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## Beyond symptom management: Family relations, unmet needs of persons living with severe mental illnesses, and potential implications for social work in South Africa

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### Abstract

This study examined the quality of family relationships and its associations with the severity of unmet needs of individuals admitted to a tertiary psychiatric hospital in South Africa. The quality of family relations and perceived unmet needs were assessed using the Lehman Quality of Life Interview and Camberwell Assessment of Needs, respectively. The results show that higher total unmet needs were associated with lower quality of family relations. The main areas of serious unmet needs included accessing government benefits and information, and establishing social relations. The results have implications for hospital-based social workers beyond managing psychiatric symptoms in South Africa.

### Keywords

Family relation; need assessment; severe mental illness; social work; South Africa

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## Introduction

Managing severe mental illness (SMI) is a daunting lifelong responsibility that affects not only those living with SMI, but also their families. A review of the literature indicates that caregiver burden and stress can be very serious problems, and that families are often confronted with inadequate support from mental health professionals (Saunders, 2003). Support for individuals with SMI is particularly challenging in resource-poor sub-Saharan African nations, including in South Africa, due to a lack of availability and/or access to community-based mental health services (Burns, 2011). This is exacerbated in South Africa by a legacy of apartheid policies (1948—1994), which negatively impacted on family cohesion and structure in the country. Within that context, the viability of mining and farming industries in South Africa was dependent on a single-person wage migrant labor system; and the intent behind the enforcing of certain policies (including the Group Areas Act, Native Labour Regulation Act and Native Urban Areas Act) was to promote separation of Black family members (Abdullah, 2013; Sachs, 1990). Despite decades of research from high-income countries investigating relationships between family members and individuals living with SMI, there are few studies that are generalizable to, and take into account, the unique historical and social circumstances of South Africa.

This study examined the quality of relationships between individuals living with SMI and their relatives, specifically with respect to the severity of unmet needs for those affected by SMI in South Africa. Individuals living with SMI with greater unmet needs would appear to require greater/longer family involvement; however, a lack of sufficient family support could also contribute to greater unmet needs. Based on a family caregiver stress perspective (Sales, 2003), diminished family capacity to provide support for the unmet needs of people with SMI can be attributed to various burdens, including physical, emotional/psychological, financial, and social demands (Awad & Voruganti, 2008); and, despite a desire to assist, to a deterioration in the quality of relationships. Likewise, weakened family relations can reduce sources of support which may in turn result in higher unmet needs, reflecting possible negative co-occurring relationship between increased severity of unmet needs and lower quality of family relations.

## Methods

### Study design and participants

The study, based on a cross-sectional design, was carried out at a referral-based tertiary psychiatric government hospital in KwaZulu-Natal Province between July 2012 and October 2013. Hospital clinicians, who are not part of the research team, referred potential participants to our research personnel to be screened for study eligibility. All consecutive inpatients meeting the following inclusion criteria were approached to enter the study: age 21 years and older; speaking isiZulu or English; and diagnosed with SMI (schizophrenia, schizoaffective disorder, bipolar disorder, and psychosis not otherwise specified). Individuals unable to provide informed consent or with a developmental disability were excluded from the study. A trained research assistant fluent in isiZulu (and English) provided individuals meeting these criteria with a description of the study and written informed consent was obtained. The response rate for the needs assessment study from the

total eligible sample was 92.0%. The University of KwaZulu-Natal Biomedical Research Ethics Committee and Columbia University Institutional Review Board approved the study.

## Measures

The Camberwell Assessment of Needs (CAN) was administered to identify perceived unmet needs (Phelan et al., 1995) and assist in the design for community-based services. Originally designed to assess the perceived needs of patients with SMI, the CAN has been used in a number of African settings, including South Africa (Flisher, Sorsdahl, & Joska, 2012; Joska & Flisher, 2007), Ethiopia (Fekadu et al., 2014) and Somalia (McCrone et al., 2005). The trained interviewer asked study participants if needs existed in each of 22 domains: (1) accommodation; (2) food; (3) looking after the home; (4) self-care; (5) daytime activities; (6) physical health; (7) psychotic symptoms; (8) information on condition and treatment; (9) psychological distress; (10) safety to self; (11) safety to others; (12) alcohol; (13) drugs; (14) company; (15) intimate relationships; (16) sexual expression; (17) childcare; (18) basic education; (19) telephone; (20) transport; (21) money; and (22) benefits. As the CAN is also designed to elicit views on unmet patient needs from different perspectives, we interviewed attending hospital clinical staff (doctors and nurses) to obtain their views on the needs of their patients in each of the 22 domains. In the event of clinical staff reporting unmet needs in particular domain/s, we then obtained their perspectives on (1) the severity of these needs, (2) the extent of support received and needed from “informal” and “formal” sources, and (3) the adequacy of and satisfaction with support received to address these needs.

In our study, “informal” sources consisted of family, relatives, and friends. “Formal” sources included local community services, which generally comprised local health and social services and faith-based organizations. Responses relating to the severity of perceived needs were based on a 3-point Likert scale (0 = no serious need, 1 = met or partially met, and 2 = serious unmet needs). The extent of perceived support received from “informal” and “formal” sources and the perceived need for support from “formal” services were also each rated on a 3-point Likert scale (0 = no support, 1 = moderate support, and 2 = high support). Lastly, the perceived adequacy of support (right type of help), as well as overall satisfaction with support received, was rated in dichotomized format (0 = no and 1 = yes).

Two subscales from the Lehman Quality of Life Interview (LQoLI) were used to assess the quality of family relations. LQoLI is an instrument frequently used to assess quality of life in individuals with SMI (Cramer et al., 2000; Lehman, 1988; Lehman, Possidente, & Hawker, 1986; Lehman, Postrado, & Rachuba, 1993). The two subscales were for objective and subjective quality of family relations. The objective subscale measure (two items) quantified family communication by frequency of telephone contact and meeting in person. Objective subscale responses are based on a 5-point Likert scale (1 = not at all, 2 = less than once a month, 3 = at least once a month, 4 = at least once a week, and 5 = at least once a day). The subjective subscale measure (four items) assessed the respondent’s feeling about (a) family in general, (b) frequency of family contact, (c) the way the study participant and family act towards each other, and (d) the general quality of family relations. Subjective subscale responses are based on a 7-point Likert scale (1 = terrible, 4 = equally satisfied/dissatisfied, and 7 = delighted). Ratings of objective and subjective quality of family

relations were based on the average of the two and four items respectively. The 4-item subjective quality of family relations scale had acceptable internal reliability (Cronbach  $\alpha = .87$ ). The 2-item objective quality of family relations scale had low internal reliability (Cronbach  $\alpha = .39$ ). Given the limitations of measuring reliability for a 2-item scale, this Cronbach  $\alpha$  coefficient may be an underestimate of reliability (Eisinga, Grotenhuis, & Pelzer, 2013). At interview, information was also collected on sociodemographics (gender, age, race/ethnicity, marital status, residence type), psychiatric diagnosis, and past psychiatric hospital admissions.

### Data analysis

Following an examination of the demographic/clinical characteristics of the study participants, the analysis consisted of three components. The first component focused on needs and support. The frequency of perceived unmet needs (no serious needs, met or partially met with no or moderate problems due to help received, and serious unmet needs) reported by patients and hospital clinical staff was tabulated to identify the highest rated domains across the 22 domains of life. Cohen's Kappa coefficient was computed to assess the extent of inter-rater agreement between patients and clinical staff regarding severity of perceived unmet needs (rated as either no serious needs, met or partially met, or serious unmet needs). A Kappa coefficient of "less than 0" indicates "poor agreement," "0–0.20" indicates "slight agreement," "0.21–0.40" indicates "fair agreement," "0.41–0.60" indicates "moderate agreement," "0.61–0.80" indicates "substantial agreement," and "0.81–1" indicates "almost perfect [excellent] agreement" (Landis & Koch, 1977).

Thereafter, the data on support was analyzed. Both the mean number of domains in which support to study participants from "informal" and "formal" sources was received, and that in which support was needed by "formal" sources, was calculated. The Student *t*-test was used to detect significant mean differences for all analyses. The proportion of study participants who reported receiving both adequate and satisfactory support, given the severity of their unmet needs, was calculated. The second component of the analysis focused on the quality of family relations. The frequency of response from all six LQoLI family relations items were tabulated; and objective (mean of two items) and subjective (mean of four items) ratings were computed.

Finally we examined the association between total unmet needs and quality of family relations. Total unmet needs were represented by the number of domains (with possible range: 0–22) that were identified by clients as being of moderate or severe severity. Unadjusted and adjusted regression models were utilized to determine the association between both objective and subjective quality of family relations and total unmet needs. Poisson models were used owing to positive skewedness of the dependent variables in the models. The adjusted models controlled for gender, age, psychiatric disorder diagnosis, educational attainment, race/ethnicity, marital status, urban/rural residency, and past history of psychiatric hospital admission within the last 12 months.

## Results

### Demographic and clinical characteristics

Fifty-seven clients participated in the needs assessment interview (Table 1), the majority of whom were black South Africans ( $n = 47$ ; 82.5%), and aged 21–29 ( $n = 24$ ; 42.1%). Approximately half were diagnosed with schizophrenia ( $n = 26$ ; 45.6%), had hospitalization related to mental health within the past year ( $n = 29$ ; 50.9%), had attained grade 12 equivalent or higher level of education ( $n = 31$ ; 54.4%), and resided in rural areas ( $n = 29$ ; 50.9%).

### Unmet needs across 22 domains of life

The magnitude of unmet needs across the 22 domains of life rated by clients and psychiatric hospital staff are described in Table 2. The average number of unmet needs was two, while clients rated most frequently the following domains as “serious unmet needs”: benefits (15.4%), company/social relations (14.3%), and information (9.3%). They rated most frequently as “partially unmet needs” the following domains: psychotic symptoms (19.6%), psychological distress (16.1%), and intimate relationship (8.9%). The analysis of staff rating indicated that they rated most frequently the following domains as “serious unmet needs”: daily activities, psychotic symptoms and harm to others (10.0% for each). They rated most frequently as “partially unmet needs” the following domains: psychotic symptoms (45.0%), psychological distress (25.0%), and drugs/alcohol (20.0%). Excluding needs associated with drug misuse ( $\kappa = 0.35$ ), the inter-rater analysis indicated that Cohen’s kappa coefficients were less than 0.2 in all domains, reflecting no or only slight agreement between clients and staff regarding the unmet needs of individuals with SMI.

### Support provided

The mean number of domains for which support (help) was provided from “formal” and “informal” sources was 1.69 (SE = 0.30) and 2.52 (SE = 0.46), respectively, the latter being significantly higher than the former ( $M_{\text{diff}} = 0.83$ ,  $t = 2.35$ ,  $p = .02$ ). The mean number of domains requiring support from “formal” sources ( $M = 5.61$ , SE = 0.91) exceeded that for which support was provided from the same sources ( $M_{\text{diff}} = -3.92$ ,  $t = -4.50$ ,  $p < .01$ ). Among study participants with unmet needs in any of the 22 domains of life, approximately half (54.1%) reported receiving adequate (the right type of) support, and were satisfied with the amount of support provided. Among those with serious unmet needs in any of the 22 domains of life, over a third (38.1%) reported receiving adequate support, with approximately half (45.4%) being satisfied with the amount of support provided.

### Family relations

The responses of the two-item objective (frequency of contact) and the four-item subjective (perceived quality of) family relations ratings are presented in Figures 1 and 2, respectively. In terms of the frequency rating, the significant minority of study participants reported little or no contact with family members, while approximately a quarter of participants reported being ‘pleased’ with the quality of family relations. The mean rating for objective and subjective family relations subscales was 3.3 (SE = 0.96) and 4.4 (SE = 1.78) respectively,

both of which lie above the middle response values of 3 “once a month” and 4 “Equally satisfied/dissatisfied” on each Likert scale.

### Association between family relations and unmet needs

The results of the bivariate unadjusted Poisson regression models indicated that higher frequency ( $\beta = -0.24, z = -2.34, p = 0.02$ ) and perceived quality of family relations ( $\beta = -0.15, z = -2.81, p < 0.01$ ) were associated with fewer total unmet needs. The results of the fully adjusted Poisson regression models appear in Table 3. Model 1 indicated that higher frequency ( $\beta = -0.32, z = -2.46, p = 0.01$ ) was associated with fewer total unmet needs. It also indicated that higher educational attainment, non-Black ethnicity and residence in a rural area were associated with fewer total unmet needs. Model 2 indicated that a higher perceived quality of family relations ( $\beta = -0.15, z = -2.44, p = .02$ ) was associated with fewer total unmet needs. It also indicated that younger age, lower educational attainment, diagnosis (schizophrenia and bipolar disorder), Black ethnicity, and history of psychiatric re-hospitalization (within the last 12 months) were associated with more total unmet needs.

### Discussion

First, our research suggests that poorer quality of family relations (both objective and subjective) was associated with higher total unmet needs. Second, approximately a third of the study participants with serious unmet needs reported receiving appropriate (the right type of) support. Third, the three areas endorsed most frequently by study participants as “serious unmet needs” were: challenges associated with obtaining government benefits; inadequate information about care; and company/social relations. Fourth, the perception of unmet needs differed significantly in almost all domains between study participant and hospital clinical providers. Such finding speaks to the importance of developing collaborative client-centered treatment plans. Lastly, we also learnt that study participants draw more support from “informal” sources (family, relatives, and friends) than from “formal” sources. More than half the participants were at least satisfied with the quality of family relations, with a minority citing inadequate contact with members of their family.

Preventing psychiatric re-hospitalization requires an approach to addressing unmet needs that goes beyond temporary management of psychotic symptoms at tertiary mental health institutions. In addressing unmet needs of individuals with SMI, our results suggest that strategies to improve the provision of support will require close attention to especially vulnerable groups. These include those of Black ethnicity, adolescents, and those with low educational attainment.

Our finding ( $M_{\text{total number of needs}} = 2$ ) [based on an analysis not described in the Methods section] closely resembles that of the most recent South African study (Flisher et al., 2012), which administered the CAN instrument to individuals with SMI ( $M_{\text{total number of needs}} \approx 3$ ), and reached a similar conclusion that emphasized the importance of addressing psychosocial needs (Joska & Flisher, 2007). More importantly, our study contributes to the limited body of literature on the potential causes and consequences of serious unmet needs, indicating an association with poor quality of family relations in sub-Saharan African. We believe one plausible explanation is that greater unmet needs may necessitate considerable

family involvement, leading to cumulative caregiver exhaustion and stress, and straining relations with family members.

In scarce-resource settings, family are likely to be the only source of support in the community for many individuals with SMI following hospital discharge. This highlights the need for family-based services (Dixon et al., 2010; Kreyenbuhl, Buchanan, Dickerson, & Dixon, 2010), which can benefit both patients and family members/caregivers in such settings. With only 0.28 psychiatrists per 100,000 people, according to the World Health Organization-AIMS Report on Mental Health System in South Africa (2007), scarcity of human resources is a major challenge (Note that in comparison there are 11.4 psychiatrists per 100,000 in the United States according to the Dartmouth Atlas of Health Care (2006).) The inadequacy of human resources for mental health services is well-established in South Africa (Burns, 2011) and this places greater responsibility and burden on community-based support systems and families in particular. Importantly, this is not an endorsement that treatment of individuals with SMI be left to family members alone (for many reasons including sustainability, as mentioned in the previous paragraph). On the contrary, culturally competent community-based mental health promotion in South Africa, based on *ubuntu* (Edwards, Makunga, Ngcobo, & Dhlomo, 2004), requires the provision of meaningful support to families within the community who often lack resources, but who nonetheless shoulder the care of those with mental illness post-institutionalization (Engelbrecht & Kasiram, 2012). Although the definition, interpretation and evolution of the Nguni term *ubuntu* varies, it is acknowledged as coming from the proverb "*Umuntu ngumuntu ngabantu*," roughly translating as "a person is a person through their relationship to others" (Gade, 2011). Reflecting the moral quality of a person or phenomenon (African humanism, a philosophy/ethics, and worldview) of interconnectedness among people (Gade, 2012), *ubuntu* embraces communalism, solidarity, and human interdependence in small-scale communities (Pieterse, 2004). In this sense, *ubuntu* provides a strong basis for family-based care that is supported appropriately by public services.

It is important to acknowledge the persistence in South Africa of some cultural (e.g., stigma by family members) and implementation (e.g., lack of trained human resources) barriers that remain significant concerns for the effective implementation of family-based interventions, such as therapy (Asmal et al., 2011) and psychoeducation (Kritzinger, Swartz, Mall, & Asmal, 2011). In collaboration with other sources of "formal" and "informal" support, social work in South Africa is in an important position to help address the unmet needs of psychiatric patients in a way that goes beyond temporary management of psychotic symptoms. Hospital social workers in particular are well placed to be sensitive to the impact of living and family environments, educate patients and families about the importance of adherence to treatment recommendations, and provide linkages to community resources post-psychiatric hospitalization (Beder, 2006). As indicated in our result and consistent with another study (Lasalvia, Ruggeri, Mazzi, & Dall'Agnola, 2000), the perception of unmet needs differed between our study participants and hospital clinical providers. With cultural competency and sensitivity being core ethical principles of their profession (Reamer, 2013), social workers potentially bring unique skills to advocate on behalf of individuals whose critical voice have been silenced (Morley, Ablett, & Macfarlane, 2014). In addition, social

workers may enhance and support family strengths, and preserve effective family functioning (Collins, Jordan, & Coleman, 2010). Social work has been a leading social service profession since the 1920s in South Africa (Nicholas, Rautenbach, & Maistry, 2010); and strengthening hospital-based social work capacity is a key strategy to building trust and relationships with patients and their families during the time of hospitalization that can endure well beyond hospital discharge.

A major limitation of our study was the small sample size. In addition, our study was based on a cross-sectional design, and thus a temporal relationship between unmet needs and quality of family relationship could not be established. Consequently we must consider an alternative plausible explanation, namely that poor family relations (possibly in part due to the stress of the illness) lead to weakened family support, which in turn results in unmet needs. In reality it is likely that both mechanisms occur, with a reciprocal relationship between unmet needs and poor family relations. It is not unreasonable to imagine the development of a destructive spiral of ever-worsening family relations and ever-increasing unmet needs.

The existence of such a cycle or model of interdependence between unmet needs and deteriorating family relations should guide a research agenda aimed at developing, testing and implementing interventions aimed at breaking this negative cycle. Such interventions would seek to turn the cycle around, leading to a positive cycle characterised by ever-improving family relations and ever-diminishing unmet needs of patients with SMI. The challenge in low and middle-income countries (LMICs), especially in sub-Saharan Africa, is that there is little evidence currently, and no randomized evidence to our knowledge, supporting sustainable community-based interventions that could directly address the needs of patients with SMI in these contexts.

One strategy is to draw on interventions that have an evidence-base in high-income contexts, such as Assertive Community Treatment (ACT) (Stein & Santos, 1998; Stein & Test, 1980; Test & Stein, 1980), and adapt these in terms of both language and sociocultural context. There are however limitations to adapting interventions such as ACT within LMIC settings. For example, ACT requires a substantial investment of resources and cannot be implemented unless highly trained personnel, including psychiatrists, are readily available. Furthermore, this model does not include systematic links to primary health care, other elements of the broader health and social system, or to families and community stakeholders. While the ACT model is still evolving in the United States (Donahue et al., 2012), it is also now starting to be adapted and tested in South Africa (Botha, Koen, Galal, Jordaan, & Niehaus, 2014). There are several studies outside South Africa currently underway [at the time of this report], evaluating potentially sustainable treatment models for supporting individuals with severe mental illness within the LMIC context. Trials include time-limited Critical Time Intervention-Task Shifting (CTI-TS) in Latin America (da Silva et al., 2013) and Task Sharing for the Care of Severe Mental Disorders in a Low-income Country (TaSCS) in Ethiopia (University of Cape Town, 2015). The previous Critical Time Intervention trials in the United States (Herman et al., 2011; Susser et al., 1997) were delivered by trained social service staff, and therefore social workers will potentially



continue to play an important role in the implementation of any evidence-based mental health services within the LMIC context.

While much work remains to be done in this field within under-resourced contexts, we hope that our findings on the complex relationship between patient needs and family relations will inform the development of appropriate and sustainable community-based interventions in South Africa, addressing the unmet needs of individuals with severe mental illness.

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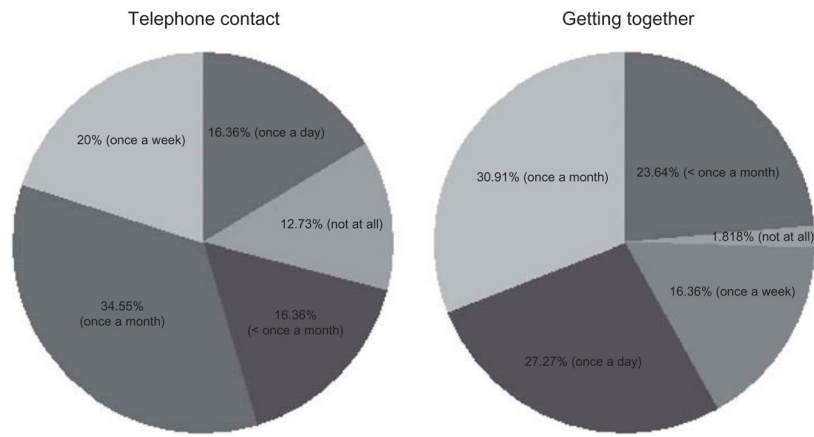
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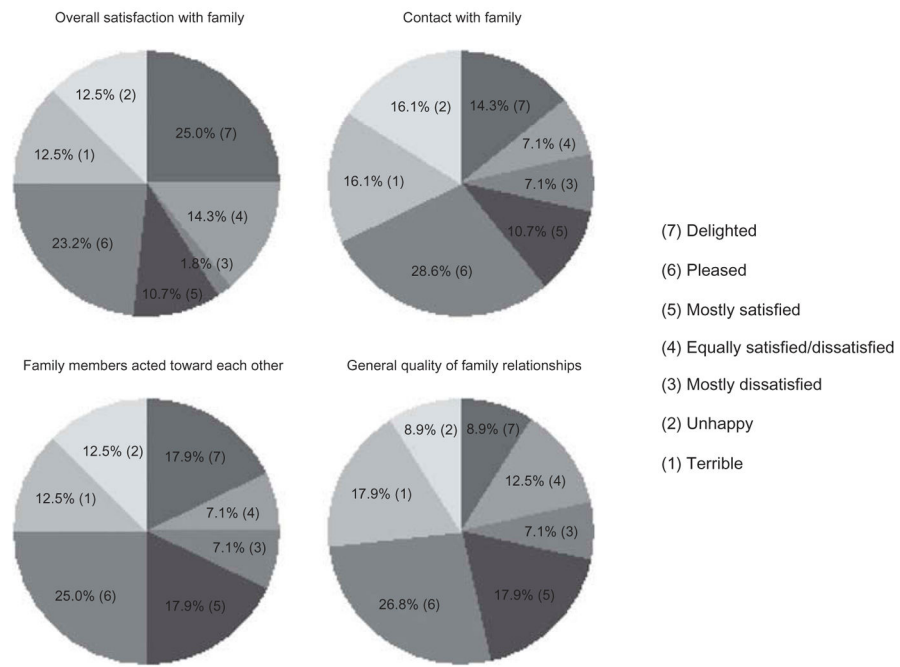
**Figure 1.**  
Objective quality of life—family contact.

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**Figure 2.**  
Subjective quality of life—satisfaction.

**Table 1**Demographic and clinical characteristics of needs assessment study respondents ( $n = 57$ ).

	<i>n</i>	%
Gender		
Male	38	66.7
Female	19	33.3
Age category		
21–29	24	42.1
30–39	19	33.3
40+	14	24.6
Education		
<Grade 12 equivalent	31	54.4
Grade 12 equivalent	26	45.6
Race/ethnicity		
Black	47	82.5
Non-Black	10	17.5
Marital status <sup>‡</sup>		
Married/stable partner	19	33.9
Casual partner	17	30.4
No relationship/partner	20	35.7
Residence		
Urban	28	49.1
Rural	29	50.9
Hospitalization related to mental health	1 year [any hospital]	
Yes	29	50.9
Psychiatric diagnosis		
Schizophrenia	26	45.6
Schizoaffective	11	19.3
Bipolar	12	21.1
Psychosis NOS and other	8	14.0

<sup>‡</sup>One missing response

**Table 2**

Assessment of level of need for 22 items in CAN.

Domain	Client rating		Staff rating		Client rating		Staff rating		Client rating		Staff rating	
	No serious need	%	No serious need	%	Met or partially met	%	Serious unmet needs	%	Not known	%	Serious unmet needs	%
	n		n		n		n		n		n	
Accommodation	54	94.7	18	94.7	2	3.5	0	0.0	0	0.0	1	1.8
Food	54	94.7	18	90.0	1	5.3	1	5.0	0	0.0	0	0.0
Looking after the home	54	94.7	15	75.0	2	3.5	4	20.0	1	1.8	0	0.0
Self-care	51	96.2	17	85.0	1	1.9	1	5.0	0	0.0	1	1.9
Daily activities	51	91.1	15	75.0	0	0.0	2	10.0	4	7.1	2	10.0
Physical health	49	87.5	17	85.0	4	7.1	3	15.0	2	3.6	0	0.0
Psychotic symptoms	42	75.0	9	45.0	11	19.6	9	45.0	2	3.6	2	10.0
Information	45	83.3	17	85.0	3	5.6	1	5.0	5	9.3	0	0.0
Psychological distress	44	78.6	14	70.0	9	16.1	5	25.0	2	3.6	0	0.0
Self-harm	50	89.3	17	85.0	2	3.6	0	0.0	3	5.4	1	1.8
Safety to others	48	85.7	16	80.0	4	7.1	2	10.0	2	3.6	2	10.0
Alcohol	48	85.7	10	50.0	0	0.0	4	20.0	4	7.1	1	5.0
Drugs	50	90.1	13	65.0	2	3.6	4	20.0	3	5.5	1	5.0
Company	47	83.9	17	85.0	0	0.0	0	0.0	8	14.3	1	5.0
Intimate relationships	46	82.1	14	70.0	5	8.9	0	0.0	2	3.6	0	0.0
Sexual expression	39	70.9	10	50.0	1	1.8	0	0.0	4	7.3	1	5.0
Child care	47	87.0	16	80.0	0	0.0	0	0.0	2	3.7	0	0.0
Basic education	53	93.4	15	75.0	2	3.6	1	5.0	0	0.0	0	0.0
Telephone	51	94.4	17	85.0	0	0.0	0	0.0	2	3.7	0	0.0
Transport	55	100.0	12	63.2	0	0.0	0	0.0	0	0.0	0	0.0
Money	47	83.9	10	55.6	2	3.6	1	5.6	3	5.4	1	5.6
Benefits	27	51.9	8	57.1	0	0.0	0	0.0	8	15.4	0	0.0

The total sample size is based on 57 study participants. Staff assessment about the needs of 20 study participants were obtained. There are missing values in certain domains.

**Table 3**

Regression on total unmet needs outcome.

	Model 1				Model 2			
	<i>b</i>	SE	<i>z</i>	<i>p</i>	<i>b</i>	SE	<i>z</i>	<i>p</i>
Quality of family relation ratings								
Frequency of contact (objective)	-0.32	0.13	-2.46	0.01				
Perceived interaction (subjective)					-0.15	0.06	-2.44	0.02
Gender [Male]	0.25	0.26	0.94	0.35	0.29	0.26	1.12	0.26
Age [30-39]								
21-29	0.62	0.33	1.90	0.06	0.57	0.29	1.99	<0.05
40+	0.17	0.35	0.48	0.63	0.36	0.35	1.03	0.30
Psychiatric disorder [Other]								
Schizophrenia	1.26	0.44	2.90	<0.01	1.18	0.43	2.76	0.01
Schizoaffective	0.52	0.48	1.07	0.28	0.54	0.48	1.14	0.25
Bipolar	1.50	0.54	2.80	0.01	1.43	0.50	2.88	<0.01
Education [Lower than grade 12]	-0.72	0.24	-3.03	<0.01	-0.71	0.23	-3.11	<0.01
Race/Ethnicity [Non-Black]	0.98	0.37	2.68	0.01	1.12	0.38	2.95	<0.01
Marital status [Single]								
Married	0.30	0.35	0.87	0.38	0.11	0.34	0.33	0.74
Stable partner	-0.18	0.33	-0.54	0.59	-0.23	0.32	-0.72	0.47
Casual partner	-0.36	0.30	-1.20	0.23	-0.33	0.28	-1.16	0.24
Residence [Urban]	-0.84	0.27	-3.12	<0.01	-0.49	0.26	-1.92	0.06
Past psychiatric hospital admission <sup>†</sup> [No]	0.27	0.21	1.29	0.20	0.42	0.21	1.98	<0.05

Coefficients of unadjusted models (for objective and subjective rating above) were ( $\beta = -0.24, z = -2.34, p = 0.02$ ) and ( $\beta = -0.15, z = -2.81, p < 0.01$ ). Reference category in bracket.

<sup>†</sup> Within the last 12 months.