

## Evaluating performance and availability of rehabilitation services in medical rehabilitation centers in Ethiopia through a national level assessment 2024

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### Abstract:

**Background:** Rehabilitation services are vital for improving the quality of life and functional independence of individuals with disabilities. These services require a multidisciplinary approach but face challenges such as staff burnout, low salaries, and management inefficiencies.

**Objective:** This national assessment aimed to evaluate the performance and availability of rehabilitation services across 11 medical rehabilitation centers (MRCs) in Ethiopia in 2024.

**Methods:** Using a standardized tool with key performance indicators (KPIs), the study assessed domains including leadership, infrastructure, service delivery, supply chain, health financing, and monitoring and evaluation (M&E). Data were collected via facility inventory questionnaires and analyzed descriptively.

**Results:** Infrastructure, machinery, and equipment scored highest nationally (86%), followed by leadership and supply chain (53%). Human resources, services, and health financing scored around 49–50%, while M&E was lowest at 39%. Notable performers included Mekelle MRC in infrastructure and supply chain, Dessie and Assela in human resources, and Bahirdar and Dessie in M&E. Conversely, Jijjiga, Gambella, and Harar MRCs scored poorly across most domains.

**Conclusion:** While infrastructure and supply chain management show strong performance, significant improvements are needed in human resources and M&E. Targeted interventions are recommended to enhance service delivery, especially in underperforming centers.

**Keywords:** Rehabilitation services, medical rehabilitation centers

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### Background

Rehabilitation services play a crucial role in improving the functional independence and quality of life for individuals with disabilities or impairments. However, effective service management presents numerous challenges. Rehabilitation is a comprehensive, multidisciplinary approach aimed at restoring, maintaining, or improving an individual's physical, sensory, mental, psychological, and social functioning (1, 2). Rehabilitation services play a crucial role in improving the functional independence and quality of life for individuals with disabilities or impairments. However, effective service management presents numerous challenges.

#### Challenges from the Rehabilitation Professional Perspective

Rehabilitation professionals often face a lack of resources, including personnel, equipment, and funding. This can lead to increased caseloads, limited treatment options, and difficulty meeting client needs (3), and a study conducted revealed that limited budgets often restrict access to necessary equipment, technology, and qualified personnel. This can hinder the quality and comprehensiveness of rehabilitation programs (4).

A shortage of qualified rehabilitation professionals across disciplines can lead to increased workloads and decreased time spent with each patient (5). The demanding nature of rehabilitation work and low salaries can contribute to burnout and staff shortages, further impacting service delivery (6), and which also demanding work environments and emotional strain can contribute to burnout among rehabilitation professionals, impacting patient care (7).

Effective rehabilitation often requires collaboration between various disciplines. However, fragmented healthcare systems and differing professional perspectives can make this challenging (8).

### **Challenges from the Client Perspective**

As previous study explored identified that individuals may face difficulties accessing rehabilitation services due to geographical barriers, long waiting lists, and limited transportation options (9, 10). Another study also reported that long wait times, limited geographic availability, and complex referral processes can create barriers to accessing rehabilitation services, especially for those in rural areas or with limited mobility(11, 12).

The cost of rehabilitation services can be a significant burden for clients, particularly with limited insurance coverage National Council on Independent Living, 2023(12, 13), and financial constraints due to out-of-pocket costs or inadequate insurance coverage can impede participation in necessary rehabilitation programs (14). Standardized treatment approaches may not adequately address individual needs and preferences, hindering patient engagement and motivation, and clients may feel their needs and preferences are not adequately addressed in the rehabilitation process (15, 16).

### **Challenges from the Administrative Perspective**

Rehabilitation administrators face complex challenges in navigating healthcare systems and providing effective care. The field of rehabilitation involves intricate processes influenced by hidden natural laws that affect outcome control (17). Administrators must consider the interplay between macro-level policies and micro-level experiences of patients and caregivers, as these factors impact continuity of care and access to services (18). Administrators face the pressure to deliver high-quality services within budgetary constraints. This can lead to difficult decisions regarding staffing levels, resource allocation, and service prioritization (19). Measuring and demonstrating the effectiveness of rehabilitation services requires robust data collection and quality assurance processes and lack of robust data collection and analysis can make it challenging to evaluate program effectiveness, identify areas for improvement, and justify resource allocation (20). Rehabilitation administrators must ensure compliance with a constantly evolving set of policies and regulations (21), and Navigating the ever-changing healthcare landscape with its complex regulations can be a significant burden for rehabilitation service administrators (22, 23). Rehabilitation service management in Ethiopia faces significant challenges, with low utilization rates among cancer patients. Studies at major hospitals in Addis Ababa and Hawassa found that only 26% and 33.2% of cancer patients, respectively, received rehabilitation services(24, 25). Barriers to service utilization include unavailability of supplies, lack of professionals, and cost (24). Factors associated with higher utilization include being male, urban residence, independence in daily activities, education about rehabilitation services, strong social support, and satisfaction with cancer care (25). The challenges in rehabilitation services reflect broader issues in Ethiopia's public sector reform, such as lack of accountability, inadequate incentives for employees, and limited stakeholder participation (26). To improve rehabilitation service utilization, there is a need for increased education on the benefits of rehabilitation and comprehensive programs to address these challenges(24, 25). The study assessed the performance and services of 11 physical rehabilitation centres in Ethiopia, focusing on leadership, infrastructure, services, supply chain management, health financing, and monitoring and evaluation. Results were presented in graphs and tables, highlighting their effectiveness.

### **Methods:**

#### **Study area Background**

The Ministry of Health's Medical Service Directorate has been working to enhance rehabilitation services in Ethiopia for the past three years, following the transfer of physical rehabilitation centers from the Ministry of Labour and Social Affairs to the Ministry of Health. The Ministry has prepared various documents, including the National Rehabilitation and Assistive Technology Services Management Guide, National Priority Assistive Products List, National Rehabilitation and Assistive Technology Strategic Plan (2021-2025 GC), National Rehabilitation Landscape Analysis, and Rehabilitation Advocacy Tool. The Ethiopian prosthesis Orthotics Service (EPOS) was established, and a prosthesis and orthotics curriculum was developed. The Rehabilitation Information System (RIS) was developed for Medical rehabilitation centers (MRCs) and selected hospitals, and continuous technical support and capacity-building trainings were provided. Regular rehabilitation review meetings have been held with stakeholders, partners, and concerned bodies, with a plan to acknowledge better-performing Medical rehabilitation centers (MRCs) using an objective assessment tool and KPIs.

**Study design, data collection and analysis:** A facility based nationally representative 11 (Medical rehabilitation centers (MRCs)) across Ethiopia assessed with the standardized tool with Key Performance Indicators (KPIs) that has been developed by rehabilitation experts in collaboration with the MOH team. The tools were developed after selecting key domain areas for evaluation, which has helped to objectively assess the status of rehabilitation centres services and performance status. This Rehabilitation Centre's performance assessment and analysis of the performance in Ethiopia, focusing on key domains such as leadership, infrastructure, services, supply chain management, health financing, and monitoring and evaluation (M&E),

were conducted in 2024. The rehabilitation centres included the Ethiopian prosthesis Orthotics Service (EPOS) and rehabilitation centers (Medical rehabilitation centers (MRCs)) of Dessie, Arbaminch, Mekelle, Assosa, Nekemte, Bahirdar, Assela, Jigjiga, Gambella, and Harar, respectively.

The facility inventory questionnaire collects information on the availability of specific items (including their location and functional status), components of support systems (e.g., logistics, maintenance, and management), and facility infrastructure, including the service delivery environment. The survey was also used to obtain information on how the facilities are prepared to provide each of the priority services. The information entered in the PC-tablets by each interviewer was sent regularly to the Ministry of Health, Specialty and Rehabilitation desk/Medical Service Lead Executive office by the team supervisor when data collection was completed in each rehabilitation center. We reviewed and checked these data files for any errors and inconsistencies. Data cleaning included the checking of range, structure, and a selected set of checks for internal consistency. All errors detected during machine editing were corrected. A descriptive analysis of the Ministry of Health assessment tool with KPIs data was conducted using the standard core indicators key domains such as leadership, infrastructure, services, supply chain management, health financing, and monitoring and evaluation tool for results graphs and tables. Where appropriate, methods of analysis, key assumptions or justifications, and key findings have been discussed under each section. In the data analysis, both tracer indicators and composite indicators were generated.

**Result:** The complete response rate was 100%.

### Performance Analysis of MRC by Domains

#### *Leadership*

Among the Medical rehabilitation centers (MRCs), Nekemte stands out with the highest leadership score of 74% followed by Assela (68%) which demonstrate relatively strong leadership. Other centers such as EPOS, Dessie, Bahirdar, Mekelle and Arbaminch scored (63%). However, Gambella and Harar Medical rehabilitation centers (MRCs) received lowest score 26% and 0% respectively see details in Figure 1.

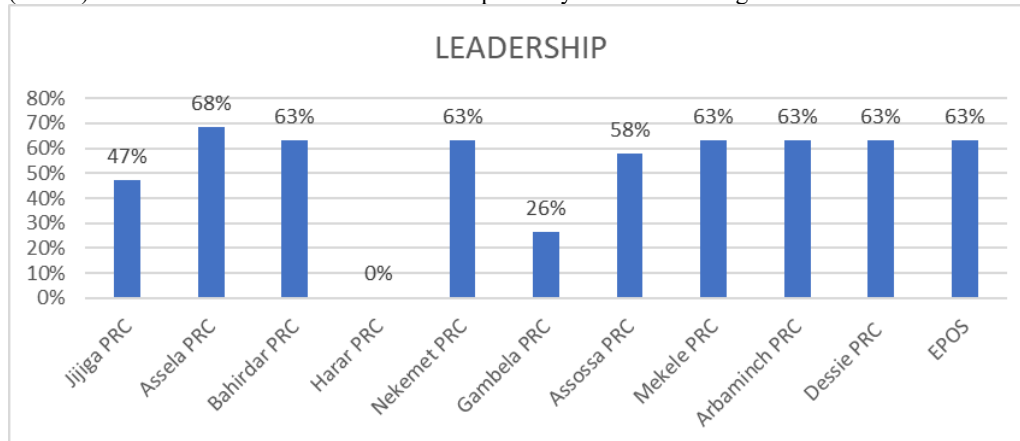


Figure 1: Performance Analysis of Medical Rehabilitation Centers (MRCs) by Leadership 2024:

#### *Human Resources (HR)*

The Desie and asella Medical rehabilitation centers(MRCs) excels in the HR domain, achieving score of 71%. And 67% respectively. Mekelle and Bahirdar Medical rehabilitation centers (MRCs) also perform well above average, with scores of 64% and 62% respectively. On the other hand, Harar and Gambella Medical rehabilitation centers (MRCs) face significant challenges, scoring 5% and 24% respectively, indicating potential issues like staff shortages and inadequate training. see details in Figure 2.

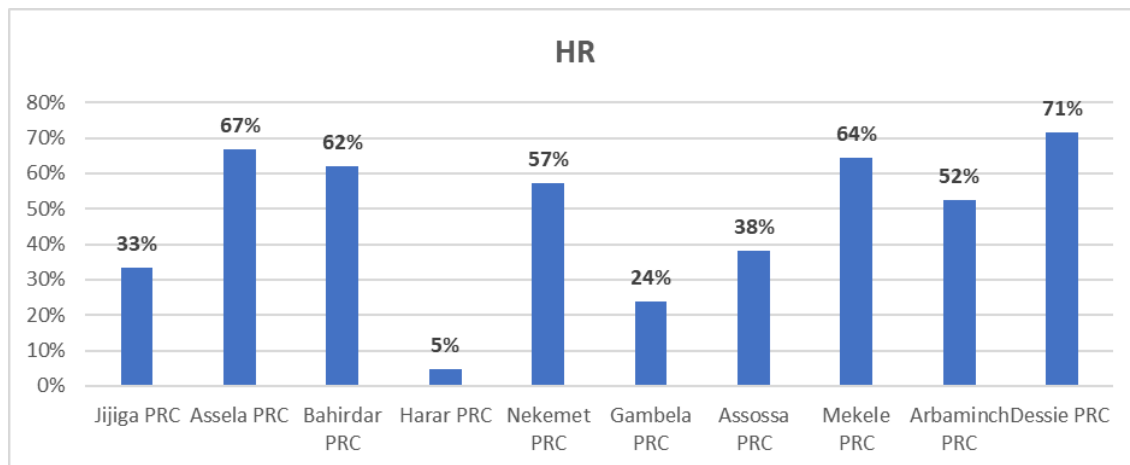


Figure 2: Performance Analysis of Medical Rehabilitation Centers (MRCs) by Human Resources (HR) 2024

### ***Infrastructure, Machinery, and Equipment***

Ethiopian prosthesis Orthotics Service (EPOS), Mekelle and Medical rehabilitation centers(MRCs) lead the way in this domain with scores of 100%. Arbaminch, Bahirdar, Desie and Assela Medical rehabilitation centers(MRCs) also demonstrate strong infrastructure with a score 99%, 96%, 92% and 92% respectively. However, Harar MRC scores a mere 68% in this category. see details in Figure 3.

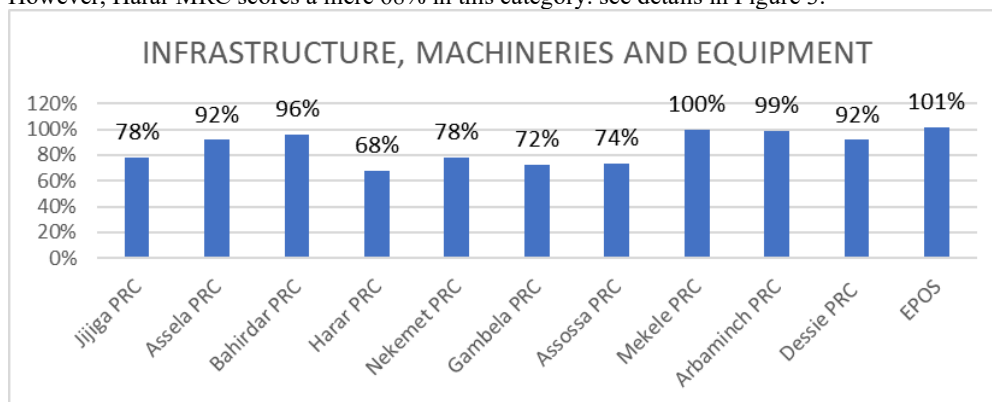


Figure 3: Performance Analysis of Medical Rehabilitation Centers (MRCs) by Infrastructure, Machinery, and Equipment 2024

### ***Service Delivery and availability***

Ethiopian prosthesis Orthotics Service (EPOS) (79%), Mekelle (62%) and Arbaminch (62%) Medical rehabilitation centers (MRCs) are the top performers in service delivery, indicating the availability of better rehabilitation services. However, Harar (3%) and Gambella scored 24%, reflecting significant gaps in service provision in those regions. see details in Figure 4.

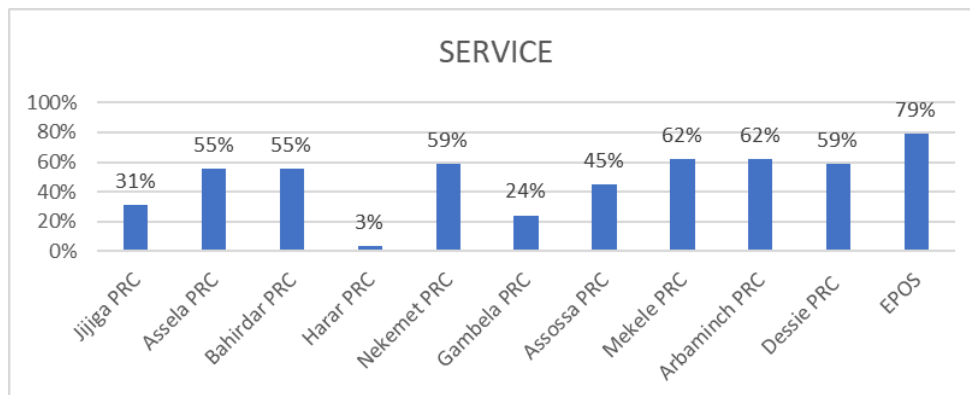


Figure 4: Performance Analysis of Medical Rehabilitation Centers (MRCs) by Service Delivery and availability 2024

### Supply Chain and Medical Device Management

Mekelle MRC stands out dramatically with a score of 88% followed by Arbaminch, Desie, EPOS, and Assella with equal score of 75%. Gambella MRC scored the lowest at 13%, while Harar received 0% in this domain. see details in Figure 5.

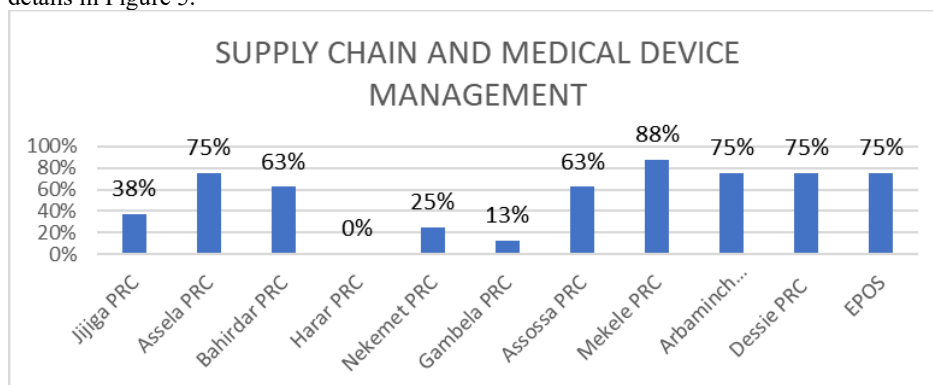


Figure 5: Performance Analysis of Medical Rehabilitation Centers (MRCs) by Supply Chain and Medical Device Management 2024

### Health Financing

Mekelle MRC demonstrates the strongest performance in health financing with a score of 89% followed by EPOS, Nekemt and Desie with 78%. However, Harar and Gambella Medical rehabilitation centers (MRCs) scored 0%, indicating challenges in securing adequate and sustainable funding for rehabilitation services see details in Figure 6.

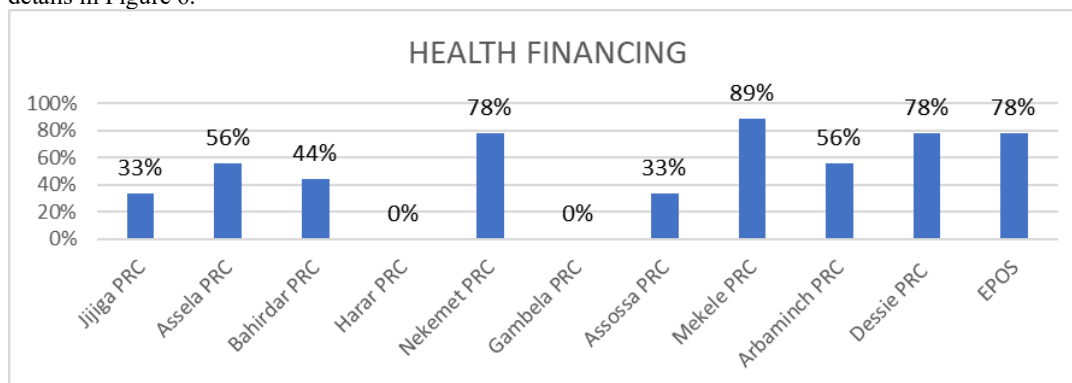


Figure 6: Performance Analysis of Medical Rehabilitation Centers (MRCs) by Health Financing 2024

**Monitoring and Evaluation (M&E)**

Bahirdar and Desie MRC achieve the highest M&E score at 88%, followed by Mekelle at 75%. However, both Harar and Gambella received a score of 0% in this category, highlighting the need for improved monitoring and evaluation practices see details in Figure 7.

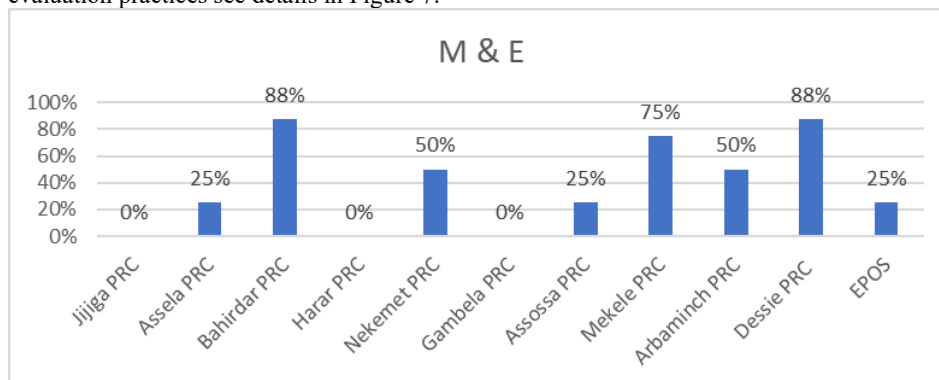


Figure 7: Performance Analysis of Medical Rehabilitation Centers (MRCs) by Monitoring and Evaluation (M&E) 2024

**Evaluation of each rehabilitation centers**

This grouped figure allows for a clear comparison of performance across leadership, infrastructure (equipment), supply chain, health financing, rehabilitation service, and M&E for each center Ethiopian prosthesis Orthotics Service (EPOS) see details in Figure 8.

There is excellent achievement in infrastructure, machineries and equipment, supply chain and medical device management, health financing, and service compared to other centers while there is a need of improvement in HR and M& E domain.

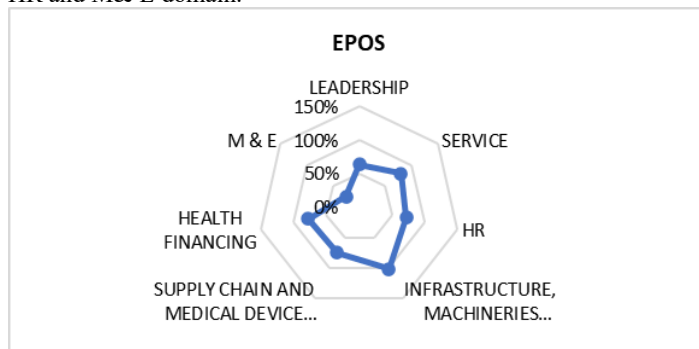


Figure 8: Evaluation of Ethiopian Prosthesis Orthotics Service (EPOS) Rehabilitation Centers in all six Domains 2024.

**Dessie MRC see details in Figure 9.**

Better achievements were seen at infrastructure, machineries and equipment, M & E, health financing, supply chain and medical device management where by the lowest achievement is service domain that shall be the major focus area for future improvement.

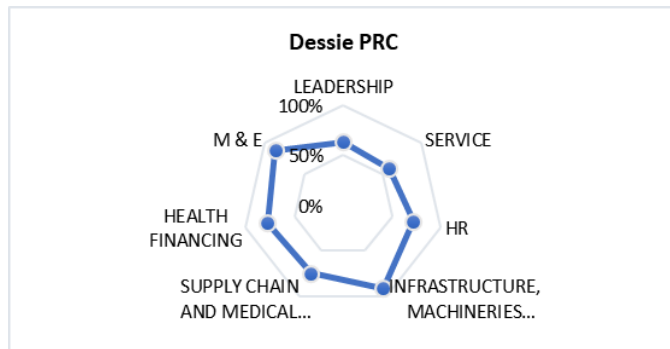


Figure 9: Evaluation of Dessie Rehabilitation Centers in all six Domains 2024

**Arbaminch MRC see details in Figure 10**

Outstanding achievements were seen at infrastructure, machineries and equipment domain followed by supply chain and medical device management. But there is a need to work on M & E domain where by the overall activities of the center is monitored accordingly.

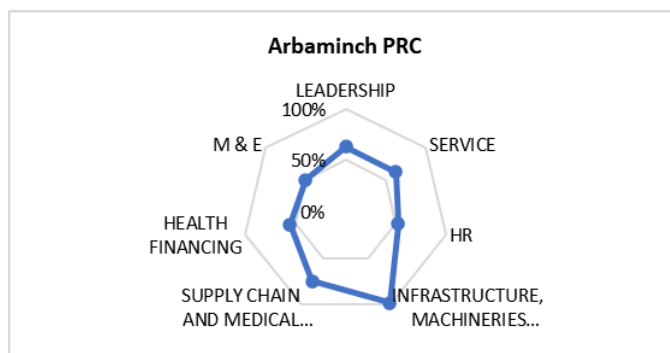


Figure 10: Evaluation of Arbaminch Rehabilitation Centers in all six Domains 2024

**Mekelle MRC see details in Figure 11.**

In this center infrastructure, machineries and equipment, supply chain and medical device management, health financing and m & e were domains of excellent achievement areas where there is a promising service delivery compared to other rehabilitation centers.

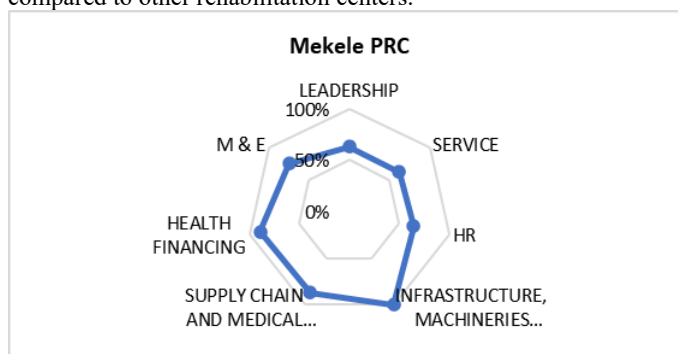


Figure 12: Evaluation of Mekelle Rehabilitation Centers in all six Domains 2024

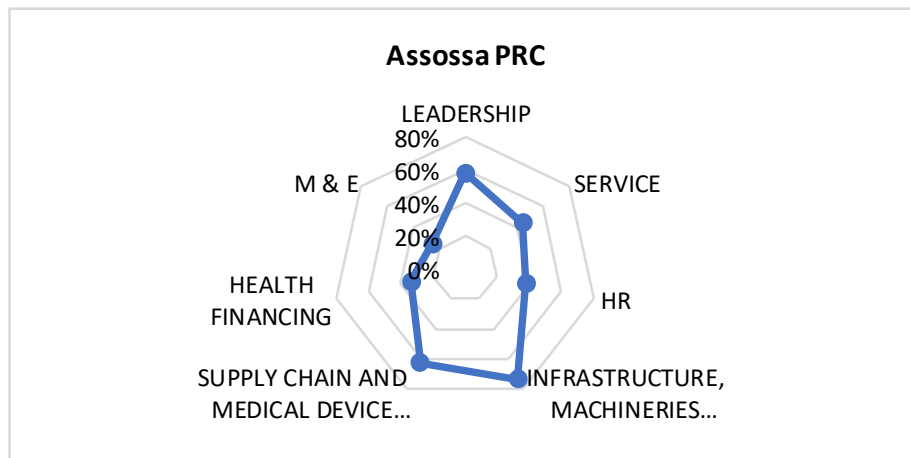


Figure 13: Evaluation of Assosa Rehabilitation Centers in all six Domains 2024

**Assosa MRC see details in Figure 13.**

Better score was seen on the domain of supply chain and medical device management followed by supply chain and medical device management where significant improvement strategies are still needed on the other domains for better service delivery

**Nekemte MRC see details in Figure 14**

Better achievements were seen on domains of health financing, infrastructure, machineries and equipment where by improvements are needed on supply chain and medical device management and M&E.

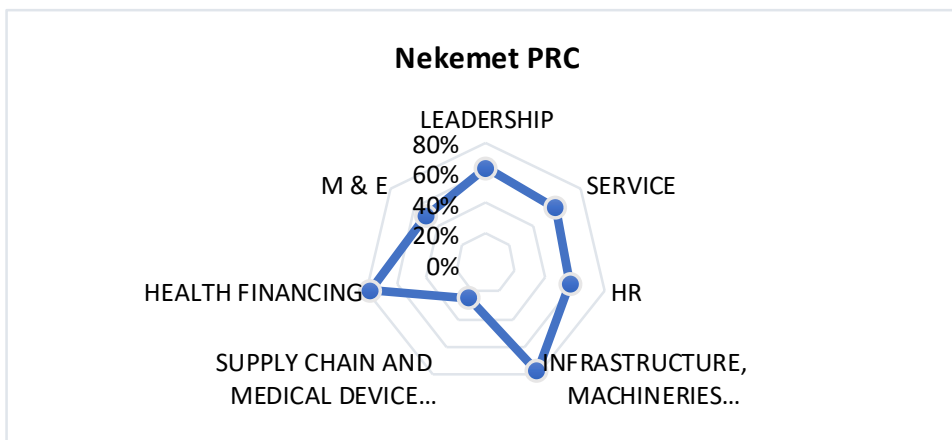


Figure 14: Evaluation of Nekemte Rehabilitation Centers in all six Domains 2024

## Overall National performance in all six Domains

Based on the national scores per domain Infrastructure, Machinery, and Equipment received the highest score of 86%, followed by Leadership and Supply Chain and Medical Device Management at 53%. HR scored 50%, while service and Health Financing obtained a score of 49%. The lowest score was observed in the domain of M&E at 39%. Details in figure 19.

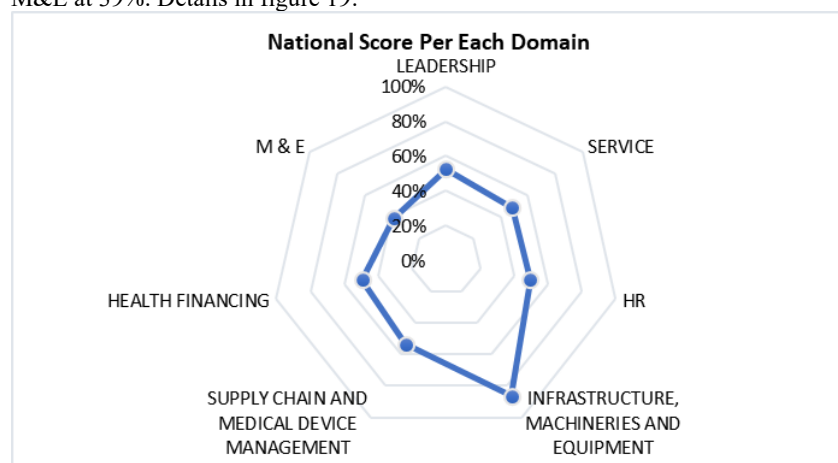


Figure 19: Evaluation of National performance in all six Domains of Ethiopia Rehabilitation Centers 2024

## Discussion

This baseline assessment identified that leadership related challenges are the majority of rehabilitation center are not supervised and given feedback from regional health bureau and they also don't send quarterly report to regional health bureau, there is no system in most rehabilitation center to give written fed back to department, and majority of rehabilitation center don't have compiled assessment report and action plan which addresses client's satisfaction. Which these supported by existing literature that Rehabilitation administrators must ensure compliance with a constantly evolving set of policies and regulations (21), and Navigating the ever-changing healthcare landscape with its complex regulations can be a significant burden for rehabilitation service administrators (22, 23). Rehabilitation service management in Ethiopia faces significant challenges, with low utilization rates among cancer patients.

This national level assessment reported that rehabilitation service availability revealed that almost all rehabilitation centers don't provide service such as occupational therapy, speech and language therapy, mental health therapy, cognitive therapy and sensory rehabilitation, almost all rehabilitation centers don't provide assistive device such as spectacle and hearing aid, and most rehabilitation center don't have community-based worker. These finding in line with previous study done revealed that a shortage of qualified rehabilitation professionals across disciplines can lead to increased workloads and decreased time spent with each patient (5). The demanding nature of rehabilitation work and low salaries can contribute to burnout and staff shortages, further impacting service delivery (6), and which also demanding work environments and emotional strain can contribute to burnout among rehabilitation professionals, impacting patient care (7).

And also this findings are supported by previous study explored identified that individuals may face difficulties accessing rehabilitation services due to geographical barriers, long waiting lists, and limited transportation options (9, 10). Another study also reported that long wait times, limited geographic availability, and complex referral processes can create barriers to accessing rehabilitation services, especially for those in rural areas or with limited mobility (11, 12).

This national level assessment reported that human resources of the majority of rehabilitation center don't have proper rehabilitation profession mix such as occupational Therapist, speech and language therapy, psychiatry professional, audiologist, optometry professional mobility aid technician, and almost all rehabilitation centers don't conduct regular survey on staff job satisfaction. These finding in line with previous study done revealed that a shortage of qualified rehabilitation professionals across disciplines can lead to increased workloads and decreased time spent with each patient (5). The demanding nature of rehabilitation work and low salaries can contribute to burnout and staff shortages, further impacting service delivery (6), and which also demanding work environments and emotional strain can contribute to burnout among rehabilitation professionals, impacting

patient care (7). Effective rehabilitation often requires collaboration between various disciplines. However, fragmented healthcare systems and differing professional perspectives can make this challenging (8).

This study reported that the infrastructure related challenges revealed that half of rehabilitation center don't have toilet sit connected to three-way handrail and are not at least 80cm above the floor and they also don't have general staff room and multidisciplinary team (MDT) room, and half rehabilitation center doesn't have basic functional equipment heat therapy unit. Rehabilitation professionals often face a lack of resources, including personnel, equipment, and funding. This can lead to increased caseloads, limited treatment options, and difficulty meeting client needs (3), and a study conducted revealed that limited budgets often restrict access to necessary equipment, technology, and qualified personnel. This can hinder the quality and comprehensiveness of rehabilitation programs (4).

This study identified that supply chain related challenges are: Most rehabilitation centers don't have device management committee with Terms of reference (TOR) which contain list of committees and they don't have incidence report, most rehabilitation center don't undergo equipment acceptance testing prior to using all new machinery, raw material and equipment, and there is no schedule for inspection, testing and preventive maintenance in most rehab center. Which these evidence are strongly supported by previous study done as evidenced that major hospitals in Addis Ababa and Hawassa found that were received rehabilitations services ,only 26% and 33.2% of cancer patients, respectively, received rehabilitation services (24, 25), the major barriers to service utilization include unavailability of supplies, lack of professionals, and cost (24). Factors associated with higher utilization include being male, urban residence, independence in daily activities, education about rehabilitation services, strong social support, and satisfaction with cancer care (25).

This study shown that health financing related challenges of rehabilitation services reported that most rehabilitation center don't have service fee and device cost which is accessible (audio and brail), and most rehabilitation center don't have memorandum of understanding (MOU) or service affiliation with private sector. Which these findings are supported by previous study reported that the cost of rehabilitation services can be a significant burden for clients, particularly with limited insurance coverage National Council on Independent Living, 2023(12, 13), and financial constraints due to out-of-pocket costs or inadequate insurance coverage can impede participation in necessary rehabilitation programs (14).

The current study identified that the monitoring and evaluation of most rehabilitation center don't have functional performance monitoring reporting and evaluation team, and all rehabilitation center does not use DHIS2 for reporting. Rehabilitation administrators must ensure compliance with a constantly evolving set of policies and regulations (21), and Navigating the ever-changing healthcare landscape with its complex regulations can be a significant burden for rehabilitation service administrators (22, 23). Therefore the standardized treatment approaches may not adequately address individual needs and preferences, hindering patient engagement and motivation, and clients may feel their needs and preferences are not adequately addressed in the rehabilitation process (15, 16).

## Conclusion

The overall assessment indicates a need for improvement in all domains, with a particular focus on HR, infrastructure, and services. In terms of services, all rehabilitation centres except EPOS currently provide only physical rehabilitation service. Major rehabilitation services such as mental, sensory, and cognitive rehabilitation should be initiated as soon as possible as the Ministry expects comprehensive rehabilitation services to be available at all centres. In terms of infrastructure, major renovations are needed in most rehabilitation centres. The regional health bureau, in collaboration with other stakeholders, supporting partners, and the Ministry, should actively take part accordingly. The same applies to the supply chain and raw materials. To improve HR, educational programs should be implemented in each rehabilitation service to to alleviate the shortage of man power throughout the country. The Ministry, alongside regional health bureaus, should prioritize this area and collaborate with stakeholders like the Ministry of Education and higher education institutions. Additionally, there should be on going professional development trainings for service providers.

## Acronyms and Abbreviations

AT: Assistive Technology  
EPOS: Ethiopian prosthesis Orthotics Service  
KPIs: Key Performance Indicators

MRCs: medical rehabilitation centers  
M&E: monitoring and evaluation  
OT: Occupational Therapy  
PT: Physical Therapy  
RT: Respiratory Therapy  
RIS: Rehabilitation Information System  
SLP: Speech-Language Pathology

### **Acknowledgment**

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### **Ethics approval and consideration**

The current study was conducted at nationally representative 11 Medical rehabilitation centers (MRCs) in Ethiopia and evaluated in 2024. The official letter was obtained from the Specialty and Rehabilitation Desk/Medical Service Lead Executive Office of the Ministry of Health with a reference number of ገመ94/51/214. Informed verbal consent was obtained from all rehabilitation centres' in-charge and professional workers responsible for client services who were present at the facility. The participant recruitment date was from June 7/2024 up to June 30/2024.

Consent to publish: Not applicable

Availability of data and materials: Datasets used in the current study are available from the corresponding author upon reasonable request.

Competing interests: Authors declared that they have no competing interest

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### **Author Contributions**

ADT contributed to the conception, design, and conduct of the study, analyzed and interpreted the data, and prepared the manuscript contributed to the conception, design, and conduct of the study, analyzed and interpreted data, and prepared the manuscript , KMH, EMA , AM, IB & DBD contributed to the design and conduct of the study, analyzed and interpreted the data, and prepared the manuscript. All authors read and approved the final manuscript.

### **Disclosure**

The authors(s) declare no potential conflicts of interest with respect to the research, authorship, or publication of this article.

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