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SPECIAL REPORT

CHALLENGES AND BARRIERS FOR IMPLEMENTATION OF THE WORLD HEALTH ORGANIZATION GLOBAL DISABILITY ACTION PLAN IN LOW- AND MIDDLE-INCOME COUNTRIES

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Objective: **To identify potential barriers and facilitators for implementation of the World Health Organization Global Disability Action Plan (GDAP) in Nigeria and compare these with other low- and middle-income countries.**

Methods: **A rehabilitation team from the Royal Melbourne Hospital, Parkville, Australia, conducted intensive workshops at medical/academic institutions in Nigeria for healthcare professionals from various local Physical Medicine and Rehabilitation facilities. A modified Delphi method identified challenges for person with disability, using 3 GDAP objectives. Findings were compared with similar exercises in Madagascar, Pakistan and Mongolia.**

Results: **Despite differences in the healthcare system and practice, the challenges reported in Nigeria were similar to those in other 3 low- and middle-income countries, at both macro (governmental/policymakers) and micro levels (community/social/individual). Common challenges identified were: limited knowledge of disability services, limited Physical Medicine and Rehabilitation workforce, guidelines and accreditation standards; coordination amongst healthcare sectors; social issues; data and research; legislation and political commitment. Common potential facilitators included: need for strong leadership; advocacy of disability-inclusive development; investment in infrastructure/human resources; coordination/partnerships in healthcare sector; and research.**

Conclusion: **Disability care is an emerging priority in low- and middle-income countries to address the needs of people with disability. The challenges identified in Nigeria are common to most low- and middle-income countries. The GDAP framework can facilitate access and strengthen Physical Medicine and Rehabilitation services.**

Key words: disability; rehabilitation; low- and middle-income countries; World Health Organization.

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The World Health Organization (WHO) and the World Bank estimate that there are 1 billion disabled people worldwide (15% of the world's population), which equates to 1 in 7 people (1). Of these, 110–190 million have significant difficulties, such as inability to walk, perform self-care, or communicate, or to participate in education or employment (1). An estimated 80% of persons with disability (PwD) live in low- and middle-income countries (LMICs) (1). The United Nations (UN) "Convention on Rights of Persons with Disabilities" (CRPD) offers a blueprint for a "rights-based" approach to mainstreaming PwD by highlighting disability as a human experience that occurs as an interaction of a person with a health condition or impairment with his/her environment, and personal factors (2). This is consistent with the International Classification of Functioning, Disability and Health (ICF) framework, that disability is a human condition and should not be viewed as a specific phenomenon affecting a limited group of people (3). The CRPD was the first UN treaty to protect the fundamental rights of PwD, and encourages all member states to adopt appropriate measures to eliminate discrimination and poverty, improve health, quality education and employment of PwD (1, 2). It identifies Physical Medicine and Rehabilitation (PM&R) as a fundamental process to support physical independence, mental, social and vocational ability (Article 26) and encourages Member States to identify and address the barriers faced by PwD (Article 31) (1).

The World Report on Disability (WRD) (WHO and the World Bank) indicates an escalating prevalence of disability, due to global population ageing, a rise in chronic conditions (including non-communicable diseases; NCDs) and an upsurge in natural/man-made disasters (1, 4).

The WRD supports implementation of the CRPD with special emphasis on PM&R (1), and highlights inadequacies in resources and access for PwD, especially in LMICs (5–7). In 2005, only 3% of individuals who needed rehabilitation globally received the service and a third of countries did not allocate specific

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budgets for PM&R services (1). Further, a 2006 global survey of government action ($n=114$ countries) for implementation of UN Standard Rules on Equalization of Opportunities for PwD reported that rehabilitation policies were not adopted in 48 countries (42%), legislation on rehabilitation for PwD not passed in half (50%) member states, and rehabilitation programmes were not established in 46 countries (40%) (8). It is estimated that people needing prostheses or orthotic-related services represent 0.5% of the population in developing countries, whilst 30 million people in Africa, Asia, and Latin America require over 180,000 PM&R professionals to cater for the needs of PwD (9, 10). Ethnic minorities, elderly citizens, women, children, refugees and the displaced are more vulnerable amongst the PwD (11). The burden of disease and subsequent disability in Sub-Saharan Africa (including Nigeria) is colossal. The region is one of the least developed in the world in terms of rehabilitation opportunities (12, 13). In 2008, there were only 6 trained rehabilitation physicians listed in the region, all located in South Africa (12, 13).

The WHO "Global Disability Action Plan 2014–2021 (GDAP): Better Health for All People with Disability" (14), provides a list of specific actions and metrics of success to achieve 3 main objectives: remove barriers to health services; strengthen/extend rehabilitation, assistive-technology, support services, and community-based rehabilitation; and collection of disability data. The GDAP framework is a step forward in provision of PM&R services for PwD, and integrates PM&R into national and international policy development. However, it can be challenging for many LMICs and for the PM&R community, as it sets high standards requiring evidence-based rehabilitative care (15). The potential for successful implementation of GDAP is not clear, especially in LMICs, where provision of rehabilitations to PwD remains a challenge (7, 16–18). Our earlier reports highlight significant challenges in this area specifically in Madagascar (17), Mongolia (16) and Pakistan (18). These reports were based on the data collected during organized workshop-programmes in these countries to document challenges and strengths within the existing healthcare systems, corresponding with the established objectives listed in the GDAP. Although, these countries varied in terms of healthcare systems, nature and status of disability, healthcare work force and provision of PM&R services, there were many commonalities in terms of barriers/challenges in caring for PwD and the views of local healthcare professionals as to how to overcome these challenges (16).

This aim of this study was to identify potential barriers and facilitators for implementation of GDAP objectives in Nigeria and to compare the findings with those from other LMICs: Madagascar, Mongolia and Pakistan.

METHODS

The authors (FK, MG), as a part of the Rehabilitation Flying Faculty from the Royal Melbourne Hospital (RMH) team, were invited as independent experts to run an organized 3-day intensive educational workshop programme by the College of Medicine, University of Ibadan and Blossom Neurorehabilitation Centre, Ibadan, Nigeria (affiliated with the World Federation for Neurorehabilitation) (March 2017)). The team previously conducted similar workshops in Madagascar, Mongolia and Pakistan (16–18). Within the Nigerian programme, a 1-day exercise concentrated solely on utilizing the GDAP framework to educate participants, build workforce capacity, develop PM&R standards and operational set-up for PM&R services within the country. This exercise was approved by the local institution and the Royal Melbourne Hospital.

Participants and procedure

The training programme at the Ibadan University was attended by 196 healthcare professionals from various hospitals, community and academic rehabilitation centres across Nigeria. These included: 21 neurologists, 98 physiotherapists (PT), 23 nurses, psychologists and social workers, 11 occupational therapists (OT) and prosthetists and orthotists (P&O), 7 speech pathologists and 31 resident medical doctors, research officers and students. The participants were from various PM&R facilities across the country (including rural areas, private sector).

Details of participants and methodology for the GDAP exercises in Madagascar, Mongolia and Pakistan have been described in previous reports (16–18).

Over the training period, the authors (FK, MG) assumed a facilitator role in conducting an intensive teaching programme and 1-day consensus meeting based on the objectives of the GDAP. Prior to the detailed workshops, the authors summarized the GDAP, evidence in the field of PM&R in various plenary and interactive panel sessions, which included: basic principles of rehabilitation, evidence-based practice and research methods, disability care planning, capacity building, leadership skills development, role of OT and speech pathologist for different neurological conditions, rehabilitation nursing; symptomatic management (spasticity, pain, wound care, etc.) and others. The lead medical team members from the "host" institutions provided information about the local health service and system, including specific challenges faced by the PM&R professionals. During these workshops, participants were divided into 3 panels to ensure that various specialist skill-base was as evenly distributed as possible, and each panel focused on one of the GDAP objectives. These panels were further divided into subgroups based on the specific content of the key GDAP objectives. All subgroups recorded their responses on a form with an overview of the GDAP. Participants in each panel, based on their experience and issues faced in service delivery, discussed their views and perspectives of various challenges and recorded specific barriers/problems and potential facilitators in line with the GDAP. At all times the GDAP was used as a blueprint for discussion and allowed the authors to educate the audience, many of whom were not familiar with the GDAP document (mainly junior doctors, nurses and some allied health professionals).

A modified Delphi-consensus method was used for the collective participant opinion. This involved a presentation by one speaker from each group, who presented on behalf of their designated panel, followed by a face-to-face large group discussion providing the opportunity to brainstorm additional and emerging issues, and to avoid the dominance of some participants that can occur in nominal group consensus methods. At the end, a formal iterative decision-making and consensus process (with ≥80% of participants agreeing) was conducted tabulating potential challenges/barriers and facilitators/enablers in implementation of the GDAP.

Data collection and analysis

During the workshop, participants submitted their responses in writing for each GDAP objective. They were encouraged to document any emerging issues and present these in the large group interactive session. All information was supplemented with audio-recorded data and video-tape during the workshops. The author-facilitators recorded additional information, comments and recommendations provided by participants, where possible. All data were collated using a content analysis technique (19). Two authors (BA, FA) scrutinized each response and coded the information using a line-by-line process, which were further clustered into a common theme. Any discrepancies were resolved through discussion and consensus amongst all authors.

In addition, a desktop search (academic and grey literature using available medical and health science electronic databases, internet search engines and websites) was conducted for relevant publications (including academic articles, reports, related website contents, etc.) on the current status on disability and PM&R in Nigeria. All relevant information was discussed with participants in this context. Known experts in this field were contacted for further information in this area where possible.

The authors were not involved in the selection of participants in this report, as this was beyond their authority. The participants were invited by authorized delegates of the Nigerian Federation for Neurorehabilitation, in conjunction with the Blossom Centre (affiliate of the World Federation of NeuroRehabilitation) and the host institution.

RESULTS

Disability and PM&R status

Nigeria is the most populous country in Africa, with an estimated population of 182 million people (in 2015), 250 different ethnic groups and 500 different languages and dialects (20). Nigeria's economy is one of the largest in Africa, with crude oil revenues dominating the fiscal profile and public finance (21). Like other Sub-Saharan countries, it is experiencing rapid urbanization, especially in Lagos, Kano, Abuja and Ibadan. Health service delivery, including healthcare for PwD is provided by a mixture of public and private health sectors. There are an estimated 20.1 skilled healthcare professionals and 4 physicians per 10,000 population in Nigeria. There are an estimated 3.3 million PwD in Nigeria, with a disability, prevalence rate of 2.3% (1, 22). Visual, hearing, physical, intellectual and communication impairments are common causes of disability (22). Although Nigeria ratified the CRPD in 2007, the Nigerian Constitution does not contain provisions that directly address disability (22). In 1993, the *Nigerians with Disability Decree* was passed by the Nigerian government, however, the Joint National Association of Persons with Disabilities is the official body in Nigeria that specifically addresses the violation of rights of PwD (23). Nigeria's National Health Insurance Scheme (NHIS) was established in 1999, but according to the Nigeria Demographic and Health Survey Report (2008), over 97% of population have no health insurance (23). The majority of PwD receive rehabilitation from families, friends and, in a few cases, by governmental agencies (through institutional or custodial care) (23). Under the pretext of religio-cultural cover and support, many PwD undertake "begging" as their key livelihood. Even those who have received rehabilitation programmes and skills acquisition through the governmental agencies, many discontinue the application of what they have learnt (23, 24). There are no data on rehabilitation physicians in Nigeria and it is estimated that there are fewer than 2 PTs for 10,000 people. Despite the scarcity of rehabilitation resources (infrastructure and human resources), to date, there are limited systems to evaluate and/or build rehabilitation capacity (personal communication with workshop participants).

Based on the current World Bank Group's classification to define income status of the countries (gross national income (GNI) in 2015), except Madagascar (categorized as a low-income country; GNI per capita ≤US$1,045), all 3 countries of interest (Mongolia, Nigeria and Pakistan) are categorized as LMICs (GNI per capita: US$1,046–4,125) (25). There are significant disparities amongst the countries in terms of capacity, infrastructure and level of governance. Overall spending on healthcare by all 4 governments is low, with total mean expenditure not exceeding 3.5% of gross development product (GDP). Household out-of-pocket expenditure remains the largest source of health expenditure. Amongst the 4 countries, Madagascar has the highest prevalence rate of disability of 7–8%, while Nigeria has the lowest at 2.3%. There is limited epidemiological data on disability and disability-related burden in all 4 countries. In terms of PM&R needs and services, the picture is vague, due to lack of routinely collected disability data, limited information about the needs and unmet needs of PwD, and variability in definitions and/or ambiguous categories used for disability (e.g. physical, mental, behavioural, intellectual). In all 4 countries, the national development policies do not

adequately address the concerns of PwD or include comprehensive PM&R and supportive services. Table I compares data on disabilities, disability legislation, healthcare infrastructures and resources, and support services in 4 LMICs of interest.

Findings from interactive workshops based on the Global Disability Action Plan

All participants ($n = 196$) contributed to group discussions and the consensus method. Many (nurses, social workers) were not familiar with the GDAP, and had limited knowledge of disability programmes in Nigeria. The participants agreed that the GDAP provides comprehensive summary actions for the government, policymakers, clinicians and PwD. The participants provided multiple responses across each GDAP objective. For GDAP objective 1, participants specified 30 potential challenges/barriers and 37 potential facilitators/enablers; for objective 2: 23 challenges/barriers and 27 facilitators/enablers; and for objective 3: 18 challenges/barriers and 16 facilitators/enablers. As expected, there was significant overlap in responses regarding themes in the 3 GDAP objec-

Table I. Summary of current health systems/resources for Disability and Physical Medicine and Rehabilitation in 4 low- and middle-income countries (LMICs)

	Madagascar	Mongolia	Pakistan	Nigeria
Population, mil	24.2 (2015)	3 (2015)	201.9 (2016)	182.2 (2015)
Life expectancy at birth, years (2015)	65.5	68.8	66.4	54.5
Economic statistics	GDP per capita[a]: $390 (2014); Total expenditure on health: 3% of GPD HDI rank: 154	GDP per capita[a]: $4,353 (2014); Total expenditure on health: 4.7% of GPD HDI rank: 90	GDP per capita[a]: $1,427 (2015); Total expenditure on health: 2.8% of GPD HDI rank: 147	GDP per capita[a]: $2,640 (2016); Total expenditure on health: 3.7% of GPD HDI rank: 152
Human resources (healthcare)	Skilled health professionals: 4.8/10,000 Physicians: 0.14/1,000 people; In 2012: 3,188 doctors, 4,858 nurses/midwives, PT < 1/10,000 people	Skilled health professionals: 64.6/10,000 Physicians: 2.9/1,000 people; In 2011: 7,140 doctors, 10,143 nurses/midwives	Skilled health professionals: 14.0/10,000 Physicians: 0.8/1,000 people In 2014: 149,142 doctors, 111,857 nurses/midwives 6/10,000 people; rehab physicians: 38 (25 military), PT/OT < 1/10,000 people	Skilled health professionals: 20.1/10,000 Physicians: 0.4/1,000 people; In 2008: 56,526 doctors, 224,943 nurses/midwives, PT < 2/10,000 people
Health Services/ Infrastructure	3 hospital beds/10,000 people (2010) Hospitals total density/100,000 population: 0.47 (2013)	3 hospital beds/10,000 people (2010) Hospitals total density/100,000 population: 2.5 (2013)	6 beds/10,000 people Hospitals total density/100,000 population: 0.53 (2013) 989 public & 800 private hospitals, 596 rural health centres, 4,910 health units at basic primary healthcare level (2010) 15 departments of rehabilitation medicine, 32 PT departments (mainly in the army)	Total 34,173 health facilities (2011): 88% primary, 12% secondary, 1% tertiary 22 healthcare facilities/100,000 people
Disability data	PwD: ≈1.8 mil (2000) Disability-prevalence: 7–8% (2000) Mortality from NCDs[b]: 23.4%	PwD: 108,000 Disability-prevalence: 3.9% (2010) Mortality from NCDs[b]: 32.0%	PwD: 3.3 mil Disability prevalence: 2.5% (1998) Mortality from NCDs[b]: 20.5%	PwD: 3.3 mil Disability prevalence: 2.3% (2016) Mortality from NCDs[b]: 19.6%
Disability type	Polio; stroke; leprosy; congenital diseases; malnutrition; drug and alcohol consumption; Alzheimer's disease, cerebral palsy	Physical: 29% Mental/intellectual: 19%, Visual: 15%, hearing: 12%, speech disability: 6%	Physical: 18.9%, visual: 8.1%, hearing: 7.4%, Intellectual: 7.6%, Mental: 6.4%, multiple: 8.2%, others 43.4%	Visual, hearing & physical impairment; intellectual & communication impairments
Legislation of disability for Persons with disability	1998 law for equal rights to PwD, CRPD ratified: 2007; National Decade of Disabled Persons (2003), The Madagascar Action Plan 2007–2012	CRPD signature – no, ratification 2009; Law of Mongolia on Social Security of Persons with Disabilities 2005; National Program for Promoting Persons with Disabilities, 2006–2012	CRPD signature 2008, ratification 2011; National Policy for PwD: 2002; National Plan of Action 2006–2025; the Disabled Persons (Employment and Rehabilitation) Ordinance 1981; Convention on Rights of the Child 1990; Convention on Elimination of all Forms of Discrimination against Women 1996	CRPD signature 2007, ratification 2010; Nigerians with Disability Decree 1993; Lagos State Special People's Law 2011; The Child Rights Act, 2003; National Social Welfare Policy 2012
CBR	No National CBR programme, most funded by NGOs	Government, NGO-funded CBR programmes	No National CBR programme, most funded by NGOs	No National CBR programme, most funded by NGOs
Research and evaluation	Recent research on orthoses for clubfoot; no inter-country collaboration; member of ISPRM	Currently on an upward trend in research in medical rehabilitation	Currently on an upward trend in research in medical rehabilitation; member ISPRM	Currently on an upward trend in research in medical rehabilitation

(Main sources: WHO World Health Statistics 2016; WHO Country Profile; WHO Health Statistics 2011; WHO Disability and Rehabilitation Status 2004 (14); ESCAP 2012, Statistical Yearbook for Asia and the Pacific 2014, Umeh et al. African Disability Rights Yearbook 2013, Wikipedia 2017).
[a]GPD (nominal). [b]NCDs=cardiovascular disease (CVD), cancer, diabetes and chronic respiratory disease. [c]Skilled health professional density 2005–2013, refers to: primarily nurses/midwives and physicians.
CBR: community-based rehabilitation; CRPD: Convention on the Rights of Persons with Disabilities; GDP: gross domestic product; GNI: gross national income; HDI: Human Development Index; ISPRM: International Society of Physical and Rehabilitation Medicine; LMICs: Low- and Middle-Income Countries; OT: occupational therapists; mil: million; NGO: non-governmental organization; NCDs: non-communicable diseases; P&O: prosthetics and orthotics; PM&R: Physical Medicine and Rehabilitation; PT: physiotherapists; PwD: persons with disability; SLTs: speech and language therapists; WHO: World Health Organization.

Table II. Number of potential challenges and facilitators (reported by the participants) in implementation of the Global Disability Action Plan (GDAP) objectives by country

	Potential challenges/ barriers			Potential facilitators/ enablers		
GDAP objectives	1	2	3	1	2	3
Madagascar	34	25	11	42	33	15
Nigeria	30	23	18	37	27	16
Mongolia	42	51	20	31	44	18
Pakistan	62	68	29	51	55	28

tives. (The complete set is available from the authors upon request).

Comparative analyses between 4 low- and middle-income countries (Madagascar, Mongolia, Nigeria and Pakistan)

Overall, 335 healthcare professionals participated in the GDAP reports, although the number of participants varied amongst countries: Madagascar = 29; Mongolia = 77; Nigeria = 196 and Pakistan = 33. Participants were a diverse range of healthcare professionals from various PM&R and healthcare centres. At all times, the authors as facilitators focused on appropriate strategies specific to the local situation and context, as the status of PwD differed between the countries. The number of responses across each GDAP objectives provided by participants varied amongst the countries (Table II).

Despite variations in the healthcare systems (including PM&R) and practices amongst the 4 countries (Table I), many challenges reported by participants were common at both the macro- (governmental, policymakers) and micro-level (community, social, individual). Based on participant feedback and consensus agreement from each workshop, several common suggestive "themes" were coded, and a set of common themes were then collated using responses from all 4 workshops. The final set of common themes included 57 potential challenges/ barriers and 56 potential facilitators/enablers categorized under specific headings (summarized in Table III).

DISCUSSION

This paper reports potential barriers and facilitators for the implementation of the GDAP in Nigeria and compares the findings with those from other LMICs: Madagascar, Mongolia and Pakistan. The aim was to gather information using a "bottom-up" approach in the context of national PM&R and disability status, met and/or unmet needs in rehabilitation care and potential enablers/facilitators in improving functioning and quality of life of PwD. The data include direct reports from the field with participants' personal experiences in their specific health services, their perspectives of various challenges and specific barriers/problems relating to service provision, attitudes/approaches to PwD, rehabilitative care, education, etc., in line with the GDAP. The authors envisaged that this process would help build national PM&R capacity, and provide a much-needed conceptual framework for successful implementation of the GDAP.

Consistent with the worldwide pattern of population health transition, all 4 countries of interest are in a stage of epidemiological transition from communicable diseases to NCDs, which account for a predominant share of morbidity and mortality. Despite prioritization of PM&R as a key agenda by the governments, the level of funding, human resources and health infrastructure is suboptimal in all 4 countries, particularly in rural areas. Despite the exponential growth and development of healthcare facilities and programmes in many LMICs, the systems are explicitly hospital-centred, resulting in a fragmented and inefficient hospital sector (26). The primary healthcare sector and community-based services (such as PM&R services) are yet to develop optimally; with inadequate financing systems, human resources, planning and regulatory processes (26). For example, though PM&R departments exist in many major hospitals in Pakistan and Mongolia, most are ambulatory and operate in silos and most programmes are not integrated with other healthcare systems and processes. While PM&R services are mostly conjoint with and/or subjugated by traditional medicine in Mongolia, they are mostly based within military services in Pakistan, while in Nigeria and Madagascar comprehensive rehabilitation programmes are in their infancy. None of the countries have a universal healthcare system. In Mongolia PM&R is not covered by insurance. In all 4 countries, the national PM&R services are not well integrated within acute care systems and/or rural health departments, non-governmental organizations (NGOs)/ international non-governmental organizations (INGOs) and the private sector. Many provide these services mostly through vertically-managed disease-specific mechanisms (16–18). Similar to most developing countries, care of PwD (including CBR) in all 4 countries is predominantly funded by NGOs/INGOs and charitable organizations at a community level. There is poor coordination amongst these INGOs/NGOs working in the field of disability management and existing PM&R services. This is compounded by discernible urban-rural disparities in healthcare delivery and health workforce (27).

Table III. Common potential challenges and facilitators in implementation of the World Health Organization (WHO) Global Disability Action Plan 2014–2021 in Madagascar, Mongolia, Nigeria and Pakistan

Potential challenges/barriers	Potential facilitators/enablers in the next 5–6 years
Governance, policy and planning	
• Lack of strong leadership and a central body for developing governance • Lag in implementation of health policies & enforcement of the legislation policy for employment/education/health for PwD • Poor coordination/collaboration among different government sectors & ministries and healthcare agencies • Health priority more driven towards acute sector & communicable disease • Limited coordination/collaboration among different healthcare sectors (hospitals (private, public), primary, Charity & Community organizations, INGOs & NGOs) • Unstable political & economic situation, poor political commitment • Corruption	• Establishment of legislative & central governing body • Education/awareness programmes about disability & PM&R for policymakers, government authorities, hospital administrators • Inclusion of PM&R personnel in policy development • Development of Key Performance Indicators, Standards of Care & accreditation criteria for rehabilitation facilities by Ministry of Health • Active role of PM&R departments in facilitating leadership skills & governance • Establishing healthcare standards/policies, implementation & evaluation • Strengthening government accountability & regulatory frameworks at all levels • Adequate resource allocation & international cooperation & support
Rehabilitation-inclusive healthcare infrastructure/human resources	
• Limited government commitment, inadequate investment for health sector, particularly rehabilitation • Limited funding or underfunded programmes • PM&R services not well integrated with acute services & limited and/or lack of inpatient rehabilitation facilities • Poor provision of PwD friendly infrastructure, environment public places & transport • Limited or lack of specialized PM&R centres, e.g. for stroke, spinal cord injuries, etc. • Lack of knowledge/misconception about disability	• Development of new rehabilitation infrastructure & re-evaluation of existing services • Strengthening PM&R capacity, public-private partnerships • Increasing health expenditure for disability & PM&R • Development of inpatient rehabilitation units, & specialized rehabilitation facilities (including in remote areas) • International cooperation & support for PM&R development & training • Expansion of allied health services (OT, Speech therapy, P&O services) • Establishing a body for evaluating & monitoring accessibility in all sectors of human endeavours for PwD
Health information and referral systems	
• Lack of process involving stakeholders (including PM&R professionals, PwD, communities) in policy development • Few or lack of specific disability-rehabilitation standards or key performance indicators (not up to date) • Lack of structured standard referral systems from acute to sub-acute care and to community • Lack of multidisciplinary team approach & systems/models of care • Lack of knowledge about different health professions (such as PM&R, OT, speech therapy) • Lack of clear definition for disability and/or ambiguous disability categories • No specific accreditation standards or criteria for rehabilitation facilities & for staff	• Facilitation of clear policy direction in health development • Development of guidelines & mechanisms for a functional & standard referral system at all levels • Development of Key Performance Indicators, Standards of Care & accreditation criteria for rehab facilities & staff • Involvement of clients & patients in decision-making processes • Proper patient education & counselling earlier • Coordination & communication between governmental bodies, healthcare sectors, various INGOs/NGOs & community organisation
Education and Awareness	
• Poor education/knowledge about disability/PM&R amongst policymakers, government authorities etc. • Poor disability awareness, misconception & cultural belief • Lack of evidence-base guidelines & disability centred measures • Limited undergraduate courses in PM&R in medical institutions, professional courses/training programmes • No staff development or appraisal systems in hospitals or community settings • Limited access to education/web-based learning, professional development, training in therapy& innovation • Poor awareness amongst healthcare professionals about disability & PM&R • Limited or lack of family/carer education & limited provision of inclusion of caregivers of PwD and/or PwD in care programmes, decision making	• Development of evidence-based guidelines/protocols & outcome measures for disability • Improvement of the health sector information base • Scaling of heath workforce education & accreditation • Development of Continuous Medical Education programmes for PM&R professionals, skill training & education • Training & educational programme for PwD (& families) • Initiatives/programmes for development of allied health • Collaboration with international partners for staff education/training • Public awareness/ educational programmes through media, awareness programmes, lobbying • Establishment of national health workforce registry • Integration of health promotion/public awareness strategies into community health programmes, curricula in educational institutions/schools • Occupational empowerment & employment programmes
Service delivery and costs	
• Limited access to healthcare, specifically specialized rehabilitation • Maldistribution of human resources (PM&R professionals more centralized in capital & urban areas); demoralized workforce • Lack of emergency assistance programmes for PwD • Minimal information available to public about access to PM&R • Out-of-pocket payment system • Long waiting time, so patients may seek alternative therapy • Lack of strategies for improved access to affordable quality care & essential assistive devices/technologies • High costs for assistive devices or low standard devices • Language barriers • Lack of SOPs • Lack or poor coverage of health insurances, particularly for PwD	• Developments of SOPs • Improvement of social welfare, livelihood & benefits • Adaptation of Universal Health Insurance scheme, innovative financing approaches • New medical equipment/technology for local needs • Development of vocational rehabilitation programme (jobs, education, etc.) for PwD • Development of mobile PM&R Units to deliver care in remote areas • Development of telerehabilitation, innovative programmes using locally available technologies (mobile) • Adequate financial support & advocacy for assistive devices; technology expansion to rural areas • Development of interpreters

Table III *cont.*

Potential challenges/barriers	Potential facilitators/enablers in the next 5–6 years
Community-based rehabilitation and consumer groups	
• Limited numbers of community healthcare facilities, disability services, particularly in rural areas • Limited adequate primary care & community rehabilitation services • Lack of continuum of care including regular follow-ups • Belief in traditional or native healers • Poverty, high illiteracy • Poor or lack of volunteering systems	• More active role of National Society of PM&R • Promotion of CBR • Development of consumer organizations (including PwD at national & local level) • More CBR services linked with main hospital networks, inclusion of carers, PwD in decision-making processes • Skill training for carers • Expansion of community-based rehabilitation through inclusion of carers in decision-making processes • Establishment of community volunteer services
Research and evidence-based information	
• Scarcity of disability-related data (inaccurate data; underestimation & underrepresentation of disability prevalence, cost data, etc.) • Limited funding for research & training of PM&R workforce; research not identified as a priority • Lack of national health research policy & priorities • Lack of national health research forum • Lack of measurement tools, poor awareness of standardized frameworks, such as ICF • Poor attitude toward research • Lack of time, education & funding for research • Inadequate trained human resource to conduct research	• Development of standard data collection systems (training ICF) • Mandatory data collection systems at all levels • Development of innovative teaching models, using interactive problem-based learning & clinical capacity through organized educational activities • Building of research capacity in PM&R by training & educating medical staff in research methodology • Development of research, data collection methods/measurement tools in disability & rehabilitation • Involve government & academic institutions to establish national research centre/foundation • Training/retraining of healthcare professionals • Collaboration with international partners in research & development • International aid/assistance in research capacity building

CBR: community-based rehabilitation; HCP: healthcare professionals; ICF: International Classification of Functioning, Disability and Health; IT: information technology; INGO: international non-governmental organization; NGO: non-governmental organization; OT: occupational therapist; PM&R: Physical Medicine and Rehabilitation; PwD: persons with disability; SOP: standardized operating procedures; WHO: World Health Organization.

Common potential challenges and enablers for implementation of the Global Disability Action Plan

All 4 countries Madagascar, Mongolia, Nigeria and Pakistan have made some progress in building national health capacity in the acute healthcare sector, public health emergency preparedness, infection prevention and control. However, great disparities in health status exist and PM&R is less prioritized (16–18, 23). There appear to be contrasts and imbalances within operational healthcare systems in many LMICs, including in Madagascar, Mongolia, Nigeria, Pakistan, in terms of policies, funding structure/infrastructure, healthcare systems and capacity, human and physical resources, technology, etc. (Table I). Data for disability are scarce and there is variability in definitions and ambiguous categories used for disability. Despite these variations, many challenges for the PM&R sector in terms of implementation of the GDAP seem to be common to most LMICs. Key common potential challenges and/or enablers reported by the participants from 4 countries of interest in this report for implementation of the GDAP, particularly for PM&R service provision, are summarized below:

Governance, policy and planning. Similar to many LMICs, legislation for overall management of PwD has been adapted in all 4 countries; however, existing policies are under-funded, there is lag in implementation of PM&R policies and/or overall delivery of such services, as well as lack of coordination and collaboration amongst different sectors. Key barriers in healthcare service provision include lack of political commitment, inadequate funding and corruption.

There is need for a strong leadership role by national disability authorities to coordinate and provide standards for rehabilitative care, develop key performance indicators for PM&R to enhance capacity of national healthcare organizations, develop inter-disciplinary and inter-sectoral partnerships of all stakeholders for longer-term care planning of PwD. The GDAP recommendations need to be tailored to suit the local environment for relevance to mainstream services, policymakers and administrators.

Rehabilitation-inclusive healthcare infrastructure and human resources. Many PwD require specialized, efficient management and health services, which are often limited or lacking in most LMICs, particularly in rural areas. The PM&R services across countries vary, and most LMICs have limited or no organized PM&R services (1). Various PM&R services for PwD are funded by INGOs/NGOs and charitable organizations. There are limited sub-specialized PM&R services (such as stroke units, spinal cord injury (SCI) centres), and many such units, as in Pakistan and Mongolia, are restricted to urban areas (28). There is limited or lack of modern equipment (therapeutic and diagnostic), which hinders the provision of service delivery. Available resources, including workforce, in most LMICs are inadequate and inequitably distributed (1, 29).

There is limited financial support for development of the PM&R workforce, with a shortage of allied health professionals (OTs, speech therapists, prosthetics, etc.) and few educational/training facilities for PM&R capacity building.

The LMICs need to develop a self-sustaining rehabilitation-inclusive healthcare capacity (at various levels) to cater for the needs of PwD. There is a critical need to build a system, integrating and linking healthcare services with other emerging sub-specialties including PM&R. Furthermore, there is a need to improve infrastructure for disabled access for transport and buildings, social support systems at a national level with leadership from government and relevant authorities for training and empowerment programmes for the PM&R workforce.

Health information and referral systems. Data on disability and PM&R are fragmented and often not disaggregated from other healthcare services information. Improvement in accessibility and overcoming information barriers are a priority for optimal planning and resource allocation. There is need for a system for collection of data by relevant services, with a lead governing agency facilitating and coordinating this information for dissemination to relevant authorities. An appropriate referral mechanism for PwD is lacking at many levels; this results in gaps in appropriate services and the care continuum in the community for PwD.

Education and awareness. Despite evidence of growing public acceptance of PwD in many LMICs widespread stigma and discrimination against these people persist and many are ostracized. Due to poor education and lack of appropriate information, many PwD are unaware of specialities such as rehabilitation. This hinders their active societal participation and opportunities to interact with their able-bodied counterparts (30). There is minimal awareness regarding rehabilitation amongst the general population and it is often confused with traditional or alternative medicine. Lack of trust of medical practitioners by PwD is prevalent in some cultures, particularly in rural areas, where many seek help from religious and traditional healers (1, 31).

Strong policy measures will eliminate discrimination, prejudice and barriers to the socio-political and economic well-being of PWDs. Increased public awareness and active inclusion of PwD (and their families) in decision-making and goal-setting is required. Capacity building for disability/consumer organizations on the rights of PWDs is needed in line with the UN CRPD.

Service delivery and costs. Whilst there are limited PM&R services in rural areas, access to such facilities in urban areas is often costly, time-consuming and difficult (32). The cost of access to PM&R services is a significant barrier, as most services are available only as an out-of-pocket payment. There is lack of universal health insurance systems and many private health insurance systems do not cover rehabilitation. This results in financial hardship and inequity in utilization of healthcare services (28, 33). There is still a large gap in provision of basic equipment and assistive devices (canes, crutches, prostheses, wheelchairs, etc.). Strengthening national capacity for integrated PM&R services at all levels by the national governments is required.

Community-based rehabilitation and consumer groups. There are a limited number of community-based rehabilitation facilities, professional, caregiver and consumer groups. The needs of PwD are often overlooked and many remain marginalized and their capabilities underestimated. Various community-based initiatives should be in place to empower and strengthen community-based organizations for longer-term rehabilitation of PwD. Governments should ensure the socio-economic security of these individuals and communities, where possible.

Research and evidence-based information. There is limited research capacity for disability issues in the majority of LMICs, preventing development of comprehensive country-specific policies and programmes. Furthermore, access to evidence-based information is not optimal. More funding and promotion for research should be initiated and all expertise/stakeholders (and related organizations) should be considered for knowledge transfer and education. Multi-stakeholder partnerships (national and international) can build and implement evidence-based management approaches. Governments should collaborate with healthcare organizations, academic and community organizations to implement existing and new research programmes.

Limitations

This study has some limitations. It is a cross-sectional study and does not test specific hypotheses through systematic analysis. A content analysis technique was used to summarize subjective data derived from the interactive feedback based on personal opinions, interpretations, clinical practices, points of view and judgement from participants attending organized workshop programmes. This study was intended as a preliminary comparative study, with the aim of comparing PM&R efforts in 4 different LMICs based on the GDAP, and to identify barriers/challenges and facilitators from perspective of participants for the implementation of GDAP. Participants were invited by local institutions and many other relevant stakeholders (such as go-

vernmental, social work organizations, organizations of PwD) may have been missed, which may limit the generalizability and validity of findings. However, the study cohort, covered PM&R professionals from a wide geographical population in the country, and represented the health professionals currently operational in the community (both urban and rural). A modified Delphi method allowed all participants to express their views and contribute their opinion on potential barriers/challenges for successful implementation of the GDAP. Cultural and/or social demographic impact of the participating countries could not be assessed; this was beyond the scope of this article. Participant feedback was positive, and most were satisfied with the overall consensus process. Multidisciplinary input within the groups was beneficial, as groups were diverse in their areas of expertise. The group heterogeneity was reflected in the broad participant responses. Group discussion and consensus rounds served to remove duplicate or similar themes/issues and to formulate a final set of common barriers and facilitators. The authors believe the findings reflect the current issues faced by the PM&R workforce in LMICs.

Conclusion

In summary, there is a strong impetus to improve disability care and the PM&R sector in these countries. The GDAP provides comprehensive summary actions for disability and offers the government authorities, policymakers and other relevant stakeholders a blueprint for implementing new comprehensive programmes for long-term care of PwD. The UN and WHO are key global players for the care and management of PwD in LMICs. The International Society of Physical and Rehabilitation Medicine (ISPRM) (and the ISPRM-WHO-Liaison Committee) can play a role in the ISPRM-WHO Collaboration Plan (2014–2017) to develop appropriate, effective sustainable policies, strategies and plans to strengthen the provision of rehabilitation, specifically in LMICs (34).

The role of PM&R in the healthcare system in LMICs is expanding to address the needs of growing numbers of PwD. The GDAP provides a major boost for PM&R services to enhance the quality of life of PwD worldwide. There is opportunity for PM&R professionals, consumer organizations and NGOs to take a strong leadership role and to prioritize the challenges that need to be addressed for successful implementation of the GDAP.

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