

# Psychosocial/Psychiatric Rehabilitation in Established and Emerging Environments: An Updated Scoping Review

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**Published Date:** June 10, 2016

## ABSTRACT

**Background:** Recovery from Serious Mental Illness (**SMI**) such as schizophrenia is often a challenging and ongoing process. Incorporating client- or patient- centered recovery-focused goals is one way to empower individuals and also add meaning to a complex process. Psychosocial and/or Psychiatric Rehabilitation (**PSR**) focuses on improving individuals' experiences and functioning within important psychosocial environments. Traditionally these have been identified as housing, healthcare, learning or vocational, and social or leisure environments.

**Methods:** This systematic scoping review aims to update the literature in these 4 established environments from 2013 until 2015 (inclusive) and expand the search to spiritual, sexual and virtual emerging environments (till and inclusive of 2015).

**Results:** Overall, our search yielded for inclusion, 8 studies within the healthcare environment, 5 within social/leisure environments, 4 within residential environments and 17 within vocational/educational environments. Within the emerging environments, 12 studies were included for spiritual, 5 for sexual and 12 for virtual environments. Due to methodological variability across studies, a meta-analysis was not conducted.

**Conclusion:** Within the PSR literature there continues to be research published on interventions to enhance and personalize recovery of people with SMI. This research has shown positive and promising results.

# INTRODUCTION

Recovery of people with Serious Mental Illness (**SMI**), as defined by Anthony [1], is the development of new meaning and purpose in life as people grow beyond the associated challenges. Despite their mental illness, people with SMI strive for a sense of belonging as valued members of society with meaningful relationships [2]. Comprehensive services that are responsive to these individuals' needs and address their community integration are often required [3,4]. Focusing on increasing role functioning [5] while aiming to maintain a personally meaningful life, with valued social roles, are core to the recovery process [6,7].

Aligned with this focus, Psychosocial/Psychiatric Rehabilitation (**PSR**) plays a pivotal role in facilitating the recovery of people with SMI, by improving personally and socially valued role performance in people's living, learning, working and social environments [1,6-9]. PSRs involves recovery-oriented services that aim to help people with SMI enhance and maintain their adaptive skills and supports, develop a sense of control in their lives, expand their ability to cope with symptoms, take control over their own treatment and achieve satisfaction and success in their environments of choice [1]. Rudnick et al. [10] stressed the importance of an ongoing support system for establishing positive environments. It is also important to acknowledge the impact of social determinants, such as social status, support networks, education and literacy on these environments [11].

The August 2013 issue of Current Psychiatry Reviews (edited by the 4<sup>th</sup> author) was dedicated to reviewing the literature on environments addressed by PSR and included reviews of vocational/educational [12], social/leisure [13], housing [14] and healthcare [3] environments. These reviews provided insight into the types of work being done to facilitate recovery with a PSR focus. Arguably, other environments such as spiritual [15-16], sexual [17] and virtual [18] environments are important and relevant to the lives of individuals with SMI.

The focus of our (systematic) scoping review reported here is two-fold: (1) to update the literature established in Current Psychiatry Reviews 2013 9(3) regarding PSR interventions within residential, vocational/educational, social/recreational and healthcare environments published between 2013 and 2015 (inclusive); and (2) to investigate what published PSR interventions are implemented in three other – emerging – environments: spiritual, sexual and virtual (electronic, i.e., primarily virtual reality and social media) environments.

## METHODS

Studies were included if they: (1) evaluated PSR regarding residential, vocational/educational, social/recreational, healthcare, spiritual, sexual or virtual environments; (2) were applied to a target population with a psychotic disorder or other serious mental illness and age 16 years or older; (3) and were published in English. Studies were excluded if they: (1) were case reports; (2) evaluated primarily practices that are similar to but not part of PSR, e.g., studies of Cognitive

Behavioral Therapy (**CBT**) (3) evaluated primarily service delivery, such as Assertive Community Treatment (**ACT**) and First Episode Programs (**FEP**); and (4) evaluated family interventions.

The search was conducted to identify articles published from 2013 until December 2015 (inclusive) in relation to residential, educational, vocational, social/recreational and healthcare environments and articles published from earliest till December 2015 (inclusive) in relation to spiritual, sexual and virtual environments.

The academic electronic databases: PubMed, MEDLINE, EMBASE, Cochrane Database of Systematic Reviews (**CDSR**), PsychINFO, CINAHL and PsychArticle were searched. Also used were the Clinical Queries searching strategy and Google Scholar as well as a grey literature search to find additional information on networks, coalitions and policies existing in the area of PSR.

For both scientific and grey literature searches, the following group concepts were searched as subheadings, keywords and/or text: [psychiatric rehabilitation OR psychosocial rehabilitation OR psychiatric/psychosocial rehabilitation] AND [psych\* OR mental] AND [disorder\* OR illness\* OR disabilit\*] + [residential OR housing] + [education\*] + [vocation\* OR employment OR work] + [social OR famil\*] + [leisure OR recreation\*] + [mental healthcare OR physical healthcare OR dental OR [complementary and alternative medicine] + [religio\* OR belie\* OR spiritual\*] + [sexual] + [virtual OR Facebook OR web\* OR social media OR techno\*] and other combinations of different keywords, derived from key research questions, constituted the core terms used in the complex search.

Using the search strategy described above, all titles and abstracts retrieved were screened for relevance. Two reviewers independently assessed the articles to determine whether they met the inclusion criteria. Any disagreements were resolved through discussion or with assistance of a third reviewer. Two reviewers conducted data extraction independently and cross-checked results and any disagreements were resolved through discussion. As data from the included studies were too heterogeneous, narrative synthesis was conducted.

## ESTABLISHED ENVIRONMENTS

### Healthcare

Eight articles focusing on healthcare or weight loss interventions and skill-building were included. Two studies utilized weight loss interventions within individuals with SMI [19,20]. Brown et al. [19] utilized a manualized program to teach participants about nutrition and physical activity. Although the weight loss in the immediate post-intervention was not significant at the 6-month follow-up there was a significant average weight loss of 10 pounds ( $p=0.03$ ). The Achieving Healthy Lifestyles in Psychiatric Rehabilitation (**ACHIEVE**) program randomized 291 participants to a behavioural weight-loss intervention involving group and individual weight-management sessions, as well as group exercise sessions [20]. At the 18-month point, 63.9% of the intervention group had weights below their baseline versus 49.2% of the control, which was significant ( $p=0.02$ ).

Utilizing the Healthy Lifestyles Design (**HLD**) Program curriculum within the clubhouse model, engagement in meaningful activities, change in BMI and motivation to decrease tobacco use were evaluated [21]. Qualitative data found concrete tasks and visual aids were helpful for participants compared to psycho-education. Quantitative data was unremarkable.

Three of the studies focused on illness management or skills development to assist with building capacity in the healthcare environment. Lin and colleagues [22] analyzed the difference amongst 4 variables between an Illness Management and Recovery Program (**IMR**) and Treatment As Usual (**TAU**) for patients nearing discharge from inpatient psychiatry. They adapted IMR and administered a program of two, 90-minute sessions per week for 3 weeks. Those in the IMR group improved significantly post-treatment and one month after discharge in knowledge of illness ( $p=0.001$ ), attitudes towards medication ( $p<0.0005$ ) and insight ( $p<0.0005$ ).

Next, in a study looking at older adults with SMI, 183 participants were randomized to the Helping Older People Experience Success (**HOPES**) program versus TAU [23]. Weighted community living skills significantly favoured HOPES over TAU ( $p=0.007$ ) and there was a 7% reduction in psychiatric admissions at 3 years (22% at baseline versus 15%). The HOPES group also received more preventative health screening and discussion around advanced directives.

Third, Pratt and colleagues [24] utilized an automated telehealth intervention, supported by a mental healthcare nurse, to study feasibility and disease self-efficacy in 70 participants with serious mental illnesses and medical comorbidity. Participants utilized the tele health intervention to complete daily sessions answering questions related to symptoms and health indicators (i.e. vital signs, O<sub>2</sub> saturation, weight, blood glucose). The majority (83%) of participants felt they could manage their condition “much better” after the intervention. Within the diabetes subgroup ( $n=46$ ), there was a significant reduction ( $p=0.016$ ) in mean fasting blood glucose from baseline.

In a two-year follow-up of a prospective longitudinal study in Sweden, 49 participants were asked about changes on a number of functional areas after completion of a psychosocial rehabilitation program [25]. Significantly fewer participants required ongoing contact and support with psychiatric care ( $p<0.01$ ) and measures of physical health and mental health were significantly improved ( $p=0.007$  and  $p=0.001$ , respectively). A comprehensive literature review looking at mental health and exercise reported that exercise positively impacts psychotic symptoms and BMI [26]. Included in the review were cardiovascular exercise and yoga.

## Social/Leisure

There were 5 studies included that focused on the social or leisure environment. Two of these studies were from the Cochrane Group. Almerie and colleagues [27] found 13 RCTs encompassing 975 participants looking at social skills programs. The review favoured social skills over standard care (defined as not a dedicated social skills program) for social skills development. Another Cochrane review looked at horticultural therapy for building social and recreational skills in individuals with schizophrenia [28]. It showed that on the Depression Anxiety Stress Scale-21

**(DASS-21)**, all subscales (depression, anxiety and stress) favoured the addition of horticultural therapy to standard care.

In a qualitative study involving 5 consumers of an inpatient art therapy program, De Vecchi and colleagues [29] reported that participants had an enhanced sense of community, increasing comfort within the social environment and increased feelings of control, even during involuntary admissions. Eklund and Tjornstrand [30] sought to assess motivation for attending day centers in Sweden. Of the 93 participants, the most common motives for attending were found to be “getting structure to the day” (79%); “getting the opportunity to socialize” (77%); and “having something pleasurable to do” (71%).

An area for further research appears to be peer-support. A systematic review and meta-analysis (18 studies 5597 participants) of peer support trials found little evidence to support changes in outcomes such as hospitalization rates and employment [31]. However, the conclusions were very limited secondary to the bias within the studies and poor quality of many of those included.

## Residential

Four articles were included within the residential environment. Two studies focused on Housing First (**HF**) initiatives. Montgomery et al. [32] analyzed differences in HF versus TAU among 177 veterans. Housing first participants were housed quicker and were 8 times (odds ratio 8.332) more likely to have stable housing over a one year period compared to TAU. Utilization of inpatient mental health services decreased in both housing conditions. A qualitative study of HF used semi-structured interviews with 52 participants at baseline and 43 participants at follow-up to assess trajectories [33]. Overall those who were randomized to HF had more positive or mixed trajectories (i.e. more positive outlooks on health, substance use, social connections, sense of security, and identity) compared with neutral or negative trajectories of TAU (i.e more negative outlook, sense of failure, loss of personal health and loved ones).

Anthony and colleagues [34] analyzed a subset of participants in an Intensive Psychiatric Rehabilitation program (**IPR**) specifically focused on residential and employment goals. The sample of 238 participants had 152 individuals in the residential goal arm and 86 in the employment goal arm. Within each group they then looked at those who were currently enrolled, those who had completed 18 months in the program and those who had graduated. Across all categories, there was statistically significant movement towards more independent living ( $p < 0.0001$ ) in the residential goal group.

Gonzalez and Andvig [35] synthesized 24 studies and utilized qualitative methodology to identify themes of participant experiences within supportive housing. They reported support and contextual issues. Support issues encompassed mental health supports linked to housing. Positive supports were those that allowed for balance of autonomy and strengths. Contextual issues pertained to location and sense of community belonging. Positive experiences were those where people were centrally located with access to services and felt they were integrated within or welcome in the community.

## Vocational/Educational

This updated search included 17 articles, which discussed aspects of vocational or educational environments in PSR. Of those, two focused primarily on education. One pertained to the evaluation of a creative writing pilot workshop in Australia, embedded within PSR [36]. This qualitative study analyzed the experiences of 8 (of 11) participants who took part in 3 workshops over a 3-week period. Participants indicated value in the workshop and found that it was a positive experience. The second study [37], involved an 8-week Spanish curriculum embedded within a PSR program for veterans. There was no sample size identified in the article and no statistical variables were reported. Survey data reported that participants found the course helpful to keep them cognitively “sharp,” assist in job market competitiveness and also to increase social functioning.

One study analyzed supported education and employment in a group of Canadian college students [10]. This case study framework, mixed methods study analyzed both quantitative and qualitative factors. Quantitative data was collected from 37 participants, of which 78.4% obtained employment within one year. Fifteen participants (6 students, 5 significant others, 4 counselors) were in the qualitative arm. Twelve themes were identified and included items such as increased support, as well as positive effects on self-esteem and confidence as outcomes of the program.

One study focused on vocational goals as a subset of a larger PSR program. Anthony and colleagues [34] analyzed data from 86 participants within the employment goal group of a larger Intensive Psychiatric Rehabilitation program (**IPR**). Within this group, only those who graduated showed a significant shift towards more independent or more competitive employment ( $p=0.0044$ ).

The remaining 13 studies investigated vocational aspects of PSR, including supported employment or Individual Placement and Support (**IPS**). Cognitive Remediation (**CR**) as an enhancement to supported employment was investigated in 3 studies [38-40]. When the outcome measure for the addition of CR to supportive employment was competitive employment, there was no difference found between groups in two of the studies [39,40]. Bell [38] found a significant difference for those who were identified as lower community functioning at baseline. Their employment rates at 2 years were 49% for the treatment group (addition of CR) versus 20% for the supported employment group alone ( $p<0.005$ ). Overall, there were gains over most domains with both groups in all 3 studies, suggesting that supportive employment overall can improve outcomes across many domains, but that the addition of CR may be helpful for a specific subpopulation.

Prevocational employment supports encompass providing employment training before entering the competitive work environment. In a Taiwanese study, they combined training at jobs within the hospital where participants were patients with didactic workshops [41]. At one month post-intervention, 79.3% of the 58 participants were employed and 69% were employed at 6 months. A qualitative study utilized a model called Everyday Life Rehabilitation (**ELR**) to

promote participant engagement in “meaningful daily occupations” [42]. The narratives that emerged focused on reintegration, hope and rediscovery of skills.

The remaining eight studies focused on supported employment. A Cochrane review of supported employment included 2265 participants across 14 RCTs [43]. Overall, it was found that IPS tends to significantly increase employment. Areberrg et al. [44] randomized 120 people to IPS or traditional vocational rehabilitation (**TVR**). At 18 months, IPS was significantly greater on empowerment measures ( $p=0.047$ ), motivation to work ( $p=0.033$ ) and quality of life measures ( $p=0.002$ ). Bejerholm et al. [45] used an RCT to study the difference between IPS and TVR for time to competitive employment and community integration. Time to competitive employment was shorter in the IPS group (462.5 days versus 541.2 days) and 90% had become involved in some type of “mainstream community setting” (i.e. an internship) by 18 months compared to TVR (24%). Similarly, a study by Michon et al. [46] found that competitive employment was significantly greater ( $p<0.05$ ) for IPS compared to TVR. Overall, being competitively employed significantly increased self-report of quality of life ( $p=0.047$ ), self-esteem ( $p=0.02$ ) and mental health ( $p=0.04$ ). Hoffman et al. [47] found that employment gains persisted; participants who received supported employment interventions were significantly more likely to have maintained competitive employment at 5 years post intervention ( $p<0.005$ ). In addition, those in the supported employment group had significantly fewer psychiatric hospitalizations at the 5-year mark ( $p=0.026$ ). Knapp and colleagues [48] found that IPS had better employment outcomes at 18 months (55% of the IPS group had worked at least 1 day versus 28% of the TVR group). A retrospective, cross-sectional cohort study of 126 participants in Malaysia, found that past history of work (at least 1 month in the past 5 years) and getting one’s preferred job were significant for predicting success in the employment setting ( $p=0.021$ ;  $p=0.032$ ) [49].

A secondary analysis of an RCT in the United States compared IPS versus a psychosocial clubhouse model or standard program and found that those receiving IPS were significantly more likely to obtain competitive employment (Latino group-76% employment  $p=0.000$ ; the non-Latino African American group 68%  $p=0.001$ ; Non-Latino White group 93%  $p=0.000$ ) [50].

## EMERGING ENVIRONMENTS

### Spiritual

Within the emerging environment of spirituality, there were 12 studies included. One paper systematically-reviewed the psychiatric literature from 1990–2010 regarding religion and spirituality [51]. In 72.1% of included papers there was a positive relationship between spiritual involvement and decreased mental disorders. Grover et al. [52] reviewed the role that religion and spirituality play in the lives of those with schizophrenia. Their literature review highlighted that religion can provide positives (sense of purpose, hope and meaning) and negatives (spiritual despair).

There were three [53-55] studies involving subjective experiences attending a holistic psychiatric rehabilitation program provided by a Christian non-government organization. In one of the studies, interviews were conducted with 20 participants about their experiences in the group [53]. Participants reported increased sense of belonging, enhanced social skills, and higher meaning. A five-year follow-up study of this group, conducted with 73 participants, found that self-help group participants had more hope than controls [54]. Another study with 109 participants in the self-help group intervention, and 154 in the control group found that those in the self-help group had a larger number of supports ( $p < 0.001$ ) and were more satisfied with them ( $p = 0.05$ ) [55].

Four studies incorporated spiritual or religious aspects directly into their programming. After being interviewed about their spiritual beliefs and its impact, 30 participants participated in a structured, 4-session spirituality and psychoeducational group [56]. Pre-post changes were seen for perceived levels of spiritual support and well-being ( $p < 0.04$ ), but not on measures of depression, hopelessness, self-esteem nor purpose in life. Between-group significance was not found when compared with wait-list controls.

In the second study, 100% those who attended a spirituality group ( $n = 20$ ) in addition to attending a PSR program achieved their goals (vocational, socialization, wellness), as compared to 57% of those who only attended the PSR program ( $n = 28$ ) ( $p = 0.0001$ ) [57].

Another study provided patients with psychosis either standard group treatment with a religious and spiritual assessment ( $n = 40$ ) or standard treatment alone ( $n = 38$ ) [58]. There was no significant difference between groups for medication adherence or satisfaction with care after three months. The intervention group had significantly better attendance rates at follow-up ( $p = 0.03$ ), where patient interest in conversing on religion and spirituality persisted.

In the fourth study, a “Spirituality Matters Group” for individuals with psychosis was run [59]. The group aimed to instill comfort and hope. Qualitative data indicated that these activities facilitated improved social interactions, verbal expression and fostered a sense of community.

The remaining three studies incorporated spirituality or well-being more broadly. A geriatric hospital ran The Balanced Life Program to holistically address wellness [60]. Qualitative reports of group participation included an increase in relaxation and coping skills, self-esteem through emphasizing strengths and improved social exchanges beyond the group. Qualitative data from 12 participants suggested that art making added a spiritual aspect to recovery, which included meaning-making, a new-found identity and fostered interdependency [61]. Forty-seven participants attended 12-week sessions of a peer-led group based on Pathways to Recovery: A Strengths Recovery Self-Help Workbook [62]. Pre-post surveys were statistically significant on all outcomes including spiritual well-being ( $p = 0.003$ ) and psychiatric symptoms ( $p = 0.001$ ).



## Sexual

There were 5 articles included which discuss aspects of the sexual environment. A review of studies between 1980-2005 yielded 14 studies looking at sexual health education programs developed for people with mental illness [63]. The focus was education on sexually transmitted infections, safe sex communication and skill development (e.g. condom use). Attendance reduced sexual risk behaviours.

Sexual health teaching studies show mixed results. Kalichman and colleagues [64], implemented a program which provided behavioral skills training for individuals with chronic mental illness in order to prevent HIV infection. Fifty-two men and women were randomly assigned to intervention or wait-list control. The intervention group made significant gains in knowledge related to AIDS and intention to changes risky behaviors. Over 1-month follow-up, rates of unprotected sex and condom use significantly improved.

In contrast, a qualitative study of a program on sexual health designed for those with mental illness which provided knowledge, skills, and perspectives on sexual health indicated that theoretical knowledge of safer sex practices did not translate to having such skills e.g. condom use [65]. An RCT involved 408 individuals attending outpatient treatment for 10 sessions [66]. There were three intervention groups: HIV-risk-reduction, Substance Use Reduction (**SUR**) and standard care. At 3- and 6-month follow-up, those in the HIV-risk-reduction group intervention described less risk behaviours as compared to those in the SUR and control groups.

Finally, one study looked at addressing sexuality within PSR aiming to identify sexual and relationship needs of those about to be discharged from hospital [67]. Eleven individuals with schizophrenia participated in completing questionnaires and interviews. Results indicated that many noted a decline in sexual interest after hospital admission. None were aware of sexual rights in hospital. Participants were hopeful about having intimate, fulfilling relationships after community reintegration.

## Virtual

Overall, there were 12 studies included discussing aspects of the virtual environment. A Cochrane review looked at the ability of information and communication technology to improve treatment compliance for those with serious mental illness [68]. Examples were text messages and email however due to poor quality of evidence no conclusions were drawn.

Another Cochrane review looked at how Virtual Reality (**VR**) affects treatment compliance for those with serious mental illness [69]. VR had little effect on compliance, cognitive functioning, social skills or acceptability of intervention. A study with 12 participants (6 treatment and 6 control), investigated the ability of a VR environment (NeuroVr2.0 software) to rehabilitate cognitive functioning for those with schizophrenia [70]. Both groups were found to have improved performance in the divided attention tasks. VR training was found to demonstrate improved planning and lessen cognitive deficits ( $p < 0.05$ ).

VR was also utilized to enhance various skills. One team in South Korea compared traditional Social Skills Training (**SST**) to a VR role-playing SST in an RCT with 91 individuals with schizophrenia [71]. The VR group was found to show higher generalization of skills, as well as assertiveness and conversational skills (all  $p < 0.05$ ). When using VR for interviewing skills with 10 participants, it was seen to lessen anxieties about the process [72]. Another study with 37 participants using VR for job skills training found that those in the VR group had improved self-confidence ( $p < 0.05$ ) [73].

A pilot study implemented a cognitive rehabilitation program that used VR and IPT with persons with schizophrenia to improve cognitive function [74]. There were significant differences ( $p < 0.05$ ) between pre- and post-tests in perceptual organization, working memory, processing speed, attention, and executive function.

Another study explored the computerized version of the Illness Management and Recovery (**IMR**) program [75]. Semi-structured interviews were held with 12 participants who used the IMR prototype. Qualitative data revealed that the new technology platform was found to be convenient and easy to use. The largest perceived barriers included a lack of computer skills and computer access. In a study using 64 participants (32 treatment and 32 controls), the use of Electronic Planning Devices (**EPDs**) for time management was assessed [76]. Results showed that EPDs do not completely make up for the needs of those with mental disabilities.

One survey conducted online compared the use of social networking between 207 young adults with mental illnesses and those without mental illness [77]. The results indicated that 94% of those with a mental illness used social networking sites and were more likely to engage in activities that foster connectedness and making friends online, but desired skills to be socially active in other environments.

An RCT looked at the well-being of unmoderated, unstructured internet support groups on 300 individuals with mental illness [78]. Between the experimental Internet peer support, a listserv or control, no differences were found between groups in terms of recovery, empowerment, quality of life, social support and distress; however, those who had higher participation and those who had reported positive experiences with the group showed higher distress levels ( $p = 0.03$  and  $p = 0.01$ , respectively) than those with less participation or less positive experiences.

A study on the virtual reality world, Second Life, found that, as compared to email, videoconferences and chat, this application better facilitated clinical communication, processes and cohesiveness in group therapy, therapeutic trust and presence. Challenges pertained to addiction to the application, personal safety and privacy [79].

## CONCLUSION

This review found that PSR continues to be evidence-based in some environments, such as vocational environments, and is promising in other environments, such as virtual environments.

Our study may have missed some publications, so it may not be exhaustive, but at it is at the very least suggestive. Further research on PSR in emerging – such as virtual – environments is particularly needed.

## References

1. Anthony WA, Cohen M, Farkas M, Gagne C. *Psychiatric rehabilitation*, 2<sup>nd</sup> edn. Boston: Center for Psychiatric Rehabilitation, Boston University. 2002.
2. President's New Freedom Commission on Mental Health: Report by the Subcommittee on Consumer Issues. 2003.
3. Pallaveshi L, Zisman-Ilani Y, Roe D, Rudnick A. Psychiatric rehabilitation in health care environments: systematic review. *Current Psychiatric Reviews*. 2013; 9: 214-259.
4. Clements RLH, Cizman JL, Forchuk C, Pallaveshi L, Rudnick A. Ethics in relation to recovery from mental illness. In: *Oxford Handbook of Psychiatric Ethics*. Oxford: Oxford University Press. 2015; 2.
5. Liberman RP, Kopelowicz A. Recovery from schizophrenia: a concept in search of research. *Psychiatr Serv*. 2005; 56: 735-742.
6. Deegan PE, Rapp C, Holter M, Riefer M. Best practices: a program to support shared decision making in an outpatient psychiatric medication clinic. *Psychiatr Serv*. 2008; 59: 603-605.
7. Anthony WA. Recovery from mental illness: the guiding vision of the mental health service system in the 1990s. *Psychosocial Rehabilitation Journal*. 1993; 16: 11-23.
8. Swildens W, van Busschbach JT, Michon H, Kroon H, Koeter MW. Effectively working on rehabilitation goals: 24-month outcome of a randomized controlled trial of the Boston psychiatric rehabilitation approach. *Can J Psychiatry*. 2011; 56: 751-760.
9. Silverstein SM. Psychiatric rehabilitation of schizophrenia: unresolved issues, current trends, and future directions. *Applied & Preventive Psychology*. 2000; 9: 227-248.
10. Rudnick A, McEwan R, Pallaveshi L, Wey L, Lau W, Alia L, et al. Integrating supported education and supported employment in people with mental illness: a pilot study. *International Psychosocial Rehabilitation*. 2013; 18: 5-25.
11. Rudnick A. *Ethical and related practical issues faced by recovery-oriented mental healthcare providers: a risk-benefit analysis*. Oxford: Oxford University Press. 2012; 304-314.
12. Krupa T, Chen S. Psychiatric/Psychosocial Rehabilitation (PSR) in relation to vocational and educational environments: work and learning. *Current Psychiatric Reviews*. 2013; 9: 195-206.
13. Davidson L, Stern E. Psychiatric/Psychosocial Rehabilitation (PSR) in relation to social and leisure environments: friends and recreation. *Current Psychiatry Reviews*. 2013; 9: 207-213.
14. Atyeo H, Forchuk C. Psychiatric/Psychosocial Rehabilitation (PSR) in relation to residential environments: housing and homelessness. *Current Psychiatry Reviews*. 2013; 9: 188-194.
15. Nolan JA, McEvoy JP, Koenig HG, Hooten EG, Whetten K. Religious coping and quality of life among individuals living with schizophrenia. *Psychiatr Serv*. 2012; 63: 1051-1054.
16. Menezes A, Moreira-Almeida A. Religion, spirituality, and psychosis. *Curr Psychiatry Rep*. 2010; 12: 174-179.
17. Lukoff D, Hastick GD, Sullivan G, Golden JS, Neuchterlein KH. Sex education and rehabilitation with schizophrenic male outpatients. *Schizophrenia Bulletin*. 1986; 12: 669-675.
18. Haker H, Lauber C, Rössler W. Internet forums: a self-help approach for individuals with schizophrenia? *Acta Psychiatr Scand*. 2005; 112: 474-477.
19. Brown C, Read H, Stanton M, Zeeb M, Jonikas JA. A pilot study of the Nutrition and Exercise for Wellness and Recovery (NEW-R): A weight loss program for individuals with serious mental illnesses. *Psychiatr Rehabil J*. 2015; 38: 371-373.
20. Daumit GL, Dickerson FB, Wang NY, Dalcin A, Jerome GJ. A behavioral weight-loss intervention in persons with serious mental illness. *N Engl J Med*. 2013; 368: 1594-1602.
21. Okon S, Webb D, Zehnder E, Kobylski M, Morrow C, Valerie Reid, et al. Health and wellness outcomes for members in a psychosocial rehabilitation clubhouse participating in a healthy lifestyle design program. *Occupational Therapy in Mental Health*. 2015; 31: 62-81.
22. Lin EC, Chan CH, Shao WC, Lin MF, Shiau S. A randomized controlled trial of an adapted Illness Management and Recovery program for people with schizophrenia awaiting discharge from a psychiatric hospital. *Psychiatr Rehabil J*. 2013; 36: 243-249.

23. Bartels SJ, Pratt SI, Mueser KT, Forester, BP, Wolfe R, et al. Long-term outcomes of a randomized trial of integrated skills training and preventive healthcare for older adults with serious mental illness. *The American Journal of Geriatric Psychiatry*. 2014; 22: 1251-1261.
24. Pratt SI, Bartels SJ, Mueser KT, Naslund JA, Wolfe R. Feasibility and effectiveness of an automated telehealth intervention to improve illness self-management in people with serious psychiatric and medical disorders. *Psychiatr Rehabil J*. 2013; 36: 297-305.
25. Svedberg P, Svensson B, Hansson L, Jormfeldt H. A 2-year follow-up study of people with severe mental illness involved in psychosocial rehabilitation. *Nord J Psychiatry*. 2014; 68: 401-408.
26. Zschucke E, Gaudlitz K, Strohle A. Exercise and physical activity in mental disorders: clinical and experimental evidence. *Journal of Preventive Medicine and Public Health*. 2013; 46: S12-21.
27. Almerie M, Okba Al Marhi M, Jawoosh M, Alsabbagh M, Matar HE, et al. Social skills programmes for schizophrenia (Review). *The Cochrane Library*. 2015; 6: 1-91.
28. Roberts S, Zhang G, Wu W. Horticultural therapy for schizophrenia (Review). *The Cochrane Library*. 2015; 5: 1-31.
29. De Vecchi N, Kenny A, Kidd S. Stakeholder views on a recovery-oriented psychiatric rehabilitation art therapy program in a rural Australian mental health service: a qualitative description. *International journal of mental health systems*. 2015; 9: 11.
30. Eklund M, Tjörnstrand C. Psychiatric rehabilitation in community-based day centres: motivation and satisfaction. *Scand J Occup Ther*. 2013; 20: 438-445.
31. Lloyd-Evans B, Mayo-Wilson E, Harrison B, Istead H, Brown E. A systematic review and meta-analysis of randomised controlled trials of peer support for people with severe mental illness. *BMC Psychiatry*. 2014; 14: 39.
32. Montgomery AE, Hill LL, Kane V, Culhane DP. Housing chronically homeless veterans: evaluating the efficacy of a housing first approach to Hud-Vash. *Journal of Community Psychology*. 2013; 41: 505-514.
33. Patterson ML, Rezansoff S, Currie L, Somers JM. Trajectories of recovery among homeless adults with mental illness who participated in a randomized controlled trial of housing first: a longitudinal, narrative analysis. *BMJ open*. 2013; 3: e003442.
34. Anthony WA, Ellison ML, Rogers ES, Mizock L, Lyass A. Implementing and evaluating goal setting in a statewide psychiatric rehabilitation program. *Rehabilitation Counseling Bulletin*. 2014; 57: 228-237.
35. Gonzalez MT, Andvig E. Experiences of Tenants with Serious Mental Illness Regarding Housing Support and Contextual Issues: A Meta-Synthesis. *Issues Ment Health Nurs*. 2015; 36: 971-988.
36. King R, Neilsen P, White E. Creative writing in recovery from severe mental illness. *Int J Ment Health Nurs*. 2013; 22: 444-452.
37. Oh H, Gallegos Rodríguez YE, Singh F. Teaching Spanish to veterans with psychiatric disabilities: A creative approach to rehabilitation and recovery. *Psychiatr Rehabil J*. 2015; 38: 283-285.
38. Bell MD, Choi KH, Dyer C, Wexler BE. Benefits of cognitive remediation and supported employment for schizophrenia patients with poor community functioning. *Psychiatr Serv*. 2014; 65: 469-475.
39. Au DW, Tsang HW, So WW, Bell MD, Cheung V. Effects of integrated supported employment plus cognitive remediation training for people with schizophrenia and schizoaffective disorders. *Schizophr Res*. 2015; 166: 297-303.
40. Sato S, Iwata K, Furukawa SI, Matsuda Y, Hatsuse N, Ikebuchi E. The effects of the combination of cognitive training and supported employment on improving clinical and working outcomes for people with schizophrenia in Japan. *Clinical Practice & Epidemiology in Mental Health*. 2014; 10: 18-27.
41. Chuang WF, Hwang E, Lee HL, Wu SL. An in-house prevocational training program for newly discharged psychiatric inpatients: exploring its employment outcomes and the predictive factors. *Occup Ther Int*. 2015; 22: 94-103.
42. Lindström M, Sjöström S, Lindberg M. Stories of rediscovering agency: home-based occupational therapy for people with severe psychiatric disability. *Qual Health Res*. 2013; 23: 728-740.
43. Kinoshita Y, Furukawa T, Kinoshita K, Honyashiki M, Omori IM, Marshall M, et al. Supported employment for adults with severe mental illness (Review). *The Cochrane Library*. 2013; 9: 1-102.
44. Areberg C, Bejerholm U. The effect of IPS on participants' engagement, quality of life, empowerment, and motivation: a randomized controlled trial. *Scand J Occup Ther*. 2013; 20: 420-428.
45. Bejerholm U, Areberg C, Hofgren C, Sandlund M, Rinaldi M. Individual placement and support in Sweden - a randomized controlled trial. *Nord J Psychiatry*. 2015; 69: 57-66.
46. Michon H, van Busschbach JT, Stant AD, van Vugt MD, van Weeghel J. Effectiveness of individual placement and support for people with severe mental illness in The Netherlands: a 30-month randomized controlled trial. *Psychiatr Rehabil J*. 2014; 37: 129-136.

47. Hoffmann H, Jäckel D, Glauser S, Mueser KT, Kupper Z. Long-term effectiveness of supported employment: 5-year follow-up of a randomized controlled trial. *Am J Psychiatry*. 2014; 171: 1183-1190.
48. Knapp M, Patel A, Curran C, Latimer E, Catty J. Supported employment: cost-effectiveness across six European sites. *World Psychiatry*. 2013; 12: 60-68.
49. Wan Kasim SH, Midin M, Abu Bakar AK, Sidi H, Nik Jaafar NR, Das S. Employment program for patients with severe mental illness in Malaysia: a 3-month outcome. *Comprehensive psychiatry* 55 Suppl. 2014; 1: S38-45.
50. Mueser KT, Bond GR, Essock SM, Clark RE, Carpenter-Song E, et al. The effects of supported employment in Latino consumers with severe mental illness. *Psychiatric Rehabilitation Journal*. 2014; 37:113-122.
51. Bonelli RM, Koenig HG. Mental disorders, religion and spirituality 1990 to 2010: a systematic evidence-based review. *J Relig Health*. 2013; 52: 657-673.
52. Grover S, Davuluri T, Chakrabarti S. Religion, spirituality, and schizophrenia: a review. *Indian J Psychol Med*. 2014; 36: 119-124.
53. Luk AL, Shek D. The experiences and perceived changes of Chinese ex-mental patients attending a holistic psychiatric rehabilitation programme: a qualitative study. *J Psychiatr Ment Health Nurs*. 2008; 15: 447-457.
54. Luk AL. Investigating the long-term effects of a psychiatric rehabilitation programme for persons with serious mental illness in the community: a follow-up study. *J Clin Nurs*. 2011; 20: 2712-2720.
55. LukAL, Shek DTL. Changes in Chinese discharged chronic mental patients attending a psychiatric rehabilitation program with holistic care elements: a quasi-experimental study. *The Scientific World Journal*. 2006; 6: 2035-2047.
56. Lindgren KN, Coursey RD. Spirituality and serious mental illness: a two-part study. *Psychosocial Rehabilitation Journal*. 1995; 18: 93.
57. Wong-McDonald A. Spirituality and psychosocial rehabilitation: empowering persons with serious psychiatric disabilities at an inner-city community program. *Psychiatr Rehabil J*. 2007; 30: 295-300.
58. Huguélet P, Mohr S, Betrisey C, Borrás L, Gillieron C. A randomized trial of spiritual assessment of outpatients with schizophrenia: patients' and clinicians' experience. *Psychiatr Serv*. 2011; 62: 79-86.
59. Revheim N, Greenberg WM. Spirituality matters: creating a time and place for hope. *Psychiatr Rehabil J*. 2007; 30: 307-310.
60. Zechner M, Kirchner MP. Balanced life: a pilot wellness program for older adults in psychiatric hospitals. *Psychiatr Rehabil J*. 2013; 36: 42-44.
61. Van Lith T. "Painting to find my spirit": art making as the vehicle to find meaning and connection in the mental health recovery process. *Journal of Spirituality in Mental Health*. 2014; 16: 19-36.
62. Fukui S, Davidson LJ, Holter MC, Rapp CA. Pathways to recovery (PTR): impact of peer-led group participation on mental health recovery outcomes. *Psychiatr Rehabil J*. 2010; 34: 42-48.
63. Higgins A, Barker P, Begley CM. Sexual health education for people with mental health problems: what can we learn from the literature? *J Psychiatr Ment Health Nurs*. 2006; 13: 687-697.
64. Kalichman SC, Sikkema KJ, Kelly JA, Bulto M. Use of a brief behavioral skills intervention to prevent HIV infection among chronic mentally ill adults. *Psychiatr Serv*. 1995; 46: 275-280.
65. Woolf L, Jackson B. 'Coffee & condoms': the implementation of a sexual health programme in acute psychiatry in an inner city area. *J Adv Nurs*. 1996; 23: 299-304.
66. Carey MP, Carey KB, Maisto SA, Gordon CM, Schroder KE. Reducing HIV-risk behavior among adults receiving outpatient psychiatric treatment: results from a randomized controlled trial. *J Consult Clin Psychol*. 2004; 72: 252-268.
67. McCann E. The expression of sexuality in people with psychosis: breaking the taboos. *J Adv Nurs*. 2000; 32: 132-138.
68. Kauppi K, Välimäki M, Hätönen HM, Kuosmanen LM, Warwick-Smith K. Information and communication technology based prompting for treatment compliance for people with serious mental illness. *Cochrane Database Syst Rev*. 2014; 6.
69. Välimäki M, Hätönen HM, Lahti ME, Kurki M, Hottinen A. Virtual reality for treatment compliance for people with serious mental illness. *Cochrane Database Syst Rev*. 2014; 10.
70. Wiederhold BK, Riva G. Cognitive rehabilitation of schizophrenia through NeuroVR training. *Annual Review of Cybertherapy and Telemedicine*. 2013; 23: 158.
71. Park KM, Ku J, Choi SH, Jang HJ, Park JY. A virtual reality application in role-plays of social skills training for schizophrenia: a randomized, controlled trial. *Psychiatry Res*. 2011; 189: 166-172.

72. Bell MD, Weinstein A. Simulated job interview skill training for people with psychiatric disability: feasibility and tolerability of virtual reality training. *Schizophrenia Bulletin*. 2011; 37: S91-97.
73. Smith MJ, Ginger EJ, Wright M, Wright K, Boteler Humm L. Virtual reality job interview training for individuals with psychiatric disabilities. *J Nerv Ment Dis*. 2014; 202: 659-667.
74. Marques A, Queirós C, Rocha N. Virtual reality and neuropsychology: a cognitive rehabilitation approach for people with psychiatric disabilities. In *ICDVRAT—Proceedings of 7<sup>th</sup> International Conference on Disability Virtual Reality and Associated Technologies*. 2008; 39-46.
75. Wright-Berryman JL, Salyers MP, O'Halloran JP, Kemp AS, Mueser KT. Consumer and provider responses to a computerized version of the Illness Management and Recovery Program. *Psychiatr Rehabil J*. 2013; 36: 231-235.
76. Janeslätt G, Lindstedt H, Adolfsson P. Daily time management and influence of environmental factors on use of electronic planning devices in adults with mental disability. *Disabil Rehabil Assist Technol*. 2015; 10: 371-377.
77. Gowen K, Deschaine M, Gruttadara D, Markey D. Young adults with mental health conditions and social networking websites: seeking tools to build community. *Psychiatr Rehabil J*. 2012; 35: 245-250.
78. Kaplan K, Salzer MS, Solomon P, Brusilovskiy E, Cousounis P. Internet peer support for individuals with psychiatric disabilities: a randomized controlled trial. *Social science & medicine*. 2011; 72: 54-62.
79. Gorini A, Gaggioli A, Vigna C, Riva G. A second life for eHealth: prospects for the use of 3-D virtual worlds in clinical psychology. *J Med Internet Res*. 2008; 10: e21.