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REHABILITATION FOR ALL THROUGH DIGITAL INNOVATION AND NEW COMPETENCIES

-

RADIC

D1.4 Needs analysis report

WORK PACKAGE WP1

RESPONSIBLE INSTITUTION: Jamk UAS

29/02/2024

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1 Introduction

For the preparation of RADIC, needs analysis on the role of higher education in supporting digital transformation in rehabilitation services under social- and health care systems was completed in Kenya, Tanzania, and Rwanda in 2021. Since digital transformation is an ongoing process, it is crucial that this analysis is updated to reflect the current needs in the region.

According to the partner countries, access to rehabilitation is still limited and closely linked to the rights of a people with disabilities and to the right to health for all. Still, the low number of rehabilitation professionals and required competences are major challenges, because rehabilitation services are often only available in specialized centres or at the highest level of the health care system.

Even in 2024, to some extent, the value rehabilitation is still poorly understood, leading to lack of funding from the governments. This contributes to the low number of professionals trained, including limited investments gained for research. Also, lack of learning opportunities derives from the fact that evidence based digital rehabilitation and the use of tele-rehabilitation are not being taught in any partner country. In addition, continuous learning opportunities are not available for graduates and working life professionals.

This needs analysis report was conducted by collecting data from the firsthand experts in the region, working-life rehabilitation professionals. This serves to increase understanding on the daily challenges they face while working in the field of rehabilitation.

2 Methods

2.1 Objectives

Main objective of the needs analysis survey was to understand the digital rehabilitation related learning needs of the (future) rehabilitation professionals and challenges they face in working life related to applying digital rehabilitation. This information is used when renewing the curricula of East African partner HEI's.

Specific objectives for the survey were:
1) To collect and summarize views of the stakeholders on how digital rehabilitation should be addressed in the curricula of rehabilitation professionals (that is physiotherapists, occupational therapists, speech therapists, psychologists, and prosthetists & orthotists) in East African partner HEI's.
2) Based on the views of the stakeholders, to create a competence framework of rehabilitation professionals applying digital rehabilitation in East Africa (D4.1).

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2.2 Target groups

Stakeholders (that is working-life rehabilitation professionals) in East African RADIC project countries (Kenya, Tanzania mainland, Zanzibar, and Rwanda) were recruited. The stakeholders were recruited by partner HEIs and project workers by disseminating the survey through project's communication channels and their own, private channels, social media and contacting the possible stakeholders directly (e.g., via national associations).

2.3 Approach

The data was collected by electronic online survey. Quantitative and qualitative data collection was done via specially devised online survey using Finnish, data secure Webropol-program (https://webropol.com/). The contents of the survey are available in Appendix 1. The collected quantitative data is presented by using tables and graphs, the collected qualitative data was analysed by data driven content analysis.

The survey was anonymous, only general socio-demographic information (such as country of residence, occupation, and years of working experience) will be requested. Ethical clearance was acquired in each partner country (including Zanzibar), preparations were made by AU HEIs regarding the ethical clearance application.

The collected data was stored and handled safely according to the principles defined in the project data management plan.

2.4 Research questions

Specific research questions were defined for the analysis, these were:

1. What kind of competences the rehabilitation professionals need to apply digital rehabilitation in Rwanda, Kenya, and Tanzania?
2. How do the rehabilitation professionals think the current education responses to the needed competences to apply Digital Rehabilitation in Rwanda, Kenya, and Tanzania?
3. What elements should be included in the curricula to promote the use of Digital Rehabilitation solutions in practice in Rwanda, Kenya, and Tanzania?

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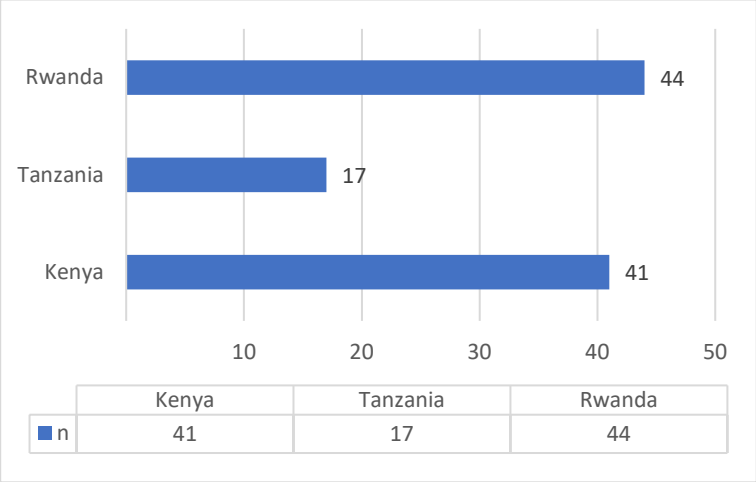
3 Results

3.1 Background information of the survey respondents

The total number of answers, where informed consent was given, was n = 102. The survey was opened 106 times. The respondents who did not give their informed consent at the beginning of the survey were not able to answer the rest of the questions.

3.1.1 Country of residence

40.2 % of the respondents were from Kenya, 43.1 % from Rwanda and 16.7 % from Tanzania (including Zanzibar) (see picture 1).



Picture 1. Number of respondents per country.

3.1.2 Occupation

70.6 % of the respondents were physiotherapists, 17.6 % occupational therapists, 4.9 % were prosthetics and orthotics and 1 % were psychologists (see picture 2). 5.9 % answered “other”, and these were combined physio and speech therapist, occupational health specialist, special educator, health educator and educator.

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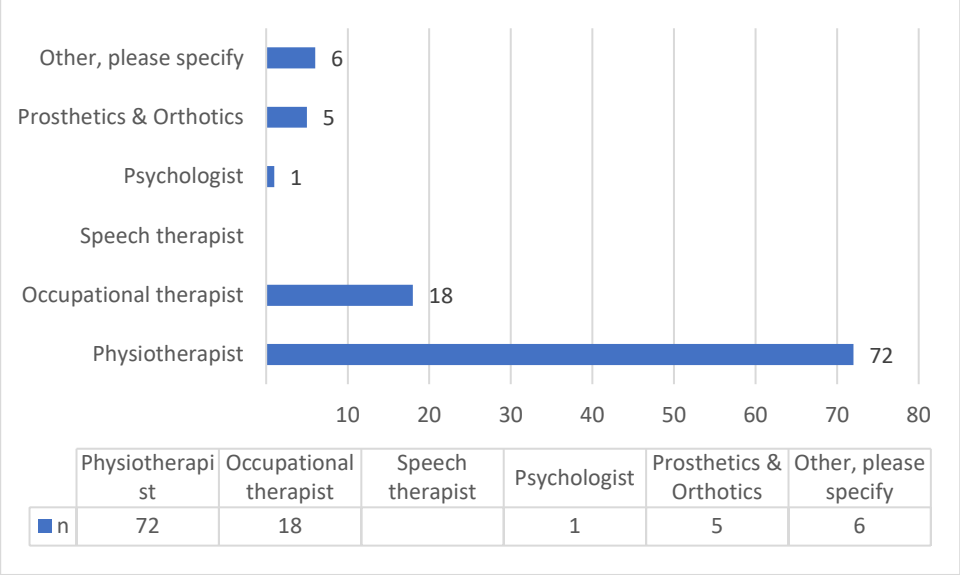
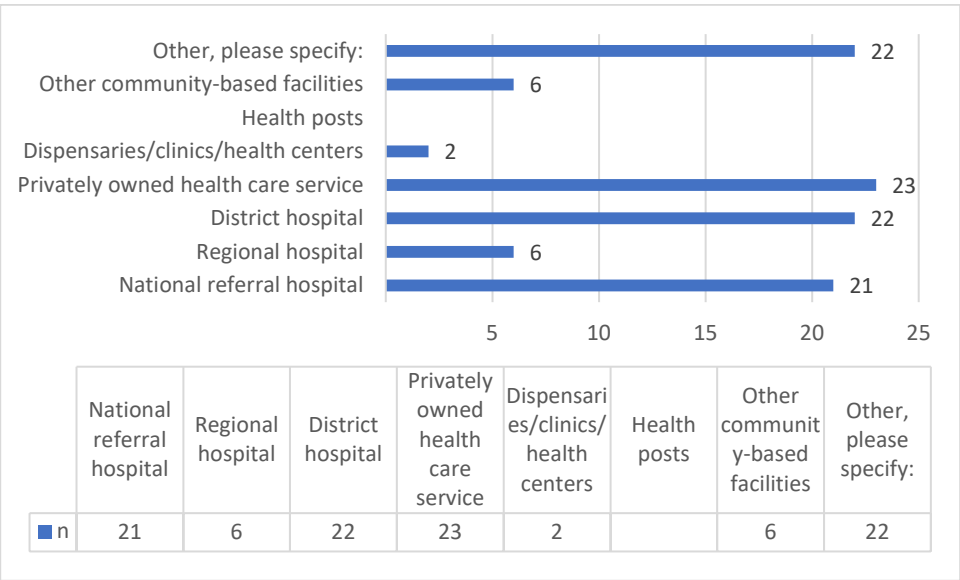


	Physiotherapist	Occupational therapist	Speech therapist	Psychologist	Prosthetics & Orthotics	Other, please specify
n	72	18		1	5	6

Picture 2. Occupations of the respondents.

3.1.3 Level of health care they work in

Most of the respondents, 22.6 % work in a privately owned hospital. 21.6 % work in district hospitals, 20.6 % in national referral hospitals. 5.9 % work in regional hospitals and other community-based facilities an 1.9 % in dispensaries or health centers (see picture 3). 21.6 % answered “other”, the answers include teaching hospitals, specialist hospitals, universities, sports, home-based care, regulatory body, NGOs and Ministry of Health.



	National referral hospital	Regional hospital	District hospital	Privately owned health care service	Dispensaries/clinics/health centers	Health posts	Other community-based facilities	Other, please specify:
n	21	6	22	23	2		6	22

Picture 3. Level of health care where the respondents work.

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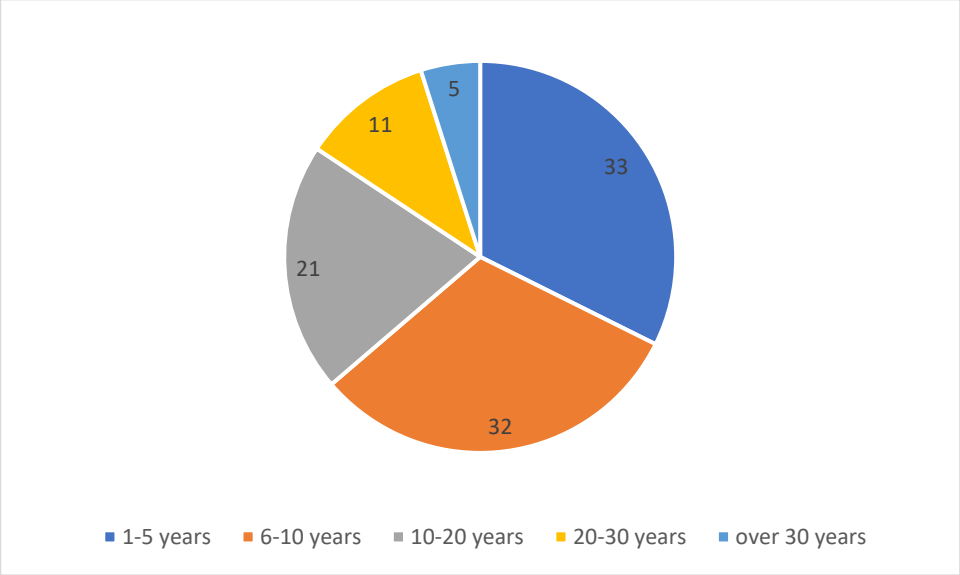
3.1.4 Working experience

32.4 % of the respondents had worked 5 years or less. 31.4 % had worked 6-10 years as a rehabilitation professional, 20.6 % 10-20 years and 10.8 % 20-30 years. 4.9 % had worked over 30 years in the field of rehabilitation (see picture 4).



Picture 4. Number of working years of the respondents.

3.2 Results of the data driven content analysis

In this section the results of the open questions of the survey are reported via classifications created by using data driven content analysis as a method. The results will be reported per question for clarity.

3.2.1 Digital solutions and their effectiveness in rehabilitation practice

First, the respondents were if they think that digital solutions could be used in rehabilitation and what kind of digital solutions they think would be effective and why.

87 (92 %) of 95 respondents think that digital solutions could be utilised in rehabilitation. Main solutions they identified are mobile devices, mobile apps, wearables, virtual reality (VR) and assistive devices. For the question on their effectiveness in rehabilitation, the main classes emerging from the analysis are: 1) use in exercises, 2) remote monitoring, 3) education and training, 4) increased accessibility, 5) possibility for online consultations, 6) time and cost efficiency, 7) increased patient independence, 8) work efficiency and 9) use in data management analysis.

Overall, attitudes towards the use of technology are positive and many possibilities and benefits were identified through the answers.

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3.2.2 Competences of rehabilitation professionals

The respondents were asked what kind of competences a rehabilitation professional should have to be able to apply digital rehabilitation in practice and why.

There were 90 answers to this question and the classification of required competences achieved is following: 1) digital knowledge, 2) communication skills, 3) rehabilitation technology skills, 4) training and education skills, 5) ethical skills, 6) computer programming skills, 7) digital service design skills, and 8) analytical skills.

The respondents found these skills to be necessary for the efficiency, workload minimization, and the feel that use of digital exercises and technologies require special attention.

3.2.3 Challenges in the use of digital rehabilitation

Next, the respondents were asked what kind of challenges they have faced while applying or when trying to apply digital solutions in their work.

89 respondents gave an answer, of those 13 (15 %) stated that they have never used or tried to use digital solutions in their work. Main classifications of the challenges identified were 1) poor internet access and connection, 2) inadequate digital knowledge of the client, 3) inadequate digital knowledge of the professional, 4) time constraints related to monitoring and evaluation, 5) inadequate digital infrastructure and equipment, 6) client treatment compliance, 7) regulations and policies, 8) language barriers, 9) lack of trust in digital solutions, 10) poor education, 11) financial constraints, 12) poor electrical supply, and 13) job displacement (means that professionals are afraid of losing their employment or reducing the employment rate).

3.2.4 Supplementary training for rehabilitation professionals

In the question 9, the respondents were asked to give their opinion on what kind of supplementary training the rehabilitation professionals would need to apply digital rehabilitation in their everyday practice.

87 people gave their insights on the issue. The biggest classes are, from the biggest to the smallest: 1) general digital rehabilitation and its usage, 2) ICT skills, and 3) digital technology support and maintenance. In addition to these three bigger classes, there are several smaller classes, such as 4) online assessment training, 5) use of software and applications, 6) communication and engagement training, 7) e-therapy, 8) evidence based practice, 9) data analysis 10) cyber security, 11) ethical knowledge, 12) remote exercise training, 13) robotics, 14) digital health and safety, 15)digital content creation, 16) data protection and management, 17) software development and programming. Also, graphic design, 3D printing, use of artificial intelligence and biomechanics were mentioned once.

3.2.5 Points of view on the current curricula

The professionals were asked to give their insights on how well the current curricula of rehabilitation professions in the HEIs of East Africa addresses the competences needed to apply digital rehabilitation.

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76 respondents gave their answer. 8 (10.5 %) stated that they do not know. Same number estimated that the curricula address digital skills quite well. 60 (78.9 %) thinks that the curricula do not address digital skills well enough so that future rehabilitation professionals could use digital solutions in their practice. It was mentioned that the curricula involve basic digital ICT skills in some institutions but not related to rehabilitation. The lack of practical training in application was pondered upon.

3.2.6 How the competences should be included in the curricula

Even though the respondents were not, in general, specialists in education planning or pedagogy, they were asked to give their opinion on how the digital rehabilitation competences should be included in the future curricula, based on their experiences.

86 respondents answered the question, of those 20 (23.2 %) did not specify the ways, only stated that it should be included. The main classes reached via analysis were 1) in theory, 2) in practice and 3) utilising multidisciplinary approaches. Some of the answers highlighted the importance of combining theory in to practice.

3.2.7 Advantages and disadvantages of digital rehabilitation in education

In the last question, the respondents were asked to think about the possible advantages and disadvantages that may occur when digital rehabilitation is embedded in the curricula.

50 respondents gave their opinion on the advantages. The classes reached via the content analysis are: 1) acquirement of adequate knowledge on digital rehabilitation, 2) improvement in the quality of care, 3) increased accessibility to rehabilitation services, 4) adaptation to technological trends, 5) increased job opportunities, 6) professional competitiveness, 7) reduced staff shortage and 8) increased interdisciplinary collaboration.

35 respondents listed possible disadvantages. The classes are 1) inadequate digital equipment or infrastructure available, 2) possible financial constraints, 3) possible exclusion and inequality, 4) resistance to change, 5) ethical challenges and 6) loss of jobs. Also, these aspects were mentioned once: technological gaps, conflicts of interest, time consuming, insufficient trainers, additional years of study and curricular overload.

4 Discussion

The number of answers were quite expected, the time to gather answers was short to delayed processes of the ethical clearances and due to the needs of the other deliverables of the project. The division of answers per country reflects also the situation, for instance, as the mainland Tanzania was last to acquire their ethical clearance, the number of responses may reflect more the situation in Zanzibar in than in the whole Tanzania. Use of electronic survey rather than paper survey may have also affected the number of responses acquired, as mentioned by one of the AU partner representatives in internal discussions. This too, of course, reflects the reality, that digital transformation is yet to be fully realised in the region.

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Division of occupations reflects quite well the general situation in East Africa. For instance, in Rwanda there is 300 physiotherapists (72 %), 36 occupational therapists (9 %) and 76 P&Os (19 %). Also, the division of the level of health care the respondents work in reflects the reality as most rehabilitation professionals work in the higher levels of health care, where the access to rehabilitation services is also more difficult, or in privately owned rehabilitation centres. Based on the number of working years we can say that we received answers from a wide variety of professionals, which is very good thing. Maybe these numbers also reflect the current situation in East Africa, as education in rehabilitation professions is fairly new in the area.

When looking at the results of the question addressing the use of digital technologies in rehabilitation, it is clear that the professionals in the area see the potential of digital transformation in their professions. They are also very aware of the possibilities that digital solutions would bring to their practice. Same benefits and possible digital solutions are also identified in existing literature on the topic (see for instance Arnzt et al. 2023). These supports the importance of this project and the results of the original needs analysis done in 2021.

The needed competences the respondents identified fall quite nicely under the DigComp 2.2 framework (Vuorikari et al. 2022). The main domains of DigComp are Information and data literacy, Communication and collaboration, Digital content creation, Safety and Problem solving. Of the identified classes, “digital knowledge” and “analytical skills” fall under Information and data literacy and/or Problem solving (depending on the issue), “communication skills" and “training and education skills” under Communication and collaboration, “computer programming skills” and “digital service design skills” under Digital content creation and “ethical skills” under Safety. “Rehabilitation technology skills” is, on the other hand, very profession related competence, which is important to acknowledge during the later parts of the project.

Regarding the challenges the respondents identified, some of them are systemic level challenges the project can’t affect directly (such as poor internet access and connectivity, or poor electrical supply). However, some of the challenges identified can be influenced through the capacity building higher education, such as inadequate skills of professionals and clients. The effect for the client is indirect, but through the competences of the professional, we can influence the skills and attitudes of the client. Also, advocacy and effective communication directed to decision and policy makers, such as ministries of health and regulatory bodies build foundations also for systemic level change.

The working-life professionals identified a great variety of topics for continuous education in the field of digital rehabilitation. To some extent, this project offers possibilities for learning, not only for future rehabilitation professionals but also to professionals already working. For instance, Digital Rehabilitation handbook created in WP3, participation in Innovation Community, mid-conference and final conference are accessible for all interested stakeholders. However, identifying the needs of the working-life offers also possibilities to create new opportunities for projects and HEIs to expand their supply of lifelong learning opportunities.

It is evident, based on the answers received, that the current professionals in East Africa don’t think that the current curricula are responding to the need to implement digital solutions in rehabilitation. This confirms that the project we are implementing is well established and answers to a real need. Important points to consider during the curricula renewal are, in addition to the competences discussed earlier: combining theory and practice while highlighting the importance of multidisciplinary approach in rehabilitation.

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Considering the advantages and disadvantages related to digital rehabilitation in curricula, it is worth noting that most of the advantages gathered influences societies as a whole, e.g., improvement in the quality of care, increased access to rehabilitation services and reduced staff shortage. In the disadvantages, it is more of internal issues within the HEIs, such as inadequate digital equipment and infrastructure, resistance to change and possible financial constraints. Also, it is good to note that ethical issues need to be addressed in all communications related to digital rehabilitation. Some of the respondents were worried of losing jobs due to digitalisation of rehabilitation, but when looking at the big picture, digital transformation in the field of health care and rehabilitation should increase the number of jobs in the area, in various disciplines (technology, business and healthcare).

5 Conclusions

In conclusion, this report confirms the initial needs analysis and identified challenges in East Africa region related to digital rehabilitation, now from the perspective of the rehabilitation professionals in the area. In addition to enhancing the digital rehabilitation education possibilities for current degree students in the East African HEIs, it would be important to offer possibilities to develop their competences also to working-life professionals. To fully reach the potential that digital transformation in rehabilitation offers, a systemic level change is needed.

6 References

Arntz, A., Weber, F., Handgraaf, M., Lällä, K., Korniloff, K., Murtonen, K. P., Chichaeva, J., Kidritsch, A., Heller, M., Sakellari, E., Athanasopoulou, C., Lagiou, A., Tzonichaki, I., Salinas-Bueno, I., Martínez-Bueso, P., Velasco-Roldán, O., Schulz, R. J., & Grüneberg, C. (2023). Technologies in Home-Based Digital Rehabilitation: Scoping Review. *JMIR rehabilitation and assistive technologies, 10*, e43615. https://doi.org/10.2196/43615

Vuorikari, R., Kluzer, S. and Punie, Y., DigComp 2.2: The Digital Competence Framework for Citizens - With new examples of knowledge, skills and attitudes, EUR 31006 EN, Publications Office of the European Union, Luxembourg, 2022, ISBN 978-92-76-48882-8, doi:10.2760/115376, JRC128415.

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APPENDICES

Appendix 1

1st page: Cover letter

Dear Sir/Madame

I am writing this letter on behalf of RADIC "Rehabilitation for all through Digital Innovation and new Competencies" whose project contributes to capacity building in higher education to support and promote digital transformation in East Africa. The transformation provides opportunity to develop a more accessible and personalised rehabilitation models and systems in East Africa.

Digital Rehabilitation is an emerging field where digital solutions and innovations are used by rehabilitation professionals. Considering global dynamic that has reshaped the healthcare landscape, digital rehabilitation has emerged as a fundamental and transformative element in client's care in rehabilitation. The objective of this survey is focusing on understand the digital rehabilitation related learning needs of the (future) rehabilitation professionals and challenges they face in working life related to applying digital rehabilitation. Also, the information is used when renewing the curricula of East African partner Higher Education Institutes.

As a distinguished professional in the field of rehabilitation, your participation in this survey is of utmost importance. Your experience, perspectives, and expertise will significantly contribute to the objective of the survey.

RADIC recognises the importance of data privacy and security, be assured that your responses are strictly confidential and no personal identifiable information will be shared or disclosed. The data collected will be used specifically for this research purposes related to this survey and can only be accessed by authorised research personnels. The data acquired will be used by the RADIC project and two theses are also prepared of the data. A master level thesis will be done of the whole data and a bachelor level thesis on the data collected from the occupational therapists.

Thank you in advance for your participation in this survey is greatly appreciated. Your knowledge and experience shared are marking a significant contribution to the field of digital rehabilitation.

Sincerely,
Isoken Iserhienrhien, master's student from Jamk UAS (Finland)

For more information, please contact the RADIC project manager Ms Kaisa JOKINEN from Jamk UAS (FIN)
kaisa.jokinen@jamk.fi

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2nd Page: The survey

The objective of the survey is to understand the digital rehabilitation related learning needs of the (future) rehabilitation professionals and challenges they face in working life related to applying digital rehabilitation.
This information is used when renewing the curricula of East African partner HEI's.
Instructions for answering:

- When answering, please consider your own occupation and country of residence.
- If possible, please answer the questions in English. If this is too cumbersome, you may use your own maternal language to answer.
- The survey takes approximately 5-20 minutes to complete.

1. I have read the cover letter and consent, that my answers will be used as a research data. The survey will be anonymous, and my identity won't be revealed at any point of the study. I understand that due to the anonymity I can't withdraw my answers because those can't be isolated.
○ Yes ○ No (→ Ends the survey)

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2. What is your occupation?
☐ physiotherapist ☐ occupational therapist ☐ speech therapist ☐ psychologists ☐ prosthetics & orthotics
☐ other, please specify: _____

3. Years of working experience (as a rehabilitation professional):
_____

4. What is your country of residence?
○ Rwanda ○ Kenya ○ Tanzania

5. At what level of health care do you work?
○ National referral hospital ○ Regional hospital ○ District hospital ○ Privately owned health care service
○ Dispensaries/clinics/health centers ○ Health posts ○ Other community-based facilities ○ Other, please specify: _____
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6. In your opinion, can digital solution be used in your field of practice? Why? What kind of digital solutions do you think will be effective in your field of practice? Why?
7. In your opinion, what kind of competences a rehabilitation professional should have to apply Digital Rehabilitation in practice? Why?
8. What kind of challenges you have faced when applying or when trying to apply Digital Rehabilitation solutions? Please, give an example.
--- page break ---
9. In your opinion, what kind of supplementary training would the rehabilitation professionals need to apply Digital Rehabilitation in their practice? Why?
10. In your opinion, how well does the current curricula of the rehabilitation professionals address the competences needed to apply Digital Rehabilitation? Why?
11. How do you think that the competences for Digital Rehabilitation should be included in the rehabilitation professionals' curricula? (e.g practical training or theoretical studies…)

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12. What do you think would be the advantages and the disadvantages of implementing Digital Rehabilitation in the curricula?