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Integrated Care for Older Adults with Serious Mental Illness and Medical Comorbidity: Evidence-based Models and Future Research Directions

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SYNOPSIS

The excess risk of early mortality, medical comorbidity, early institutionalization, and high costs among older adults with serious mental illness necessitates development and dissemination of effective and sustainable integrated care models that simultaneously address mental *and* physical health needs. This overview highlights current, evidence-based integrated care models, which predominantly adopt the following approaches: i) psychosocial skills training, ii) integrated illness self-management, and iii) collaborative care and behavioral health homes. Finally, innovative models that build on these approaches by incorporating novel uses of telehealth, mobile health technology and peer support, and strategies from developing economies are discussed.

Keywords

Serious mental illness; Older adult; elderly; Comorbidity; Integrated care; Collaborative care; Illness self management

The aging of the baby boomer population is resulting in an unprecedented growth in the number of middle aged and older adults with serious mental illness (SMI) in the United States. People with SMI (schizophrenia, schizoaffective disorder, bipolar disorder, and

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treatment refractory depression) make up to 4–6% of the population¹ and experience high rates of comorbid chronic health conditions, with major consequences on life expectancy, functioning, community tenure, and healthcare costs. Adults 55 to 64 years old with SMI are four times more likely to die compared to adults without mental illness² and are faced with a reduced life expectancy of 11–30 years compared to the general population^{3,4}. According to a national sample of Medicaid beneficiaries with schizophrenia (ages 20 to 64 years old), cardiovascular disease is the most common cause of early mortality². Additional major causes of this early mortality health disparity are largely due to high rates of diabetes, chronic obstructive pulmonary disease, obesity, and tobacco use⁵ as well as unrecognized medical disease⁶. Further, as persons with SMI age, they struggle to maintain community tenure and are three and one-half times more likely to reside in a nursing home compared to other Medicaid beneficiaries of the same age⁷.

Middle age to older adults with SMI have special needs that potentially impede community tenure compared to similarly aged adults without SMI, including a greater likelihood of impaired independent living skills, inadequate social skills, minimal social support networks, and limited medical and psychiatric self-management skills.⁸ The adverse consequences of these needs result in excess medical hospitalizations and premature nursing home placement^{4,7} despite the majority of older adults with SMI preferring to live in community-based settings.⁹ Greater use of acute hospital and nursing homes by older adults with SMI is largely responsible for health care costs that are two to three times greater compared to dually eligible (Medicaid and Medicare) beneficiaries without a mental health condition¹⁰.

Despite higher acute and long-term care costs, SMI is associated with inadequate, highly variable medical monitoring and treatment¹¹ and numerous barriers to preventive and routine health care. Half of persons with a psychiatric disorder (59%) report at least one barrier to health care, compared to 19% of persons without a mental illness.¹² The greater risk and incidence of adverse outcomes¹³ associated with SMI and medical comorbidity calls for innovative models of integrated health care that address high rates of chronic health conditions in this high-risk group.^{14–16} The excess risk of early mortality, medical comorbidity, early institutionalization, and disproportionately high costs among persons with SMI make this group a major priority for developing and disseminating effective and sustainable integrated care models.

The purpose of this overview is to provide a summary of current evidence-based integrated models of care and to identify future promising approaches that address both the mental and physical health needs of older adults with SMI. Current evidence-based approaches include: i) psychosocial skills training, ii) illness self-management, and iii) collaborative care and behavioral health homes. Finally, we provide a brief overview of highly promising future models that build on these approaches by incorporating novel uses of telehealth and mobile health technology; peer support, and adapting models from developing economies to address under resourced and unmet needs.

PSYCHOSOCIAL SKILLS TRAINING INTERVENTIONS FOR OLDER ADULTS WITH SERIOUS MENTAL ILLNESS

In this section we provide a brief overview of three skills training programs specifically designed for older adults with SMI proven to be effective in randomized clinical trials: Helping Older People Experience Success (HOPES); Functional Adaptation Skills Training (FAST); and Cognitive-Behavioral Social Skills Training (CBSST).

Helping Older People Experience Success – HOPES

The Helping Older People Experience Success (HOPES) integrates psychosocial skills training and preventive healthcare management with the goal of enhancing independent functioning and community tenure in older adults with SMI.¹⁶ The skills training component of HOPES includes classes, role-play exercises, and community-based homework assignments in social skills, community living skills, and healthy living. The weekly co-led skills class curriculum provided over 12 months consists of seven modules: Communicating Effectively, Making and Keeping Friends, Making the Most of Leisure Time, Healthy Living, Using Medications Effectively, and Making the Most of a Health Care Visit. Each module includes 6–8 component skills and one skill is taught each week. The integrated health management component of HOPES begins with a medical history and evaluation of health care needs, including preventive health care, and is delivered by an RN. The RN and participants then collaboratively set health-related goals for managing chronic medical conditions and obtaining recommended preventive care. A randomized control trial of HOPES consisting of n=183 older adults (mean age of 60 years) with SMI (28% schizophrenia; 28% schizoaffective disorder; 24% depression) resulted in improved skills performance, psychosocial functioning, self-efficacy, and psychiatric symptoms at one-year and three year follow-up compared to usual care.¹⁷ In addition, compared to the usual care group, a greater proportion of HOPES participants received blood pressure screening, flu shots, hearing tests, eye exams, visual acuity tests, mammograms, PAP smears, and nearly twice as many completed advanced directives.

Functional Adaptation Skills Training – FAST

Functional Adaptation Skills Training (FAST) is a psychosocial intervention for community-dwelling middle-aged and older adults with schizophrenia spectrum disorder or psychotic mood disorders.¹⁸ Based on Social-Cognitive Theory and the Social and Independent Living Skills Program, FAST provides group sessions aimed at improving six everyday skills: medication management, social skills, communication skills, organization and planning, transportation, and financial management in four, 120-minute group sessions over the course of 24 weeks. Active learning approaches are used that include in-session skills practice, behavioral modeling, role-playing, and reinforcement, and homework practice assignments. A randomized control trial of the FAST program was conducted including 240 older adults (greater than 40 years old, mean participant aged 51 years old) with schizophrenia (80.6%) or schizoaffective disorder (19.4%) from 25 Board-and-Care facilities by Patterson and colleagues.¹⁸ Compared to participants in the control condition, FAST program participants showed significantly improved everyday functional skills on the UCSD Performance-based

Skills Assessment and social and communication skills on the Social Skills Performance Assessment after six-months. FAST program participants were about 60% less likely than the control group to use emergency medical services throughout the six-month intervention, though emergency service use did not differ between FAST and control participants at one year post-intervention (18 months from baseline). Building on these findings, FAST has been adapted for monolingual Spanish speaking, middle-aged and older Latino adults with schizophrenia.¹⁹ A pilot study of the adapted version of the FAST program, Programa de Entrenamiento para el Desarrollo de Aptitudes para Latinos (PEDAL), reported encouraging results with improved functioning and well-being in middle-aged to older Latinos with persistent psychotic illness.¹⁹

Cognitive Behavioral Social Skills Training – CBSST

Cognitive Behavioral Social Skills Training (CBSST) is a group therapy program designed to help middle-aged and older adults with schizophrenia attain personalized functioning goals. CBSST combines properties of cognitive behavioral therapy (CBT) and social skills training (SST) within the framework of the biopsychosocial stress-vulnerability model of schizophrenia.²⁰ CBSST incorporates self-management, conversation skills, and interpersonal problem-solving techniques to enhance self-efficacy of and improve community tenure for older adults with schizophrenia. This integrated treatment program consists of three modules, each delivered over four weekly, two-hour group therapy sessions (12 total sessions). Skills include promoting cognitive behavioral strategies, recognition of early warning signs of relapse, improved communication with healthcare professionals and social interactions in everyday activities, and treatment adherence, and behavioral strategies for coping with symptoms of mental illness²¹. Weekly homework exercises are assigned to participants to reinforce skills learned during the group therapy session. A randomized control trial compared CBSST to treatment as usual among a cohort of community-dwelling, middle-aged to older adults (greater than 40 years old, mean participant aged 54 years old) with schizophrenia or schizoaffective disorder. At the end of the six-month intervention, participants in CBSST, compared to the control condition, demonstrated greater engagement in social functioning activities, greater cognitive insight and skills. After a 12-month follow-up, CBSST participants reported significantly greater social functioning and comprehension of CBSST skills.²¹

The three models evaluated in these studies include several common components. First, all are group-based, as opposed to individually-focused, which supports the feasibility and practical application of group-based interventions in older adults with SMI. Second, these interventions provide accommodations for individuals with physical or cognitive disabilities and develop skills in incremental steps. Finally, these interventions employ age-appropriate cognitive behavioral principles and skills training techniques to meet the specific needs of older persons. Based on the outcomes reported in these studies, social skills training has been demonstrated to be feasible and associated with improvement in key dimensions of social functioning and independent community living for older adults with SMI.²²

ILLNESS SELF-MANAGEMENT

Traditionally, illness self-management programs have addressed either chronic physical health or mental health conditions, but not both. In contrast, integrated medical and psychiatric self-management programs combine self management of both physical and mental health disorders.²³ A recent systematic review identified three interventions targeting self-management of chronic health conditions for persons with SMI: The Health and Recovery Peer Program (HARP), Targeted Training in Illness Management (TTIM) and Integrated-Illness Management and Recovery (IIMR).²⁴

Health and Recovery Peer (HARP)

The Health and Recovery Peer (HARP) program²⁵ is an illness self-management intervention adapted from the Chronic Disease Self-Management Program (CDSMP)²⁶ for adults with SMI. The HARP program consists of six sessions covering topics including illness self-management; exercise and physical activity; pain and fatigue management; healthy eating with a limited budget; medication management; and finding and working with a consistent physician. The peer specialists also encourage participants to set short-term goals for health behavior change through identification of the negative health behavior and potential, manageable ways to improve. The potential effectiveness of HARP was evaluated in a randomized controlled pilot study in a community mental health center²⁵ in 80 adults (mean age 48 years) with SMI (schizophrenia 29%, bipolar disorder 33%) and comorbid, chronic physical health conditions (hypertension 63%, arthritis 50%, heart disease 23%). At the end of a six-month follow-up, HARP program participants, compared to the usual care group, reported significantly greater perceived ability to manage their own illnesses, better medication adherence, better health related quality of life, and greater use of primary care.²⁵

Targeted Training in Illness Management (TTIM)

Targeted Training in Illness Management (TTIM) is a group-based, peer-facilitated, illness self-management program for community-dwelling adults with SMI and comorbid diabetes mellitus.²⁷ Drawing from both the Life Goals Program and the Diabetes Awareness Rehabilitation Training models, the TTIM program blends mental health and diabetes care with social support from peer educators to deliver an illness self-management program including psychoeducation, problem identification, goal setting, behavioral modeling, and care coordination. In the first phase of TTIM, participants engage in 12 weekly group sessions consisting of six to ten participants, the nurse educator, and the peer specialist covering topics such as medication management, nutrition, exercise, substance use, problem-solving skills, engaging social support systems, and setting personal goals. In the second phase of TTIM, the nurse educator and peer specialist engage participants in brief maintenance sessions over the telephone. In a randomized control trial of 200 adults (mean age 53 years old) with SMI (schizophrenia 25%, major depressive disorder 48%) and diabetes mellitus, TTIM program participants reported improved psychiatric symptoms and general functioning compared to usual care.²⁷ TTIM participants demonstrated significantly greater knowledge of diabetes compared to the control group and 98% of TTIM participants considered the program to be useful. However, no differences were found between the

intervention and control group with respect to general health status, self-management of diabetes, systolic blood pressure or body mass index.

Integrated Illness Management and Recovery (I-IMR)

Integrated Illness Management and Recovery (I-IMR) is a recovery-oriented intervention that combines training and coaching in both psychiatric and medical illness self-management into a single integrated curriculum and program aimed at improving outcomes for older adults (age 50+) with SMI and chronic health conditions.^{28,29} Integrated Illness Management and Recovery (I-IMR) was developed by adding *medical* illness self-management training²⁶ to the evidence-based practice of *mental* illness management & recovery (IMR) consisting of psychoeducation, behavioral tailoring, training in relapse prevention, and cognitive-behavioral techniques.³⁰ For each psychiatric self-management skill module, there is a corresponding medical illness self-management training component including modules on recovery and wellness; common mental and physical health conditions, stress vulnerability, social supports, medication adherence, relapse prevention, coping with stress, coping with symptoms of mental and physical distress, substance and medication misuse, and navigating mental health and medical health care delivery systems. In I-IMR, skills training is provided by a specialist guided by modules complemented by healthcare management provided by a nurse or health outreach worker. I-IMR combines four evidence-based psychosocial interventions shown to be effective among people with SMI: (1) *psychoeducation*, which improves knowledge about mental illness management; (2) *behavioral tailoring*, which improves medication adherence; (3) *relapse prevention training*, which decreases relapses and rehospitalizations; and (4) *coping skills training*, which reduces distress related to symptoms. In a randomized study comparing I-IMR ($n = 36$) to usual care ($n = 35$), I-IMR was associated with improved psychiatric illness self-management, improved diabetes self-management, and decreased hospitalizations.²⁹

In summary, despite the common occurrence of both psychiatric and medical illness in older adults with SMI, there remains a paucity of integrated medical and psychiatric self-management programs that combine self-management of both physical and mental health disorders. Health and Recovery Peers (HARP) and Targeted Training in Illness Management (TTIM) primarily focus on medical illness self-management interventions for persons with SMI and include all ages. In contrast, Integrated-Illness Management and Recovery (IIMR) provides a balanced curriculum of both psychiatric and medical self-management and is specifically designed for older adults.²⁴

COLLABORATIVE CARE AND BEHAVIORAL HEALTH HOMES

Over fifteen years ago, three concurrent multi-site randomized trials evaluated the effectiveness of integrating mental health in primary care for older adults: PRISMe (funded by the Substance Abuse and Mental Health Administration)³¹, PROSPECT (funded by the National Institute of Mental Health)³², and IMPACT (funded by the John A. Hartford Foundation)³³. This unprecedented convergence of research on older adults with mental health conditions in primary care established the evidence base for integrating mental health into primary care settings as superior to specialty referral in engaging older adults in mental

health and substance use disorder treatment³¹, while also establishing integrated collaborative care as superior to usual care in managing depression^{32,33}. An extensive research literature now documents the effectiveness of the “collaborative care model” (CCM) for mental health conditions.³⁴

In contrast to extensive research focused on embedding mental health in primary care, remarkably little research has studied embedding primary care within mental health service delivery settings. Based on the concept of the patient-centered medical home, “behavioral health homes” have been proposed as a promising approach to address the challenges of persons with SMI with chronic health conditions by providing integrated delivery of primary health care. We identified three randomized control trials of behavioral health homes that focused on adults aged 18+ years with SMI and co-morbid medical conditions.

An early randomized controlled pilot study compared an integrated care model to usual care (i.e., referral to VA general medicine clinic) in a sample of 120 veterans with SMI (mean age=45.7).³⁵ Primary care services were co-located in VA mental health clinics and staffed by primary care providers and a nurse case manager. Primary care providers coordinated care and communicated regularly with staff at mental health clinics and emphasized patient education and preventive health services. After 12-months, patients treated at the integrated care clinic had more primary care visits, received more preventive services, and experienced a greater improvement on the physical component of the SF-36 (4.7 points vs -0.3 points) compared to usual care.³⁵

A subsequent randomized controlled trial of 407 adults with SMI (mean age = 47) compared a behavioral health home model (“PCARE”) to usual care (i.e., usual care participants were provided with a list of contact information to independently contact local primary care medical clinics).³⁶ PCARE included two full-time nurse care managers that coordinate care for patients between behavioral health and medical providers. The care managers employed motivational interviewing to enhance patient activation, promote self-management skills and health advocacy skills, and develop actions plans to support health behavior change. After 12 months, the PCARE intervention group demonstrated significantly more primary care service use, greater improvement on the SF-36 mental component, and clinically significant reduction in Framingham Risk Score for 10-year Cardiovascular Risk compared to the usual care group.

Finally, a third randomized controlled trial with 447 adults with SMI (mean age = 47.3) compared outcomes for participants in the SAMHSA Primary Care and Behavioral Health Integration (PBCHI) program to usual care.³⁷ Compared to usual care, the Behavioral Health Home was associated with significantly greater use of preventive services, quality of cardiometabolic care, and continuity of care. Although systolic blood pressure showed a greater reduction in the behavioral health home model compared to usual care (1.8 points), this was not clinically significant and no differences were found in diastolic blood pressure, total and LDL cholesterol, blood glucose, HbA1c, patient activation, or the Framingham Risk Score.

In summary, integrated health homes have the potential to significantly increase the quality and amount of preventive services offered to persons with SMI, but inconsistently achieve clinically significant results. However, improved outcomes for patients with SMI enrolled in health homes is more likely with the addition of self-management techniques to enhance patient involvement in care and attention to physical health.^{36–39}

FUTURE DIRECTIONS

Automated telehealth and Mobile Health

Advances in health technology offer a highly promising alternative approach to illness self-management for people with chronic health conditions.⁴⁰ Automated telehealth interventions have been developed to improve the daily management of chronic health conditions by providing in-home prompting of adherence to prescribed treatment and remote monitoring of symptoms, including biometric measures. Predetermined algorithms have the capacity to determine trends in key indicators to identify individuals who are most at risk of hospitalization, triggering early pre-emptive nurse interventions. In a 6-month study of 70 participants with SMI and chronic health conditions, investigators at Dartmouth demonstrated that an automated telehealth intervention has the potential to achieve highly promising results with respect to adherence, self-efficacy, and clinically significant improvements in key chronic health conditions in persons with SMI. In this pilot study, 89% of participants engaged in 70% or more of the telehealth sessions and 83% rated their ability to manage their medical condition as “much better” post-intervention. Participants experienced significant improvements in self-efficacy for managing depression and diastolic blood pressure. The intervention was especially effective for the 67% of participants with SMI and co-occurring diabetes, who experienced a mean decrease in fasting glucose from baseline (200 mg/dL) to 6 months (128), as well as a significant decrease in urgent care health visits.⁴¹

In addition to automated telehealth programs, mobile and online technologies (e.g., smartphone applications and social media) have the potential to improve self-management and delivery of interventions to adults with SMI.⁴² For example, mobile and online technologies allow for the standardization of delivering evidence-based intervention components, have the capacity to repeat intervention modules any time or in any place, offer on-demand access to live or automated support, have the ability to be automatically customized to patients’ preferences and recovery goals, and have the capacity to simultaneously address multiple psychiatric and medical conditions.⁴³

Peer Support, Technology, and Social Media

The combination of certified peer specialists and technology in the delivery of integrated self-management interventions has the potential to accelerate the adoption of technology-based interventions.⁴⁴ In an effort to leverage the potential of technology and peer supported delivery, Integrated Illness Management and Recovery (I-IMR)²⁹ has been adapted to be delivered by a certified peer specialist facilitated by automated eModules, a smartphone application, and a peer care management dashboard (PeerTECH).^{43,45} The preliminary feasibility of PeerTECH has been established in a pilot study for older adults with SMI.

Using a pre-post design, eight adults aged 60 years and older with SMI and medical comorbidity (i.e., cardiovascular disease, obesity, or diabetes) received PeerTECH in their homes over a 12-week period. Participants completed over 70% of daily self-management tasks on the smartphone application and reported improved psychiatric illness self-management and medical self-management, hope, empowerment, and quality of life.⁴⁶ This promising evidence suggests that the innovative use of peers and technology potentially offers the capacity to increase the dose of the intervention without additional in-person sessions, potentially reducing staff time and efforts, duration, and downstream costs.

Several recent studies have also documented the increasing access and use of social media among adults with SMI. For example, a survey of individuals with SMI receiving community mental health services where these individuals reported comparable rates of Facebook and Twitter use as the general population.⁴⁷ Other studies have found that many people with SMI are turning to social media to share their personal experiences of living with a mental illness, to seek mental health information and advice, to learn from others, or to provide support to other individuals facing similar challenging mental health problems.⁴⁸ A recent survey found that people with SMI expressed interest in receiving services for both their mental and physical health concerns delivered using popular social media.⁴⁹ As social media continues to become an important part of the daily lives of many individuals living with SMI⁴⁸, there may be ways to use social media to support collaborative care. For example, social media integrated within a collaborative care model could potentially allow older adults with SMI to connect with others who share similar mental and physical health concerns, and seek support and advice from a community of peers.⁴⁸

Reverse Innovation: Adapting Potential Solutions from Low and Middle-Income Countries

Addressing the future shortfall in geriatric mental health services will require new models of care including novel workforce solutions such as community health workers, lay and peer-based outreach services, and use of telehealth and mobile technology.⁵⁰ “Reverse innovation” is a concept that describes adapting innovative approaches developed in low and middle-income countries to help solve under resourced challenges in developed economies.⁵¹ Preliminary studies highlight older adults’ increasing access to mobile devices as well as early efforts using technology to support chronic medical care in the elderly. In a sample of 559 primary care patients in La Paz, Bolivia, nearly half screened positive for depression, 58% were age 50 and older, and 86% reported owning a mobile phone.⁵² Remarkably, over 71% of respondents age 65 and older owned a mobile phone.⁵² In a survey of 201 people with SMI from Rajasthan, India, nearly 30% of respondents were age 50 and older, over 70% had access to a mobile phone, and over 80% expressed an interest in receiving mental health services by phone.⁵³ Mobile technologies have also been used to facilitate monitoring and management of chronic medical conditions among elderly in China.⁵⁴ In response to aging populations in Latin America, there are currently multi-national efforts spanning Brazil and Peru aimed at leveraging digital technology to address co-occurring depression and diabetes within primary care settings.⁵⁵ Additional opportunities include using digital technology to enhance existing community-based depression care programs for older adults⁵⁶, or help with raising awareness about mental disorders in late life, engaging family

supports, and coordinating training in geriatric mental health care among community health workers.⁵⁷

SUMMARY

In contrast to a large number of evidence-based practices for older adults with depression and other common mental health conditions, a limited array of interventions have been developed and empirically evaluated for older adults (age 50+) with serious mental illness (i.e., schizophrenia, schizoaffective disorder, bipolar disorder and chronic depression). The co-occurrence of chronic medical conditions in this population has resulted in a small array of interventions aimed at addressing both mental health and physical health conditions in this rapidly growing, complex population at high risk for hospital and nursing home care and early mortality. Effective future strategies for addressing this high-cost, high-risk emerging population will require new models of community-based intervention and rehabilitation that combine mental health and physical health care, assisted by technology and new models of health outreach and support.

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KEY POINTS

- Older adults with serious mental illness have an increased risk of early mortality, medical comorbidity, early institutionalization, and high medical costs.
- Psychosocial skills training, integrated illness self-management, and collaborative care and behavioral health homes are current, evidence-based approaches to integrated care models for older adults with serious mental illness.
- Highly promising integrated care models of the future that incorporate novel uses of telehealth, mobile health technology and peer support, and strategies from developing economies are discussed.