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Rural and remote communities, technology and mental health recovery

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Abstract

Purpose – This study aims to explore how health informatics can underpin the successful delivery of recovery-orientated healthcare, in rural and remote regions, to achieve better mental health outcomes. Recovery is an extremely social process that involves being with others and reconnecting with the world.

Design/methodology/approach – An interpretivist study involving 27 clinicians and 13 clients sought to determine how future expenditure on ehealth could improve mental health treatment and service provision in the western Murray Darling Basin of New South Wales, Australia.

Findings – Through the use of targeted ehealth strategies, it is possible to increase both the accessibility of information and the quality of service provision. In small communities, the challenges of distance, access to healthcare and the ease of isolating oneself are best overcome through a combination of technology and communal social responsibility. Technology supplements but cannot completely replace face-to-face interaction in the mental health recovery process.

Originality/value – The recovery model provides a conceptual framework for health informatics in rural and remote regions that is socially responsible. Service providers can affect better recovery for clients through infrastructure that enables timely and responsive remote access whilst driving between appointments. This could include interactive referral services, telehealth access to specialist clinicians, GPS for locating clients in remote areas and mobile coverage for counselling sessions in "real time". Thus, the technology not only provides better connections but also adds to the responsiveness (and success) of any treatment available.

Keywords Communities, Healthcare, Social responsibility, Social capital, Teleconsultations

Paper type Research paper

Introduction

New technology is changing the way mental healthcare is administered and has the potential to increase access to services for people living in rural and remote areas. However, its adoption and implementation needs to take place in a socially responsible way to take account of the vulnerable nature of people suffering mental illness and the social stigma that surrounds such illness. Although multidisciplinary care approaches

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assist in the treatment of mental health, they tend to be clinic based, largely inaccessible to people in regional communities, and according to Christensen and Hickie (2010, p. S53), only 35 per cent of those with a mental disorder receive any care for their disorder.

Ethically, social responsibility is not only an individual responsibility but also that of groups and communities. It is about duty towards the welfare of the society. The recent focus on recovery as a form of healthcare in the area of mental health is one example of this (Cleary *et al.*, 2014; Hungerford and Kench, 2013). Another is that of regional communities banding together to break down stigma and to encourage young people suffering mental illness to seek help (Banes *et al.*, 2013). These are examples not of a passive responsibility which merely avoids social harms, but of active activities aimed at achieving social goals. Called Youth Mental Health Forums, these regional mental health initiatives (Banes *et al.*, 2013) demonstrated that wider community involvement can break down stigma and improve access to services. That is, it is not just technology that brings about change, but collective social responsibility involving the wider community is also helpful. As nations increase the provision of high-speed internet access for the wider society, the possibilities for increased benefits to people suffering mental illness increases, but technology alone is not enough.

This article explores the challenges of mental health service provision through the lens of rural and remote Australia, from a collective, socially responsible perspective. The study reported here investigated how future expenditure on ehealth could improve mental health treatment and service provision in the western Murray Darling Basin (MDB). In particular, the recovery versus rehabilitation approach is explored, and particular technologies that study participants proposed as a way to increase community support for people with mental illness. The study found that infrastructure considerations need to support face-to-face communication and need to be accessible, not only between professional providers, but across peer support and carer networks, to holistically support the social roles required as part of any recovery-orientated approach. Yet however beneficial, ehealth was seen as a supplement to, rather than a replacement for, care because technology alone cannot adequately mitigate against the social withdrawal that is a frequent occurrence in the early stages of some mental illnesses, such as depression.

The Australian context

The Australian government created the National E-Health Transition Authority (NEHTA) in 2005 to coordinate the implementation of ehealth strategies. These strategies work on a number of features endemic to the national system. These are that information and communications technology (ICT) is underutilised in the healthcare system, and its ongoing development has significant potential for both financial and health benefits, capable of revolutionising chronic healthcare. Australian healthcare has a multitude of providers all delivering services in their own way. A key understanding is that much of the technology already exists and thus most of the costs of ehealth are incurred by changing business practices rather than purchasing new ICT systems (NETHA, 2012, pp. 32-56).

Electronic patient record systems are particularly valuable to rural clients who frequently need to be transferred from small medical practices to larger regional ones. Since 2010, NEHTA has developed unique health identifiers for all clients,

practitioners and Australian healthcare organisations and established the Healthcare Identifiers Service (NETHA, 2010, pp. 3-4). Healthcare identifiers are numbers assigned to uniquely identify healthcare providers and recipients, providing an important building block for the Patient Care Electronic Health Record, as they contain summaries of clients' health information such as regular medications, key elements of treatment history and current diagnoses, and provide a means for secure access to clients' eHealth records.

The movement away from paper-based recording is a significant leap for healthcare in rural Australia because of its ability to be shared across platforms and service structures. Clients also benefit through the ability to access and update their own medical records. Early and timely access to client information is expected to create increased efficiency because interventions and treatments will be more responsive and less likely to be subject to human error in diagnosis especially for those requiring emergency and acute care.

Information sharing between regional service providers is currently constrained by a largely heterogeneous health system delivered through a multitude of providers all working autonomously throughout the system. Digital records and ICT have the ability to embrace these differences. Rather than relying on a centralised model, it is capable of supporting flexible self-managed structures. This makes ehealth ideally suited to support management and governance complexity, capable of providing additional value-add both up and down stream as the sector grows. That said, a key inhibitor that differentiates rural and remote health services to their metropolitan counterparts is the absence of market forces, where competition is the exception rather than the rule. The small number of suppliers means that economies of scale and scope are absent with health businesses tending towards monopolies rather than free markets. There is a need in rural and remote areas to mitigate access challenges, overcome isolation and the rising access costs because of time and travel. Thus, the National Health Rural Alliance has called on governments to moderate and augment the development and implementation of tailored ehealth solutions through subsidies and investments to rural and remote Australia to ensure equity of access (Congress on National Health Reform, 2009, p. 22).

Considerable ignorance about the ehealth market and product offerings has been in evidence (Kambouris and Hine, 2011), limiting adoption and recognition that there is an inherent conflict between scientific innovation and needs based development in the product design of ehealth. The working ehealth record as a technology push innovation is meeting latent needs (and benefits) that most users are not aware of. This can present significant challenges for the implementation of any strategy when the customer cannot understand or conceive of the benefit of a product because they do not know it exists or are unable to recognise its value.

The conceptual framework: a socially responsible, recovery-orientated approach

Recovery is a consumer-centred approach to healthcare which has been widely adopted, not only in Australia, but in New Zealand, the UK and elsewhere (Hungerford and Kench, 2013, p. 208). It is focused on hope, acceptance, community connectedness, self-determination, shared decision-making and peer support. The concept of recovery is not new and has been used by people with a mental illness since the 1980s. The recovery

model moves away from the service paradigm towards a community process approach where those elements long identified as part of the social determinants of health such as housing, education, income and employment are all seen as critical parts of the system to support the central person who in turn is given the power to select the resources they require. It is an approach that involves a collective social responsibility in the journey, which for some is lifelong, through which a mental health consumer becomes independent, has self-esteem and participates in a meaningful way in the life of the community in which they live. Recovery is not about finding a cure, but about assisting the person with the mental illness to have a satisfying way of life that contributes to the community, despite the limitations imposed by their illness (Bruce *et al.*, 2012, pp. 29-30). The collective social benefits to the well-being of people within a community and the social capital available to all members of the community, both technology related and other, have long been recognised in various community settings, both virtual and real (Burmeister, 2012; Kimmerle *et al.*, 2013; Williams and Durrance, 2008), including for the mental well-being of community members (Burmeister, 2010; Carling, 1995). Recovery emphasises the need for a comprehensive community-based service system that works in a positive manner to address the full impact of mental illness. A socially responsible, recovery-oriented approach recognises that even people seriously affected by mental illness can and do recover, and can become equal and contributing members of the community, with the same needs and aspirations as anyone else. As a result, basic elements of citizenship such as ability to live independently, form social relationships and access employment opportunities need to be considered.

It is important to understand the philosophical differences between rehabilitation and recovery. On the one hand, rehabilitation refers to the services and technologies that are made available to disabled persons so that they may learn to adapt to their world. On the other hand, recovery refers to the lived or real-life experience of persons as they accept and overcome the challenge of the disability (Deegan, 1988). The key consideration here is that recovery forms the basis upon which rehabilitation services can be developed, and therefore rehabilitation services should be considered as just one component of a comprehensive service system that collectively works towards the goal of recovery (SANE Australia, 2001). Recovery is an extremely social process that involves being with others and reconnecting with the world. The notion of community integration is drawn from the larger disability and civil rights movement and is founded on a belief that all people have a right to full community participation and membership. Regrettably many individuals still face substantial stigma and discrimination, and it is also common for individuals to accept and internalise these negative stereotypes. It is important that people with a mental illness are recognised as whole, self-determining persons, able to make choices, take responsibility, live with consequences and exert control over their own recovery process. The link between social responsibility involving the community within which the person with mental illness resides has long been recognised (New Zealand Mental Health Commission, 1998, pp. 15-16):

> Recovery emphasises the need for a comprehensive community based service system in which all sectors take responsibility for the mental health of their community and provide services and disability supports in a coordinated and collaborative manner (Queensland Health, 2005, p. 5).

Methodology

An interpretive study utilising qualitative techniques to interpret meaning and to analyse participant understandings was undertaken. The methodology was informed by Schwandt (2003) who argued that such a process helps to explore how people in a particular social context interpret and reveal meanings that constitute those perceptions. Interviews were conducted with mental health service users and practitioners in the western MDB region of New South Wales (NSW) between November 2011 to July 2012. The key question for this study was "What mental eHealth services will best meet the future needs of the western Murray Darling Basin?" The interviewees were chosen on the basis of criterion sampling based on age, location and length of experience to give an understanding of professional experience across the region. The sample size of practitioners was limited to 27 participants spread geographically across the area of the western MDB. Sampling of mental health service users reached saturation after only 13 interviews when it became evident a limited range of servicing patterns were present, with no new data emerging very early in the interview stages of the project. Out of 13, 10 participants recorded their mental health servicing experiences over a period of one month (30 days), which was used to support and provide depth to consumer perceptions and analysis.

The study was conducted in an area of Australia where service providers cover large geographical territories. Additionally, Australian government funding has meant that there are limited numbers of mental health practitioners with, for example, only one psychiatrist living in the area. Thematic analysis of participant views led to seven themes including age group, support networks, mental health services, mental health illnesses, information seeking, ehealth and community perceptions.

Findings

Interviews for both stages of the study found that the advent of telemedicine has had a positive effect on rural hospitals and has improved capacity for mental health services especially through access to specialist mental health advice. As a result, funding and policy changes should continue to build upon this success across the MDB to broaden this reach.

Telemedicine: a capacity builder for community connectedness

Interview data suggest that mental health services providers outside the hospital environment would also benefit from telemedicine type access to specialist services without having to refer clients to already overworked hospital services. Providers outside the hospital setting complained about the lack of mental health services right across the western MDB, as seen in the following exemplary quotation:

> There is a real lack of appropriate services and a lot of people go untreated and undiagnosed because there aren't the services on the ground […] So teleconferencing has been discussed but it's about the infrastructure, and technology and things which we don't have the capability for at the moment. (Psychologist)

It should also be noted that telephony services such as Accessline were working well; thus, telemedicine is a capacity builder for community connectedness. Telemedicine also has benefits for consumers of mental health services. There is increasing evidence that internet-delivered treatments are effective, efficient and cost effective for anxiety (social anxiety, panic disorder), depression, post-traumatic stress disorder, eating

disorders and obsessive-compulsive disorder, using cognitive behaviour therapy, psycho-education and/or exposure techniques (Georgantzi and Gheno, 2012).

Rural and remote service access

Economic disadvantage was a frequent occurrence for participants in this study. One single parent with an adult child suffering severe mental illness lamented the lack of access to basic services, such as the dental care they needed. Faced with such basic needs, it is little wonder that mental health recipients frequently cannot afford the technology that would give them access to the services they require. One of the recommendations from a service provider in Griffith was that information kiosks with privacy booths be installed in rural community centres or meeting places. This would serve to decrease the inequitable access challenges faced by rural consumers compared to their urban counterparts. Furthermore, the local community would need to ensure its maintenance and technical support. Although this is an initiative that has merit, there is still the social stigma to overcome for anyone using the device, particularly in small rural communities, where everyone will soon know that a particular person has been making use of the mental health information kiosk. A publicly available communication kiosk that affords privacy to the mental health consumer would permit a level of virtual face-to-face contact that is not currently available to rural people in the western MDB.

Community connectedness mapped in real time

The study highlighted that there is a need to improve practice for some service providers whose staff travel regularly in rural and remote parts of the country. Infrastructure such as GPS, smartphones or tablet computers can better support the capture of data "on the road", which in turn increases accuracy, relevance and the quantity of information sharing. Such views are demonstrated in the wide-spread comments of service providers across the western MDB, only a few of which are reproduced here:

> The majority of my clients are in Leeton at the moment. I have a client in Hay, Hillston, Goolgowi. Yes more that way – just thinking where else – Yanco which is practically Leeton. […] I've got clients in Barellan. I have had clients in West Wyalong […] Narrandera […] Ardlethan. […] Hay is like a grey area, the case worker in Deniliquin normally services Hay, but if he's a bit overwhelmed then I pick it up. (Case worker)

> Phone counselling is a significant part of my work, I would suggest, probably it could be as much as 40 per cent because I spend a lot of time in the car, so it gives me a great opportunity to be able to speak with clients on the phone. (Social Worker)

> My role's an area role so part of my area is Deniliquin, so my area's bordered by Hay, Narrandera, Deniliquin, so it's a really big geographic area. (Clinical Nurse Consultant)

The above quotations illustrate only part of the challenge of servicing mental illness in rural and remote areas. Not shown are the frustrations of arranging to meet clients, driving long distances and finding they are not there. Sometimes because of their illness such as an inability to get out of bed or out of the house. Service providers also told of the lack of funding, such that even GPS was frequently not available, meaning that in remote areas, clients were difficult to locate. Yet another challenge was that services regularly change, as government funding priorities change and as services move location, merge with others, or go out of business.

One service manager addressed the need to help people like herself to locate other services that can assist clients. She found it difficult to keep track of complimentary services, to whom she might refer clients. She envisaged an interactive map of Australia that could be accessed by service providers and clients:

> […] updated regularly to resources that are relevant to every area […] I'd really like to see it just mental health specifically. But like I said if you're looking at say Broadmeadows in Melbourne, what mental health services and what support groups and what is there out there for that area? Because people in, for example, the person in that area doesn't even know what's there. […] So how can I find out too, without exhausting energy trying to locate stuff and you don't even know where to look. […] You click on NSW and then you can click on Riverina and you click on Griffith and da, da, da. Community Mental Health comes up and to get them you've got to phone access line which is this, Personal Health and Mentors Program is there and this is what it is for. […] That's for Carers and Families through Schizophrenia Fellowship and just have it simple and comprehensive.

Such an interactive map of community services has the potential to be a key resource for achieving the better coordination of services across regions. The potential for an interactive internet-based map for professionals who travel frequently could add significant benefit to referral accuracy and service response times especially in relation to associated or complementary services. For many personnel, the study highlighted that they were not aware of what complementary services, if any, were available to clients, especially when visiting the more remote locations and small towns.

Discussion

The findings described above reveal that despite the challenges faced by rural and remote service providers, they themselves have suggested how technology can best assist them to increase their effectiveness. Aided by appropriate technology, they can better service their clients, better integrate them back into their communities and thus facilitate the recovery process for overall well-being. Although this study was restricted to one particular region of country NSW, the western MDB, the implications arising from this study are transferable to other rural and remote settings. For the majority of people treated in the western MDB, the high prevalence mental illnesses common to western countries is also such in this region. Furthermore, the challenges faced in this region tend to arise at an early age, which is supported by an OECD (2012, pp. 187-192) report, which identified that the focus of infrastructure and servicing should go to youth and young adults, to high prevalence mental illness and to early treatment.

Collective social responsibility is reflected in many rural and remote communities which rely on the interdependency within the family and broader community, where it is essential that the family is involved and plays a primary role in any treatment. It should be noted that the further west one travels in the western MDB, the higher the percentage of Indigenous residents. Whilst the concept of recovery is also complementary to Indigenous practices and heritage, it is important that service providers recognise the historical context that uniquely frames the Indigenous experience (NSW Department of Health, 2006).

The role of community support in the recovery process

As stated earlier, recovery is a very social process. One of the social implications from this study relates to overcoming isolation through supplementing, rather than replacing, physical face-to-face contact with virtual contact. A critical success factor for the recovery process is a positive practice culture adopted by those who provide service and a focus from the illness to the person to concentrate on strengths rather than weaknesses (Jacobson and Greenley, 2001). This goal cannot be reached solely through professional services and the literature makes frequent reference to the importance of family, friends and peers who believe in or stand by the person through their recovery process and these people do not need to be professionals (Buckley *et al.*, 2012; Hungerford *et al.*, 2015; Hungerford and Kench, 2013).

Study participants gave multiple examples of, particularly depression-related, isolation being exacerbated by rural life. It is too easy for a male farmer to isolate himself, without anyone noticing. Similarly, children growing up on farms are socially isolated and disempowered to do much about it. Urban children may have internet contact with others, or can simply step outside their home to see people. But a child growing up on a farm typically may have no internet connection, or at best a very poor one, and their social contact can be limited to school attendance. In addition, children within farming communities are an integral part of the workforce and when combined with school travel time (such as over an hour each way by bus), have less "free" time than their metropolitan counterparts for usage of internet and other communication. Correspondingly, face-to-face contact is often limited to adult farm workers and their own immediate family members, compounding this isolation.

An almost universal view amongst the rural and remote mental health professionals interviewed was that virtual contact can at best be a supplement. People need to be removed from the environment that is contributing to their mental illness, and therefore virtual contact that only takes place on an isolated farm is insufficient. Thus, ehealth in this context is an aid, but not a complete solution to overcoming rural isolation.

For many, relating with peers is an extremely valuable form of connection. This can be through peer delivered services, advocacy or the sharing of personal stories of recovery. One study correlates the size of people's social support networks directly with the success of the recovery process, establishing the importance of interpersonal relations in this process (Young and Ensing, 1999).

Similarly, several studies emphasise that people with a psychiatric disability usually have social networks roughly half the size of the general population and are less reciprocal in nature, as they are more likely to contain family rather than peers. They require people who can be trusted to be there during times of need and this impact cannot be underestimated (Carling, 1995). The ability to create these social connections as limited social supports have been found to be important to recovery, and "the absence of social supports is associated with increased psychological distress" (Wilson *et al.*, 1999).

The role of the general practitioner in socially responsible community-based recovery

The general practitioner (GP) is most often the first point of contact for people with mental health and their families. As a result, the current model for the delivery of

emental health programs for treatment is in partnership with existing primary care or local general practice systems (Christensen and Hickie, 2010) or through a virtual clinic environment supervised by health professionals (Andrews and Titov, 2010). However, given the current bottlenecks because of the undersupply of GPs across the western MDB, it is important that etreatment delivery models be expanded to allow automated interventions to genuinely reform access.

More needs to be done to provide additional capacity to the support networks, especially non-professional carers, with information about how they can improve their care giving. In part this is a policy issue, in that carers are frequently excluded from the consultation between the medical professional and the client for confidentiality reasons and as one participant pointed out, Medicare only directly funds the consumer. As GPs participating in the study pointed out, often the carers, aside from needing to be better informed about how to provide care, also need to see professionals. The lack of respite in care giving, especially in remote settings, can create its own health issues, placing carers at risk because of many pressures that the burden of care places upon them. This is compounded in rural and remote settings where there is poor access to other support systems such as quality respite, and environmental factors such as the inability to escape isolation in many rural settings (the farm) which traps the carer, their families and people with a mental illness in a perpetual cycle. Increasing social connections through technology can alleviate the burden of care, whilst simultaneously aiding the recovery process.

Conclusion

The study reported here was an interpretive investigation conducted across a large geographical region of country Australia. The findings highlighted a range of unique factors where ehealth provides the potential to play an important role in community connectedness, and through that to empower people with mental illness to contribute in meaningful ways to their communities. The literature cited supports the view that the recommendations arising from the study can be transferred to other contexts, particularly in regions where vast geographical distance and poor infrastructure create situations of social isolation.

The conceptual framework of the recovery model, which has been applied to clinical care in various countries, was seen as also applicable to the area of health informatics. Where technology can support social engagement, both for providers and recipients of mental healthcare, the recovery model helps to address issues of collective social responsibility, and to understand the place of technology: not as a panacea that replaces the human, but as an important aid in the modern recovery process. Technology was seen to be able to contribute positively to overcoming physical and social barriers which currently impede mental healthcare outcomes. Yet technology alone is not a solution, because the recovery process necessarily involves community social interaction.

The nature of small rural and remote communities imposes further challenges on the implementation of technological solutions. Labour shortages and the large distances needed to be travelled to seek help may be addressed by technology. Following the focus of the study, this was seen in two ways, the mental health service provider and the recipient of mental healthcare.

For the service providers to effect better recovery, two things stood out in this study. First, an interactive map of service providers that is kept up to date is required. When a mental health professional has to travel hours by car to see a client and finds that the client has particular needs, such a map can assist in providing referral services to local service providers. Second, better infrastructure to support GPS, mobile coverage and telehealth sessions with distant specialists (currently only available for high speed internet inter-hospital communications), as well as the ability to access an interactive map from remote locations: infrastructure support that is taken for granted by the urban counterparts of such service providers.

For recipients of mental healthcare, there is a need for local communities to rally behind them and better support them. Labour shortages and the distances needed to be covered to reach medical specialists increase isolating factors. For mental health clients, their best chance of recovery frequently lies in being with trusted people and in the social supports of their local communities. Removal to regional centres through coercion, involuntary hospitalisation and treatment, or voluntary travel to distant specialists complicates the recovery process. Technology can play a vital role in overcoming such barriers to mental health recovery. However, given the need for physical and social interaction in the recovery process, ehealth interventions need to implement holistic solutions, which go beyond episodic care, to incorporate a person-centred approach that extends beyond the patient and is capable of including peer and carer support.

Thus, for recipients of mental healthcare, their recovery can be aided by access to health information and healthcare professionals through technology. However, given that many are in the lowest socio-economic sectors of society, they cannot be expected to own the technology that does this, nor to maintain such technology. Instead it needs to be provided either through government policy or community supports. One form is that of community groups (councils, local charities or other) providing information kiosks that afford privacy and confidentiality, even in small communities where everyone knows each other. However, better infrastructure is also required through which particularly children in rural and remote areas can engage in internet- and mobile phone-based social activities, which are taken for granted by their urban counterparts. Finally, a further issue identified in this study, but not related to technology, is that policy changes are required which better support family carer access to the health information that will help them to provide better care for those in their care.

A recurring lament from participants throughout the study was the chronic shortage of skilled labour in rural and remote regions, that was expected to be ongoing. The ability of ehealth to stretch the reach of these critical resources cannot be overstated.

References

Andrews, G. and Titov, N. (2010), "Is internet treatment for depressive and anxiety disorders ready for prime time?", *Medical Journal of Australia*, Vol. 192 No S11, p. 45.

Banes, J., Burmeister, O.K., Clark, H., Citer, D., Grocott, S., Marks, E., Mulrooney, M. and Thomas, S. (2013), "A whole of community partnership approach to meeting the economic and social challenges of youth mental health", *G20 Youth Forum*, G8 & G20 Alumni Association, St Petersburg.

Bruce, J., Mcdermott, S., Ramia, I., Bullen, J. and Fisher, K.R. (2012), *Evaluation of the Housing and Accommodation Support Initiative*, HASI, Sydney.

Buckley, L., Cocks, N., Scott, M., Stylianou, M., Brophy, L., Lewis, J., Halloran, K. and Petrakis, M. (2012), "Are we recovery oriented? An Australian encounter of learning from people with lived experiences", in Goodson, L. and Phillimore, J. (Eds), Community Research for Participation, From Theory to Method, Policy Press, University of Bristol, Bristol.

Burmeister, O.K. (2010), "Websites for seniors: cognitive accessibility", *International Journal of Emerging Technologies and Society*, Vol. 8 No. 3, pp. 99-113.

Burmeister, O.K. (2012), "What seniors value about online community", *Journal of Community Informatics*, Vol. 8 No. 1.

Carling, P.J. (1995), *Return to the Community: Building Support Systems for People with Psychiatric Disabilities*, The Guilford Press, New York, NY.

Christensen, H. and Hickie, I.B. (2010), "Using e-health applications to deliver new mental health services", *Medical Journal of Australia*, Vol. 192 No. S11, pp. S53-S56.

Cleary, M., Walter, G. and Hungerford, C.L. (2014), "Recovery and the role of humility: insights from a case study analysis", *Issues in Mental Health Nursing*, Vol. 35 No. 2, pp. 108-113.

Congress on National Health Reform (2009), *Australia's Health, GAP/ACHR Congress on National Health Reform*, Congress on National Health Reform, Melbourne.

Deegan, P.E. (1988), "Recovery: the lived experience of rehabilitation", *Psychosocial Rehabilitation Journal*, Vol. 11 No. 1, pp. 11-19.

Georgantzi, N. and Gheno, I. (2012), *ICT PSP – Accessibility*, Ageing and Social Integration Programme, AGE Platform Europe, Bruxelles.

Hungerford, C.L. and Kench, P. (2013), "The perceptions of health professionals of the implementation of recovery-oriented health services: a case study analysis", *The Journal of Mental Health Training, Education and Practice*, Vol. 8, pp. 208-218.

Hungerford, C.L., Dowling, M. and Doyle, K. (2015), "Recovery outcome measures: is there a place for culture, attitudes, and faith?", *Perspectives in Psychiatric Care*, Vol. 51 No. 3, pp. 171-179.

Jacobson, N. and Greenley, D. (2001), "What is recovery? A conceptual model and explication", *Psychiatric Services*, Vol. 52 No. 4, pp. 482-485.

Kambouris, P. and Hine, D. (2011), *Innovation and Adoption in e-Health*, HISA, Brisbane.

Kimmerle, J., Thiel, A., Gerbing, K., Bientzle, M., Halatchliyski, I. and Cress, U. (2013), "Knowledge construction in an outsider community: extending the communities of practice concept", *Computers in Human Behavior*, Vol. 29 No. 3, pp. 1078-1090.

NETHA (2010), *National E-Health Transition Authority 2010-2011 Annual Report*, NETHA, Sydney.

NETHA (2012), In Authority, N.E.-H.T. (Ed.), *eHealth NEHTA Strategic Plan Refresh 2011/2012*, National E-Health Transition Authority, Sydney.

New Zealand Mental Health Commission (1998), *Blueprint for Mental Health Services in New Zealand: How Things Need to Be*, New Zealand Mental Health Commission, Wellington, NZ.

NSW Department of Health (2006), *Housing and Accommodation Support Initiative (HASI) for People with Mental Illness*, North Sydney.

OECD (2012), *Sick on the Job? Myths and Realities about Mental Health and Work*, OECD Publishing, Paris.

Queensland Health (2005), *Sharing Responsibility for Recovery: Creating and Sustaining Recovery Oriented Systems of Care for Mental Health*, Queensland Health, Brisbane.

SANE Australia (2001), *The Blueprint Guide to Psychosocial Rehabilitation*, SANE Australia, Melbourne.

Schwandt, T.A. (2003), "Three epistemological stances for qualitative inquiry: interpretivism, hermeneutics, and social constructionism", in Denzin, N.K. and Lincoln, Y.S. (Eds), *The Landscape of Qualitative Research*, 2 ed., SAGE, Thousand Oaks, CA.

Williams, K. and Durrance, J.C. (2008), "Social networks and social capital: rethinking theory in community informatics", *The Journal of Community Informatics*, Vol. 4 No. 3.

Wilson, M., Flanagan, S. and Rynders, C. (1999), "The FRIENDS program: a peer support group model for individuals with a psychiatric disability", *Psychiatric Rehabilitation Journal*, Vol. 22 No. 3, pp. 239-247.

Young, S. and Ensing, D. (1999), "Exploring recovery from the perspective of people with psychiatric disabilities", *Psychiatric Rehabilitation Journal*, Vol. 22 No. 3, pp. 219-231.

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