CARE COORDINATION CAN REDUCE UNMET NEEDS OF PERSONS WITH SEVERE AND PERSISTENT MENTAL ILLNESS

Report on the study of the Effectiveness of Gippsland's Partners in Recovery initiative

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Care coordination can reduce unmet needs of persons with severe and persistent mental illness

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Abstract

Introduction: Persons with severe and persistent mental illness [SPMI] have multiple and complex needs, many of which are not health related. Mental health services are unable to address these needs without collaboration with other agencies. In the absence of this collaboration, persons with SPMI often fall through the system cracks and are unlikely to experience recovery. Furthermore, previous studies have shown that unmet accommodation needs are associated with unmet needs in other areas. This study aimed to ascertain whether a care coordination model adopted in Australia's Partners in Recovery [PIR] initiative was able to reduce unmet needs in such persons and also if meeting accommodation needs were associated with meeting other needs.

Methods: This was a longitudinal study where met and unmet needs of clients measured using the Camberwell Assessment of Needs Short Appraisal Schedule [CANSAS] were compared at enrolment and exit from the PIR initiative. Logistic regression was used to examine the association between change in accommodation needs and change in other CANSAS variables.

Results: In total, 337 clients (66% of 508 clients) had both baseline and follow-up data, and were seen within the time frame of 14 to 101 weeks. At baseline, the most frequently reported unmet needs were psychological distress, daytime activity, and company (89%, 72% & 67% respectively). At follow-up, these had decreased to 27%, 22% & 22%, respectively. The proportions of clients with an unmet need at baseline who subsequently progressed to having that need met at follow-up ranged between 62% and over 90%. Change in accommodation needs from unmet to met was associated with changes in monetary needs and needs related to childcare, food, safety to self, education and access to other services with the greatest change seen for monetary needs (adjusted OR 2.87, 95%CI 1.76, 4.69).

Conclusions:

Reducing needs of persons with severe and persistent mental illness is the starting point of recovery and is a good indicator of psychiatric care. Care coordination is a useful way to address multiple and complex needs of persons with SPMI. While addressing needs, priority must be given to meeting accommodation needs.

Keywords: needs assessment; psychiatric rehabilitation; severe mental disorders; care coordination; accommodation; housing; community mental health services; mental health services.

1 Introduction

Persons with severe and persistent mental illness [SPMI] have multiple and complex needs, which are generally beyond the scope of traditional mental health services (Fleury et al. 2014). Assessment of need is a good general measure of the number and severity of a client's problems in everyday life (Ruggeri et al. 2004) and is critical in mental health rehabilitation (Fleury et al. 2010). Hence a change in needs from unmet to met gives an indication of the effectiveness of psychiatric care (Drukker et al. 2008). People with a number of unmet needs are likely to experience a poor quality of life (Slade et al. 2005) and the longer these needs remain unmet, the less are the chances of recovery. However, when these needs are met, recovery becomes easier (Lasalvia et al. 2005). There is hence a need for a reorganization of care delivery for people with multiple needs that focuses on recovery, by addressing client needs and better care coordination (Schiotz, Host, and Frolich 2016). Any mental health service that aims to improve the quality of life of their clients needs to actively assess and address their reported needs (Lasalvia et al. 2005). Furthermore, the recognition of factors associated with each unmet need can help optimise planning and implementation of care (Fleury et al. 2013).

The most common unmet needs reported by persons with SPMI are psychological distress, help with psychotic symptoms, daily activities, company/someone to spend time with, employment and volunteering, physical health problems and those relating to money (Isaacs et al. 2019, Fleury et al. 2014, Wiersma 2006). A recent report has suggested that when accommodation needs are unmet, several other needs remain unmet (Isaacs et al. 2019). This observation is in accordance with previous research. For instance, people who have a mental illness and are homeless are less likely to receive public benefits and are more likely to experience severe poverty (Toro et al. 1995, Forchuk, Dickins, and Corring 2016, Forchuk et al. 2007). Poverty is also the underlying cause of homelessness (Australian Institute of Health and Welfare 2013).

Homeless people with mental health problems are known to experience food insecurity (O'Campo et al. 2017, Lee and Greif 2008) because homelessness prevents the preparation and storage of food as well as precludes market and non-market activities needed for the preparation of food (Baggett et al. 2011). Homeless persons also spend less on food and eat fewer meals than their housed counterparts (Herault and Ribar 2017). Homeless people do not have the means to afford transport even for basic needs such as obtaining food or accessing health services (Jocoy and Del Casino Jr 2010). Homeless families also have difficulty caring for their children. They are forced to make big sacrifices for them, protecting them from harm and struggling with the restrictions of not having a home (Hodnicki and Horner 1993).

Medical problems are particularly prevalent among homeless people. Seizures, Chronic Obstructive Pulmonary Disease, (Crowe and Hardill 1993) oral and dental diseases are common (Pizem et al. 1994). Continuous exposure to the elements predispose homeless persons to respiratory infections and skin disease. Prolonged exposure to moisture, inadequate footwear and walking long distances results in foot disorders such as onychomycosis, tinea pedis, corns and callouses (Wrenn 1990, 1991). Moreover, chronic conditions such as hypertension, diabetes and anaemia are often either not treated or remain undiagnosed (Hwang 2001, Gelberg and Linn 1989). Violence is a constant threat to homeless people. The incidence of assault, murder and rape are very high among homeless people. Physical injuries due to falls and being struck by motor vehicles are also common

among people who are homeless (Hwang 2001). Homeless people with a mental illness are unable to readily access health care services which tend to exclude them as a result of stigma, prejudice and the inadequacy of care available for their complex needs (Bhui, Shanahan, and Harding 2006, Kerman, Sylvestre, and Polillo 2016).

A recovery–oriented service system that aims to address unmet needs of persons with SPMI requires collaboration between mental health services and other agencies such as housing, welfare, general practices, and alcohol and drug services. This can be done either by service system integration (Whiteford et al. 2014) or by integration at the service delivery level (Randolph et al. 1997, Lee et al. 2010). While integrating service systems is plagued with several barriers, such as inability to share information and reluctance of staff to take on more caseloads (Whiteford et al. 2014), integration at the service delivery level appears to be more feasible (Isaacs and Firdous 2019).

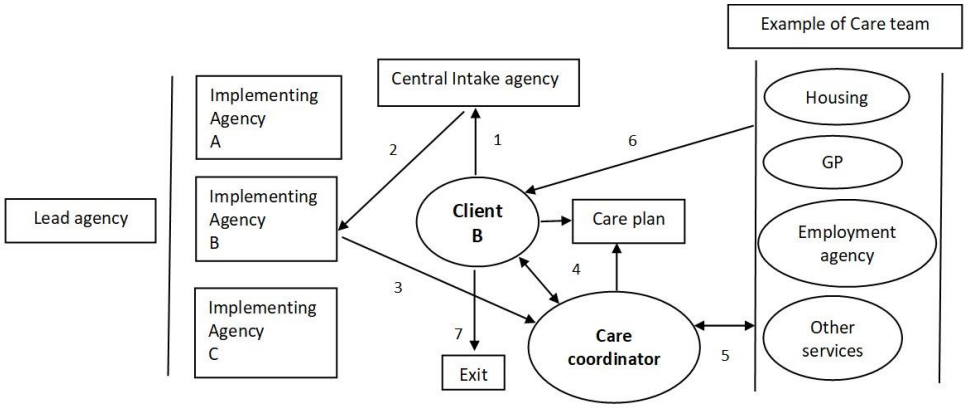
Care coordination is an example of integration at the service delivery level and has been identified as a core requirement for provision of such care (Hannigan et al. 2018, Bowers, Owen, and Heller 2017). Care coordination involves working with persons with SPMI to first identify and prioritise their needs, then liaising with multiple service providers to develop a care plan and finally facilitating the provision of services according to that plan to meet clients' needs (Isaacs and Firdous 2019, Sutton et al. 2017). Care coordination was originally introduced to mental health services in the USA several decades ago (Hannigan et al. 2018) and the role came to be undertaken by the case manager. However, due to an increased workload, case managers in Australia now mostly focus on medication compliance, early warning signs, and crisis management with little time for recovery-oriented work (Sutton et al. 2017).

The Partners in Recovery [PIR] initiative of the Australian Government was set up to facilitate better coordination between clinical and other supports, strengthen partnerships, improve referral pathways and promote a community based recovery model for persons with SPMI (Australian Government Department of Health 2015). It aimed to cover 24000 people through 48 agencies across the country (Australian Government Department of Health 2015). The initiative was initially implemented from 2012 to 2016 and then extended until mid-2019 to enable transition to the National Disability Insurance Scheme (Australian Government Department of Health 2016).

The PIR model involved a regional lead organisation that guided and supported implementing organisations. Each implementing organisation had a team of care coordinators who worked with clients to develop a care plan based on their needs. Once a care plan was developed, the care coordinator (referred to as a 'support facilitator' in the PIR program) brokered services from relevant agencies in accordance with the plan. Hence the PIR initiative primarily aimed to reduce unmet needs of clients. Met and unmet needs were documented and monitored regularly during client-care coordinator meetings. Clients exited the program when they chose to or once most of their needs were met. The PIR initiative is described in Figure 1.

1.1 Conceptual framework

To improve one's quality of life, fulfilment of one's needs is essential (Tay and Diener 2011). The conceptual framework developed for this study draws from aligning needs listed by the Camberwell Assessment of Need Short Appraisal Schedule [CANSAS] with Maslow's hierarchy of needs (Maslow 1943). When needs listed by the CANSAS are classified



1. Clients either refers themselves to a central Intake agency or is referred by carer, GP, hospital, other health organisations. The intake worker assesses eligibility according to set criteria.
2. If eligible, then client is referred to an implementing agency according to geographical coverage.
3. The implementing agency allocates the client to one of their care coordinators.
4. The care coordinator identifies client needs and assists the client to prepare a care plan.
5. The care coordinator then proceeds to invite relevant service providers to form a care team in accordance with the care plan.
6. Service providers work with the client individually or in combination to address client needs while all are kept informed of services provided and client progress.
7. Client exits the program after all or most needs are met or when they chose to leave.

Figure 1. The PIR model of care coordination

according to Maslow's five-stage hierarchy, accommodation and food needs are basic physiological needs and people tend to achieve physiological needs before other higher level needs (Maslow 1954, Tay and Diener 2011). In the context of persons with SPMI, we postulate that addressing basic needs is necessary to be able to address higher level needs. If accommodation (housing needs) are met, people will be better placed to receive social benefits, access better quality food, look after and protect their children, stay safe and more readily access services.

Hence, we proposed two hypotheses:

1. That enrolling in the PIR initiative would reduce the number of clients' unmet needs; and
2. That meeting accommodation needs would be associated with meeting other higher level needs.

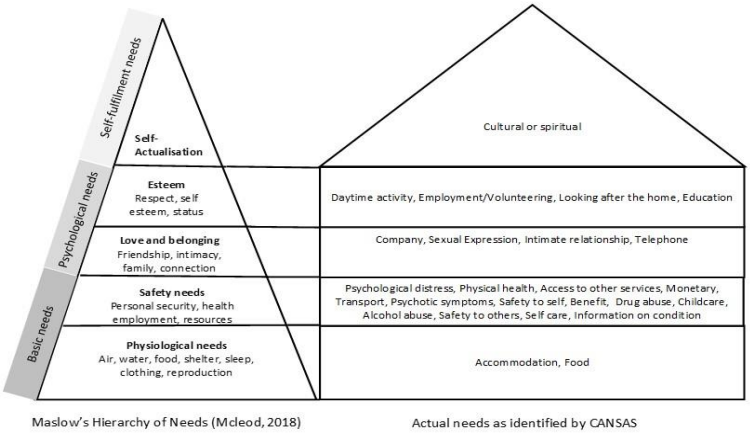


Figure 2. Conceptual framework showing the comparison of needs in Maslow's hierarchy and CANSAS

2 Methods

2.1 Study design

This was a longitudinal study where met and unmet needs of clients were compared at enrolment and exit from the Gippsland PIR initiative.

2.2 Setting

This study was conducted in Gippsland - a non-metropolitan area in the state of Victoria with a population of over 270,000 people and covering an area of 41,600 km^2 (Regional Development Victoria 2015). The PIR initiative in Gippsland is overseen by a not for profit regional health planning commissioning organisation called Gippsland Primary Health Network (PHN) who formed a regional Consortium with three Community Mental Health Support Services (CMHSS) and the Area Mental Health Service (AMHS) to implement and govern this initiative. CMHSSs are not-for-profit organizations specialised in recovery-focused non-clinical mental health service delivery. The AMHS adult services include: an acute psychiatry inpatient service and a secure extended care unit located at the regional referral hospital, a residential rehabilitation care unit, a prevention and recovery care service, and community mental health teams dispersed across the region. The Gippsland PIR Consortium was later joined by a local Aboriginal Community Controlled Health Organisation and the provider of intake services to the Gippsland PIR initiative.

2.2 Data source

Data on clients who enrolled for the PIR initiative in Gippsland are stored by Gippsland PHN on an online purpose built client information management system called Fixus (Fixus technologies 2014). The Fixus database contains demographic data as well as scores from CANSAS. The CANSAS is the most commonly used instrument for needs assessment in mental health services (Evans, Greenhalgh, and Connelly 2000, Wennstrom, Sorbom, and Wiesel 2004, Slade and Royal College of Psychiatrists 1999). For the PIR initiative, three additional social and health domains, namely employment and volunteering; cultural and spiritual; and other Services, were added to the original 22 domains (Australian Government Department of Health 2014). Support Facilitators verbally obtained and documented client responses on the Fixus data base. De-identified Fixus data was obtained in February 2019. Ethics approval for the study was obtained from Monash University Human Research Ethics Committee (Project ID: 17216; 18/12/2018 -18/12/2023)

2.3 Data analysis

Data were analysed using Stata 15 (StataCorp 2017). Demographic and health status data are reported as proportions or mean and standard deviation. For each area examined using the CANSAS instrument, ‘no problems (no needs)’ and ‘some problems (needs met)’ were coded as ‘needs met’ versus ‘serious problems’ or ‘unmet needs’ (coded as ‘unmet needs’) and are reported as the proportions of participants with unmet needs at baseline who progressed to having those needs met at follow up.

Logistic regression was used to examine the association between change in accommodation needs as the independent variable and change in other CANSAS variables as the dependent

Table 1: Baseline demographic data for n=337 clients with severe and persistent mental illness participating in the Partners in Recovery Initiative with both baseline and follow up data.

Variable name	*Number*	*Percent*
Female	189	56.1%
Age		
Mean age in years (standard deviation)	45.7 (11.3)	
<30years	31	9.2%
30-39 years	75	22.2%
40-49 years	98	29.1%
50-59 years	93	27.6%
60+ years	40	11.9%
Living arrangements		
Couple with child(ren)	25	7.4%
Couple without child(ren)	29	8.6%
Group	18	5.3%
Lone person	166	49.3%
Not or inadequately described	6	1.8%
One parent with child(ren)	41	12.2%
Other family	52	15.4%
Relationship status		
Married/registered or de-facto	48	14.3%
Divorced	58	17.3%
Separated	51	15.2%
Widowed	10	3.0%
Never married	165	48.8%
Not adequately described	5	1.5%
Employment status		
Employed	20	6.0%
Unemployed	123	36.6%
Not in labour force	192	57.1%
Not adequately described	1	0.3%
Educational attainment		
Postgraduate degree level	5	1.5%
Bachelor degree	13	3.9%
Graduate Diploma and Graduate Certificate Level	5	1.5%
Advanced diploma and diploma level	21	6.2%
Certificate level	52	15.4%
Senior secondary education	101	30.0%
Junior secondary education	113	33.5%
Primary education	9	2.7%
Other education	2	0.6%
No education	1	0.3%
Not stated/inadequately described	15	4.5%
Time between baseline and follow up (weeks)		
Mean (standard deviation)	50.8 (23.6)	
Minimum - maximum	14 - 101	

variables. In this analysis 'change' was defined as moving from having an unmet need at baseline to having a met need at follow-up. Odds ratios (OR) and 95% confidence intervals (CI) described the likelihood of changing from an unmet need to a met need in one area if accommodation needs also changed. The model was adjusted for age, sex and time between

baseline and follow-up ('weeks'). These confounders were included as they were intermittently associated with either unmet accommodation needs or other unmet needs using logistic regression. The variable 'weeks' was not normally distributed and was transformed for analysis purposes. There was also wide variation in this variable, with a range of 1 to 166 weeks. The 10th and 90th percentiles were used as cut-off points, excluding 98 clients from analysis. A further 73 clients were excluded because of having no follow-up data.

3 Results

In total, 337 clients (66% of 508 clients) had both baseline and follow-up data, and were seen within the time frame of 14 to 101 weeks. Differences in demographic and health characteristics between those included in analysis and those excluded because of time frames or incomplete follow-up were statistically significant for mean age only (included mean age 45.7 years SD 11.3, excluded mean age 42.2 years SD (11.1), p-value=<0.001). No other statistically significant difference between the included and excluded groups were seen.

Table 2. Accommodation type at baseline for n=337 clients with severe and persistent mental illness participating in the Partners in Recovery Initiative with both baseline and follow up data

Variable name	Number	Percent
Type of accommodation		
Private residence	277	82.2%
Residential aged care service	4	1.2%
Domestic-scale supported living facility	1	0.3%
Other supported accommodation	7	2.1%
Other accommodation, not elsewhere classified	22	6.5%
Specialised alcohol/other drug treatment residence	2	0.6%
Specialised mental health community-based residential support service	6	1.8%
Boarding/rooming house/hostel or hostel type accommodation	4	1.2%
Shelter/refuge	0	
Homeless persons' shelter	0	
Public place (homeless)	9	2.7%
Prison/remand centre/youth training centre	1	0.3%
Psychiatric hospital	0	
Unknown/unable to determine	4	1.2%
Accommodation tenure		
<1 year	155	46.0%
1-2 years	52	15.4%
3-4 years	43	12.8%
≥5years	74	22.0%
Not stated/inadequately described	13	3.9%

Of the 337 included clients at baseline (Table 1), 56.1% were female, 49.3% lived alone, and 48.8% had never married, 57.1% were not in the labour force and 58.5% had senior secondary education or above. The mean number of weeks between baseline and follow-up was 50.8 weeks (SD 23.6). Most clients lived in a private residence (82.2%), and 46.0% had an accommodation tenure of <1 year (Table 2). As shown in Table 3, the most frequent principal diagnosis was mood (affective) disorders, while General Practitioners were the most common service provider (54.3%).

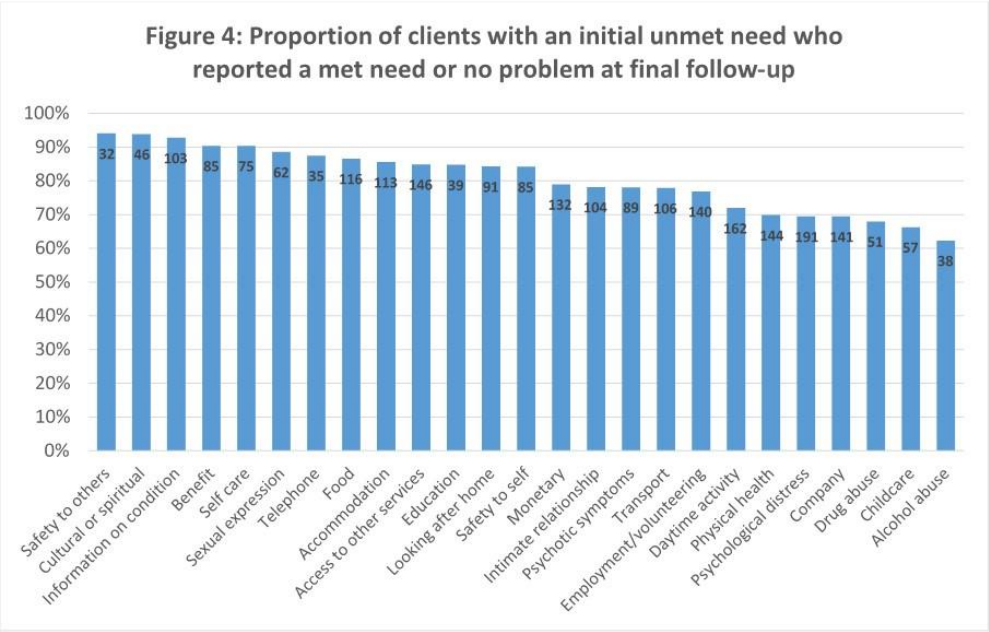
Table 3: Health data at baseline for n=337 clients with severe and persistent mental illness participating in the Partners in Recovery Initiative with both baseline and follow up data

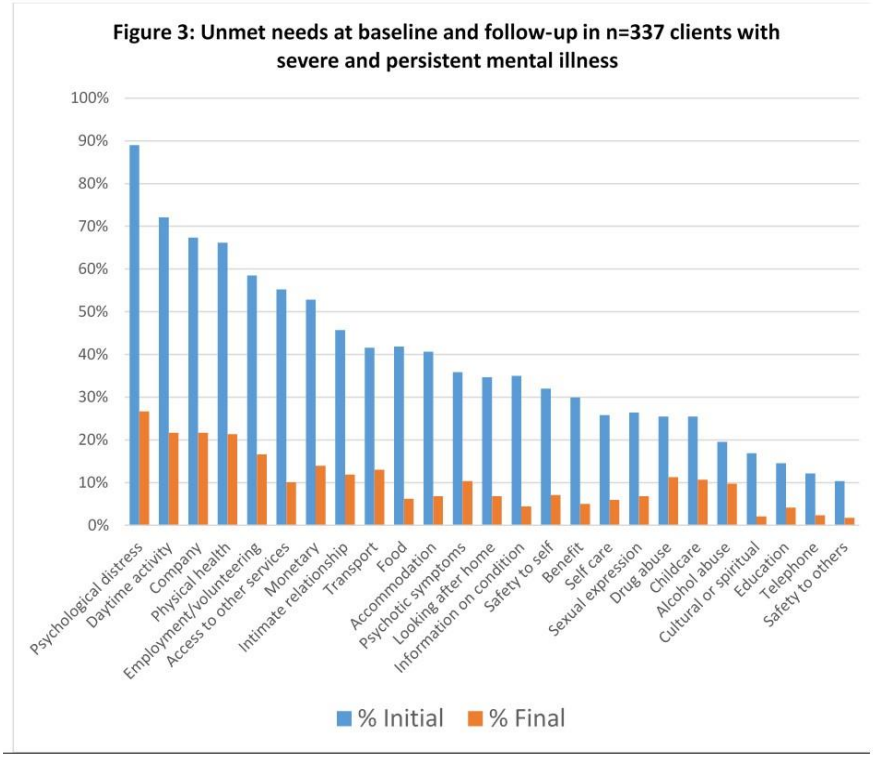
Variable name	*Number*	*Percent*
Principal diagnosis		
F00-F09 Organic, including symptomatic	11	3.3%
F10-F19 Mental and behavioural disorder	18	5.3%
F20-F29 Schizophrenia, schizotypal and delusional disorders	51	15.1%
F30-F39 Mood [affective] disorders	160	47.5%
F40-F48 Neurotic, stress-related and somatoform disorders	21	6.2%
F50-F59 Behavioural syndromes	10	3.0%
F60-F69 Disorders of adult personality	27	8.0%
F70-F79 Intellectual disability	3	0.9%
F80-F89 Disorders of psychological development	3	0.9%
F90-F98 Behavioural and emotional disorders with childhood onset	18	5.3%
F99-F99 Unspecified mental disorder	15	4.5%
Main service provider		
General practitioner	183	54.3%
Public sector mental health service	99	29.4%
Private mental health professional	23	6.8%
Other	9	2.7%
None	10	3.0%
Not stated/unknown	4	1.2%

The proportion of unmet needs for each variable measured in the CANSAS is shown in Figure 3. At baseline, the most frequently reported unmet needs were psychological distress, daytime activity, and company (89%, 72% & 67% respectively). At follow-up, these had decreased to 27%, 22% & 22%, respectively. The least frequently reported unmet needs were basic education, telephone, and safety to others (15%, 12% and 10%, respectively). At follow up, these had decreased to 4%, 2% and 2%, respectively).

The proportions of clients with an unmet need at baseline who subsequently progressed to having that need met at follow-up ranged between 62% and over 90%. (See Figure 4) The highest proportion of clients showing a change was seen for the variables, safety to others (94.1%) and cultural or spiritual needs (93.9%). The lowest proportion was seen for alcohol abuse and childcare needs (62.3% and 66.3%, respectively). Table 4 shows associations between change in accommodation needs and change in other CANSAS variables between baseline and follow-up. The greatest change was seen for monetary needs (adjusted OR 2.87, 95%CI 1.76, 4.69), whereby the likelihood of changing from unmet to met monetary need was almost three times greater when accommodation needs also changed from unmet to met. Significant associations were also seen between changes in accommodation needs and changes in needs related to childcare, food, safety to self, education and access to other services.

To test whether associations were similar according to length of time in PIR, we categorised weeks in PIR into three groups. Similar patterns of association were seen for all three categories but were more likely to be significant in categories of longer periods of time.





% show the proportions of participants reporting an unmet need in that variable.

Table 4: Association between change in accommodation needs and change in other needs at final assessment before and after adjustment for covariates

		Model 1 (unadjusted)		Model 2 (adjusted)*	
Met need at final assessment		***OR***	***95% CI***	***OR***	***95% CI***
1.	**Monetary needs** (n=308)	**2.74**	**1.69, 4.44**	**2.87**	**1.76, 4.69**
2.	**Childcare needs** (n=317)	**2.68**	**1.50, 4.81**	**2.90**	**1.58, 5.33**
3.	**Food needs** (n-320)	**2.17**	**1.35, 3.49**	**2.23**	**1.38, 3.61**
4.	**Safety to self needs** (n=294)	**1.96**	**1.17, 3.30**	**1.98**	**1.18, 3.33**
5.	**Education needs** (n=313)	1.94	0.99, 3.82	**2.05**	**1.03, 4.08**
6.	**Access to other services** (n=304)	**1.63**	**1.02, 2.63**	**1.72**	**1.06, 2.80**
7.	Transport needs (n=319)	1.50	0.92, 2.44	1.56	0.95, 2.57
8.	Looking after home needs (n=299)	1.41	0.84, 2.36	1.42	0.85, 2.40
9.	Telephone needs (n=322)	1.36	0.66, 2.80	1.44	0.68, 3.02
10.	Physical health needs (n=307)	1.34	0.84, 2.16	1.34	0.83, 2.16
11.	Company needs (n=297)	1.32	0.81, 2.13	1.31	0.81, 2.12
12.	Daytime activity needs (n=310)	1.32	0.83, 2.12	1.33	0.83, 2.13
13.	Psychological distress needs (n=301)	1.32	0.80, 2.18	1.33	0.81, 2.20
14.	Cultural or spiritual needs (n=277)	1.29	0.67, 2.49	1.37	0.71, 2.68
15.	Psychotic symptoms needs (n=291)	1.28	0.76, 2.14	1.28	0.76, 2.15
16.	Self care needs (n=310)	1.27	0.74, 2.17	1.28	0.75, 2.20
17.	Drug abuse needs (n=298)	1.25	0.67, 2.33	1.29	0.69, 2.41
18.	Safety to others needs (n=296)	1.20	0.56, 2.57	1.26	0.58, 2.71
19.	Information on condition needs (n=313)	1.19	0.73, 1.95	1.24	0.76, 2.05
20.	Employment/volunteering needs (n=304)	1.17	0.73, 1.87	1.19	0.74, 1.93
21.	Alcohol abuse needs (n=299)	1.13	0.56, 2.87	1.14	0.56, 2.33
22.	Sexual expression needs (n=222)	0.98	0.52, 1.88	0.99	0.51, 1.93
23.	Benefit needs (n=296)	0.85	0.50, 1.47	0.87	0.50, 1.50
24.	Intimate relationship needs (n=274)	0.74	0.44, 1.26	0.77	0.45, 1.34

Abbreviations; OR=Odds ratios, CI=confidence intervals; *Model 2 adjusted for age, sex and time in weeks between initial and final assessment. Odds ratios and 95% CI in bold are statistically significant.

4 Discussion

This study describes a care coordination model that was associated with a reduction in unmet needs of persons with SPMI. As discussed earlier, reducing client reported needs is the starting point of recovery (Lasalvia et al. 2005, Ochocka, Nelson, and Janzen 2005) and is a good indicator of psychiatric care (Drukker et al. 2008). While some needs such as finding a partner can be difficult to assess properly, others might be more difficult to meet, such as needs related to substance abuse. Nonetheless, meeting clients' needs must be the starting point for mental health care (Slade et al. 2005). Our findings indicate that the PIR model was able to substantially reduce client needs.

Qualitative studies on the PIR initiative undertaken previously have showed that the model of care benefited not only clients and carers but also health professionals. Clients stated that they felt valued, got a better understanding of their illness, felt empowered to better engage with services, and were encouraged to make decisions about their lives (Isaacs et al. 2017, Waks et al. 2017). Health professionals stated that the model of care promoted a team approach to client care and prevented duplication of services (Isaacs et al. 2017). It allowed them to better understand the roles of other professionals, improve relationships between organisations and facilitate interagency collaboration (Isaacs and Firdous 2019). The model is

also shown to be cost effective (Isaacs et al. 2018). The PIR model can therefore be considered a useful recovery-oriented model of care for persons with SPMI.

This is perhaps the first study, which shows that higher level safety and esteem needs tend to get met when accommodation needs which is a basic physiological need gets met. Previous evidence appears to be mixed. While some have indicated that a person's higher level needs usually come into play after basic needs are met (Nelson, Aubry, and Lafrance 2007), others argue that the hierarchy was more complicated (Henwood et al. 2015). Nonetheless, a previous report has suggested that services can more effectively address peoples' needs when they have housing (MacPherson et al. 2007) although, it was not clear what specific factors could have contributed to those findings.

The present study found that meeting accommodation needs significantly increased the likelihood of meeting needs related to money, childcare, food, safety to self, education and access to services. It is likely that people who were homeless did not attend their compulsory social service appointments regularly and hence did not receive their fortnightly payments. Once clients had stable accommodation, they were usually taught how to manage money and were supported to budget their income for food and payment of rent. Having a secure home also enabled parents (particularly single mothers) to better look after their children.

When accommodation needs were met, clients were able to learn about day to day living skills such as buying better food from the supermarket. People in a stable home could also be linked into voluntary organisations that provided food to the home. In addition, when clients lived close to a food distribution point, they could access it without assistance. Once accommodation needs were met, clients did not have to worry about their next meal or where they would sleep. It was therefore easier to assist them in developing an action plan which focused on what they needed to do next. This empowered them to think about issues such as education and employment. Other authors have also reported that permanent housing did enable clients to consider subsequent goals to improve one's life (Henwood et al. 2015). When accommodation was located close to services that supported education, access was made easier. There are suggestions that meeting accommodation needs tends to show improvements in mental health problems as well although the evidence is still not robust (Enns et al. 2019).

It is widely accepted that social determinants such as housing and employment have a significant bearing on the mental health of individuals and providing social and other non-clinical services is essential for their wellbeing (Rosenberg 2017). Although in Australia, the National Disability Insurance Scheme (NDIS) has been given the resources to assist persons with SPMI, funding allocations are far below estimated requirements (Rosenberg 2017). Even so, there is optimism for the future as Australia is in the process of identifying areas for mental health reform through the Productivity Commission's inquiry into mental health (Frydenberg and Hunt 2018). Commissioned in November, 2018, this 18-month inquiry will examine how sectors such as education, employment, social services, housing and justice can contribute to improving mental health and economic participation of persons with mental illness (Frydenberg and Hunt 2018).

The reasons for the relatively high dropout rate in this study are unclear. Previous reports suggest that associations with disengagements with mental health services are complex and encompass sociodemographic and clinical variables as well as variables related to service provision (O'Brien, Fahmy, and Singh 2009). The PIR model is quite new and different from

traditional mental health care models. Anecdotally, service providers presume that dropouts could have been due to the exacerbation of symptoms or transfer to another program. Symptoms in SPMI are known to wax and wane. When symptoms become worse, many people (particularly young people) tend to temporarily disengage from services and return when they feel better. As a result, there can be several cases of dropouts and re-enrolments. The PIR initiative was a new and innovative program in Australia. When individuals who were used to a system that did not necessarily take care of their needs became involved with it, they are likely to have been empowered to make it work for them, thereby transferring to the program that was closer to family and other supports. As a result, dropouts in this initiative could also have included a new enrolment in a neighbouring program.

There are a few limitations in this study. No data on recovery was available although another group have reported improved recovery in participants enrolled in the PIR initiative (Hancock et al. 2018). There was also no control group and although its focus was to address unmet needs, it is difficult to attribute change in needs entirely to the initiative.

5 Conclusion

There was a significant reduction in unmet needs reported by clients who enrolled in the care coordination model of the PIR initiative. The highest reduction in needs were for safety to others, cultural or spiritual, information on condition, benefits and self-care. The least reduction in unmet needs were reported for psychological distress, company, drug abuse, childcare and alcohol abuse. Meeting accommodation needs was associated with meeting needs related to money, childcare, food, safety to self, education and access to other services. Care coordination is a useful way to address multiple and complex needs of persons with SPMI. While addressing needs, priority must be given to meeting accommodation needs.

6 Conflict of Interest

NK works for the Gippsland Partners in Recovery initiative which funded this study. AI, AB and KS report no commercial or financial relationships that could be construed as a potential conflict of interest.

7 Author contributions

AI conceived the idea for the study and wrote the initial drafts. NK helped obtain the data for the study. AB undertook data analysis. KS and NK contributed to the development of the manuscript. All authors read and approved the final version of the manuscript.

8 Funding

This study was funded by the Gippsland Primary Health Network.

9 Data availability

The datasets for this manuscript are not publicly available due to copyright issues. Requests to access the datasets should be directed to Gippsland PHN (info@gphn.org.au).

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