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Non-psychiatric health problems among psychiatric inpatients with Intellectual Disabilities

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Abstract

Background—Physical distress resulting from medical problems has been found to cause increased behavior problems in with Intellectual Disabilities (ID). Despite this fact, little has been documented on the medical problems of individuals with ID admitted for inpatient psychiatric care. We conducted an exploratory investigation based on a retrospective chart review of the medical problems and medications for 198 people with ID who had been admitted to a specialized inpatient psychiatric unit. Most patients were referred for admission because of aggressive, disruptive and self-injurious behaviors. The average length of stay was 17.6 days.

Method—We tallied the total number of medical problems and medications listed in the patients' discharge summaries. Because longer stays are disruptive, costly and associated with greater overall impairment, we examined the relationship between length of stay and frequency of discharge medical diagnoses. We also assessed whether or not the number of psychoactive medications correlated with the number of medical diagnoses. The effects of other demographic and diagnostic variables on rates of medical diagnoses and medications were also evaluated, including gender, age group (16–25, 26–45, 46–60, > 60), level of ID (Mild, moderate or severe ID), and diagnosis of an Autism Spectrum Disorder (ASD) or Down syndrome (DS).

Results—Inpatients with a higher number of medical diagnoses had longer lengths of stay (Spearman $r = +.32$, $p < 0.0001$). There was a significant correlation between number of psychoactive medications and number of medical problems (Spearman $r = +.32$, $p < 0.0001$). The most frequent medical comorbidity was constipation, reported in 60% of the inpatients ($n = 118$), while Gastro- Esophageal Reflux Disease (GERD) was identified in 38% ($n = 75$). Older inpatients had an increased number of medical problems, as might be expected, but a diagnosis of an ASD, gender, and level of ID had no detectible effect on rates of either medical diagnoses or medications. There were only 13 inpatients with DS; in this modest sample, it was found that they had higher rates of osteoarthritis, cardiac problems, hearing loss, hypothyroidism, and sleep apnea than peers without DS, as is consistent with previous findings on overrepresented conditions in this trisomy.

Conclusions—In the present study, individuals with ID admitted for inpatient psychiatric care exhibited high rates of medical problems, and these were associated with duration of inpatient stay. Based on these findings, further investigation of the effects of medical problems on behavior among individuals with ID admitted for inpatient psychiatric care is warranted.

Introduction

Physical distress caused by non-psychiatric medical problems can provoke changes in mood and behavior in people with Intellectual Disabilities (ID) (Carr & Owen-Deschryer, 2007;

Nikolov, 2008). Health problems identified as causing or worsening behavior problems in this population are various, ranging from ear infections, premenstrual pain, sleep disturbances, and allergies, to dental pain, seizures, and GI distress (Bohmer et al., 2001; Bosch et al., 1997; Carr et al., 2003; Gunsett et al., 1989; Kennedy & Meyer, 1996; Kennedy et al., 2007; Roberts et al., 2005; Mathews et al., 2008; Molloy & Manning-Courtney, 2003; O'Reilly, 1997). In behavioral terms, feeling ill, in pain or generally distressed because of a physical problem (i.e. constipation, dental pain, UTIs or urinary tract infections) may act as a "setting event" or "establishing operation," (events that increase the probability of occurrence of problem behaviors) (Carr & Owen-DeSchryer, 2007).

Despite the documented link between health concerns and problem behaviors, medical causes for agitated behavior may frequently be missed in people with ID, because they are often poor reporters of their own health issues. In most cases, the history of the present illness must come from caregivers or family members rather than the patient him or herself (Abend & Silka, 1999; Cooper et al., 2006). In fact, numerous reports provide evidence that individuals with ID have higher rates of medical problems than individuals without ID, and they often lack access to appropriate and effective health care (Beange, McElduff, & Baker, 2005; Cooper et al., 2004). Further, when specific efforts are made to examine individuals more carefully (using health checks or screens), previously unrecognized conditions are identified at significant rates (Baxter et al., Cooper et al., 2006; Felce et al., 2008; Lennox et al., 2007).

Though there have been a large number of investigations of health problems among individuals with ID, only a few *specifically* examine the rates and types of health problems that affect individuals with ID receiving treatment for psychiatric or behavioral disorders (Kwok & Cheung, 2007). Ryan and Sunada (1997) described a variety of medical problems affecting a series of outpatients with psychiatric disorder and ID, and reported that many "occult" or unidentified medical issues were causing alterations in mood and behavior in their patients. Some of the numerous medical problems they encountered included seizure activity, hypothyroidism, reflux disease, arthritis and hypertension. Davidson et al. (2003) studied the association between health status and behavior disorders in four age groups in a large cross sectional investigation of adults with ID. They found health problems were highly correlated with behavioral and emotional disturbances including neurological diseases, cardiopulmonary disease, asthma, visual and hearing impairments, gastrointestinal disorders and neoplastic diseases. These authors argued that occult medical problems may present as treatment resistant psychiatric illness or behavioral disturbances, especially among individuals who have difficulty describing symptoms or problems.

In a more recent investigation, Kennedy and colleagues (2007) studied children with severe ID and special healthcare needs. They found that children with behavioral disorders had two times as many special healthcare needs, when compared with peers who did not have a behavioral disturbance. They concluded that health problems appear to contribute to the occurrence of behavioral difficulties in children with severe developmental disabilities, and suggest the need for multidisciplinary care coordination.

Moreover, it is unclear how often medical problems provoke behavioral disturbances in psychiatric inpatients with ID. Woo and colleagues (2003) found 34% of older individuals (without a diagnosis of ID) admitted for psychiatric inpatient care had unrecognized medical disorders and emphasized the fact that medical disorders "may cause psychiatric symptoms." Unrecognized disorders identified among the 79 consecutive admissions included constipation, urinary infection and hypothyroidism. They suggest that elderly patients might suffer less severe problems or it might be possible to "even eliminate the mental disorder" by conducting more aggressive assessment and treatment of medical

conditions. Their observation regarding elderly psychiatric patients may pertain to individuals with ID as well, as both patient populations frequently fail to articulate sources of distress clearly, and are at greater risk of having undetected medical problems.

A number of lifestyle factors associated with chronic mental illness (e.g., smoking, poor diet, limited exercise) adversely affect health outcomes according to recent research involving people with chronic mental illness who are not diagnosed with ID (Jones et al., 2004). Further studies have also revealed increased risk for specific medical problems related to psychopharmacologic treatment including obesity, hypertension, abnormalities in glucose regulation and an array of associated health complications such as diabetes and cardiovascular problems (Mackin, Bishop, Watkinson, Gallagher & Ferrier, 2007). In the C.A.T.I.E. (Clinical Antipsychotic Trials of Intervention Effectiveness) studies, some medication side effects (most notably Extrapyramidal Side Effects or EPS) caused enough discomfort that a large number of the outpatients (all with chronic mental illness but without ID) stopped taking their antipsychotic medications (Lieberman et al., 2007). It is unclear to what extent these same problems may be affecting people with ID who have similar psychiatric diagnoses or treatment. It is possible that different types of health problems or medication side effects may be more common among people with ID and psychiatric disorder than those identified for people without ID. The Ryan & Sunada (1997) report, for example, did not identify high rates of obesity, hypertension or diabetes in their psychiatric outpatient with ID.

Study Aims

Because of the potential for health problems to cause apparent psychiatric disorder and to provoke increased behavioral difficulties, our first aim was to determine the prevalence of medical comorbidities and medication treatment for a group of psychiatric inpatients with ID. Given that longer stays are disruptive to patient's lives, associated with greater overall illness and are more costly, our second aim was to determine if medical co-morbidities and medication treatment correlated with length of stay.

METHODS

An exploratory retrospective review of the discharge summaries of 198 individuals admitted to an acute-care specialized inpatient psychiatric unit serving people with Intellectual Disabilities and Mental Health Disorders (ID/MH) was conducted. The program was known for providing comprehensive multidisciplinary assessment including primary care, psychiatry, neurology and psychology to patients with ID referred for admission based on meeting usual acute psychiatric hospitalization criteria (danger to selves or others or unable to care for self due to mental illness) with all patients meeting DSM-IV-TR criteria for Mental Retardation. It was reported that about 80% of the patients were admitted because of aggression, self-injury, property destruction, loud agitated outbursts or some combination of these types of problem behaviors in addition to other psychiatric symptoms. All patients were seen by a Primary Care Clinician (PCC), Psychologist, and Psychiatrist, and many were referred for evaluation by the unit's consulting Neurologist.

We tallied the total number of medical problems, psychoactive medications and other non-psychiatric medications and determined the length of stay from information recorded on the discharge summaries. Medical diagnoses were those given at the time of discharge, while the medications were those prescribed at the time of the patient's admission to the unit (to capture information regarding drugs that may have been affecting the development of the identified medical problems). Other information including the psychiatric diagnoses, age, gender and level of ID were also obtained from a review of the discharge summaries. All

personal data were “de-identified” and the project proposal was approved by the Institutional Review Board.

The relationship between rates of medical problems, medications and length of stay was evaluated. We then assessed whether or not rates of medical problems and medication treatment differed for males versus females, for various age groups (age 16–25, 26–45, 46–60, over age 60), and as a function of level of ID (Mild, Moderate or Severe ID).

Additionally, we examined rates of medical problems and medications in relation to presence of a diagnosis of Down syndrome (DS) or an Autism Spectrum Disorder (ASD).

For the time period of the chart reviews, the mean length of stay was 17.6 days, and the average daily census was 8.5. The average age of inpatients was 38.8 years.

Subjects

The 198 subjects were inpatients admitted to a specialized, acute-care psychiatric unit (dedicated to serving individuals with ID) and represented all of the consecutive, unduplicated admissions over a period of 20 months. The patients admitted to the unit came from all over the state in which the unit is located, as well as neighboring states. Table 1 contains data regarding age, sex, level of ID and length of stay. Table 2 includes psychiatric diagnoses at the time of discharge. A number of individuals carried multiple diagnoses. The most common comorbidities were mood and anxiety disorders.

Statistical Analysis

Parametric methods were used in the analyses as described below where distributional assumptions were met, using the SAS Statistical Package (SAS Institute Inc., V9.1). Where the assumptions of normality were not met, we employed comparable nonparametric methods available in SAS, as noted below.

As this was an exploratory study, descriptive statistics were the primary focus with additional tests for sub-group comparisons based on age, gender, or level of functioning. Frequency tables were used to summarize categorical variables of interest, with Chi-square (or Exact) tests to examine possible level of functioning and demographics differences. Means were calculated for continuous variables with t-tests (or the nonparametric Wilcoxon Rank Sum Test) being employed for comparison of two level variables, or ANOVA (or the nonparametric Kruskal Wallis Test) for three+ level comparisons to test for sub-group differences. If significant differences were detected in these comparisons, appropriate contrasts were utilized to further analyze the source of these differences. Correlations between continuous variables of interest were tested for significance using the Pearson Product Moment (or the nonparametric Spearman) correlation.

Generalized Linear Modeling (GLM) was used to simultaneously test for demographic differences in age, gender, or level of ID in both continuous outcomes (such as the number of medical problems or medications). Least square means were examined and tested to determine if differences noted were retained when other possibly confounding covariates were taken into account.

In contrasts for the rates of specific medical disorders (Table 6) as a function of age group, gender, and level of ID, p-values were corrected for multiplicity.

RESULTS

Medication Rates

The 198 inpatients were treated with an average of 2.9 psychoactive medications per person and 5.02 combined psychoactive and medical or non-psychiatric drugs.

Table 3 contains the frequency of inpatients taking various classes of psychopharmacologic and medical agents at the time of admission. Most of the inpatients were treated with multiple psychoactive agents with 86% taking 2 or more medications, 69% 3 or more, 44% taking 4 or more, and 21% 5 or more medications. Seventy-three per cent of the inpatients were treated with an antipsychotic agent and 18% were treated with 2 of these drugs. No significant differences were found between men and women, or when contrasting people with mild, moderate or severe ID in the mean rates of psychoactive medications.

Medical Problems

In Table 4, frequencies for medical problems affecting at least 10% of the sample are provided. These represent all of the Axis III diagnoses listed in discharge summaries for the 198 inpatients. The frequency of all medical problems consisted of a tally of the number of all of the diagnoses listed on discharge with 2 collapsed categories including other cardiac problems (all cardiac related diagnoses except for MVP or Mitral Valve Prolapse or Ventral Septal Defect or VSD) and other neurological problems. Other neurological problems included a collapsed category of many varied congenital and acquired conditions such as hemiplegia or hemiparesis, spastic diplegia, spina bifida occulta, history of hydracephalus, ventriculoperitoneal or VP-shunt, history of closed head injury or traumatic brain injury, Neurofibromatosis, cerebellar hypoplasia, lipoma of the corpus callosum, atlanto-axial instability, status post spinal cord infarct, pituitary adenoma, Bell's palsy and cervical spondylosis.

The frequency of medical problems differed among different age groups (Kruskal Wallis $\chi^2 = 20.32$, $p < .0001$). Inpatients aged 16–30 had an average of 4.3 medical problems as compared with those older than age 60, who had an average of 8.2 medical problems (Wilcoxon Statistic = 630, $p < .003$). Inpatients aged 31–45 averaged 5.4 medical problems and those aged 46–60 had an average of 6.3 medical problems. There was no effect related to sex (rates of medical problems were similar for males and females). Level of functioning (mild, moderate or severe ID) did not affect the rate of medical problems. The average number of problems reported for the inpatients with mild ID was 5.6, for those with moderate ID 4.9, and for persons with severe ID, 6.4 (Wilcoxon Statistic for moderate ID and severe ID contrast = 1633.5, $p = 0.08$ for the moderate to severe ID contrast).

Effects for psychiatric diagnosis on the total number of medical problems were found for only two diagnostic categories, anxiety disorders and Mental Disorder due to a Medical Problem (Wilcoxon Statistic = 8535, $p = 0.006$ and Wilcoxon Statistic = 11023.5, $p < 0.0001$ respectively). Individuals with an anxiety disorder diagnosis had fewer medical problems. Patients with a diagnosis of Mental Disorder due to a Medical Disorder (a medical problem caused the mental status, mood and behavioral difficulties that provoked the admission) had a higher average rate of discharge medical diagnoses than peers without this diagnosis. This included 80 inpatients or 40% of the total sample. Medical problems identified as causing the acute mental disorder leading to the inpatient stay in these cases were only listed in 72 of the discharge summaries. The most commonly reported medical cause among these cases was constipation, which affected 15 patients, followed by “medication side effects” (effects were unspecified), EPS and seizures, each cited in 9 cases. Eight of these patients were noted to have a UTI while 7 had problems cited in 9 cases. Eight of these patients were noted to have a UTI while 7 had problems secondary to the discontinuation of a neuroleptic

medication and were labeled as having an emergent withdrawal syndrome. The problems of GERD, sinus infections, possible dementia or delirium and antipsychotic medication side effects (dysphagia) were implicated for 6 patients each carrying the Mental Disorder due to a Medical Problem diagnosis.

There were only 13 individuals with Down Syndrome (DS) admitted during the 20 month review period, and the modest sample size limits the statistical power of contrasts. However, even in this modest sample, individuals with DS were found to have certain medical problems at higher rates than peers without DS, including osteoarthritis ($\chi^2 = 7.05$, $p = 0.02$) hearing loss ($\chi^2 = 10.60$, $p = 0.005$), MVP ($\chi^2 = 19.82$, $p < 0.0001$), other cardiac problems ($\chi^2 = 18.20$, $p < 0.0001$) hypothyroidism ($\chi^2 = 16.65$, $p = 0.0002$) and sleep apnea ($\chi^2 = 14.68$, $p = 0.001$). We also performed a group contrast for ASD subjects in contrast to the residual sample (inpatients without DS and without an ASD diagnosis). There were no statistically significant differences based on the presence of a diagnosis of an ASD in terms of the rates of medical problems, nor for the number of medications prescribed.

Inpatients with a higher number of medical diagnoses had longer lengths of inpatient stay (Spearman $r = .25$, $p = 0.0003$). There was a significant correlation between number of medications (total psychoactive and medical medications) and the number of medical problems (Spearman $r = .32$, $p < 0.0001$) and between the number of psychoactive medications and number of medical problems (Spearman $r = 0.15$, $p = 0.04$).

The most frequent medical comorbidity identified on discharge was constipation, reported in 60% of the inpatients, and the second most frequent was Gastro-Esophageal Reflux Disease (GERD), reported for 38% of the sample. Other diagnoses reported in 10% of inpatients included seizure disorders, having a history of surgery, hypothyroidism, hypertension, anemia, Central Nervous System disorders other than seizures, candidiasis, UTIs, cardiac problems other than a history of VSD or MVP, diabetes type I or II, hypercholesterolemia, obesity, hearing loss, non-insulin dependent diabetes mellitus, cerebral palsy, dysphagia, dental problems, pneumonia, extrapyramidal symptoms or EPS and otitis media.

Few statistically significant differences were found in the rates of specific medical problems as a function of age group, gender and level of ID. However, dysphagia (Exact Permutation Test, $p < 0.0001$) was reported more often in patients in the two older age groups (inpatients 46 or older). UTIs were reported in significantly more females than males ($\chi^2 = 10.77$, $p = .001$). It was noteworthy that eight males in the current sample of individuals with ID/MH had UTIs, given the generally much lower risk for this problem among males in general population studies (Griebeling, 2007). There were no significant differences between inpatients with varied levels of intellectual functioning in terms of the rates for the specific discharge medical diagnoses reviewed. A few other symptoms occurred more often in the older age groups, but statistical significance was not maintained after corrections for multiplicity.

Discussion

We examined the medical problems and medication treatment of psychiatric inpatients with ID, many of whom were hospitalized because of aggression and other challenging behaviors. Most had multiple comorbid medical diagnoses, and 40% were identified as having a medical problem as a primary contributing factor to the decompensation resulting in the need for an inpatient stay. The present investigation was intended to be descriptive, and to contribute exploratory data in an area with minimal investigation (medical problems affecting psychiatric inpatients with ID). The results are limited by the use of retrospective data and a small sample. However, it is noteworthy that so many of the 198 psychiatric

inpatients in the present study had medical problems that were potentially preventable, or may have been detected and treated prior to a referral for hospitalization (i.e. constipation, GERD, UTIs, otitis, dental problems and medication side effects such as EPS). The high rate of medical problems identified in the current investigation may have also been the result of the specialized nature of the unit, as patients routinely received medical and neurological assessments by clinicians with experience evaluating individuals with ID.

Substantial evidence now exists linking medical problems, pain or physical distress and problem behaviors in individuals with ID (Carr et al., 2003; Kennedy et al., 2007), yet it remains unclear how often patients with ID are sent for psychiatric hospital admissions when they actually have a treatable medical problem that could be provoking agitated behaviors. It has been speculated that health problems are often missed in patients with ID because they do not provide accurate or reliable self-reports when experiencing illness (Cooper et al., 2006). Medical problems might also be missed because the first sign of physical distress in many patients with ID may be a behavioral decompensation which may lead caregivers to seek psychiatric help for the individual (Kwok & Cheung, 2007). The specific relationship between the medical problems identified and the behaviors leading to admission in the present investigation could not be determined based on the available data. However, many of the more frequently reported problems are ones recognized to cause physical discomfort (constipation, GERD) (Bohmer et al., 2001; Molloy & Manning-Courtney, 2001).

Constipation was diagnosed in 69% of the psychiatric inpatients in the present study. It has been previously reported that individuals with ID may be at increased risk of experiencing constipation. Veugelers et al. (2008) reviewed studies of individuals with ID and reported that rates varied from 39–62%, though they that most included small samples. They conducted a population based survey of children with severe to moderate ID who also had severe motor problems (Cerebral Palsy) and reported that 60.9% were treated for constipation while 31.45% continued to experience problems despite laxative treatment. Thus individuals with ID may have not only undetected medical problems, but also under-treated ones. Patja, Molsa and Livainen (2001) reported on causes of death among individuals with ID, and noted that “diseases of the digestive system” were 2.5 times greater in people with ID as compared to non-ID controls. They found 25% of these deaths for people with ID were due to bowel obstructions, and another 13% to perforated ulcers.

GERD, the second most frequent medical comorbidity in our sample, occurred in 38% of inpatients. Bohmer and colleagues (2000) reported a prevalence rate for GERD of 50% among institutionalized individuals with ID with FSIQs < 50. In their study, 70% of the subjects with GERD had endoscopically confirmed disorder. These authors emphasized the fact that many of the individuals they diagnosed had significant disease by the time it was detected and treatment was initiated. We did not find any studies of individuals with ID acutely hospitalized for psychiatric problems reporting the rates of either constipation or GERD.

Urinary tract infections were identified in 15% of the inpatients. We were unable to find usual rates for these among people with ID except for a report by Kozma and Mason (2003) which examined only institutionalized individuals with severe ID. These authors noted that 18% of residents had recurrent UTIs. US population prevalence estimates suggest approximately 8% of adults develop UTIs, though only about 13% of self-reported UTIs are experienced by men (Griebeling, 2007). In the present study, 8 males experienced UTIs or almost one third of the UTIs detected. It is possible that males with ID/MH might be at greater risk for UTI than individuals without ID. UTIs are known to be associated with mental status changes in elderly patients, and may be associated with similar alterations in

individuals with ID, who also frequently have associated neurological problems or a fragile neurological substrate. Delirium was noted in a small number of the inpatients (n=6), and can be more challenging to diagnose in people with existing neurocognitive abnormalities, while correct diagnosis is critical to a positive outcome (Thomas et. al, 2008).

We examined other factors that might contribute to the risk for medical problems including the presence of a diagnosis of ASD, DS, age group, sex and level of ID. Neither ASD diagnostic status, nor level of ID correlated with any of the variables we examined. Children with ASDs have more health problems than peers without a developmental disability, but may have similar rates to peers with ID, when matched for level of cognitive disabilities (Skjeldal et al., 1998).

Having a diagnosis of DS affected the rates for specific medical diagnoses in the present study, though these were all ones expected to occur more frequently among individuals with this syndrome (osteoarthritis, hearing loss, cardiac problems, hyperthyroidism, sleep apnea) (van Allen, Fung, & Jurenka, 1999). The number of inpatients with DS was quite low (n =13) limiting the statistical power on contrasts. There were minimal gender based differences in rates of specific medical problems. However, age did affect the rates of medical problems identified, as expected. Numerous studies have found that individuals with and without ID have more medical problems as they age (Cooper, 1998). As suggested by Davidson and colleagues (2003), older individuals with ID may be at increased risk of having a missed medical problem cause an apparent psychiatric or behavioral decompensation.

In addition to the medical problems noted above, a number of the psychiatric inpatients in the present investigation were diagnosed with medication side effects. Many were treated with multi-drug regimens, averaging close to 3 psychoactive medications per person. Nearly one-fifth of the inpatients were prescribed two antipsychotic agents and one-fifth was taking five or more psychoactive medications at the time of admission. The number of psychoactive medications was correlated significantly with the number of medical diagnoses, and with length of stay. Concerns have been raised by some investigators that side effects, like other medical problems, may often be missed in patients with ID, and they may provoke apparent behavioral or psychiatric decompensations. Valdovinos and colleagues (2005) found a high rate of suspected medication side effects in their sample of 30 individuals with developmental disabilities. They noted that there is "potential confusion regarding the presentation of a side effect or the worsening of a problem behavior" in patients with ID (p 169). It is unclear whether or not treatment with multiple psychoactive medications contributed to the occurrence of medical complications or worsening behavior in the psychiatric patients with ID in the present study. However, agitation related to a medication side effect was documented as a suspected cause of decompensation in a number of the discharge summaries reviewed.

Rates of treatment with psychoactive medications reported in the present investigation were similar to those reported in a general population study in the same region, in which Medicaid prescriptions were tallied and residents receiving developmental disabilities services were found to be taking an average of 2.75 psychoactive medications (CDDER, 2005). A high rate of psychoactive medication treatment for inpatients with ID is not surprising. The inpatients in the present investigation were usually admitted because of severe challenging behaviors. Stolker et al. (2001) examined medication pharmacotherapy of 105 inpatients with mild or borderline ID served in a facility in the Netherlands, and found multi-drug regimens were most common for individuals with long lengths of stay (stays over one month), and who primarily presented with "socially disruptive behavior." More recent investigations have also reported that psychoactive medications are more often

used to treat diagnostically non-specific challenging behaviors in patients with ID (Deb et al, 2007; Tsakanikos et al., 2007). This is in contrast to psychiatric patients without ID for whom psychoactive medications are primarily prescribed to treat symptoms of a psychiatric disorder. Some experts have argued that an over-reliance on psychoactive medications in the management of behavioral difficulties in people with ID has developed, in the absence of more systematic use of behavioral or “multi-modal” treatment (Matson & Neal, 2009; Kroese, Dewhurst, & Holmes, 2001). Of concern is the well documented fact that treatment with multiple medications increases the risk of side effects and adverse drug reactions, while patients with ID are less likely to complain about symptoms that would alert clinicians to their occurrence (Hovstadius, Astrand, & Petersson, 2009).

Conclusion

A wide array of medical conditions and medication side effects were identified in our retrospective chart review of psychiatric inpatients with ID. Recent investigations of health screening have shown that the detection rate for health problems can be significantly raised for persons with ID, and that previously unmet health needs may be resolved in the process (Baxter et al., 2006; Cooper et al., 2006; Felce et al., 2008; Jordon, Tunncliffe, & Sykes, 2002; Lennox et al., 2006, Lennox et al., 2007). Though not addressed by the investigators in these studies, efforts to improve identification of medical problems among individuals with ID might also result in reduced psychiatric morbidity by eliminating sources of distress that could lead to agitated behavior. Further, increased recognition of undetected medical problems and medication side effects as potential causes of behavioral decompensations could also potentially reduce reliance on psychoactive medications to control associated behavioral disturbances. Future prospective investigations using a control condition, might verify whether or not health screening --- in addition to improving health outcomes --- also improves behavioral outcomes for individuals with ID who are receiving mental health treatment.

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Table 1

Gender, age, level of Intellectual Disabilities (ID) and length of stay for n = 198 inpatients

	N =198	
	Freq	%
Male	110	56
Females	88	44
Mild ID	92	46
Moderate ID	80	40
Severe ID	26	13
	SD *	
Mean Age	39	10.06
	SD	
Length of Stay	17.6	15.27

*
standard deviation

Table 2

Frequency of psychiatric diagnoses at discharge for n = 198 inpatients

	N = 198	
	<i>Freq</i>	<i>%</i>
Anxiety Disorder	97	49
Major Depression	77	39
Bipolar Disorder	20	10
Mood nos	27	14
Psychosis	13	7
Obsessive Compulsive	14	7
Impulse Control Disorder	15	8
r/o Dementia	5	3
Tics	4	2

Table 3

Medications prescribed at the time of admission for n = 198 inpatients.

<u>Medication Type</u>		
<u>Psychoactive</u>	<i>Freq</i>	<i>%</i>
Antidepressant	86	48
SSRI	74	38
Anticonvulsants	123	62
Antipsychotic	144	73
Benzodiazepine	82	41
Anti-Parkinsonian	47	24
<u>Non-Psychiatric Medications</u>	<i>Freq</i>	<i>%</i>
Bowel Medications(Yes/No)	77	39
GI Meds (PPI, H2 Blockers)	61	31
Thyroid hormone replacement	38	19
Allergy/Sinus	25	13
Cholesterol lowering	21	11
Inhalers/Neb Treatments	15	8
Diuretic	16	8
Oxybutynin-Tolterodine	13	7
Hypoglycemics	11	6
Insulin Product	7	4
Birth Control or Depo Provera	8	4
ASA **	6	3
Metoclopramide	5	3
Warfarin	6	3

**
acetylsalicylic acid (aspirin)

Table 4

Frequency of medical problems occurring in at least 10 per cent of the sample of n = 198 psychiatric inpatients with ID.

	Freq	%
Constipation	118	60
GERD *	76	38
Seizure Disorder	50	25
Hypothyroidism	37	19
Hypertension	38	19
Anemia	36	18
Other neurological **	33	17
Candidiasis	33	17
Cardiac ***	31	16
UTI (urinary tract infection)	29	15
Diabetes I & II	27	14
Hypercholesterolemia	26	13
Obesity	21	11
Dysphagia	20	10
Dental problems	21	10
Pneumonia	20	10
Extrapyramidal Symptoms	19	10
Otitis Media	19	10

* Gastroesophageal Reflux Disease

** Other neurological disorders except for Seizure Disorder

*** All cardiac related diagnoses