Internet Use among Community-Based Rehabilitation Workers in Bosnia and Herzegovina: A Cross-Sectional Survey

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ABSTRACT

Purpose: The Internet may be one way to support and improve rehabilitation practice and service delivery in low- and middle-income countries (LMICs) such as Bosnia and Herzegovina. Little information exists on use of the Internet to enhance the practice and professional development of community-based rehabilitation (CBR) workers in LMICs. The purpose of this study was to assess the patterns of and barriers to Internet use by CBR workers in Bosnia and Herzegovina.

Methods: Participants were CBR workers (physiotherapists, physiatrists, and technicians) from Bosnia and Herzegovina who attended a conference or workshop in 2005. A cross-sectional questionnaire was administered in the local language to assess Internet use. Descriptive results were summarized in tables. Bivariate and multiple logistic regressions were used to assess factors associated with Internet use.

Results: A total of 33% of respondents had never used the Internet. Common barriers to Internet use included “not enough time” (24%), “no access” (23%), and “lack of skill” (18%). Participants with higher levels of education had greater odds of using the Internet than physiotherapy school graduates (odds ratio = 7.6, $p = 0.016$) and had greater odds of using the Internet to obtain medical, rehabilitation, or health information (odds ratio = 5.8, $p = 0.028$).

Conclusions: Improving CBR workers' access to the Internet and their proficiency in using it may enable them to obtain valuable rehabilitation-related information and enhance communication among CBR workers, potentially translating into improved rehabilitation services for people with disabilities in LMICs.

Key Words: evidence-based practice; Internet; low-income population; Bosnia-Herzegovina.

RÉSUMÉ

Objectif : Internet peut être un moyen d'aider et d'améliorer les pratiques en réadaptation et la prestation de service dans les pays à faible revenu et à revenu intermédiaire tels que la Bosnie et l'Herzégovine. Il existe peu d'information sur l'utilisation d'Internet pour améliorer les pratiques et le développement professionnel des travailleurs en réadaptation communautaire dans ces pays. L'objectif de cette étude était d'évaluer les modèles et les obstacles à l'utilisation d'Internet par les travailleurs en réadaptation communautaire en Bosnie et en Herzégovine.

Méthode : Les participants étaient des travailleurs en réadaptation communautaire (physiothérapeutes, physiatres et techniciens) de Bosnie et d'Herzégovine qui ont assisté à une conférence ou à un atelier au cours de 2005. Un questionnaire transversal leur a été remis dans leur langue, en vue d'évaluer leur utilisation d'Internet. Des résultats descriptifs ont été compilés dans des tableaux. Des régressions à deux variables et à logistique multiple ont été utilisées pour évaluer les facteurs associés à l'utilisation d'Internet.

Résultats : En tout, 33 % des répondants ont dit n'avoir jamais utilisé Internet. Les obstacles les plus fréquemment mentionnés sont notamment « le manque de temps » (24 %), le fait de « ne pas avoir accès à Internet » (23 %) et le « manque de compétences » (18 %) pour le faire. Les participants ayant un niveau d'éducation supérieur étaient plus nombreux à avoir la possibilité d'utiliser Internet (7,6, $p = 0,016$) que les diplômés locaux en physiothérapie et avaient plus de chances (5,8, $p = 0,028$) d'utiliser Internet pour obtenir de l'information dans les domaines de la médecine, de la réadaptation ou des renseignements sur la santé.

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Conclusions : Améliorer l'accès des travailleurs en réadaptation communautaire à Internet et leur facilité à l'utiliser pourrait leur permettre d'obtenir de l'information précieuse en matière de réadaptation et d'améliorer la communication entre ces travailleurs, ce qui pourrait se traduire potentiellement par de meilleurs services de réadaptation pour les gens aux prises avec des incapacités dans les pays à faible revenu et à revenu intermédiaire.

Health care practitioners increasingly use the Internet as a means of accessing current health information to support evidence-based practice and continuing professional development.¹⁻⁵ In high-income countries such as the United States, physicians have reported that the Internet has become a valuable source of health information,^{1,6} with the average time spent using the Internet for clinical information doubling between 2001 and 2003.¹ According to Bennett and colleagues,¹ most physician respondents reported daily or weekly use of the Internet for accessing online journals and for continuing education activities.

Similarly, the rate of adoption of Internet use by health workers is increasing in low- and middle-income countries (LMICs);⁷⁻⁹ however, access to the Internet remains a challenge in some LMICs.^{7,10} Access to up-to-date clinical information is equally as important for health workers in LMICs as it is for those in high-income countries because the Internet is currently one of the fastest ways of accessing information.

In LMICs such as Bosnia and Herzegovina, most of the people living with disabilities are estimated to lack access to appropriate medical care and rehabilitation services.¹¹ The country is located in southeastern Europe and has a population of 3.9 million people.¹² Bosnia and Herzegovina spends 8.3% of its gross domestic product on health care, which is higher than in neighbouring countries.¹² In 2008, it was estimated that 8.9% of the population were Internet subscribers¹³ and that the international Internet bandwidth per person was less than half of that in other European and Central Asian countries.¹³ Although this statistic indicates a significant difference in the quality of the Internet available in Bosnia and Herzegovina, little information is currently available about technology uptake by rehabilitation workers.

Over the past 15 years, the International Centre for the Advancement of Community-Based Rehabilitation at Queen's University established 60 community-based rehabilitation (CBR) centres throughout Bosnia and Herzegovina in attempt to improve the quality of and access to these services for rural communities.¹³ CBR strategies aim to empower people with disabilities to access and benefit from a variety of community services, including health and social services.¹⁴ Typically, CBR is implemented through the combined efforts of multiple key stakeholders such as people with disabilities, their families, organizations, and government and non-government workers.¹⁴ As part of the activities supported by the International Centre for the Advancement of Community-Based Rehabilitation, CBR workers (physiotherapists, physicians, and technicians) received specific training to

address existing and emerging disability issues in their community. Because many CBR centres are located in rural areas, it may be difficult for CBR workers to access current and relevant health information.

Although Internet use in the general population in Bosnia and Herzegovina has increased exponentially over the past decade,⁸ no literature exists on Internet use among CBR workers. At present, it is unknown what patterns of Internet use exist among CBR workers in Bosnia and Herzegovina and whether the Internet provides the same benefits of access to current health information and continuing professional development opportunities as it does for their counterparts in high-income countries. Communication with colleagues may also be limited among CBR workers, and at present, no formal documented research exists on whether this communication includes use of the Internet.

Studies examining the benefits of technology-enabled learning using the Internet have demonstrated improved knowledge retention, greater learner efficiency and satisfaction, and significant cost savings among health care professionals.¹⁵ In addition, Cook and colleagues³ hypothesized that Internet-based education may overcome barriers of distance and time. Ruiz and colleagues¹⁶ have suggested that it may allow for learning to be individualized and enhances interactions between learners. As such, the Internet could potentially be useful for health workers in LMICs, where they may experience greater professional isolation.^{7,16} With a rapid increase in the rate of Internet use worldwide, the adoption of the Internet in clinical practice could potentially serve as a rich resource for health workers in LMICs, where timely access to current information in a resource-deprived environment remains challenging.⁷ The Internet may also support integration of research evidence into practice in Bosnia and Herzegovina and countries in the same economic situation by facilitating information sharing among CBR workers. For the best care to be provided to people with disabilities in Bosnia and Herzegovina, it is essential that CBR workers be able to access and share recent rehabilitation-related information.

At present, little is known about the patterns of Internet use by CBR workers in LMICs such as Bosnia and Herzegovina. Previous studies investigating patterns of Internet use have assisted in the design of continuing education courses for physicians and ultimately enhanced the delivery of health care.^{2,17} The purpose of this study was to investigate the use of the Internet among CBR workers in Bosnia and Herzegovina. With a growing reliance on the Internet for health information, results from this study may inform future professional development

initiatives for CBR workers in LMICs such as Bosnia and Herzegovina.

METHODS

Questionnaire Development

The questionnaire was designed to collect data on the following topics: computer use, Internet use, Internet use for health information and communicating using e-mail, and demographics (contact Euson Yeung for the complete questionnaire). The questionnaire was piloted and modified through feedback provided by experienced survey researchers at the University of Toronto. The questionnaire was subsequently translated into the local language (Serbian, Croatian, Bosnian)^a by a translator. The final version of the questionnaire consisted of 26 close-ended questions with both ordinal and nominal scales (see the Appendix) and took participants approximately 15 minutes to complete.

Participants and Recruitment

The participants were CBR workers, including physiotherapists, physicians, and technicians, who reside and work in rural communities in Bosnia and Herzegovina. Physiotherapists have completed a 3-year post-secondary diploma program, whereas physicians have completed a 6-year university degree. Technicians receive primarily on-the-job training at the CBR centres. The participants were identified and recruited through their attendance at workshops (June 15, 2005; June 18, 2005; and July 8, 2005) and a conference (June 21, 2005), all held in Bosnia and Herzegovina. Sixty participants provided written informed consent. Approval to conduct the study was obtained from the Queen's University Research Ethics Board.

Analysis

The questionnaire data were entered into a password-protected computer and analyzed using SPSS v. 15.0.0 (SPSS Inc., Chicago, IL). Descriptive statistics of the study participants and questionnaire responses were calculated and summarized in tables.

Using logistic regression, we assessed the association between two measures of Internet use (dependent variables) and demographic factors (independent variables). The two dependent variables were dichotomized using these definitions: (1) some Internet use versus no use and (2) use of Internet for medical, rehabilitation-related, or health-related information versus no use. We estimated the bivariate association between the independent variables (age, gender, level of education) and the dependent variables using odds ratios. We forced

the same independent variables, regardless of statistical significance during the bivariate analysis, as factors in a multiple regression to evaluate their association with the two dependent variables.

RESULTS

Demographic Characteristics

The response rate for survey participation was 100% ($n = 60$); however, one person failed to respond to the questions related to employment status and age. The average age of the CBR workers who participated was 35, and most were female (80%). More than half of the sample ($n = 33$; 55%) were graduates of physiotherapy schools (community college education), 9 (15%) had a high school diploma only, and 18 (30%) had a medical degree. Almost all were employed (97%). Most were married ($n = 38$; 63%) with children ($n = 32$; 53%). None of the participants had a disability, and all lived in rural regions of Bosnia and Herzegovina.

Internet and E-mail Use

Table 1 shows how frequently the survey participants used the Internet to access general and health-related information and e-mail. Eighteen (30%) of the sample responded that they had never used the Internet to access general and health-related information and e-mail, and 20 (33%) stated that they had only started using the Internet within the past year. Slightly more than half of the participants (53%) had used the Internet to search for medical, rehabilitation-related, or health-related information; however, almost all agreed (97%) that it would be useful to use e-mail to share rehabilitation or disability information.

Barriers to Internet Use

Table 2 shows the barriers to Internet use and language issues experienced by survey participants. When asked about barriers that prevented them from using the Internet, the three most common responses were "not enough time" ($n = 18$; 30%), "no access to the Internet" ($n = 17$; 28%), and "lack of skills or training" ($n = 13$; 22%). Not all the participants answered the questions relating to language ($n = 41$). Of those who did, the most commonly used language to access the Internet was English ($n = 35$; 85%) and the local language (Serbian, Croatian, Bosnian; $n = 24$; 58%). Most who answered the question agreed that there was a little or very little information available in their native language (i.e., Serbian, Croatian, Bosnian; 31 of 53 respondents, or 58%).

Of the 60 participants, 57 (95%) responded that they would be interested in participating in a workshop to learn about how to use the Internet. Fifty-eight (97%) responded that they would be interested in participating in a workshop to learn more about how to use the Internet to access medical, rehabilitation-related, or health-related information.

^a There are differing opinions as to whether differences between Serbian, Croatian, and Bosnian constitute different languages. This questionnaire was translated so it could be understood by habitants in any region of Bosnia and Herzegovina using any of the language variants.

Table 1 Frequency of Internet Use for General and Health-Related Information and E-Mail Use among CBR Workers in Bosnia and Herzegovina

Survey questions and responses	No. of respondents* and (%); <i>n</i> = 60
How long have you been using the Internet?	
<6 mo	9 (15.0)
6–12 mo	11 (18.3)
1–3 y	13 (21.7)
4–6 y	7 (11.7)
≥7 y	2 (3.3)
I have never used the Internet	18 (30.0)
In the last month, how many times did you use the Internet?	
Every day	3 (5.0)
>1 time/wk	15 (25.0)
1 time/wk	12 (20.0)
<1 time/wk	10 (16.7)
I have never used the Internet	20 (33.3)
Have you ever used the Internet to search for medical, rehabilitation-related, or health-related information?	
Yes	32 (53.3)
No	28 (46.7)
In the last month, how often did you use the Internet to search for medical, rehabilitation-related, or health-related information?	
Every day	0 (0.0)
>1 time/wk	8 (13.3)
About 1 time/wk	7 (11.7)
<1 time/wk	14 (23.3)
I have never used the Internet to search for medical, rehabilitation-related, or health-related information	29 (48.3)
Don't know	2 (3.3)
What kind of medical, rehabilitation-related, or health-related information do you search for on the Internet? (You may choose more than one)†	
Therapy	25 (41.7)
Lifestyle (i.e., diet, nutrition, exercise, prevention)	23 (38.3)
Specific diseases	20 (33.3)
Disabilities	17 (28.3)
None	12 (20.0)
Other responses: literature, guide for patients, research, anatomy, arthrosis	11 (18.3)
Drugs or medication	9 (15.0)
Surgeries	0 (0.0)
In the last month, how often did you communicate using e-mail?	
Every day	3 (5.0)
>1 time/wk	9 (15.0)
About 1 time/wk	10 (16.7)
<1 time/wk	12 (20.0)
I have never used e-mail	21 (35.0)
Don't know	5 (8.3)
Would you find it useful to share rehabilitation- or disability-related information with your colleagues using e-mail?	
Yes	58 (96.7)
No	0 (0.0)
Don't know	2 (3.3)

*Unless otherwise indicated.

†The total for this question adds up to more than 60 because multiple responses were permitted.

CBR = community-based rehabilitation.

Table 2 Barriers to Internet Use and Language Issues among CBR workers in Bosnia and Herzegovina

Survey questions and responses	No. of respondents* and (%)
Which of these barriers keep you from using the Internet more often? (you may choose more than one);* $n = 60$	
Not enough time	18 (30.0)
No access to Internet	17 (28.3)
Lack of skills or training	13 (21.7)
Cost	7 (11.7)
Disability	4 (6.7)
Fear of technology	2 (3.3)
No need	2 (3.3)
Don't know	1 (1.7)
Other responses: do not have connection, do not know English, has no computer, husband on all the time, not interested, time, virus	10 (16.7)
What language do you use when accessing the Internet? (you may choose more than one);† $n = 41$	
English	35 (85.4)
Serbian, Croatian, Bosnian	24 (58.5)
German	3 (7.3)
What amount of information is available on the Internet in your native language? $n = 53$	
Very little	16 (30.2)
A little	15 (28.3)
Some	8 (15.1)
Much	1 (1.9)
Very much	1 (1.9)
Don't know	12 (22.6)

*Unless otherwise indicated.

†The total for this question adds up to more than the total number of respondents because multiple responses were permitted.

CBR = community-based rehabilitation.

Bivariate and Multiple Regression Analyses

Table 3 provides crude and adjusted results for the association between the demographic variables (age, gender, level of education) and the dependent variable “some Internet use versus no use.” The adjusted model shows that younger people had four times higher odds of using the Internet than older people ($p = 0.042$), and physicians had higher odds (odds ratio [OR] = 7.6, $p = 0.016$) of using the Internet than physiotherapy school graduates. Table 4 shows that, controlling for age and gender, physicians had higher odds (OR = 5.8, $p = 0.028$) of using the Internet for medical, rehabilitation-related, or health-related information.

DISCUSSION

Our study is the first to investigate the use of the Internet among CBR workers in a LMIC. Results suggest that although CBR workers in Bosnia and Herzegovina found it helpful to use the Internet to access and share clinical information, they experienced barriers that prevent them from fully benefiting from this resource to

the same extent as health professionals in high-income countries.

Despite a growing worldwide reliance on the use of the Internet for clinical information by health professionals, our results show that almost half of the CBR workers had never used the Internet to access health-related information (47% of the sample), and some had only begun using the Internet within the past year (33% of the sample). This number is higher than reported in other studies conducted among health professionals in high-income countries, such as in the United States.⁵ A survey of physiotherapists in the state of Michigan indicated that 37% of physiotherapists did not use the Internet to access information on medical disorders or treatment techniques,⁵ which may suggest that different factors limited Internet use for CBR workers in Bosnia and Herzegovina or that similar factors exist in Bosnia and Herzegovina but negatively affect Internet use to a greater extent than in high-income countries. Factors such as resource constraints or technological infrastructure may play a larger part in influencing Internet use in

Table 3 Bivariate and Multiple Regression Results Showing Odds of Some Internet Use versus No Use among CBR workers in Bosnia and Herzegovina, 2005

Demographic variables	Bivariate OR for some Internet use vs. no use (95% CI)	Multiple regression OR for some Internet use vs. no use (95% CI)
Age, y	<i>n</i> = 59	<i>n</i> = 59
Lowest (21–30)	2.0 (0.632–6.33); <i>p</i> = 0.238	4.31 (1.05–17.66); <i>p</i> = 0.042
Highest (31–55)	0 (referent)	0 (referent)
Gender	<i>n</i> = 60	<i>n</i> = 59
Male	2.5 (0.5–12.8); <i>p</i> = 0.271	1.76 (0.310–9.96); <i>p</i> = 0.53
Female	0 (referent)	0 (referent)
Level of education	<i>n</i> = 60	<i>n</i> = 59
Medical degree	3.25 (0.78–13.48); <i>p</i> = 0.104	7.61 (1.460–39.648); <i>p</i> = 0.016
High school	2.275 (0.41–12.7); <i>p</i> = 0.35	1.824 (.288–11.537); <i>p</i> = 0.52
Physiotherapy diploma from community college	0 (referent)	0 (referent)

CBR = community-based rehabilitation.

Table 4 Bivariate and Multiple Regression Results Showing the Odds of Internet Use for Medical, Rehabilitation-Related, or Health-Related Information versus No Use among CBR workers in Bosnia and Herzegovina, 2005

Demographic variables	Bivariate OR for used Internet for medical, rehabilitation-related, or health-related information vs. no use (95% CI)	Multiple regression OR for used Internet for medical, rehabilitation-related, or health-related information vs. no use (95% CI)
Age, y	<i>n</i> = 59	<i>n</i> = 59
Lowest (21–30)	0.68 (0.246–1.9); <i>p</i> = 0.467	1.954 (0.48–7.89); <i>p</i> = 0.35
Highest (31–55)	0 (referent)	0 (referent)
Gender	<i>n</i> = 60	<i>n</i> = 59
Male	1.29 (0.36–4.63); <i>p</i> = 0.70	1.402 (0.327–6.017); <i>p</i> = 0.65
Female	0 (referent)	0 (referent)
Level of education	<i>n</i> = 60	<i>n</i> = 59
Medical degree	3.72 (1.01–13.72); <i>p</i> = 0.048	5.83 (1.209–28.157); <i>p</i> = 0.028
High school	0.30 (0.06–1.68); <i>p</i> = 0.17	0.261 (0.043–1.571); <i>p</i> = 0.142
Physiotherapy diploma from community college	0 (referent)	0 (referent)

CBR = community-based rehabilitation.

LMICs.¹⁷ Although CBR workers may desire to use the Internet to obtain current clinical information, future development of continuing education or research initiatives must consider the constraints of existing resources and the technological infrastructure of LMICs.

Evidence-based practice, described by Sackett and colleagues^{18(p.71)} as “the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individuals,” necessitates appropriate and timely acquisition of the best available evidence to answer clinical questions. At present, the Internet is the most expeditious means of accessing and searching research literature by health professionals to inform clinical practice. Whereas almost all of the physiotherapists (92%) in Michigan reported having direct access to the

Internet,⁵ almost one-third of respondents (28.3%) in our study reported having no access to the Internet. This finding is consistent with results from a survey of health care providers in 10 LMICs that indicated a low proportion of respondents had easy access to the Internet.⁷

Of the Michigan physiotherapists who reported having access in Marcoux and colleagues’s study,⁵ most (70%) used the Internet for professional information. According to Salbach and colleagues,¹⁹ Canadian physiotherapists who have Internet access to bibliographic databases at work were more likely to search and read research literature. Because Internet access affords clinicians the opportunity to access the most up-to-date information, it is important to consider ways in which

access can be enhanced for CBR workers in Bosnia and Herzegovina. Similar to Canadian physiotherapists, improving access to the Internet for CBR workers may facilitate and accelerate uptake of current research evidence into practice.

CBR workers in our study with medical or graduate-level education had higher odds ($OR = 7.6$; $p = 0.016$) of using the Internet for health information than CBR workers who received a physiotherapy diploma. Previous research by Salbach and colleagues¹⁹ found a similar association between Canadian physiotherapists' level of education and their likelihood of performing evidence-based practice activities, including Internet searches for research literature. In Bosnia and Herzegovina, physiotherapists complete a 3-year post-secondary diploma, whereas physicians complete a 6-year university degree. CBR workers who have engaged in higher levels of education may have received formal training in the use of the Internet and may thus have been more comfortable and skilled at searching for clinical information on the Internet. Our findings may also suggest that instructional sessions on Internet use were not currently a part of physiotherapy training in Bosnia and Herzegovina. Practical educational sessions aimed at improving Internet navigational skills may address this gap and provide CBR workers with the capability to effectively and efficiently locate and share relevant research evidence to inform practice. Incidentally, almost all respondents in our study (97%) agreed that it would be useful to share rehabilitation and disability information with colleagues through e-mail. Consistent with studies conducted in high-income countries,^{1,4} a similar desire to engage in peer consultation and exchange of clinical information using the Internet may exist for the CBR workers surveyed in this study.

Although the lack of time to use the Internet for professional information was identified in our study as a limiting factor (30%), it appears to have less of an influence on Internet use than for other health care workers in high-income countries. In contrast to our study results, protected work time was reported by most Canadian physiotherapists (74.4%) as an important factor in determining Internet use.¹⁹ Different work responsibilities and work priorities may account for the difference reported between CBR workers in Bosnia and Herzegovina and physiotherapists in Canada. Other determinants of Internet use previously documented in the literature were also reported by participants in our study. Consistent with opinions expressed by Canadian²⁰ and U.S.²¹ physical therapists, an important practitioner-level factor identified in our study was the lack of skill or training (22%) to use the Internet as a resource for clinical information. Although previous training has been provided by the International Centre for the Advancement of Community-Based Rehabilitation to CBR workers in Bosnia

and Herzegovina over the past 15 years, much of the workshop content was concerned with clinical management of specific disorders. Little attention was paid to developing skills for ongoing acquisition of new and emerging knowledge. Previous studies have revealed that the skills required to find, critically examine, and organize relevant material are important in helping physicians answer patient problems.¹ It follows that providing additional training to CBR workers on conducting Internet searches may afford them the skills required to access the continually evolving research literature.

A notable barrier to the use of the Internet reported in our study was the lack of medical and rehabilitation information available in the local language. Among those who responded, most acknowledged that there was little or very little information available on the Internet in their native language. Much of the available medically related information on the Internet is in English.^{7,22} Although some non-government organizations have dealt with this by making English language instruction for local health care providers mandatory, others have improved translation of Internet-based information to overcome this barrier.²² Because the latter intervention relies heavily on the accuracy of the translation and because of the complexities associated with language interpretation,²² it may be prudent to address this issue through language instruction rather than translation of Web-based information.

Our study has several limitations. The survey used for the study was administered to CBR workers at three workshops and one national conference. This sample is one of convenience and as such may not be representative of all CBR workers in Bosnia and Herzegovina. For example, most of the participants in our study lived in rural areas of Bosnia and Herzegovina. Although our study findings may not reflect the perspectives of CBR workers from urban areas, on the basis of our observations about the differences in resource allocation between rural and urban CBR centres, we hypothesize that rural CBR workers may have a greater need for and potentially reap greater benefits from the use of the Internet than their counterparts living in urban settings. Another notable result of this study is the high response rate, although participation was optional. The response rate obtained may be the result of a high level of interest and perceived need for training on the use of the Internet for professional information.

Although the data presented here are from 2005, they remain the only known information on Internet use by CBR workers or any other health providers in Bosnia and Herzegovina. Our study provides baseline data with which future assessments of patterns of Internet use could be compared. In addition, a similar questionnaire could also be used to assess Internet usage among CBR workers in other developing or in-transition countries

that deliver community-based health care services. Establishing the perceived needs of CBR workers before planning educational activities will be important for making future professional development activities accessible and relevant to the target audience. At the same time, further investigation is required to clarify the nature and extent of obstacles that discourage Internet use for professional purposes.

CONCLUSION

The results of this research justify the need for further capacity building in the area of information technology for CBR workers in LMICs. Improved proficiency using computers and the Internet will improve access to valuable health information and communication between health professionals. This improved proficiency has the potential to translate to better rehabilitation practices and services for people with disabilities in LMICs.

KEY MESSAGES

What Is Already Known on This Topic

Health care practitioners are increasingly using the Internet as a means of accessing current health information in high-income countries to support clinical practice and professional development. Patterns and factors that determine Internet use have been investigated among rehabilitation professionals in high-income countries.

What This Study Adds

Despite a growing worldwide reliance on the use of the Internet for clinical information, CBR workers in LMICs continue to have limited access to this resource. Although they experience barriers to Internet use similar to those of their counterparts in high-income countries, their lack of training in using the Internet and language issues present additional challenges that prevent them from fully benefiting from this resource.

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APPENDIX: QUESTIONNAIRE ON THE USE OF INTERNET-BASED COMMUNICATION AND LEARNING

The following questions are designed to collect data on the following topics:

- A) Computers
- B) The Internet
- C) Accessing health information and communicating using e-mail
- D) Demographics

We appreciate your participation!

Please circle the answer that best describes your situation.

Section A: This section is about your personal use of computers whether it be at home, at work or somewhere else. The section also asks questions about barriers that make using a computer difficult.

- A1) For how long have you been using a **computer**?
- 1) Less than 6 months?
 - 2) 6 to 12 months?
 - 3) 1 to 3 years?
 - 4) 4 to 6 years?
 - 5) 7 or more years?
 - 6) I have never used a computer
- A2) In the last month, how many times did you use a **computer**?
- 1) Every day
 - 2) More than once a week
 - 3) Once a week
 - 4) Less than once a week
 - 5) I have never used a computer
- A3) Which of these barriers keep you from using a **computer** more often? (you may select more than one)
- 1) Cost
 - 2) No access to computer
 - 3) Lack of skills or training
 - 4) Fear of technology
 - 5) No need
 - 6) Not enough time
 - 7) Disability
 - 8) Don't know
 - 9) Other (Please specify _____)
- A4) Would you be interested in participating in a **workshop** to learn more about how to use a **computer**?
- 1) Yes
 - 2) No
 - 3) Don't know

Section B: This section is about your personal use of the **Internet** whether it be at home, at work or somewhere else. The section also asks questions about barriers that make using the Internet difficult.

- B1) How long have you been using the **Internet**?
- 1) Less than 6 months
 - 2) 6 to 12 months
 - 3) 1 to 3 years
 - 4) 4 to 6 years
 - 5) 7 or more years
 - 6) I have never used the Internet
- B2) In the last month, how many times did you use the **Internet**?
- 1) Every day
 - 2) More than once a week
 - 3) Once a week
 - 4) Less than once a week
 - 5) I have never used the Internet
- B3) Which of these barriers keep you from using the **Internet** more often? (you may choose more than one)
- 1) Cost
 - 2) No access to Internet
 - 3) Lack of skills or training
 - 4) Fear of technology
 - 5) No need
 - 6) Not enough time
 - 7) Disability
 - 8) Don't know
 - 9) Other (Please specify _____)
- B4) What language do you use when accessing the Internet? (you may choose more than one)
-
- B5) What amount of information is available on the Internet in your native language?
- 1) Very little
 - 2) A little
 - 3) Some
 - 4) Much
 - 5) Very much
 - 6) Don't know
- B6) Would you be interested in participating in a workshop to learn more about how to use the **Internet**?
- 1) Yes
 - 2) No
 - 3) Don't know

Section C: This section is about how much you use the Internet to access health information and communicate using e-mail.

- C1) Have you ever used the Internet to search for medical, rehabilitation or health-related information?
- 1) Yes
 - 2) No
- C2) In the last month, how often did you use the **Internet** to search for medical, rehabilitation or health-related information?

- 1) Every day
 - 2) More than once a week
 - 3) About once a week
 - 4) Less than once a week
 - 5) Don't know
 - 6) I have never used the Internet to search for medical, rehabilitation or health-related information
- C3) What kind of medical, rehabilitation or health-related information do you search for on the **Internet**? (You may choose more than one)
- 1) Lifestyle (i.e., diet, nutrition, exercise, prevention)
 - 2) Drugs or medication
 - 3) Surgeries
 - 4) Specific diseases
 - 5) Disabilities
 - 6) Therapy
 - 7) None
 - 8) Other (please specify _____)
- C4) Would you be interested in participating in a workshop to learn more about how to use the **Internet** to access medical, rehabilitation or health-related information?
- 1) Yes
 - 2) No
 - 3) Don't know
- C5) In the last month, how often did you communicate using e-mail?
- 1) Every day
 - 2) More than once a week
 - 3) About once a week
 - 4) Less than once a week
 - 5) I have never used e-mail
 - 6) Don't know
- C6) Would you find it useful to share rehabilitation or disability-related information with your colleagues using e-mail? For example: administrative information, new advances in the field, job opportunities etc.
- 1) Yes
 - 2) No
 - 3) Don't know
- C7) Would you be interested in participating in a workshop to learn more about how to use e-mail to communicate with colleagues about rehabilitation or disability-related information?
- 1) Yes
 - 2) No
 - 3) Don't know

Section D: This section is about demographic issues like your age, education, gender and disabilities.

- D1) What is the highest level of education you have achieved?
- 1) Elementary school
 - 2) High school
 - 3) Diploma or certificate from physiotherapy or nursing school
 - 4) Medical degree
 - 5) Master's or PhD degree
 - 6) Other (please specify _____)
- D2) What is your employment status?
- 1) Used
 - 2) Unemployed
 - 3) Student
- D3) What is birth month and year? Month _____ Year _____
- D4) What is your gender?
- 1) Male
 - 2) Female
- D5) What is your current marital status?
- 1) Single
 - 2) Married
 - 3) Widowed
- D6) Do you have any children?
- 1) Yes
 - 2) No
- D7) Do you have a long-term health condition that makes it difficult for you to hear, see, communicate, walk, learn or do any similar activities?
- 1) Yes
 - 2) No
- D8) Does a long-term physical or mental condition or health problem reduce the amount or kind of activity that you can do at home, at school, at work or in other activities?
- 1) Yes
 - 2) No
- D9) Where have you used a computer?
- 1) Home
 - 2) Work
 - 3) School
 - 4) Internet café
 - 5) other (please specify _____)