The impact of a specialized inpatient and day patient group programme on clinical outcome in older adolescents and young adults with mental illness

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Introduction. Effective transition from child and adolescent mental health services (CAMHS) to adult services is one of the main challenges currently facing child psychiatry today.

The Young Adult 1Programme (YAP) based at St. Patrick's University Hospital Dublin, is a group based day programme especially designed to meet the needs of younger people aged 18–25 and support them through this difficult period.

Aims. To examine the effectiveness of participation in YAP for young adults with mental illness. To determine whether participation in particular aspects of the programme prove more beneficial and what factors might be associated with outcome.

Method. All patients enrolled in YAP between 1 September 2011 and 31 August 2012 were included in the study. Each patient was assessed using the Health of the Nation Outcome Scales (HONOS) and Global Assessment of Functioning (GAF) rating scale before beginning the programme and after discharge in order to evaluate improvement. The frequency of attendance at individual group sessions was recorded. Patient and illness variables were also recorded, for example demographics, diagnosis.

Results. A total of 101 service users were in enrolled in YAP during this 12-month period. Eight service users could not be used for analysis, as they did not have a complete data set, mostly due to failure to attend for discharge HONOS/GAF ratings.

Using a paired sample *t*-test, there is a significant reduction in HONOS: Mean df = 1.3, s.d. = 1.09 (95% CI = 1.08–1.53), $p < 0.001$.

Using a paired sample *t*-test, there is a significant increase in GAF: Mean df = 9.25, s.d. = 7.69 (95% CI = 7.66–10.83), $p < 0.001$.

Improvements in HONOS and GAF scores are significantly correlated with better attendance at the programme ($p < 0.04$, <0.00 respectively).

Conclusion. More attendance at YAP sessions correlates with better improvement in both HONOS and GAF rating scores.

Introduction

Adolescence and early adulthood is a critical time for personal development. It is also the age when three quarters of mental illnesses develop (McGorry *et al.* 2007). These conditions can impact severely on individuals' development, severely effecting their self-esteem, functioning and capacity to achieve personal goals in life. The Young Adult Programme (YAP) based at St. Patrick's University Hospital Dublin, is a group-based day programme especially designed to meet the specific

needs of younger people aged 18–25 with emerging or existing mental illnesses, thereby bridging the gap between child and adult services. YAP is staffed by a multidisciplinary team and forms part of the Young Adult Service. YAP aims to help one develop a better understanding of one's mental health problems, access to support from others with similar experiences, and solutions to achieving recovery and preventing relapse.

One Australian study from 2011 reported improved outcomes following treatment with an adolescent day programme (ADP). Statistical and clinical examinations revealed the reported outcomes following ADP treatment were at least comparable, and sometimes significantly better, when compared to the reported

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outcomes following outpatient treatment excluding ADP involvement (Kennair *et al.* 2011).

Esker & Harkin (2012) demonstrated that a 6-week psychoeducation programme can be a useful intervention to improve adherence in patients undergoing bipolar affective disorder rehabilitation.

Ritschel *et al.* (2012) showed that an outpatient intervention was effective in reducing depression and anxiety and increasing hope. While they were specifically studying the use of dialectal-based therapy, the study sample was similar to YAP in terms of diagnostic profile and mode of treatment delivery. The age profile ranged from 18 to 73 years.

Description of YAP

YAP is a 6–8-week mental health group programme for young people between the ages of 18 and 25 and in the acute phase of at least one mental disorder. Patients can join the programme at any stage in its cycle and can also remain in the programme for as long as they desire (i.e. beyond the 8 weeks cycle). The programme runs from Monday to Friday with a 2-hour session in the morning followed by a second 2-hour session in the afternoon. Content of sessions ranges from group psychotherapy, psychoeducational, occupational therapy and social activities. Groups vary in size (up to 20) depending on the activity/session. All patients are either inpatients or outpatients of St. Patrick's Hospital and are covered by private health insurance. Patients can be referred from any of St. Patrick's Mental Health Services but must be aged 18–25 years old at the time of referral. Some patients attend other group programmes within St. Patrick's University Hospital, at the same time as. The YAP coordinator provides an initial assessment of referred patients' mental health needs, tailors YAP to meet these needs, orientates patients into YAP, monitors their progress through YAP and provides regular feedback to referrers (Fig. 1).

Study aim

- To describe the population that attends YAP.
- To discover if participation in YAP improves patient outcomes.
- To determine which particular aspects of the programme prove most beneficial.
- To determine if any other factors/study variables are associated with outcomes.

Method

This was a prospective observational study of a group-based clinical intervention, that is YAP for young people

	Monday	Tuesday	Wednesday	Thursday	Friday
11:00-13:00	Orientation / Q&A	'Ask the Doc'	Goal setting	Gym	Cookery
14:00-16:00	Mental health awareness	Occupational therapy	Group discussion	CBT	Outside activity

Fig. 1. Sample timetable of Young Adult Programme. CBT, cognitive behavioural therapy.

with mental illnesses. The study analysed the association between attendance at YAP and clinical/functional outcomes. Individual psychometric measures were rated at the commencement and completion of YAP.

Entry criteria for the study were patients enrolled in YAP between 1 January 2011 and 31 August 2012. Excluded were those service users who did not have a complete record of outcome scores (this means that they did not attend for their discharge assessment, therefore did not have an assessment of their functioning ability post attendance at YAP).

Our treatment outcomes were assessed using the Health of the Nation Outcome Scales (HONOS, Theodoridou *et al.* 2011) and Global Assessment of Functioning (GAF, Sonnesson *et al.* 2006) rating scales. HONOS involves 12 simple scales on which service users with severe mental illness are rated by clinical staff. The scales cover a wide range of health and social domains – psychiatric symptoms, physical health, functioning, relationships and housing. Each scale is marked out of four dependent on severity and a total mark is given. The GAF is a numeric scale (0 through 100) used to rate subjectively the social, occupational and psychological functioning of adults. This information is useful in planning treatment and measuring its impact, and in predicting outcome.

Each patient was assessed using the HONOS and GAF rating scale before beginning the programme and again after discharge. The psychiatric nurse facilitating the programme measured the scores. There are two psychiatric nurses who co-ordinate the programme and one of them would assess each service user individually. They are trained and qualified in use of both HONOS and GAF. Service user's scores were then compared before and after enrollment in YAP and used as a tool to evaluate effectiveness of attending the programme.

Pre-study patient characteristics (age, gender, occupation, accommodation status, diagnosis and medications) were collected from paper hospital records retrospectively.

As illustrated in the above timetable, YAP has a total of 10 different types of sessions per week. Once enrolled in YAP, service users are welcome to attend all the sessions. However attendance is not a compulsory

aspect of the programme, therefore you can remain enrolled in YAP with as much or as little attendance as you wish.

Attendance at each session was recorded for each service user. This allowed us to calculate the number of sessions that a service user attended in total during the course of their enrollment in YAP (total number of sessions attended), as well as the number of times a service user attended each individual type of session (total attendance of particular type of session) as seen in Fig. 3. These values enabled us to identify which sessions were most popular.

As service users were invited to attend every session while they remained enrolled in the programme (scheduled to attend), we were able to calculate proportionally which sessions were most popular. For example, one service user may have been enrolled in the programme over a long period of time (as there is no limit to length of enrollment) and so over that time they may have accumulated many sessions. However, if another service user who was more enthusiastic regarding engagement with the programme, attended the same number of sessions cumulatively but over a much shorter space of time then we would consider this as better 'proportional attendance' as in proportional to their length of enrolment. We wished to understand if this 'proportional attendance' would have any effect on functional outcomes.

Data were collated and statistical analysis (paired sample *t*-test and multiple linear regression analysis) was performed using 'SPSS for Mac'. This enabled us to correlate change in HONOS/GAF scores to attendance at particular aspects of the programme.

Paired sample *t*-test was performed to compare functional outcome pre and post attendance at YAP.

Linear regression analysis was performed to determine if there existed any correlation between study variables and outcomes, as measured by changes in GAF or HONOS scores.

The study variables include: age; gender; occupation; accommodation status; diagnosis; medications; attendance of particular type of YAP sessions; proportional attendance of particular type of YAP sessions; total attendance of YAP; proportional total attendance of YAP.

Results

A total of 101 service users were included in the study. Eight service users did not complete the study (failure to attend discharge HONSOS/GAF assessment). Thus 93 data sets were analysed.

Of these 93 service users there were 48 (52.7%) males to 45 (48.3%) females. Ages ranged from 18 to 25 (as a prerequisite of the programme) mean 22.0 years. Thirty-one (33.3%) of the service users were students of 3rd level education, 13 (14.0%) were still enrolled in 2nd level

education, 10 (10.8%) were in full time employment, 5 (5.4%) in part-time employment and a total of 34 (36.6%) were neither employed nor in education. Eighty (86.0%) service users lived at home with their parents, four (4.3%) lived alone in rented accommodation and nine (9.7%) lived in shared accommodation.

The diagnostic breakdown is illustrated in Fig. 2. Personality disorders were most prevalent among this group and there was a high incidence of comorbidity with alcohol/drugs.

The majority of service users enrolled in YAP during this period was prescribed medication 86/93 (92.5%). The most commonly prescribed drugs were anti-depressants (69, 74.1%). Twenty-nine (31.2%) service users were prescribed anti-psychotic medication, 13 (14.0%) mood stabilising medication and 23 (24.7%) were prescribed anxiolytics. Forty-eight (51.6%) monotherapy, 38 (40.9%) were treated with polypharmacy.

The mean total number of sessions attended per service user was 35.3 (s.d. = 28.1, 1–142).

The mean length of enrollment in YAP (in terms of number of sessions enrolled for) was 56.9 (s.d. = 44.0, 4–179).

The mean proportional attendance to all aspects of the programme per service user was 64% (s.d. = 27).

Figure 3 illustrates the total amount each particular type of session was attended during the studied period, with 'occupational therapy' (OT), 'cookery', 'ask the doc' and 'outside activity' proving to be the most popular.

Regarding changes in outcomes pre and post attendance at YAP, using a paired sample *t*-test, there is a significant reduction in HONOS: Mean df = 1.30, s.d. = 1.09 (95% CI = 1.08–1.53), $p < 0.001$ and a significant increase in GAF: Mean df = 9.25, s.d. = 7.69 (95% CI = 7.66–10.83), $p < 0.001$ (Table 1).

Using linear regression analysis, there was a found to be a statistically significant reduction in HONOS score associated with attendance of the 'CBT', 'ask the doc' and 'gym' sessions in particular ($p < 0.02$, <0.02 and <0.03, respectively) (Table 2) and these same three
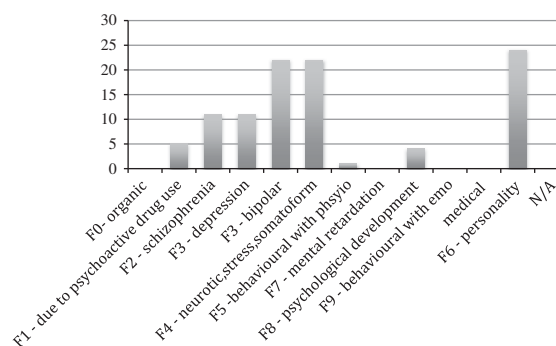

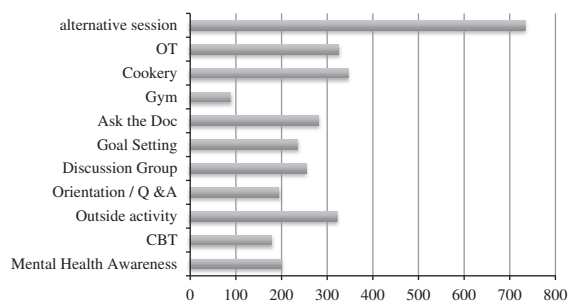**Fig. 2.** Diagnostic breakdown of service users attending YAP. YAP, Young Adult Programme.

Fig. 3. Total attendance of particular type of session. CBT, cognitive behavioural therapy.

Table 1. *Comparison of functional outcomes pre & post attendance at YAP*

	Pre	Post	Difference (s.d.) [95% CI]	p-value
HONOS score (mean)	12.1	10.8	1.3 (1.09) [1.08, 1.53]	<0.01
GAF score (mean)	60.0	69.3	9.3 (7.7) [7.7, 10.8]	<0.01

YAP, Young Adult Programme; HONOS, Health of the Nation Outcome Scales; GAF, Global Assessment of Functioning.

sessions remained statistically significant when adjusted for other study variables (Table 3) ($p < 0.03$, <0.00 and <0.01). There was no statistically significant improvement in GAF score associated with any one particular type of session.

Again using a linear regression analysis, there was found to be a statistically significant improvement in both HONOS and GAF scores associated with an increase in the total number of sessions attended overall during the course of one's enrollment in YAP (adjusted for pre study variables) (Table 4) (HONOS $p < 0.04$, GAF $p < 0.00$).

Discussion

Weir *et al.* undertook a systematic review of all published literature assessing the effectiveness of day programmes in young adults with mental illness. The quality of the studies identified was low. Of the 231 studies identified in the search, 26 were relevant to the review. The majority of studies identified day programmes as effective (Weir & Bidwell, 2000).

In 2010, the *British Journal of Psychiatry* published an Australian randomized control trial of a group based psycho-social intervention which proved better results than traditional therapy for preventing relapse in bipolar affective disorder (Castle *et al.* 2010).

However, there are no similar studies of the young adult population specifically.

Table 2. *Correlation of improvement in outcomes with attendances at particular sessions*

Overall attendance per session	β (HONOS)	p-value (HONOS)	β (GAF)	p-value (GAF)
Mental health awareness	−0.63	0.67	0.21	0.2
CBT	0.33	0.02	−0.09	0.57
Outside activity	0.30	0.12	−0.20	0.33
Group discussion	−2.01	0.41	−0.56	0.84
Goal setting	0.05	0.74	0.04	0.83
Ask the doc	−0.40	0.02	0.07	0.70
Gym	−0.26	0.03	0.01	0.97
Cookery	−0.017	0.35	0.25	0.22
Occupational therapy	−0.22	0.25	0.23	0.28
Alternative session	0.10	0.41	−0.20	0.15

HONOS, Health of the Nation Outcome Scales; GAF, Global Assessment of Functioning; CBT, cognitive behavioural therapy.

Table 3. *Correlation of improvements in HONOS score with attendance at particular type of sessions despite adjusting for pre-study characteristics*

Variable	β	p value
Age	0.18	0.07
Accommodation	0.11	0.24
Marriage	−0.04	0.67
Diagnosis (axis I)	0.11	0.39
Co-morbidity	0.15	0.12
Diagnosis (axis II)	0.15	0.27
Prescribed anti-psychotic	−0.06	0.57
Prescribed antidepressant	−0.04	0.74
Prescribed mood stabiliser	0.07	0.54
Prescribed anxiolytic	−0.04	0.69
Overall attendance at CBT	0.29	0.03
Overall attendance at ask the doc	−0.55	0.00
Overall attendance at gym	−0.30	0.01

HONOS, Health of the Nation Outcome Scales; CBT, cognitive behavioural therapy. Dependent variable: change in HONOS score

In order to truly evaluate the validity of any intervention and to prove cause and effect, it would be important to have evidence of a blinded randomized control trial. A study of this kind does not appear to have been performed in this specific population of patients.

There is a dearth of good quality literature into the use of group day programmes specifically for young adults with mental health illness. Our study was important to add much needed further evidence to this field.

The studied population was evenly divided between males and females. Of note, the majority of service users were living at home with their parents.

Table 4. *Correlation between total overall attendance and improvements in functional outcomes*

Variable	β (HONOS)	*p*-value (HONOS)	β (GAF)	*p*-value (GAF)
Age	0.16	0.16	−0.15	0.17
Gender	−0.7	0.55	0.06	0.63
Occupation	0.02	0.83	−0.04	0.72
Accommodation	0.13	0.24	−0.16	0.13
Marriage	−0.09	0.43	−0.07	0.52
Diagnosis (axis I)	0.16	0.28	0.12	0.42
Co-morbidity	0.16	0.14	−0.08	0.49
Diagnosis (axis II)	0.14	0.35	−0.01	0.97
Prescribed antipsychotics	−0.04	0.71	0.22	0.06
Prescribed antidepressants	0.06	0.62	0.04	0.72
Prescribed mood stabilizer	0.15	0.22	0.00	0.99
Prescribed anxiolytic	0.02	0.90	−0.02	0.86
Total sessions attended overall	−0.23	0.04	0.34	0.00

HONOS, Health of the Nation Outcome Scales; GAF, Global Assessment of Functioning. Dependent variable: Changes in HONOS score. Dependent variable: Changes in GAF score.

The most frequently observed diagnosis of those who attend YAP is borderline personality disorder and there is a prevalence of associated drug and alcohol misuse. This is consistent with the literature in that 'personality disorders commonly occur in people with alcohol and drug use disorders' (Grant *et al.* 2004).

We also see high levels of prescribing psychiatric medications within this population. Again, this would be consistent with the literature but does not necessarily imply best practice (Ingenhoven, 2015).

A statistically significant improvement in both HONOS and GAF scores following attending YAP was demonstrated by use of a paired sample student *t*-test (Table 1). The 'HONOS working party' has suggested that a clinically significant change in HONOS requires a difference of 6 (The HONOS Working Party, 2010). However, this is still under review as organizational reports did not believe that this adequately reflects real changes in outcomes for service users.

On average YAP sessions were well attended by those enrolled in the programme. If we discount the 'alternative' session, as it is a collection of improvised/impromptu sessions devised at times when the scheduled session could not take place, then we see that the 'cookery' session and the 'activity' session (e.g. Afternoon spent at the cinema) received the highest overall attendance (Fig. 3). These session are, by nature, quite informal and do not require service users to engage with medical staff in a clinical sense. Therefore, it is not surprising that these types of sessions would prove popular with all service users, including those that do not feel like discussing their mental health issues at that time. While these sessions proved to be the most popular, or at least, the best attended, attendance at these sessions in particular did not correlate with an improvement in functional outcomes.

We do however; see a statistically significant improvement in HONOS scores with attendance at 'gym', 'CBT' and 'ask the doc' (Table 2). This same improvement is seen when adjusted for pre-study variables (Table 3).

Interestingly we note that the 'gym' session is poorly attended overall. However, attendance at the 'gym' session did show to have a statistically significant improvement in HONOS score. The poor attendance at the 'gym' may be explained by the indifference to physical exercise, which is commonly observed among those with acute mental health issues.

Using linear regression analysis, overall attendance (i.e. total number of sessions attended) is correlated with improvements in both HONOS ($p = 0.04$) and GAF ($p = 0.00$) scores (Table 4). Proportional attendance (i.e. the total number of session attended as a proportion of the total number 'scheduled to attend') does not correlate with improved HONOS or GAF scores. This would imply that rather than the frequency of attendance (which may reflect enthusiasm to engage with the programme), it is the accumulation of sessions which proved most beneficial. This would suggest that the most benefit from YAP is derived from increased exposure to its content.

Again, using a linear regression analysis, we found that there was no correlation between changes in HONOS or GAF score and any of the other study variables (e.g. gender, demographics, diagnosis, prescriptions).

The main strength of our study is that it was prospective in design and thus limiting potential for retrospective bias. The study took place over 1 complete calendar year with near complete inclusion of service users attending during that time period.

Use of both HONOS and GAF as rating scores is well described in the literature and therefore an appropriate technique for assessing outcomes. However, the ratings were not undertaken blind and were assessed by clinicians running the programme. There are two psychiatric nurses coordinating the programme who are both trained in HONOS and GAF assessments. Both of these programme coordinators were responsible for performing the initial and discharge HONOS/GAF assessments (however only one person at a time would do the assessment).

Participation in the Young Adult Programme at St. Patrick's Hospital is dependent on private health insurance, thus making the studied population less representative.

While our results were encouraging, assessment of mental health outcomes using rating scales is subjective in nature and therefore has the potential for bias. Further studies over a longer duration, including a larger population and with raters/subjects blind to the intervention would be of benefit in the future.

Another potential bias would be that those service users who attend more may actually be doing so because they are healthier and therefore more able to do so.

This could only be corrected for by performing a blinded randomized control study with YAP attenders functional outcomes compared to those not enrolled in such a programme. However, this still would not account for the improvement in HONOS and GAF scores seen in this study, as our study endpoint was not the score itself but the change in score over the course of the YAP programme.

Conclusion

YAP appears to be an effective intervention in youth mental health. In particular, both the clinical and functional outcomes (as measured by HONOS and GAF) improve with the number of sessions of YAP attended. Improvement of HONOS and GAF is independent of diagnosis or demographics.

Further studies are required, especially randomized control trials, to enhance the evidence base for use of day programmes in youth mental illness

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St. Patrick's Mental Health Services research ethics committee granted ethical approval. The data collected did not affect patient care and were securely collected and stored.

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Conflicts of Interest

The authors have no competing interests to declare.

Ethical Standards

St. Patrick's Mental Health Services research ethics committee granted ethical approval. The data collected did not affect patient care and were securely collected and stored.

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