refugees frequently takes place in difficult social, political, and economic contexts. Due to changing international political and/or financial circumstances, many countries (including Australia), have changed their immigration policy accordingly,

and this has impacted healthcare policies. Gaps between legal and practical policy implementation and the lack of coordination between different tiers of government (state, federal) have had an undesirable impact on comprehensive management and adequate access to health services for refugees (7, 31). As aforementioned, there are significant changes in demographic profile of refugees, and broader changes to mental and physical health, with NCDs comprising high levels of vulnerability. Furthermore, many refugees have pre-existing disability and chronic health conditions, which have long-term individual health implications. There is evidence that these health conditions are amenable to intervention, and that comprehensive health assessment following resettlement improves short- and long-term health outcomes (14, 34). Many experts in this area, advocate the need for improved models of service provision to address the health needs of refugees and asylum-seekers to close gaps between identified needs and available services (6, 35), including rehabilitation (24, 33, 36, 37).

The complexity and magnitude of problems confronting health systems have served to underline the urgent need for re-framing the refugee crisis with increased cooperation and coordination, both within and beyond the country of settlement (3, 29). The challenge is more apparent for rehabilitation. There is no universal model to meet the rehabilitation needs of refugees, and priorities can vary greatly between population groups and contexts. A comprehensive evaluation of individual needs and their prioritization for rehabilitation should be undertaken (in the field), by qualified healthcare professionals. One study used the World Health Organization International Classification of Functioning, Disability and Health (ICF) to develop an interdisciplinary instrument to describe the overall health condition of traumatized refugees in Denmark (38). The ICF framework offered a standardized language to describe health and associated conditions in terms of functioning rather than symptoms and diagnosis, which is more applicable in the rehabilitation context. In this study, Jorgensen et al found that ICF was useful for a gene-

ral description of the total health condition (physical and mental functional ability; and the environmental impact) of refugees and was suitable to document and monitor effectiveness of rehabilitation in this population (38). Although the ICF Core Sets (both comprehensive and brief) for refugees were developed, they are yet to be validated in a refugee population (38). Another pilot study on effectiveness of basic body awareness therapy (BBAT), form of physiotherapy, (weekly group sessions 13 weeks) for traumatized refugees found that the intervention showed high acceptability, compliance and satisfaction (39). Furthermore, participants reported reduction in somatic and psychiatric symptoms; and improvement in level of functioning and quality of life (39). Persson & Gard, in an explorative qualitative study, evaluated refugees' expectations of a multidisciplinary pain rehabilitation programme (40). The study outlined that refugees' had different, mostly positive expectations of the pain rehabilitation programme and rehabilitation professionals, and the majority expected positive outcomes, such as improved health, coping ability and decreased pain (40).

## DISCUSSION

This article provides a narrative overview of refugee health and potential challenges from the rehabilitation perspective. A multi-pronged approach assimilated published literature for currently available evidence for rehabilitation in refugee settings. It highlights sparse research and lack of robust intervention studies in this area. The included studies showed marked heterogeneity in terms of study design and objectives. The findings suggest a high prevalence of NCDs, including mental health conditions in the refugee population, comprising high levels of vulnerability and long-term health implications. Many refugees also have pre-existing disability and chronic health conditions. These problems necessitate comprehensive long-term interdisciplinary management, including rehabilitation. Addressing these issues following resettlement of refugees can improve short- and long-term health outcomes.

With escalating global conflicts, the international community is struggling to respond to the sharp growth in forced-displacement of people and resulting humanitarian crisis. Many argue abject failure of political leadership, and for effective action from national and international bodies, both to stabilize the countries from which migrants are coming, and to make the positive case for migration (4, 7). In Australia, the Humanitarian Settlement Services Program provides support services to all refugees during the first 6–12 months after arrival, which includes education, orienta-

tion and assistance to attend local health services and transition to independence (8, 13). The Humanitarian Program includes both: onshore protection/asylum component (to those people with Status of refugee already in Australia) and offshore resettlement component (resettlement to people overseas) (8). These components nonetheless are complicated by rapidly changing immigration policy and different visa types, which impact the overall health policy for refugee and asylum seekers (7). Further, approaches and practices for care provision to refugees can vary widely across the public health care services (7).

With increasing refugee crisis, the available primary health care services are insufficient to address chronic disease and related-disability management, which requires interdisciplinary long-term care (24, 36). Where appropriate, rehabilitation medicine needs to be incorporated in the health care model to improve physical, cognitive and psychological health of refugees, within existing contextual factors (personal and environmental), to improve activity and societal integration. This includes assessment of evolving and longer-term health issues, needs and resource requirements; establishment of adequate service provision and support, education and counselling; and collaboration with other healthcare service providers and relevant stakeholders (governmental and/or non-governmental). In those with pre-existing disability, rehabilitation professionals can provide input to modify barriers in living, environment and adaptive equipment to restore some functional independence, along with other key issues such as respite, long-term care and community integration. These rehabilitation programs may have rapid, tangible benefits to refugees and economic benefit for local community (33, 37).

Refugee health management requires a holistic approach to health, including physical, psychological, social and cultural dimensions. Barriers, such as cultural differences, language difficulties, lack of information about available services, and limited healthcare provider understanding of complex health concerns of refugees, all contribute to limited access to healthcare and poor outcomes. This is further complicated by complexity in refugee status classification and different levels of health service entitlements (depending on different visa categories), such as in Australia (6). The refugee rehabilitation programs should be embraced early after arrival and continued for longer-term in the community. There is a need for development of culturally appropriate health-related data tracking system of refugees for better understanding of their health care needs, (including rehabilitation services) in their new countries. However, often healthcare needs, including rehabilitation needs of refugees are

undetected or partially addressed as many ‘needs’ fall between existing gaps in care.

Limitations of methodology used and completeness of this review cannot be ruled out. Despite the extended range of terms used to capture the relevant literature, the search strategy principally encompassed cited literature. Further, the search strategy included searching of reference lists only within relevant articles, other possible articles may have been missed in electronic searches, including unpublished studies. Due to heterogeneity of identified studies with mixed methods, a systematic analytical method could not be applied to pool results. This highlights limited number of studies and many gaps in evidence-base for medical rehabilitation for refugee population, including lack of effective care pathways for long-term functional restoration and successful community integration.

### *The way forward*

Refugees have unique and complex healthcare needs, impacting their mental, physical and social functioning, emphasizing the crucial role of rehabilitation (38). Although rehabilitation aspects of care should be part of periodic health screening and management, it is frequently ignored and yet to be incorporated in routine management plans. There is need for a comprehensive integrated evidence-based rehabilitation-inclusive healthcare model to tackle refugee health-issues, from initial screening to long-term management in the community. Given the importance of medical and psychosocial rehabilitation and vulnerability of the refugees, the medical community needs to be aware of challenges and gaps in service provision to meet the needs of this population. Futuristic successful and effective rehabilitation-inclusive refugee management will depend on the capacity and willingness of countries to build systematic planning and preparedness system for effective services for this population. From the rehabilitation perspective, some initiatives need consideration, and include (but not limited to):

- development of a central or national refugee-management body for coordinated, cooperative effort
- appropriate policies (guidelines), regulations and legislations
- routine comprehensive health screening (including rehabilitation needs)
- develop affordable, culturally responsive healthcare services
- mapping/evaluation of existing rehabilitation facilities and strengthen/expansion potential of these services to meet needs of refugees
- build strong inter-sectoral (national and international stakeholders) partnerships, with active consumer

participation

- capacity building in comprehensive health management system (including rehabilitation) for sustainability
- improve communication with provision of credentialed interpreters; consumer groups
- advocacy and provision of healthcare information in different languages
- foster research, knowledge exchange and access to data to inform evidence-based practices
- active participation/inclusion of refugees and community advocates into planning and public awareness
- development of support systems, community-based rehabilitation and vocational programs

In conclusion, quality and accessible healthcare services (including rehabilitation) are an important part of addressing the health-related needs of refugees. With huge changes in demographics of refugees, there is now increasing evidence that health problems impacting these populations are escalating, and changing with time and circumstances. Some priorities include: provision of trained healthcare professionals, including rehabilitation professionals and service providers for refugee healthcare and entitlements; a strategic coordinated approach to facilitate access, build rapport and ongoing engagement; and retention of services for refugees. Innovative, culturally competent strategies to organize rehabilitation-inclusive healthcare services is essential to meet needs of refugees.

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