Evaluation of a New Zealand Early Intervention Service for Psychosis

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The effectiveness of a New Zealand early intervention for psychosis service (EIS) was assessed by analysis of 100 EIS patients' Positive and Negative Symptom Severity (PANNS) scores and Health of the Nation Outcome (HoNOS) scores that were collected over five time periods from intake through to 24 months. PANSS and HoNOS scores improved significantly within the first three months and continued to improve significantly over time. There was no significant relationship between duration of untreated psychosis and symptom severity or HoNOS scores either at intake or over time. Better outcomes were associated with length of contact with the service, high engagement and high medication compliance. Female patients had higher levels of engagement and medication compliance, and slightly better outcomes for negative symptoms. Level of satisfaction with the service was ascertained through small sub-samples of questionnaires and interviews. Patient satisfaction appeared to be associated with a collaborative therapeutic relationship rather than with treatment modality. It is recommended that future research seeks to clarify the specific skills necessary for establishing engagement, especially with male patients.

In the last decade there has been widespread development of early intervention services for psychosis, notably in Australia, Scandinavia, the UK and the USA (Birchwood, Fowler, & Jackson, 2000; Johannessen, 2004; Johannessen, Martindale, & Cullberg, 2006; McGorry & Jackson, 1999). Currently in New Zealand there are approximately 20 early intervention services treating patients with first episode psychosis (Turner, Nightingale, Mulder, & Maginness, 2002).

This widespread support for early intervention approaches has been influenced by the gradual change in the perception of schizophrenia from the traditional Kraepelinian view of schizophrenia as a degenerative and incurable disease to a more optimistic view. It is now more accepted that with effective interventions in a range of modalities the symptoms of psychosis and the overall wellbeing of the patient can significantly improve (Bentall, 2003; Cullberg, 2006; Martindale, Bateman, & Margison, 2000; Mosher, 1999; Read, Mosher, & Bentall, 2004).

Additional support for early intervention comes from research showing that duration of untreated psychosis (DUP), estimated to average one to two years, is associated with a longer time to remission, a lesser degree of remission and an increased risk of relapse (Birchwood, Fowler, & Jackson, 2000; Birchwood & MacMillan, 1993; Gleeson, Larsen, & McGorry, 2003; Gleeson & McGorry, 2004; Johannessen, 2001, 2004; McGorry & Jackson, 1999; Turner et al., 2002).

Early intervention services have the following aims: 1) reduce the duration of untreated psychosis; 2) provide comprehensive effective treatment of the first episode of psychosis; 3) reduce the duration of active psychosis in the first episode; 4) prevent or alleviate subsequent relapse; and 5) maximise recovery, community involvement and quality of life (McGorry & Jackson, 1999). There is, however, great diversity in the type of models and treatments used in early intervention services to achieve these aims including: residential homes, psychotherapy, cognitive therapy, neuroleptic medications, relapse prevention strategies, family therapy, and psycho-education. It is common for services to offer various combinations of these approaches, rather than adhering to one method of intervention. The widespread use and diversity of early intervention services requires investigation and research in order to be able to constitute what makes appropriate and effective care.

This study aimed to evaluate the effectiveness of a New Zealand early intervention for psychosis service (EIS) in treating patients presenting for the first time with psychotic experiences. This research defines psychosis as the first experience of symptoms of schizophrenia as defined in the Diagnostic Statistical Manual of Mental Disorders fourth edition (DSM-IV). In addition the study assessed whether particular patient variables (i.e. gender, culture, Duration of Untreated Psychosis, client engagement/therapeutic alliance, medication compliance and child abuse) are associated with different therapeutic outcome. The research literature on these patient variables are summarised below.

Females typically present approximately five years later than males, and tend to score higher on all areas of premorbid functioning especially in regards to social functioning. Females have fewer readmissions to hospital and shorter stays in hospital, remain longer in the community before being re-admitted and generally have a more favourable long-term outcome compared to males (Birchwood & MacMillan, 1993; Larsen, McGlashan, Johannessen, & Vibe-Hansen, 1996; Read, 2004).

People from ethnic minorities, including colonized indigenous peoples such as Maori in New Zealand, have significantly higher rates of mental illness, are more likely to have a diagnosis of schizophrenia and are more likely to be admitted to psychiatric hospitals. They also have higher hospital readmission and higher involuntary admission rates (Durie, 1999; Feinstein & Holloway, 2002; Johnstone & Read, 2000; Read, 2004).

A strong therapeutic alliance has been found to be associated with positive outcome for patients with psychosis (Fitzgerald & Seeman, 2000; Jackson, Hulbert, & Henry, 2000; Mosher, 1999; Mosher, Hendrix, & Fort, 2005). Female patients, who more often have intact social skills, tend to be better able to form therapeutic relationships (Fitzgerald & Seeman, 2000). Males, with their higher levels of negative symptoms and lower premorbid functioning (Larsen et al., 1996), may be particularly difficult to engage.

The rate of non-compliance with prescribed medication has been reported to range between 33% and 50% among outpatients diagnosed with schizophrenia (Owen, Fischer, Booth, & Cuffel, 1996; Verdoux et al., 2000). The factors that can influence a patient's level of compliance include: therapeutic relationship, perceived benefit from the medication, side-effects, subjective experience while taking medication, substance abuse, and severity of illness (Verdoux et al., 2000).

There are particularly high prevalence rates of childhood sexual abuse (CSA) and childhood physical abuse (CPA) found in clients with psychiatric disorders. A review of the literature (Read, van Os, Morrison, & Ross, 2005) found that 69% of female inpatients and 59% of male inpatients have suffered from CSA or CPA, and reported several studies suggesting a causal link between child abuse and psychotic symptoms, particularly hallucinations.

Goff, Brotman, Kindlon, Waites, & Amico (1991) explored the relationship between child abuse and the severity and type of symptoms by evaluating 61 clients who were chronically psychotic. During a clinical interview 44% of the clients reported histories of child abuse. Childhood abuse was associated with younger age of onset, higher dissociation scores, and a higher number of relapses compared to those without abuse histories.

Compared to other psychiatric clients, those clients who suffered CSA and/or CPA tend to have younger age of onset of psychiatric disorder, and substantially increased frequency of psychiatric admissions and increased lengths of stay. There is also increased risk of suicide in this population (Fergusson, Horwood, & Lynskey, 1996; Goff et al., 1991; Mullen, Martin, Anderson, Romans, & Herbison, 1993; Read, 1998; Read, Agar, Barker-Collo, Davies, & Moskowitz, 2001).

The New Zealand EIS evaluated in this study is partly based on the approaches used by the Early Psychosis Prevention and Intervention Centre (EPPIC) team in Melbourne (Gleeson, Larsen, & McGorry, 2003; McGorry & Jackson, 1999). The EIS, which serves an estimated population of 110,000, operates within an urban District Health Board. The EIS consists of a psychiatric nurse, a family worker, an occupational therapist, a psychiatrist and a psychologist. The patients are assessed and regularly reviewed and based on their needs they are provided with the relevant input from each of these professionals. A range of group sessions are also available (e.g., psycho-education, cultural groups, coping strategies). The EIS, opened in 1997, is an outpatient service, accepting referrals predominantly from GPs, the local inpatient unit and family. People presenting with psychotic symptoms for the first time gain automatic acceptance into the EIS. The EIS treats patients between the ages of 17 and 35 years old (with some flexibility up to 40 years) and has a maximum case load of 40 patients. People may use the service for up to two years.

The team endeavours to involve the patient's family in the therapeutic process. Cultural support is offered through cultural services where such exist (Maori and Pacific Islanders). Otherwise cultural consultancy may be obtained from appropriate individual clinicians. Interpreters are used when there was a language barrier.

Method

Participants

Of the 100 consecutive EIS patients in this study, 66 were male, 60 were between the ages of 15 to 24 years and 40 were between the ages of 25 and 40 years. The majority were European (52), followed by Maori (15), Pacific Islander (from Tonga, the Cook Islands, Nuie and Samoa) (14) and Asian (7). Twelve patients were from other cultural backgrounds including African and Iraqi. Forty one of the 100 had been admitted to psychiatric hospital at least once prior to contact with the EIS (35% of males, 47% of females).

Of the 13 questionnaire respondents, seven were female, eight European, two Maori and three 'other'. Eight had been involved with the service for more than 18 months.

Measures

The data included symptom changes over five time periods using the Positive and Negative Syndrome Scale (PANSS) (Stanley, Lewis, & Abraham, 1986) and the Health of the Nation Outcome Scale (HoNOS) (Wing et al., 1998). The PANSS has been found to have adequate temporal stability, internal consistency, validity and good inter-rater reliability (Bryson, Bell, Greig, & Kaplan, 1999; Purnine, Carey, Maisto, & Carey, 2000). The HoNOS has been found to be sensitive to change over time and to have good reliability and clinical validity in independent trials (Kemp, Kirov, Everitt, Hayward, & David, 1998).

The PANSS data was separated into two scores, one for positive symptoms and one for negative symptoms of psychosis. The PANSS and HoNOS scores were recorded for each patient at intake, after three months, after six months, after 12 months and after 24 months contact with the EIS. All EIS staff were trained in completing the PANSS and HoNOS and the staff with the most contact with the patient completed these measures at the different time periods. These measures were only completed for the patients that were still in contact with the EIS. Table 1 shows that the number of clients with data available for the different time periods declined over time. The reasons for this decline included a) clients not being in the service long enough to have data collected for all time periods, b) some clients had improved and been discharged prior to having two years involvement (12 clients), c) clients moved out of the geographical area (14 clients), d) clients declined further contact (14 clients) and e) clients committed suicide (2 clients), f) clients lost to follow-up (1).

The patients' level of engagement with the service, and level of medication compliance, were rated, at the four time points after intake, by an EIS staff member on a five point Likert scale (1=Nil, 5=Excellent). It was the EIS staff member with the most contact with the client that completed the rating on these measures. The estimated DUP was divided into three groups: 'Short' for DUP estimates between 0–3 months (n=39), 'Medium' for between 4-12 months (n=41) and 'Long' for longer than 12 months (n=20). The number of hospital admissions and days spent in hospital were also recorded for each client.

The EIS team provided both current and discharged patients with anonymous satisfaction questionnaires. Thirteen were returned. All the 40 current EIS patients at the time of the study were invited to participate in a research interview on patient satisfaction. Four patients agreed to be interviewed – by the primary researcher (MT). The medical records were read and notations of child physical and sexual abuse recorded.

Analysis

Although clients are able to stay involved with the EIS for two years, clients are discharged from the service after different lengths of time. Also, clients may still be involved with the service but have incomplete data for the five time periods because they joined the service in the recent months prior to this analysis. At the time of the study 19 patients had had data recorded at all five time points, 48 at four points, 64 at three, 85 at two and 15 only at intake.

Table 1. Mean PANNS and HONOS scores at five time points

	n	Mean	Std. Deviation
PANNS Positive			
Intake	100	17.8	6.59
3 months	84	12.1	4.95
6 months	63	10.8	4.60
12 months	48	10.8	4.50
24 months	19	8.0	2.11
PANNS Negative			
Intake	100	15.4	7.51
3 months	84	12.5	5.33
6 months	63	11.9	5.41
12 months	48	11.2	5.27
24 months	19	9.6	4.15
HoNOS			
Intake	100	12.9	6.44
3 months	84	9.0	6.39
6 months	63	8.0	6.61
12 months	48	6.8	6.01
24 months	19	4.6	5.67

The data were analysed using a mixed model with the repeated measures being modelled using a heterogeneous auto-regressive correlation structure (Brown & Prescott, 1999; Verbeke, 1997). This method was chosen because it takes into account the relationship between the repeated measures over time for a particular person. It also allows these measures to be differentiated from the observations recorded for other people (Dobson, 2002). Using a mixed model approach for this repeated measures data meant that patients with incomplete data sets were not excluded from the analysis as missing data can be accounted for using this method. The outcome of the mixed model analysis was defined as being significant at $p < .05$. A mixed model analysis was performed separately for age, gender and culture in relation to PANSS Positive, PANSS Negative and HoNOS scores.

The time periods in the data set were treated as being categorical, i.e. discrete time periods rather than continuous measures. There were no assumptions made in the analysis regarding time, in that the analysis did not try and fit the data to a linear timeline. To investigate whether the relationship between the different variables (e.g. age, gender, culture) and the repeated measures of symptom severity were significant over time, Type 3 Tests for Fixed Effects were used, because it provides a test of significance having considered all the other variables in the model (Brown & Prescott, 1999).

Results

Initial Improvement

The 84 patients for whom data was available at intake and at three months showed significant improvement on all three measures over this period. Their mean PANSS Positive scores declined from 18.55 to 12.07 ($p < .001$, paired-samples t-test). The PANSS Negative mean was lowered from 15.95 to 12.51 ($p < .001$). The HoNOS mean improved from 13.46 to 8.95 ($p < .001$).

Ongoing Improvement

Table 2 shows that besides patients having a significant improvement in their PANSS and HoNOS scores after the first three months contact with the service, their scores continued to significantly improve between three months and 24 months contact.

Table 2. Change in PANSS and HoNOS scores between intake and 24 months and between 3 and 24 months.

		df	F	p
PANSS Positive	Intake-24mths	4, 226	39.10	.0001
	3mths–24mths	3, 224	3.82	.011
PANSS Negative	Intake-24mths	4, 228	14.92	.0001
	3mths-24mths	3, 226	3.59	.015
HoNOS	Intake-24mths	4, 232	20.82	.0001
	3mths-24mths	3, 230	4.89	.003

A second analysis, using the mixed model approach, separated out the patients according to the length of time they were involved with the EIS and then compared their mean improvement in symptom severity at the different time periods. The patients who left the EIS after their initial contact were removed from the analysis, as their data cannot provide difference over time.

The results displayed in Table 3 shows a strong association between degree of improvement in PANSS and HoNOS scores after three months and length of subsequent involvement with the EIS. Thus the greater the patients' early improvement the more likely there were to remain involved with the service.

Patients who remained involved with the EIS throughout the 24 months had a larger improvement in PANSS Positive symptom scores between intake and three months (mean=13.10) compared to those who left after three months (mean=3.29). Those who stayed involved with the EIS for six months or 12 months had similar levels of improvement in PANSS Positive scores (6.75, 6.51). This improvement was larger than the improvement of those patients who left after three months, but smaller than the improvement found in those who stayed involved for 24 months. Furthermore, those who stayed involved for 24 months also experienced a larger improvement in PANSS Positive symptoms between three and six months compared to those who left the service after six months, and also a larger improvement between 6-12 months compared to those who left after 12 months. This pattern of improvement and duration of involvement is also evident for PANSS Negative and HoNOS scores.

Patient Characteristics and Improvement

Gender

Age at first contact with the EIS was younger for males (23.1 years) than for females (25.8) (*p* =.024). First contact was prior to age 20 for 30% of the men but only 15% of the women. First contact was after age 30 for 7% of the men but 29% of the women. There were no significant gender differences in rate of psychiatric inpatient admission, or number of days in hospital, either prior to, or during, contact with EIS.

There was no significant interaction found between gender and time for PANSS Positive or HoNOS scores. The interaction between gender and time for PANSS Negative almost reached significance (*p* =.051). Figure 1 illustrates these outcomes. To investigate further the pattern with gender and symptom improvement, t-tests were performed for each time period. Despite their being no difference at intake, a significant difference was found between male and female mean PANSS Negative scores at six months (*p* =.003) and at 24 months (*p* =.039). This indicates that females' negative symptoms were reduced more quickly

Table 3. Changes in PANSS and HoNOS scores between each of the five time periods according to the EIS patients' duration of involvement

		Length of Time Involved with the EIS			
		3 months Mean (S.E)	6 months Mean (S.E)	12 months Mean (S.E)	24 months Mean (S.E)
PANSS Positive	Intake-3mths	*3.29 (1.32)*	6.75 *(1.51)*	6.51 *(1.22)*	13.10 *(1.39)*
	3-6 months	-	-0.53 *(1.54)*	0.72 *(1.22)*	3.00 *(1.39)*
	6-12 months	-	-	0.15 *(1.13)*	1.37 *(1.39)*
	12-24 months	-	-	-	1.74 *(1.39)*
PANSS Negative	Intake–3mths	1.57 *(1.40)*	2.94 *(1.60)*	4.93 *(1.19)*	9.00 *(1.47)*
	3-6 months	-	0.79 *(1.63)*	0.83 *(1.19)*	3.68 *(1.47)*
	6-12 months	-	-	0.22 *(1.20)*	2.58 *(1.47)*
	12-24 months	-	-		0.21 (1.47)
HoNOS	Intake–3mths	2.62 *(1.55)*	5.69 *(1.78)*	5.62 *(1.32)*	11.42 *(1.63)*
	3-6 months	-	-0.60 *(1.81)*	2.07 *(1.32)*	5.00 *(1.63)*
	6-12 months	-	-	1.67*(1.33)*	2.21 *(1.63)*
	12-24 months	-	-	-	0.95 *(1.63)*

than those of the males and that this difference was sustained over time. A significant difference was also found between the PANSS Positive means at six months (*p* =.037).

Age

EIS patients were divided into two age groups (15-24 years and 25-40 years) for analysis. The results of the mixed model analysis revealed no significant interaction between PANNS or HoNOS scores and age at intake.

Culture

There was a significant interaction between patient's culture and PANSS Negative scores over time (F 3.29, *p* < .001), but no significant interaction for the other outcome measures. Numbers were too small for meaningful statistical analysis but at 12 months and 24 months Pacific Island patients had relatively high PANNS Negative scores (with a similar pattern for the HoNOS).

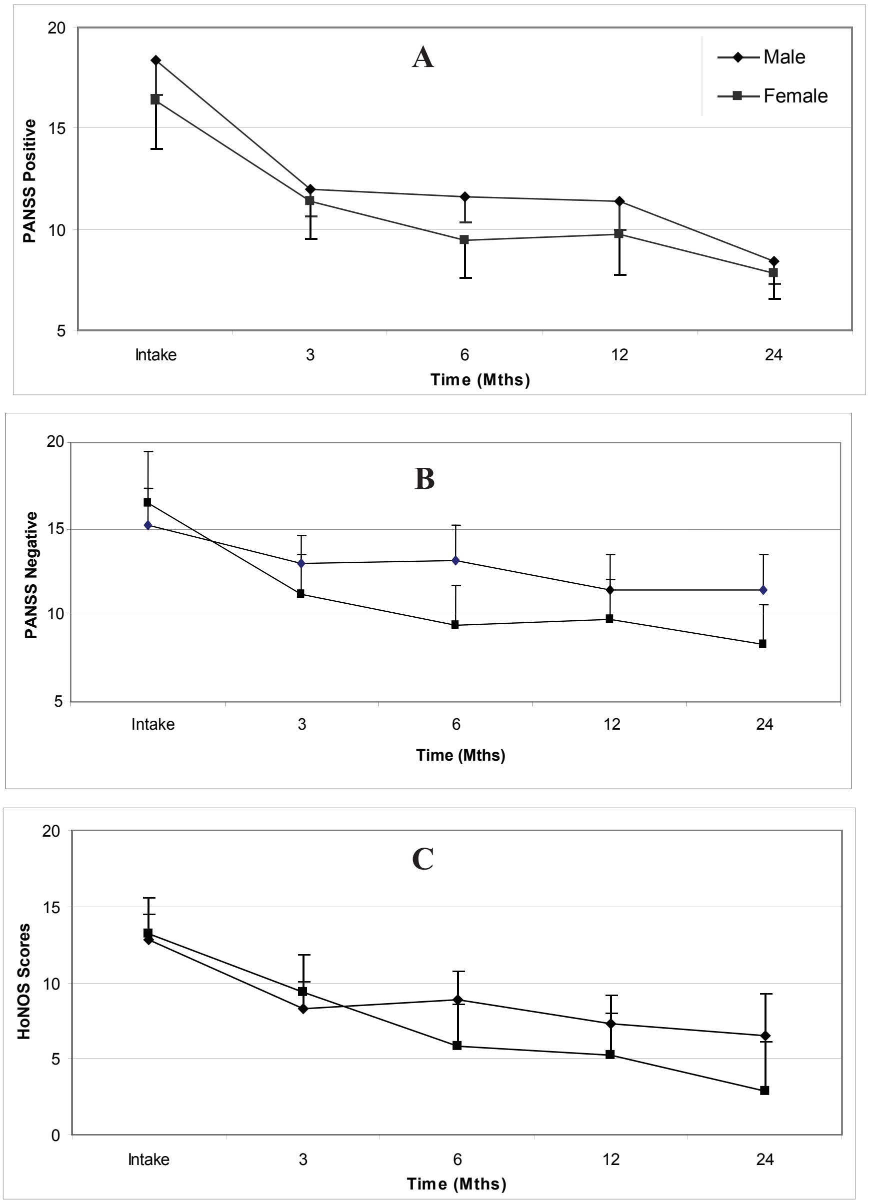
Duration of Untreated Psychosis

The estimated DUP ranged from 0 to 204 months with a median of 5.5 and a mean of 14.5 (SD =30). There was no significant relationship found between DUP and symptom severity or HoNOS scores at intake or over time.

Engagement and Medication Compliance

Patients' medication compliance and engagement with the service showed strong positive correlations (*p* = .001) at all four time points following intake. A significant interaction was found between engagement with the EIS and PANSS Negative (*p* =.022) and HoNOS (*p* =.037) scores over time, but not for PANSS Positive scores. Figure 2 displays the mean symptom severity and HoNOS scores for the different levels of engagement with the EIS. In all three graphs there is a non-significant trend towards those patients with low engagement with the EIS having higher mean scores over time than those with medium or high levels of engagement. The significant interaction between level of engagement and PANSS Negative scores over time can be seen in Figure 2B. A similar pattern is evident in Figure 2C displaying the HoNOS scores, with the mean scores of patients with high and medium engagement scores improving at a more constant rate than those with low engagement scores.

Figure 1. Male and female EIS patients' mean scores (95% CI) for A) PANSS Positive, B) PANSS Negative, and C) HoNOS over time.



The results of the mixed model analysis revealed a significant time effect for medication compliance and PANSS Positive (*p* =.027) and HoNOS (*p* =.021) scores over the four time periods. Patients with low medication compliance had consistently higher mean PANSS Positive scores from intake through to 24 months compared to those patients with medium or high medication compliance.

The female patients' mean scores for engagement were significantly higher than the male means at three months (*p* = .009), six months (*p* < .001) and 12 months (*p* <.001). Their medication compliance was higher than the males' mean scores only at six (*p* = .09) and 12 months (*p* = .03).

At three months Maori engagement (*p* < .001) and medication compliance (*p* = .015) were lower than that of Europeans, but did not differ thereafter. There were no significant differences between the mean engagement and mean medication compliance scores over the four time periods for patients of different age groups.

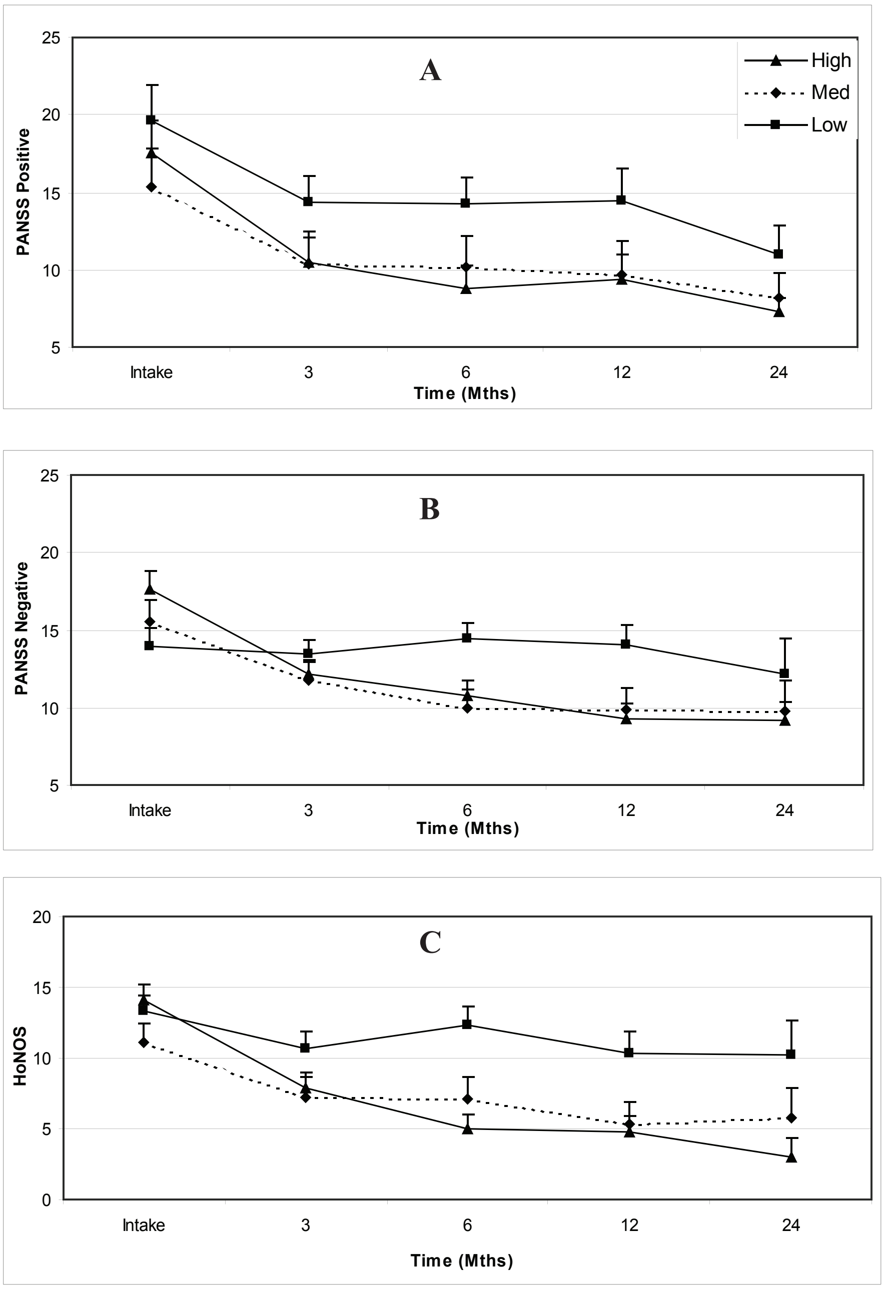
Child abuse

Child physical abuse (CPA) was significantly correlated with a low level of engagement at three months. Furthermore, childhood sexual abuse (CSA) and CPA were both significantly correlated with decreased levels of medication compliance at three months.

Patient Satisfaction

Out of the 100 patients included in the analysis, only the 40 patients involved with the EIS at the time of research were sent an anonymous questionnaire and thirteen patients responded. Table 4 shows that this small sample at least were not only satisfied with the service overall (and especially with the staff's sensitivity to issues of difference) but attributed some of their self-reported progress to the service. In the open-ended comments section the aspects mentioned as being most helpful included: counselling, having people understand, knowing someone cares and is taking time to see you, and medication. Aspects that some patients viewed as being least helpful included; feeling that their experiences were being distorted in order to fit into diagnostic categories, and feeling pressured to do things that they didn't want to do. Experiences of medication varied. For example one person said, in terms of what was most helpful "I think it was the medication", while another wrote "Consider education and communication and verbal reasoning to counter my false beliefs!! NOT MEDICATION."

Figure 2. EIS patients' mean scores (95% CI) for A) PANSS Positive, B) PANSS Negative, and C) HoNOS over time according to the patients' mean level of engagement.



Four people (two of each gender) participated in the interviews regarding patient satisfaction. The most commented on aspect of the service which they appreciated was the EIS staff. They reported that the staff were available, friendly and professional. Three of the four interviewees were from a cultural background other than New Zealand/ European. Their comments regarding culture varied. One interviewee had a mental health worker of the same culture organized by the EIS to aid in the patient's recovery. Two interviewees had no contact with a mental health worker from their culture, and one had not considered this as a possibility until asked in the interview.

Again, the interviewees' experience of medication varied but all reported being given information regarding psychosis, symptoms, medication and side-effects. All reported having some control over the medication and that a collaborative approach had been adopted by their psychiatrist.

Discussion

Improvement, Engagement and Medication Compliance

Patients involved with the EIS had a significant decrease in the severity of their positive and negative symptoms of psychosis. They also had a significant improvement in their daily functioning as measured by the HoNOS. The patients improved significantly within the first three months of contact with the service. This improvement seemed to continue for those patients who remained involved in the service.

The findings suggest that both length of contact with the service and level of engagement were related to positive outcomes. Although the sample of

Table 4. EIS patients' mean responses to the satisfaction questionnaire

	About the Service	
1.	Overall, how satisfied do you feel with the service?	4.1
2.	In general, how did you feel about relationships between yourself and the staff?	4.3
3.	Was this service sensitive to your cultural identity?	4.6
4.	Was this service sensitive to your sexual preferences?	4.5
5.	Was this service respectful of your needs as a man or woman?	4.5
6.	How helpful was the information about your mental health that you received?	4.2
7.	Were you kept well informed about your treatment?	4.2
8.	How much control did you feel you had over your treatment?	3.6
	About Changes Since First contact with Service	
9a.	Has your mental health improved since your first contact with the service?	4.4
9b.	Do you think your contact with the service had anything to do with this?	4.0
10a.	Has your ability to carry out everyday activities changed since you first had contact with the service?	4.5
10b.	Do you think your contact with the service had anything to do with this?	3.3
11a.	Has your sense of happiness and well being changed since you first had contact with the service?	4.6
11b.	Do you think your contact with the service had anything to do with this?	3.6

Note: Means based on patients ratings on five point Likert scale (eg. 1=dissatisfied/unhelpful and 5=very satisfied/very helpful, or, for 9b, 10b & 1b, 1=not at all and 5= a lot).

questionnaire respondents were small they believed the service did, to varying degrees, have something to do with their improvement in 'mental health', 'ability to carry out everyday activities' and 'sense of happiness' (Table 4).

It is possible that the engagement rating is to some degree measuring the quality of the therapeutic relationship with the staff. Previous research that has found therapeutic relationship to be positively associated with greater gains in treatment (Frank & Gunderson, 1999). Although no firm conclusions can be made from this research the finding that high engagement is related to greater improvement is consistent with this previous research.

Early symptom reduction, for whatever reason, could lead to increased engagement and medication compliance. Alternatively good engagement in general, and/or more specifically high medication compliance, might have caused the symptom reduction. It is of course more than possible that these relationships were reciprocal. The possibility that patients with a good therapeutic relationship tend to take their medication as recommended is consistent with previous research that found a strong therapeutic alliance was associated with greater acceptance of both pharmacotherapy and psychotherapy (Frank & Gunderson, 1999).

Duration of Untreated Psychosis

Numerous studies have found relationships between DUP and either symptom severity or treatment outcome (Compton, McGlashan & McGorry, 2007). Nevertheless, the current study's finding that there was no significant relationship found between DUP and symptom severity or HoNOS scores at intake or over time is not the only failure to replicate these relationships. A recent study of first psychotic episode patients found no differences between short and long DUP groups in terms of positive or negative symptoms or relapse rates (Ucok, Polat, Cakir & Genc, 2006).

Gender

Overall, the women were more engaged with the EIS, had higher medication compliance, and had slightly greater improvement in symptoms. At three months female patients had higher levels of engagement but not higher levels of medication compliance. Based on these results a possible hypothesis is that the greater improvement in females could be due to their good early engagement rather than higher medication compliance.

Perhaps more attention should be paid to the interpersonal qualities of staff that are associated with enhanced engagement with male patients. This type of information is likely to be obtained through asking male patients for their views, early in their treatment, on what they find helpful and less helpful about the service. The findings could then be used to help train staff so that their therapeutic alliance with male patients can be improved.

Cultural Sensitivity

There was a significant interaction between culture and PANSS Negative symptom scores over time but, because of small sub-sample sizes, no definitive conclusions could be made about whether the EIS may have been less effective for certain cultural groups. This finding suggests a need to repeat this research, with a larger sample size, to further investigate this possible interaction between symptom improvement and culture.

To improve the cultural appropriateness of the service the EIS both consults and involves Maori and Pacific Island mental health services when treating patients from these cultures. The EIS's consideration of a patient's culture and viewing culture as important in meeting the needs of the patients was evident during one of the research interviews. One interviewee particularly appreciated the EIS team arranging a mental health worker of the same culture, but wished this had been organised earlier.

Child Abuse

The findings regarding child abuse suggest a history of abuse may influence level of compliance and engagement with the service. A New Zealand study found that service users with a history of child abuse were significantly more likely than their non-abused counterparts to feel that their diagnosis failed to describe their difficulties and to feel dissatisfied with their treatment (Lothian & Read, 2002). Patients with a history of child abuse have been found to experience difficulty forming trusting interpersonal relationships (Goodman, Rosenberg, Mueser, & Drake, 1997). In the context of a therapeutic relationship, the therapist may need to take an active role to help the patient explore the connection between their past abuse and the content of their symptoms. It has been found that when patients make this connection between past abuse and their symptom content, the level of distress caused by their symptoms tends to improve (Fowler, 2000). Several large-scale studies, summarised in a recent review (Read et al., 2005), have found that child abuse is a causal factor for psychosis. It is possible, as found in a multi-centre study of depression (Nemeroff, Heim, & Thase, 2003), that psychological approaches are more effective than medication for some psychotic people who suffered childhood trauma.

Several studies have shown that adult mental health services fail to identify the majority of childhood trauma (Lothian & Read, 2002; Read & Fraser, 1998; Read et al., 2001; Wurr & Partridge, 1996), with some studies finding that this is particularly the case for people with diagnoses indicative of psychosis (Read & Fraser, 1998; Young, Read, Barker-Collo, & Harrison, 2001). A recent New Zealand study found that the average time it took women who had been sexually abused as children to tell anyone was 16 years. Of those who had used mental health services 63% had never been asked about abuse by mental health staff (Read, McGregor, Coggan, & Thomas, 2006). It is therefore incumbent on mental health services to ensure that all clients are asked about childhood trauma as part of a comprehensive psycho-social history (Cavanagh, Read, & New, 2004; Read, Hammersley, & Rudegeair, 2007; Young et al., 2001).

Patient Satisfaction

Previous findings have emphasised the importance of a collaborative therapeutic alliance between patients and staff in aiding recovery (Fitzgerald & Seeman, 2000; Jackson, Hulbert, & Henry, 2000; Mosher, Hendrix, & Fort, 2005). It was the positive therapeutic relationships with EIS staff members that the patients consistently commented on as being the most helpful, rather than any specific treatment modality or technique. The participants described the staff as friendly as well as professional. The patients believed that the staff cared about them. Patients also appreciated the staff's respect for their religion and culture and did not feel any stigma or judgement from the staff regarding their mental illness.

Study Limitations

The absence of a control group renders any definitive conclusions about the effectiveness of the service in general, or in comparison to other treatment approaches, problematic. The small numbers involved for the satisfaction surveys and interviews means there may well have been a significant sample bias. Therefore conclusions or generalisation from the questionnaires or interviews are not possible. It is possible that the outcome measures may have been biased as they were completed by the EIS staff rather than independent raters.

Conclusion

Patients' outcome measures were found to improve significantly within the first three months of being involved with the EIS. The outcome measures continued to improve significantly after the initial three month period for those patients who remained in the service. There was some evidence to suggest that those clients who gained more improvement during the first three months and over the subsequent months made it more likely for them to remain involved with the service. Medication compliance and engagement with the service were strongly correlated. Overall, women were more engaged with the EIS, had higher medication compliance, and had slightly greater improvement in symptoms compared to men. Based on this and in conjunction with the qualitative data a possible hypothesis could be that the effectiveness of the service may be largely dependent on the relationship staff and patients are able to establish during the initial stages of treatment. It must be repeated, however, that the sample sizes for the interviews and surveys was small. Due to the significant gender difference in terms of engagement and compliance further research looking into improving the engagement of male clients is warranted. .

Some examples from the questionnaire, about what was considered helpful, included: "Knowing someone cares and is taking the time to see you: and "For them to understand what I was going through and someone to talk to about it". The qualities required in order to form a positive relationship were described by one of the interviewees in the following way:

"The people have been really, really friendly which has probably been one of the best parts that I enjoyed. There was no stigma for any mental health problems…they don't judge you…so they treat you like individuals and your own person."

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