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BRIEF COMMUNICATION

The Effects of a Changing Culture on a Child and Adolescent Psychiatric Inpatient Unit

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Abstract

Objectives: To examine the impact of restructuring a child and adolescent psychiatry inpatient unit on reportable incidents (including verbal or physical aggression), seclusion, security, constant observation, sick leave and lengths of stay. **Methods:** Data was collected regarding a seven-bed child and adolescent psychiatric unit between 2008 and 2010, comparing data from 2008 and 2009 (before) to 2010 (after). **Results:** Occurrences, sick leave, security, seclusion and constant observation all decreased in 2010 compared to 2008 and 2009, although only the decrease in constant observation was statistically significant. Length of stay was not affected. **Conclusions:** A broad representation of multidisciplinary team members, increased consistency and improved communication may be associated with reductions in reportable incidents, seclusion, security and constant observation.

Key Words: *youth, patient admission, patient care team, psychiatric department, collaborative problem solving*

Résumé

Objectifs: *Examiner l'effet de la restructuration d'une unité d'hospitalisation pédopsychiatrique sur les incidents devant être signalés (y compris l'agression verbale ou physique), l'isolement, la sécurité, l'observation constante, les congés de maladie, et les durées de séjour.* **Méthodes:** *Les données ont été recueillies pour une unité psychiatrique de sept lits pour enfants et adolescents entre 2008 et 2010, et comparées avec les données de 2008 et de 2009 (avant) à 2010 (après).* **Résultats:** *Les incidents, les congés de maladie, la sécurité, l'isolement et l'observation constante ont tous diminué en 2010 comparativement à 2008 et 2009, bien que seulement la diminution de l'observation constante soit statistiquement significative. La durée de séjour n'a pas été touchée.* **Conclusions:** *Une large représentation des membres de l'équipe multidisciplinaires, une cohérence accrue et une meilleure communication peuvent être associées à des réductions des incidents devant être signalés, de l'isolement, de la sécurité et de l'observation constante.*

Mots clés: *adolescents, hospitalisation des patients, équipe de soins des patients, département de psychiatrie, résolution de problèmes en collaboration*

Introduction

Child and adolescent psychiatric inpatient unit staff struggle to manage acutely aggressive behaviours, affecting unit safety, staff morale and efficacy (Dean, Gibbon, McDermott, Davidson, & Scott, 2010). Researchers have established that coercive tactics can negatively affect the wellbeing of both patients and staff and that non-coercive methods are preferable (Mohr, Petti, & Mohr, 2003; Sailas & Fenton, 2000). Greene and Albon (2005) has developed one such non-coercive model, The Collaborative Problem Solving (CPS) model, focusing on teaching children the necessary skills to respond non-aggressively, rather than resorting to punitive or coercive methods. Greene and others (2006; Martin, Krieg, Esposito, Stubbe, & Cardona, 2008; Open Arms Program, The Cambridge Hospital Child Assessment Unit, 2003) have successfully adapted this model to inpatient settings, resulting in near elimination of restraint and seclusion use.

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The Janeway Psychiatry Inpatient Unit in St. John's, Newfoundland is the only inpatient child and adolescent psychiatric facility in the province. This unit experienced a marked escalation in physical aggression, constant observation, security, and staff sick leave in 2008 and 2009. External reviewers assessed the unit in June 2009, making several recommendations. Unit staff and administration have implemented many of these recommendations, including restructuring unit staffing and regular debriefing sessions. Two psychiatrists now provide inpatient care. Previously, eight psychiatrists balanced inpatient and outpatient care. An occupational therapist, three full-time child youth care counsellors, an advanced care practice nurse and a child psychologist have joined the inpatient team. In addition, unit staff have learned and are practicing the CPS model of care.

The authors performed a retrospective quality assurance assessment, examining the impact of restructuring a child and adolescent psychiatry inpatient unit on reportable incidents (including verbal or physical aggression), seclusion, security, constant observation, sick leave and lengths of stay.

Methods

Ethics approval was received from the local health research ethics board.

Data

Data was collected from a patient data registry and monthly statistics. The pre-intervention period was January 1, 2008 to December 31, 2009, while the post-intervention period was January 1, 2010 to December 31, 2010.

The authors chose outcome measures that were available and comparable to those used in previous research in the field (Greene, Ablon, Hassuk, Regan, & Martin, 2006; Martin, Krieg, Esposito, Stubbe, & Cardona, 2008; Open Arms Program, The Cambridge Hospital Child Assessment Unit, 2003). The primary outcome measure was reportable incidents, including verbal or physical aggression, errors made by staff and accidents occurring on the unit. Secondary outcome measures included staff sick leave (number of hours per full-time equivalent (FTE) per month), length of stay (LOS) (days per patient), use of physical restraints (minutes per month), use of seclusion (minutes per month), nursing constant observation (hours per month), and use of security (hours per month). Patient demographics included gender, age and primary diagnosis at time of admission.

Data analysis

Analyses were conducted using the Statistical Package for Social Sciences, version 18.0 (SPSS 18.0). Continuous variables were described using summary statistics such as means and standard deviations. Categorical variables were described using frequencies and percentages. Depending on sample size, each continuous variable was tested for normal distribution using the Shapiro-Wilk ($n \leq 50$) (Shapiro & Wilk, 1965) or Kolmogorov-Smirnov test ($n > 50$) (Stephens, 1974). Outliers (parametric and non-parametric) were identified and censored using Tukey fences (Hoaglin, 2003). Parametric data was compared using the student's *t*-test. Non-parametric continuous data was compared using the Mann-Whitney U test, including confidence intervals (Hart, 2001). Categorical data was compared using χ^2 analysis. The difference was considered statistically significant at $p < .05$.

Table 1. Gender and age

		2008-2009	2010
Gender	Male	41%	49%
	Female	59%	51%
Age	M	14.3	15.0
	SD	2.5	2.4

Results

Demographics

In 2008-2009, 85 patients were admitted (42 in 2008 and 43 in 2009), while 39 patients were admitted in 2010. Of the patients admitted in 2008-2009, 41% were male, versus 49% of those admitted in 2010 (Table 1). There was no significant difference in the gender proportions; $\chi^2 = 0.618$, $df = 1$, $p = .432$.

The mean patient age in 2008-2009 was 14.3 ($SD = 2.5$) and 15.0 ($SD = 2.4$) in 2010 (Table 1). There was no significant difference in the mean patient age; $t = -1.273$, $df = 122$, $p = .205$.

The primary diagnoses at the time of admission are included in Table 2. There was a significant difference in the proportions of patients' diagnoses; $\chi^2 = 23.482$, $df = 13$, $p = .036$.

Reportable incidents

The primary outcome measure, the number of incidents reported on the inpatient unit per month, was normally distributed ($W = 0.943$, $df = 36$, $p = 0.062$). No observations were identified as outliers (greater than 36.8 reports per month). The mean number of incidents reported per month from 2008 to 2009 was 11.5 ($SD = 7.3$) and 6.6 ($SD = 6.3$) in 2010. There was no significant difference in the mean number of incidents reported per month; $t = 1.996$, $df = 34$, $p = .054$.

Table 2. Primary diagnosis

	2008 - 2009		2010	
Primary diagnosis	%	n	%	n
Depressive disorder	23	20	32	13
ADHD	17	15	15	6
Adjustment disorder	16	14	7	3
Anxiety disorder	16	14	5	2
Psychotic disorder	10	9	5	2
Substance related disorder	7	6	2	1
Eating disorder	3	3	0	0
Personality disorder	2	2	12	5
Poisoning	2	2	5	2
Other	2	2	5	2
Pervasive developmental disorder	1	1	5	2
Bipolar disorder	0	0	2	1
Mental retardation	0	0	5	2

Table 3. Primary and secondary outcome measures

	2008-2009			2010		
Measure	M	SD	n	M	SD	n
Incident occurrences (reports per month)	11.5	7.3	24	6.6	6.3	12
Staff sick leave (hours per full time equivalent per month)	13.2	4.6	24	10.4	4.1	10
Constant observation (hours per month)	580.3	225.3	22	372.4	126.9	12**
Seclusion (minutes per month)	49.8	65.1	21	16.7	33.9	9
Security (hours per month)	83.5	133.8	19	35.0	66.2	12
Length of stay (days per patient)	15.2	12.1	74	16.8	14.5	37

**$p < .01$

Constant observation

The number of hours of constant observation by nursing staff each month was not normally distributed ($W = 0.753$, $df = 36$, $p < .001$). Five observations were identified as outliers (greater than 1345.0 hours per month) in the 2008-2009 data. Excluding outliers, the mean number of hours of constant observation by nursing staff each month in 2008-2009 was 580.3 ($Mdn = 586.5$, $SD = 225.3$) and 372.4 ($Mdn = 343.0$, $SD = 126.9$) in 2010. There was a significant difference in the median number of hours of constant observation by nursing staff each month; $U = 50.0$, $p = .002$, 95% CI [81.0, 408.3].

Sick leave

The number of hours of staff sick leave per FTE per month was normally distributed ($W = 0.967$, $df = 34$, $p = .379$). No observations were identified as outliers (greater than 26.3 hours per FTE per month). The mean number of hours of sick leave per month in 2008-2009 was 13.2 ($SD = 4.6$) and 10.4 ($SD = 4.1$) in 2010. There was no significant difference in the mean number of hours of sick leave per month; $t = 1.677$, $df = 32$, $p = .103$.

Seclusion

The number of minutes patients spent in seclusion each month was not normally distributed ($W = .723$, $df = 30$, $p < .001$). Three observations were identified as outliers (greater than 225.0 minutes per month) in the 2008-2009 data. Excluding outliers, the mean number of minutes patients spent in seclusion each month in 2008-2009 was 49.8 ($Mdn = 20.0$, $SD = 65.1$) and 16.7 ($Mdn = 0$, $SD = 33.9$) in 2010. There was no significant difference in the median number of minutes patients spent in seclusion each month; $U = 58.50$, $p = .104$, 95% CI [0.0, 60.0].

Security

The number of hours security was required on the unit each month was not normally distributed (W = 0.656, df = 36, p < .001). Five observations were identified as outliers (greater than 486.6 hours per month) in the 2008-2009 data. Excluding outliers, the mean number of hours security was required on the unit each month in 2008-2009 was 83.5 (Mdn = 18.0, SD = 133.8) and 35.0 (Mdn = 1.5, SD = 66.2) in 2010. There was no significant difference in the median number of hours security was required on the unit each month; U = 81.0, p = .191, 95% CI [0.0, 65.5].

Length of stay

The LOS data was not normally distributed (K = 0.239, df = 124, p < .001). Eleven observations were identified as outliers (greater than 60.6 days) in the 2008-2009 data and two were identified in the 2010 data. Excluding outliers, the mean LOS in 2008-2009 was 15.2 (Mdn = 11.5, SD = 12.1) and 16.8 (Mdn = 12.0, SD = 14.5) in 2010. There was no significant difference in the median LOS; U = 1317.0, p = .745, 95% CI [-5.0, 4.0].

Certifications

There were three patients certified in 2008, one in 2009 and three in 2010. Statistical comparison was not feasible for such small numbers.

Discussion

The patient population was comparable during the pre-intervention and post-intervention periods. The proportions of patient diagnoses were significantly different, which is likely due the small number of inpatient beds and large number of potential diagnoses. While the proportions of the diagnoses may have differed, there is nothing to suggest patient acuity was markedly different, such as the lengths of stay.

The primary outcome measure, the reportable incidents reduced by nearly half but was not significantly less after the restructuring of the inpatient unit. The use of constant observation was significantly reduced following the restructuring of the unit. The rate of staff sick leave, use of seclusion and use of security were decreased following unit restructuring, but the differences were not significantly different. The average LOS was essentially unchanged following unit restructuring. LOS may not be sensitive to the changes in unit functioning affected by restructuring.

It is possible these trends and changes represent changes other than unit restructuring, such as markedly different patient populations, or unidentified factors affecting the operation of the inpatient unit.

Other studies have focused on the use of seclusion and restraints (Greene et al., 2006; Martin et al., 2008; Open Arms Program, The Cambridge Hospital Child Assessment Unit, Cambridge, 2003). This study did not examine the use of physical restraints because they were not used at all during the study period.

Limitations

There were a number of limitations to this study. The overlapping implementation of unit changes and retrospective analysis prevent the assessment of the relative contributions of the changes and interventions.

It is possible that the three year period examined in this study is too short a study period. The roll-out of changes on the unit spans a long time and overlaps both the periods demarcated as “before” and “after”; therefore, these periods are only an approximation and not strictly circumscribed. It was not possible to have strictly circumscribed before and after periods, as the changes were ongoing. The before and after periods may be chosen to more representative of the chronology in a follow-up study once the changes have been in place for some time.

The Janeway inpatient unit is a small seven-bed unit with a small number of patients, possibly affecting the power of this study.

The decreases in incidents, security and constant observation could alternately reflect an increase in chemical restraint in the management of aggression. This can be included in further analysis.

Conclusions

Our study suggests there may be a relationship between a broad representation of multidisciplinary team members, increased consistency and communication on the inpatient unit, and reductions in reportable incidents, constant observation, security and seclusion. It is possible that it is still too early to capture the full effect of these interventions and changes on these outcomes, as the changes on the unit continue to be implemented following the end of the study period, and the changes would be expected to be cumulative over time. This study lays the groundwork for a follow-up study, which can re-examine the impact on these measures after the changes have been in place for a few years. Other centres considering these changes might consider staggering their implementation to permit assessment of their relative contributions and overall effect.

Acknowledgements/Conflicts of Interest

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