

Internet-delivered interventions in mental health rehabilitation: A recovery-oriented online service platform

Eitan Ben Itzhak Klutch, MA
Makshivim-Net, eitan@makshivim.com

Liat Libling, MPH
Makshivim-Net, liat@makshivim.net

Nirit Benyamini, MSW
Makshivim-Net, nirit@makshivim.net

Max Lachman, Ph.D
Senior Lecture, Community Mental Health Department, Haifa University, lachman55@gmail.com

Ayala Friedlander Katz, BSW, MA
Israel Psychiatric Rehabilitation Association (ISPRA) ayajavi@hotmail.com

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Corresponding author:

Liat libling, Hashoftim 27/4, Tel Aviv, Israel. liat@makshivim.net

Abstract

Objective: The purpose of this article is to present an online service platform applied in Israel, which comprises various technological tools aimed at assisting recovery-oriented psychiatric rehabilitation processes.

Method: We describe the technological tools and preliminary results of the e-social and e-occupational programs, developed as part of national initiatives in Israel. Descriptive data, satisfaction evaluation results, survey results of reasons for participation and perceived contributions are presented. **Findings:** Within e-social programs, peer-led social groups showed high satisfaction rates among clients. Reported contributions

included finding friends, emotional, vocational, and self-confidence improvements, acquiring knowledge and helping others. "Safety net" social project has been reported to be beneficial in increasing the sense of security during national emergencies. An e-vocational service for professionals with psychiatric disabilities showed high rates of placement. **Conclusions and Implications:** Makshivim-Net offers an online assistance for recovery-goals promotion, with preliminary positive results. Rigorous research with standardized measures is needed.

Key-words: Mental health; Rehabilitation; Internet intervention; Online-recovery-assistance; Peer-support.

Introduction:

The use of the internet as a rehabilitation tool carries unique potential advantages unavailable in traditional rehabilitation services. A majority of mental health (MH) consumers use internet and Smartphone communication for diverse purposes, such as email, text message communication, employment, medical information search, and social networks participation (Carras, Mojtabei, Furr-Holden, Eaton, & Cullen, 2014). In this paper we aim to address existing knowledge of internet technology as a form of intervention with MH consumers and then focus on our experience in developing and implementing internet-based technologies to advance consumers' rehabilitation and recovery processes.

Advantages of internet-delivered interventions in mental health

A large body of research supports the use of internet as a form of delivering therapy for common mental disorders (Andersson & Titov, 2014; Cunningham, Gulliver, Farrer, Bennett, & Carron-Arthur, 2014), addressing its advantages compared to face-to-face delivery forms. Internet interventions increase accessibility to professional assistance for people who seek to remain anonymous (Christensen & Griffiths, 2002), enable to deliver help for people who did not approach services previously (Ybarra & Eaton, 2005), and to provide availability of services for people living in remote areas (Farrell, & McKinnon, 2003). Other advantages include high frequency of contact and quick response, allowing effective collaborative interactions (Andersson & Titov, 2014), with low economical costs for clients (Ybarra & Eaton, 2005) and relatively high cost-effectiveness compared to other forms of service delivery (Donker et al., 2015). Organizationally, internet interventions allow efficiency at work settings as the focus during work shifts from time of work to outcomes; decreased costs and increased profits; service delivery improvement; and reduction of environmental damage with the decreased need for transportation (Cascio, 2000).

In addition to these advantages, the literature shows positive clinical outcomes of internet and Smartphone interventions for psychiatric disorders, and positive potential for relapse prevention (Alleman, 2002; Ybarra & Eaton, 2005). Most research assessed internet-delivered interventions for mood and anxiety disorders. For example, Andersson and colleagues (Andersson et al., 2013) compared internet-CBT with face-to face CBT for depression and found equivalent outcomes with long-term sustained gains. Richards and colleagues (Richards et al., 2015) presented a randomized controlled trial of a weekly internet-delivered CBT treatment for depression, compared to waiting list control group.

Their results showed positive outcomes in depressive symptoms and maintained gains at 6-month follow-up. Zabinski and colleagues (Zabinski et al., 2001) evaluated an 8-week internet treatment for eating disorders among 60 women, delivering different intervention tools each week, such as text use, video, group discussion, and self-behavior assessment. A 3-months follow-up showed a significant decrease in participants' will to lose weight, and an enhanced body image. Lange and colleagues (Lange, van de Ven, Schrieken, Bredeweg, & Emmelkamp, 2000) explored internet CBT treatment for 24 participants diagnosed with PTSD. Their results demonstrated significant decreases in anxiety, depression, somatization, and sleeping problems following a 5-week intervention, as well as at 6-month follow-up.

Most participants reported anonymity of internet-based treatment as an advantage, and this group showed the

most symptom relief. Yet, 40% noted the lack of in-person contact as a disadvantage. Generally, symptom relief was reported as similar to that of patients who received traditional treatment.

The accumulated findings led researchers to suggest that internet treatment could serve as an alternative for people who are reluctant towards in-person therapy (Lange et al., 2000) or as an initial step that encourages people to later approach face-to-face treatment (Metanoia, 2001). This suggests the need for an integrated approach to practice, considering internet and in-person treatments as complementary services (Andersson & Titov, 2014; Ybarra & Eaton, 2005).

Internet-delivered interventions in psychiatric rehabilitation

Much less research has been conducted to explore internet use within the field of psychiatric- rehabilitation. Haslett and colleagues (Haslett, McHugo, Bond, & Drake, 2014) studied a tablet-based intervention and showed its' contribution to increased involvement in supported employment compared to a control group. Another occupational project (Nilsson & Lodestad Misa, 2014) assessed the effectiveness of shifting from in-person meetings to internet chat between clients and supported employment experts. Results showed that internet coaching was perceived as a good complementing form of communication, though not as an exclusive one. Both clients and employment experts experienced internet coaching as useful for the purpose of practical and informative communication, and as a good way to save clients' time, energy, and money. Yet, both clients and experts identified difficulty in reading personal moods and responses via internet chat.

Ben-Zeev and colleagues (Ben-Zeev et al., 2013) described a development and usability testing process of a Smartphone system for illness self-management for people with schizophrenia. This project involved clients diagnosed with schizophrenia-spectrum or schizoaffective disorders, and practitioners in a community rehab agency: First, surveys collected interests and expectations from 904 clients and 8 practitioners, concerning the use of mobile intervention; then a multidisciplinary team incorporated consumer and practitioner input, and eventually provided design principles for the development of mobile intervention. Next, 12 consumers participated in laboratory usability sessions, performing tasks involved in operating the new system. They provided feedback about their needs and preferences, and usability ratings. As a result, the designed system is focused on five dimensions of self- management: medication adherence; mood regulation; sleep; social functioning; and coping with symptoms. This inspiring process demonstrates a way to involve clients and practitioners in a shared process of learning and creating, leading to a shared intervention- product. Such processes and outcomes seem to put into practice principles of mutual partnership, empowerment, self-determination and hope in recovery-oriented services (Farkas, 2007), and further demonstrate the adoption of a co-productive practice, addressed to in other recovery-oriented interventions (e.g. Tew et al. 2015; Thorneycroft & Dobel-Ober, 2015). This project illuminates the potential of mobile technologies to assist illness self- management, yet need for systemic evaluation in real-world conditions (Ben-Zeev et al., 2013).

Challenges in using internet-delivered interventions in mental health

Several challenges arise while using internet technologies in MH therapy and rehabilitation. Anonymity, which might be an advantage to some, may cause difficulties for practitioners to identify the person with whom they are interacting, and to control accessibility of people with negative intentions. With the growing ability for online anonymity, new problems emerge, such as cyber-bullying, gossip, or shaming. These phenomena may lead to depression, and even suicide. Furthermore, clients' and providers' concerns about documentation and information confidentiality in technological systems, give rise to the need for clear guidelines for online interventions (Richards et al., 2016; Ybarra & Eaton, 2005). Several researchers addressed difficulties in interpreting vague messages or identifying authentic moods online, with the absence of non-verbal cues, usually integral to therapeutic discourse (Andersson & Titov, 2014; Ybarra & Eaton, 2005). Additionally, high availability of electronic communication opens possible expectations for immediate response, which may not suite practitioner's working hours. This might expose relationships between clients and practitioners to

increased occupation with boundaries issues, when it becomes hard to ignore clients' repeated requests, questions, or comments.

Additionally, technology assimilation may be challenging for professional teams used to traditional work, demanding adjustment of their professional practice. Moreover, online or mobile communication is usually preformed while a worker is alone, which may cause lack of interaction with colleagues, as their working hours may not overlap (Cascio, 2000; Sucala et al., 2012).

Makshivim-Net:

A technological-professional platform for online rehabilitation services

Makshivim-Net (MN) is a platform for rehabilitation services delivered through Internet and mobile communications, combined with some face-to-face work. This platform has been developed and applied since 2005, in a shared collaborative process with clients (Ben-Itzhak- Klutch, 2008). This collaborative process included focus-group discussions aimed at clarifying participants' needs and specified expectations regarding features and information to be placed on site platforms. Participants' involvement also included choosing a name and logo for the project by vote.

MN provides a range of online programs, offering support services targeting two main goals- domains: employment, and social networks. Additionally, two other services, which will not be presented in the current paper, include virtual supported education and virtual mentoring/coaching, both function in initial phases to date, and delivered as private services.

The platform offers varied online tools to assist recovery-goals achievement for each of these domains. These services have been assimilated within the national mental health rehabilitation system in Israel and function as part of the "Mental health rehabilitation basket" under the ministry of health, in compliance with the "Community rehabilitation for people with mental disabilities" law (Aviram, Ginath, & Roe, 2012).

Makshivim-Net system was developed with high standards of security and privacy protection, using different updated technologies. Staff is trained to use these tools, learn about their advantages and limitations. Supervision is provided online, both individually and in a group, and face-to-face staff meetings and workshops provide training and discussion opportunities.

Assessment of clients' needs and preferences is preformed face-to-face (in occupational services) or online (in social services), aimed at getting to know each other, discussing and choosing relevant service\s for each individual. Assessment and intervention planning consider the preferred combination of virtual and face-to-face encounters, and preferred individual and\or group supports. We next describe the main service programs and tools offered to clients on this platform.

Despite lacking empirical academic research, much can be learnt through examination of existing data and accumulated experience among staff and clients. Each of the services to be presented provides regular reports to the ministry of health, or other formal partners, including number of participants and outcomes. Additionally, the services are regularly inspected as part of the procedural measure of quality performance in rehabilitation services by the ministry of health. Other data includes participants' responses to satisfaction surveys conducted by the ministry of health, and other measures used as part of organizational developmental learning.

Assistive Rehabilitation Technologies: ARTech, ARChat, ARContact, and ARPackage
AR Technologies include four software functions designed to assist the rehabilitation process, used by client and worker to manage the rehabilitation process and follow-up goals achievement:

ARTech: A monitoring system to follow and assist in managing the online recovery process. This tool is equivalent to "client file" where information is collected and a personal rehabilitation plan is created and modified. The system allows building a process plan, that contains all the information gathered by client and practitioner, from intake interview, to rehabilitation goals and preferences, and following gradual steps, in accordance with the determined recovery goal. The collected data may be displayed according to authorization determined by client and worker, deciding who can access the system, and which information will be presented (either partial (e.g. occupational), or full ARTech information). The system was developed to provide accessibility for clients with various disabilities within a framework of positive reinforcement, where accomplished tasks are marked graphically. It is designed as a user friendly site, enabling independent operation and self-management of the rehabilitation plan, aimed for increased use of the system over time;

ARChat: A Chat program for both individuals and groups on website or Smartphone App. This program provides a space for personal private conversations between client and worker, and serves as a platform for group discussions. It allows participants to receive supportive response from their worker or peers.

ARContact: A monitoring external system that serves to receive data from the participant's support community, such as employers, family, or teachers. It allows receiving (but not exporting) input from others involved in the rehabilitation process, in order to integrate important information and feedback into the shared process of client and worker. This input can be used for discussion and consideration in decision making processes.

ARPackage: A system that incorporates all of the applications and their data that is collected in real-time. The system can supply observations on individual clients in each of the services which they are using, and thus provide a detailed large picture of the individual rehabilitation progress at all relevant goal-domains. In addition, ARPackage can provide a wider, bird's eye view observation on the system's different programs, while incorporating several client-files and/or services hence allowing to examine overall success in goal achievement.

Thus, MN is a large format which contains four system-ingredients which serve as tools to assist personal rehabilitation processes in the e-Social and e-Occupational domains, which we detail next.

e-Social rehabilitation services

Two services are offered to clients who wish to focus on social goals: Peer-led mixed-online and face-to-face group intervention; and "Safety Net" for improved community resilience.

(1) Peer-led social online groups combined with face-to-face monthly meetings: This service, opened in 2005, aimed to meet clients' needs for connectedness to peers and enhancement of social networks. Group participation requires accessibility to the technology in use, so that practitioners need to ensure that a client who joins a group is connected and equipped with the technological tools and the knowledge necessary to use it. Groups vary in their nature - from general social groups to specified-content groups (e.g. healthy life-style). Group coordinators (all consumers-providers) facilitate the group, and also arrange special guest- talks occasionally, who join the chat in order to present specific topics of interest. For example: government officials' guest talks, addressing disability rights and benefits; a Clubhouse representative guest, presenting the Clubhouse principles and activities; and many more.

The first step in joining a group is by creating a "personal profile" as a way to present oneself to group members. Group chats eventually lead to "real-world" face-to-face group meetings, planned and organized by

group participants with coordinator.

A satisfaction survey (Dereh Halev. 2007) initiated by the ministry of health during 2007 (conducted by peer-pollsters as part of a national evaluation project) showed high rates of satisfaction with staff, with group contents, activities and atmosphere, and with activity time schedule. In January 2009 an anonymous "Project efficiency survey" (Makshivim-Net, 2009) was sent by the agency's professional management to all groups' participants (N=129) in order to assess their reasons for joining the group, the expected areas of improvement as a result of participation, and their perceived actual progress in those areas. Thirty-nine participants responded, and expressed their consent to answer the survey questions without providing any personal details. Participants revealed varied reasons for participation in social- groups. Finding friends, improving wellbeing, and hope to find a spouse, were prominent reasons. Table 1 shows reasons for joining groups, expected areas of contribution and perceived actual contribution of group participation.

Table 1: Reasons for participation in social online groups, expected areas of group contribution and perceived actual progress (N=39)

	What were your reasons for joining the project? (%)	What were the areas you thought the project could contribute to your life? (%)	To what extent did the project actually contribute to your life? (%)
Social/find friends	82.05	74.36	67.56
Mental/emotional	25.64	20.51	76
I was told to/offered	10.26	0.00*	100
Vocational	7.69	15.38	85.71
Build Self confidence	0.00	15.38	66.66
Help others	5.13	5.13	100
Find spouse	7.69	15.38	16.66
Knowledge/information	5.13	15.38	66.66

* Irrelevant

Table 1 shows that most participants (82%, n=32) joined a group for the purpose of friendship, while 68% reported actual progress in achieving this purpose. 76% of those who expected to improve their mental

wellbeing reported actual improvement, though only 17% reported actual perceived progress in their hope to find a spouse. Nonetheless, one couple of group members who met in the project is getting married and two other couples are now living together.

(2) "Safety Net": Improving community resilience: This service was initiated together with the JDC Israel non-profit organization, as a response to the stressful times followed by a military operation in southern Israel during 2014. During that time, people were not allowed to gather in large groups or be far away from a bomb shelter. They could not go to work, school or other everyday activities. Obviously, stress levels are raised when missiles and sirens become a daily experience, which in some may trigger more severe symptoms, while having fewer opportunities for social support. Thus, "Safety Net" offered online group meetings, scheduled in advance, and with higher frequency during emergency events. Additionally, a professional worker was available at all times, and participants were given the option to speak to him over the phone or meet face-to-face. This project now continues to function as a general community support for regular times. Participants' experiences in this program were assessed using a self-report questionnaire designed for this purpose (Makshivim-Net, 2015). Participants were informed about the purpose of the survey and twenty provided their consent and completed the survey online, anonymously. Two-thirds (66%) of participants reported that group members were helpful to them and contributed to their sense of security. From this group, 88.89% reported that using the chat service with peers was helpful in providing relief during real-time emergency events.

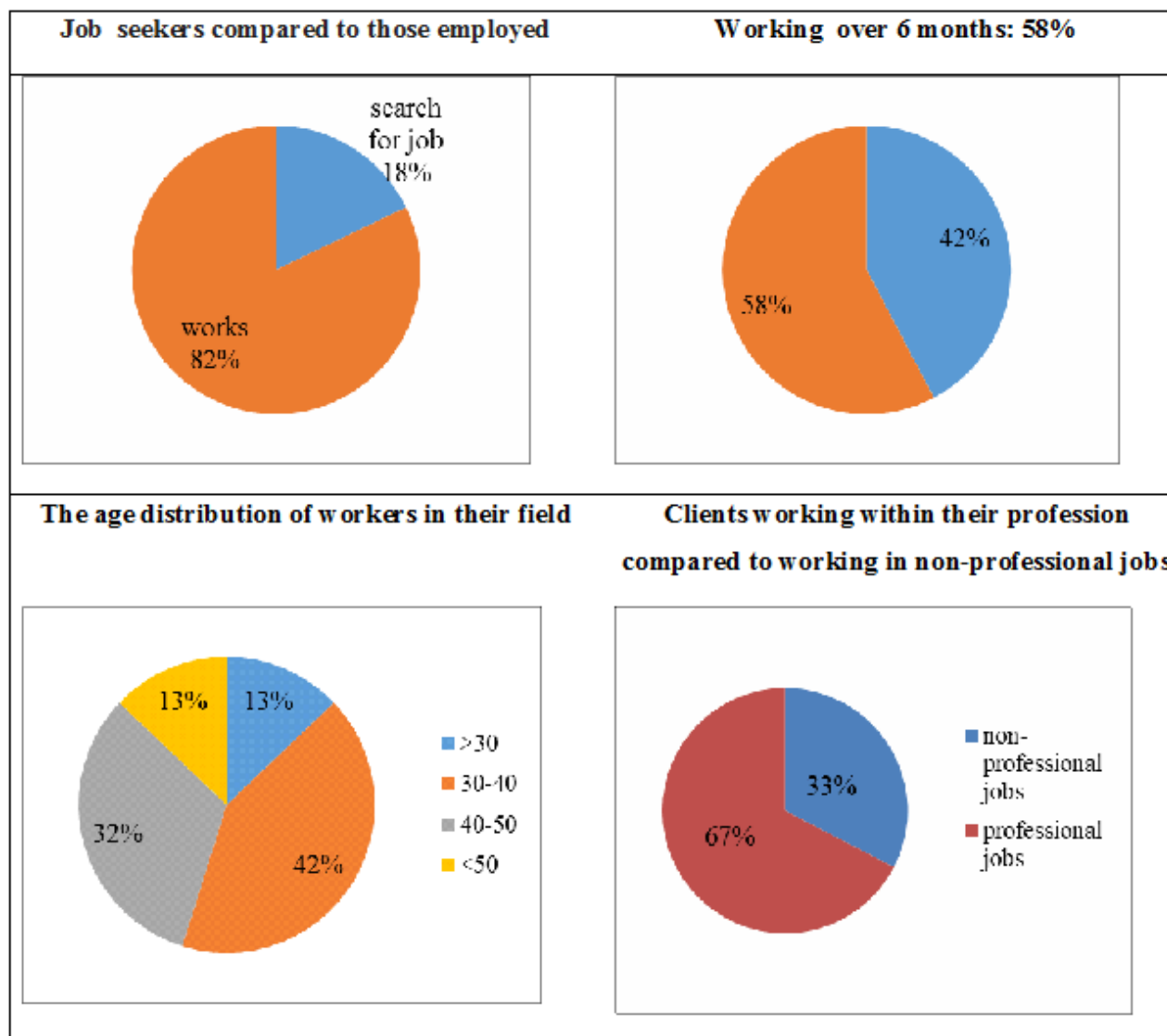
22.22% reported that the group was "very helpful" during those times. Furthermore, fewer participants reported turning to the professional support compared to using group peer- support during stressful times. Nevertheless, one third (33%) of participants did not consider the group chat as helpful in feeling more secure. The positive feedback from participants in this program led to expanding it to all people with disabilities, with the opening of the "online center for independent living" model, providing virtual tools for independent living and social integration, not exclusively for times of crises, but rather at all times. This new project is consistent with the principal of peer-led intervention, employing group coordinators with different types of disabilities.

e-Occupational rehabilitation services

MN platforms offer two vocational assistive programs:

(1) Online supported employment: This program is supported by the Israeli Social Security Institution and open to all people with disabilities who wish to receive supported employment services online, as an alternative to such services provided traditionally. This service adopted supported employment model principles (Bond, Drake, & Becker, 2012), while shifting communication between client and practitioner to MN technology platform, allowing on-going follow up of goals achievement in a collaborative relationship. The service is available to all people with disabilities as a pilot program opened in January 2016. A research conducted to evaluate the program's effectiveness will collect data over two years, and initial results are expected by the end of 2016.

(2) Figure 1 - Occupational characteristics summarizing 12 months during 2015 (N=80)



(2) Online supported employment for academics and professionals with psychiatric disabilities:

This program combines internet communication and face-to-face meetings aimed to assist professionals with psychiatric disabilities to overcome barriers to competitive employment within their professional field. This program provides personal coaching, focusing on structured stages leading to work placement. These stages include preferences definition, job search, and interview preparation, follow up communication and ongoing support. Initial statistics among 80 participants, performed as part of a service documentation, reported to the ministry of health (Ben-Itzhak Klutch, Benyamini, & Libling, 2015) showed high placement rates – 82% during 2015 (13% higher than 2014) of which 58% worked over 6 months. Age characteristics in this sample show higher placement rates for those aged 30-50. Two thirds (67%) of placements were within client's professional expertise, while one third were working in non-professional jobs. This data is presented in Figure 1:

Emerging challenges and difficulties through implementation of MN

Through the years of developing and assimilating MN, challenges and difficulties emerged and search for solutions

influenced the programs' design and development. As in literature, sometimes workers find it difficult to interpret participants' partial or unclear messages (Andersson & Titov, 2014). Boundaries of working hours are also challenged, as technological communication's availability is unlimited (Ybarra & Eaton, 2005). Such issues are discussed during supervision, in search of individualized solutions for different situations.

Confidentiality of medical and other private information is another challenge, as technology allows keeping group discussions on personal computers' and mobile phone's memory. While social media such as WhatsApp can serve as a platform for interesting and important discussions, it also exposes personal identifiable details of participants. For this reason, rehabilitation interventions need other platforms, which allow confidentiality. MN solved this issue by developing the chat platform (ARChat) software that prevents exposure of all information systems, open only to clients and practitioners in the program.

Providing online support for people with mental illness may bring about professional dilemmas for practitioners. For example, when clients argue about personal issues and reveal personal details in group, or when clients express extreme emotional states, such as anxiety, depression, or suicidal thoughts, to either online group or practitioner. In such situations, practitioners might feel helpless, and program's policy should consider and address ways to handle them. Training and supervision are highly important as a space for discussion about emerging dilemmas, challenging situations with clients, feelings of loneliness in this unique work environment, or difficulties in keeping professional boundaries (Casco, 2000). In MN, daily communication between staff members allows continuous online contact, which seems to strengthen workers' sense of belonging in spite of little face-to-face contact. Nevertheless, individual and group supervision also take place, online and face-to-face, as well as staff meetings in both forms.

Discussion

The varied programs described above allow a range of technological tools to support rehabilitation processes, adjusted to individual needs. In order to use these tools effectively it is necessary to understand each technology, the type of intervention that it may provide, and how it may (or may not) fit specific goals in rehabilitation processes. The services presented above differ in their goal focus, format (individual or group), and balance of virtual vs. face-to-face communication. These differences should be considered while tailoring a rehabilitation plan. For example, when the client's goal is focused on enlarging their social network, and enhancing the quality of their relationships, group interventions may be better suited - either general peer-facilitated support groups, or topic-specified groups. Group interventions provide additional value where clients may find the group of equals as a source for support and encouragement in goal pursuit. Real-world meetings offered in facilitated groups may further contribute to enhancement of social integration, while relationships among group members are encouraged to continue and develop beyond facilitated sessions.

Thus, for some goals, group online interventions may have advantages over individual intervention. For others, personal relationships conducted online can meet the need for an individualized process and the high availability of the practitioner assists their personal recovery. For example, in our experience, occupational processes would usually benefit from a personal individualized process. More generally, considering dynamic changes in client's goals may lead to the recommendation of using individual intervention first, and then shifting to group intervention as client's goals evolve. Thus, our experience indicates that choosing an individualized combination of group and individual supports can bring about better rehabilitation outcomes.

Another important consideration is the balance of online and face-to-face encounters, following each individual's rehabilitation plan. The process of planning with each client emphasizes the combination of possibilities in both forms of meeting – online and face-to-face. Following an initial face-to-face meeting, client and practitioner discuss the best form of communication along their relationship process. Yet, most of the time the online communication dominates, which makes the helping relationship more intense and frequent compared to traditional therapy. This seems to increase clients' involvement, catalyze task performance, and thus enhance self-agency and advance goals

achievement. Variations in use of online versus face-to-face communications may also be related to the program's main target – social, occupational, educational, etc.

Thus, the possibility to combine both forms of communication (online and face-to-face), either individually or in a group, enables individual adjustments of the intervention plan throughout the process, in accordance with personal changed priorities, preferences, or needs (Alleman, 2002; Andersson & Titov, 2014). This is a unique aspect of MN that provides clients with the possibility to receive both individual and group support, both online and face-to-face, allowing a wide range of individualized intervention plans.

Recently, Richards and colleagues (Richards et al., 2016) suggested guiding elements for quality online interventions delivered by MH professionals. These include the use of empirically valid contents, ensuring that technologies are strong, secure, engaging and responsive, and that MH professionals' input shape these technologies. Moreover, technological tools' development and design should employ client-centered principles, and focus on desired clinical outcomes. Such technologies should rely on effectiveness evaluation and research, and employ well-established implementation methods (Richards et al., 2016).

These guidelines support the efforts made during the gradual development of MN over the last decade, to ensure effective and secure service delivery of mixed-online and direct interventions in psychiatric rehabilitation. Furthermore, employing consumers-providers in MN programs and providing online peer-support interventions is consistent with recovery-oriented practice (Farkas & Anthony, 2010; Kaplan, Salzer, Solomon, Brusilovskiy, & Cousounis, 2011). This approach may as well contribute to a variety of work opportunities for people in recovery from mental illness as peer-specialists.

Strengths and limitations

This paper presented a well-implemented yet still-developing service platform, which demonstrates an online practice model applied in the field of psychiatric rehabilitation. Initial results from ongoing documentation, formal reports and evaluations suggest positive potential of the assessed services to assist recovery processes among MH consumers.

Nonetheless, the existing data is partial and more investigation is required with more rigorous methodologies in order to clarify rehabilitation outcomes and understand more deeply the value of internet services for people in recovery. Future research may contribute to further development, towards realizing the positive potential of such tools through assimilation into MH systems.

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