

Original Research

Restrictive interventions on a psychiatric admission ward before and after COVID-19

L. Feeney¹, N. Bonner² and J. McAndrew¹

¹Cluain Mhuire Community Services, Newtownpark Avenue, Blackrock, Co., Dublin, Dublin, Ireland and ²Department of Nursing, St. John of God Hospital, Stillorgan, Co., Dublin, Dublin, Ireland

Abstract

Objectives: Restrictive interventions (seclusion, restraint and special observations) are used on psychiatric wards when there are no other means available to keep a patient or others safe. These measures can be traumatic, and the Mental Health Commission and the Health Service Executive are focused on minimising their use. We set out to determine whether, following a COVID related reduction in bed numbers on a high dependency psychiatric ward in St John of God Hospital in Dublin, there was a change in their incidence.

Methods: Data on restrictive interventions and challenging behaviours were gathered for 9-month periods before and after March 2020 when COVID related ward changes took place. Figures were also collected on seclusion and restraint for the previous 18 months for a longer-term view. Ward and hospital occupancy levels were also recorded.

Results: Between the two time periods, episodes of seclusion fell by 53% and episodes of restraint by 56%. The hours devoted to special observation declined by 30% and incidents of challenging behaviours fell by 26%. Ward occupancy levels fell by only 5%. The longer-term comparison of figures for seclusion and restraint point towards a downward trend from mid-2019 that was accentuated in the post-COVID period.

Conclusions: The changes found may relate to reduced crowding on the ward or other COVID related factors such as the emphasis on social distancing and a shared sense of purpose on the ward. The longer-term trend points towards an emerging cultural shift. The challenge now is to sustain and build upon these changes.

Keywords: aggression; challenging behaviour; mental health; psychiatry; restraint; seclusion; special observation; ward design

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Introduction

Acute psychiatric admission wards provide intensive care to the most severely mentally ill people. In this setting, there is often a high risk of self-harm, physical aggression and other harmful behaviours (Lelliott & Quirk, 2004; Iozzino *et al.* 2015). While such wards are often locked and have high staff to patient ratios, additional measures are required in some instances to protect people from harm (Weltens *et al.* 2021). Seclusion and physical restraint are restrictive measures employed on psychiatric wards where there is no other means available to keep a patient or others safe. Special observation is another restrictive measure used on psychiatric wards to try to prevent incidents of self-harm or harm to others.

On December 18th 2020, news media headlines (e.g. thejournal.ie, 2020) heralded the publication of the Mental Health

Commission's (MHCs) report 'The Use of Restrictive Practices in Approved Centres: Seclusion, Mechanical Restraint and Physical Restraint' (Mental Health Commission, 2020). The report documented that 1796 people had been restrained or secluded in Irish mental health services in 2019 and expressed a view that while some progress had been made, usage of restrictive measures remained too high. The Irish MHC and the Health Service Executive (HSE) are focused on reducing both the frequency and duration of seclusion and restraint episodes on psychiatric admission wards (Mental Health Commission, 2014). On October 1st 2020, the HSE circulated a letter to all mental health services (Ryan, 2020) indicating that they had 'developed a national project to review/reduce the use of 'restrictive practices' in HSE Mental Health Services' and as part of this each CHO was required to develop a plan to 'demonstrate how each CHO will address the actions outlined in the MHC Seclusion and Restraint Reduction Strategy 2014'.

The Irish MHC has developed rules and codes of practice governing the use of physical restraint and seclusion (Mental Health Commission, 2016). Physical restraint is defined as 'the use of physical force (by one or more persons) for the purpose of preventing the free movement of a resident's body when he or she poses an

Address for correspondence: Dr L. Feeney, Cluain Mhuire Community Services, Newtownpark Avenue, Blackrock, Co. Dublin, Dublin, Ireland. (Email: larkin.feeney@sjog.ie)

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immediate threat of serious harm to self or others' (Mental Health Commission, 2009a). Seclusion is defined as 'the placing or leaving of a person in any room alone, at any time, day or night, with the exit door locked or fastened or held in such a way as to prevent the person from leaving' (Mental Health Commission, 2009b). The MHC's rules set out in detail the circumstances in which seclusion or restraint can be used in a psychiatric inpatient unit (Approved Centre) as well as the associated required facilities, monitoring, documentation and so on. Every year the MHC then inspects every approved centre with regard to their compliance with these and other rules and issues a publicly available report. Should an approved centre be in breach of regulations and fail to remedy them, their licence to operate can be withdrawn.

These restrictive practices are generally accepted as necessary last resort interventions in circumstances where there is no other means of ensuring the safety of the patient or of others (NICE, 2010; Broderick *et al.* 2015). However, the evidence base regarding situations in which their use is indicated is extremely limited. Cochrane and other systematic reviews have not found any methodologically sound studies addressing this question (Sailas & Fenton, 2000; Muralidharan & Fenton, 2006; Howner *et al.* 2018). While it is also accepted that significant levels of post-traumatic stress can follow these interventions, a systematic review concluded that the quality of studies into the negative effects of restrictive interventions is poor, particularly ones considering the consequences of not intervening in this manner (Chieze *et al.* 2019). Clinicians are thus left in the difficult position of having to make judgement calls as to when a patient's right to liberty and bodily integrity is outweighed by the need to protect their safety and/or that of others.

Special observation is an additional means by which acute psychiatric admission wards manage risk but unlike seclusion and restraint it is not subject to MHC Rules. Special observation involves continuous, one-to-one observation of a patient, usually by a nurse and while it can provide intensive support to distressed individuals, it can also be a significant imposition on the freedoms of an individual with every action having to be observed at close quarters, including toileting (Bowers & Park, 2001). There are potential benefits to the person in that they have access to a consistent supportive relationship but many experience special observation as intrusive and undignified and the practice has been criticised for being more custodial than therapeutic (Chu, 2016). As with other forms of restrictive intervention, the evidence base with regard to norms of use or for making decisions to employ or modify special observation is very limited (Neilson & Brennan, 2001; Lambert *et al.* 2018). There are also serious cost implications for services associated with special observation as these arrangements are generally additional to normal ward staffing complements, with external agencies often providing the staff rather than the person being a regular staff member (Lambert *et al.* 2018).

It is generally accepted that services can take steps to minimise the use of restrictive measures in psychiatric practice. The literature suggests a variety of means including greater involvement of patients in advance care planning; training of staff in de-escalation techniques; educational interventions regarding the management of acute agitation and assessment scales designed to predict acute behavioural disturbance and thus enable early intervention to prevent the need for restrictive interventions (O'Donoghue *et al.* 2011; Kennedy *et al.* 2020). However all of this research is observational as the most severely mentally ill patients generally do not have the capacity to consent to participate in research interventions and the ethical considerations of trials in such settings are complex (Moynihan *et al.* 2018). Another criticism of such studies

is that they generally do not take a wider view, considering knock-on consequences of reducing seclusion and restraint such as increases in assaults on staff or other patients.

An appropriately designed ward environment with adequate space and facilities is also recognised as critical to reducing incidents of violence (Feeney *et al.* 2007; Ulrich *et al.* 2018). Ward crowding with a consequent increase in stimulation and reduction in privacy has been clearly linked to aggressive incidents (Ng *et al.* 2001; Daffern *et al.* 2004). According to a recent MHC report on Irish inpatient facilities, 'A poorly designed facility that prevents privacy, is noisy, and has other stressful features that can intensify the stress of mental illness and involuntary confinement, thereby worsening aggression' (Finnerty, 2021). Ulrich *et al.* (2018: 54), in their 2018 review stress that 'there is much evidence that crowding stress and related aggression are linked to inadequacies in the physical environment that constrain the ability of persons to seek privacy, regulate their relationships with others, and avoid stressors such as noise and arguments'. They list the evidence-based features of a psychiatric ward designed to reduce aggression which include single bedrooms with private bathrooms; communal areas with ample space to regulate relationships; a low social density and noise reducing design; an accessible garden area; natural views and nature art.

It is difficult to compare rates of restrictive intervention use between different Approved Centres as units serve different populations, are configured differently and have developed different ways of managing challenging behaviours. For example a number of acute inpatient units have no seclusion facilities and rely on a higher use of special observation or physical restraint or transfers to low secure facilities to manage severely challenging behaviours. While the MHC publishes annual figures on seclusion and restraint for each Approved Centre, they concede that they are of limited comparative value due to these factors (Mental Health Commission, 2020: 8).

Seclusion and restraint can be extremely traumatic for both patients and staff. In a 2019 systematic review, Chieze *et al.*, concluded that between 25% and 47% of psychiatric patients subjected to seclusion and restraint, suffer post-traumatic stress disorder. People who have suffered past abuse are particularly vulnerable to the traumatic effects of seclusion and restraint (Hammer *et al.* 2011). The use of restrictive practices can also be extremely stressful for staff, contributing to burnout, reduced empathy and other problems (Yang *et al.* 2014; Rippon *et al.* 2020).

There is some evidence that reducing numbers of patients on an acute psychiatric ward, thus increasing privacy and reducing stimulation, can reduce the number of aggressive and other incidents. In March 2020 with the onset of the COVID pandemic it became necessary to quickly make changes in St. John of God Hospital in order to create isolation facilities for the purpose of infection control. One such change was a reduction in the number of beds on St Peter's high dependency ward from 18 to 14. Staff noticed a reduction in the use of restrictive interventions in the months following this change. This study endeavoured to measure the frequency and duration of incidents of seclusion, restraint and special nursing observation before and after the COVID related changes in the Hospital. It also sought to compare the number of aggressive incidents in the hospital and actual occupancy levels over the same time periods.

Methodology

St John of God Hospital is a 182 bed acute psychiatric hospital in south county Dublin (St. John of God Hospital, 2021). It provides

admission beds for patients with private health insurance on a national basis as well as inpatient beds for the local adult public community mental health service, Cluain Mhuire which has a catchment area population of ~172 000 (Cluain Mhuire, 2021). St John of God Hospital is in the business of providing inpatient services for the most severely mentally ill patients and in the course of this work must sometimes use restrictive interventions when faced with situations where there are immediate and serious risks of harm to service users or others. The hospital has a number of low-acuity admission and step-down wards and one high dependency care, locked ward to which the most severely mentally ill people are admitted. This high dependency ward has 18 admission beds; seven double rooms and a four-bedded room. In addition the ward has two seclusion rooms. All seclusion and virtually all restraint in the hospital takes place on the high dependency ward.

The Hospital's high dependency ward has a number of inadequacies when it comes to its role as a high dependency psychiatric admission ward. The size of the ward (~650 m²) is low by international standards for an 18 bed acute admission ward; the International Health Facility Guidelines, 2014 suggest 1900 m² for a 20 bed acute mental health unit (International Health Facility Guidelines, 2014: 16), and it has limited therapeutic and recreational space. Although there is an outdoor courtyard available, the ward's position on the first floor makes access to this complicated for many patients as it involves traversing an external corridor and stairwell. As stated above, in March 2020 with the onset of the COVID pandemic it became necessary to quickly reduce the number of beds on the ward (bed capacity was reduced from 18 to 14 with the number of bedrooms kept constant at 8; one 4-bed and seven 2-beds to be used flexibly to accommodate a maximum of 14 patients), in order to create isolation possibilities and this created an opportunity to examine the hypothesis that the reduction in admission beds would reduce episodes of challenging behaviour and consequently of restrictive intervention.

This study endeavoured to measure the frequency and duration of incidents of seclusion, restraint and special nursing observation before and after these COVID related changes to bed availability on the high dependency ward. The primary study period selected was 9 months before and after the end of March 2020 at which time the high dependency ward bed capacity was reduced from 18 to 14. The study also sought to ascertain the number of aggressive incidents in the hospital and actual occupancy over the same 9-month time periods. This data is already collected by the Hospital for audit and regulatory purposes. Information for MHC inspections on monthly numbers and duration of episodes of seclusion and restraint are kept in specific folders on the Hospital's internal drive and were accessed for the purposes of this study. Information on the number of hours of special nursing is also maintained by the hospital and aggressive incidents are captured on the Hospital's DATIX incident reporting system (RLDatix, 2021). Actual ward occupancy levels were accessible through nursing administration and assistance from the nursing department in St John of God Hospital with accessing this data was negotiated. Information on ward staffing over the study period were also sought but could not be obtained. The preceding period from January 2018 to June 2019 was also examined with regard to seclusion and restraint in order to obtain a longer-term view of change in this area.

The data were gathered during May and June 2021 and stored in an encrypted Microsoft Excel Worksheet. Data analysis was performed with the statistical software package Minitab 17 (Minitab, 2021). Data models used were Poisson Process, and Normal Distribution. Some data underwent logarithmic transformation

to approximate normality. Statistical tests employed were Student's *t*, Poisson Rate Test and Mann–Whitney *U* test. Ethical approval was sought and obtained for this research study in March 2021 from the Saint John of God Hospitaller Services Group Research Ethics Committee. The main ethical consideration was to ensure anonymity and to this end no potentially identifying personal data were allowed to be accessed during this study.

Results

As outlined above, at the end of March 2020 due to the need for isolation rooms, the available acute admission beds on the high dependency ward in St. John of God Hospital dropped from 18 to 14. Our hypothesis was that this change would be associated with a reduced use of restrictive interventions, particularly seclusion and restraint. In order to examine this question we looked at 9 month periods before and after the change. Table 1 displays the statistical data for seclusion, restraint, special observations, challenging behaviours and occupancy which are outlined below.

In the first 9-month period, July 2019–March 2020, there were 70 incidents of seclusion comprising a total of 1222 hours and involving 38 people, compared with 33 incidents comprising a total of 910 hours and 26 people in the second period, April 2020–December 2020. There were 97 incidents of physical restraint comprising a total of 431 minutes and involving 46 people in the first 9-month period compared with 43 incidents and 196 minutes and 25 people in the second. Statistically significant reductions between the time periods were observed in the mean monthly rate of seclusion incidents (4.11 less per month, 95% CI 1.90–6.32, $p < 0.001$), in the mean monthly rate of restraint incidents (5.78 less per month, 95% CI 3.22–8.34, $p < 0.001$), and in the mean monthly number of patients restrained (2.33 less per month, 95% CI 0.50–4.17, $p = 0.017$). No significant differences were observed in the mean monthly number of patients secluded ($p = 0.169$), in the mean rate of seclusion incidents per patient secluded each month ($p = 0.204$), in the mean total monthly hours of all patients in seclusion ($p = 0.316$), in the mean time (hours) spent per patient secluded each month ($p = 0.903$), in the mean rate of restraint incidents per patient restrained each month ($p = 0.398$), in the mean total monthly time (minutes) of all patients spent in restraint ($p = 0.359$), nor in the mean time (minutes) spent per patient restrained each month ($p = 0.785$).

The use of special observations declined over the period under examination although this change was not statistically significant. Between July 1st 2019 and March 30th 2020, 33 patients were placed on special observations due to concern about self-harm or harm to others; this comprised a total of 7727 hours of special observation. This compared to 27 patients in the 9 months from April 1st to December 31st 2020; a total of 5372 hours of special observation. No significant differences were observed in the mean monthly number of patients on 1:1 observations ($p = 0.519$) or in the mean total monthly hours of 1:1 observations on all patients ($p = 0.794$).

There was a mean of 6.67 (± 4.16) challenging behavioural incidents per month on the high dependency ward over the whole time period, with a mean of 3.61 (± 3.09) incidents per month recorded elsewhere in the hospital. On the high dependency ward 69 incidents were recorded in the 9 months between July 1st 2019 and March 30th 2020. In the second 9-month period from April 1st to December 31st 2020, 51 such incidents were recorded. In areas of the hospital other than the high dependency ward, 38 incidents

Table 1. Statistical data comparing seclusion, restraint, special observations, challenging behaviours and occupancy rates between the two 9-month periods

	Jul '19–Mar '20 (±SD)	Apr '20–Dec '20 (±SD)	Statistical tests and results
Mean monthly rate of seclusion incidents	7.78 (±8.24)	3.67 (±2.29)	Poisson rate test 4.11 (95% CI 1.90–6.32, $p < 0.001$)
Mean monthly number of patients secluded	4.22 (±3.38)	2.89 (±1.90)	Poisson rate test 1.33 (95% CI –0.40–3.07, $p = 0.169$)
Mean rate of seclusion incidents per patient secluded each month	1.75 (±1.17)	1.38 (±0.70)	Mann–Whitney <i>U</i> test 0.17 (95% CI –0.23–0.68, $p = 0.204$)
Mean total monthly hours of all patients in seclusion	146.1 (±177.9)	101.1 (±94.8)	Log transformed and <i>t</i> -test $t = 1.04$; $p = 0.316$
Mean time (hours) spent per patient secluded each month	31.03 (±24.27)	37.5 (±34.7)	Log transformed and <i>t</i> -test $t = 0.12$; $p = 0.903$
Mean monthly rate of restraint incidents	10.56 (±8.62)	4.78 (±2.99)	Poisson rate test 5.78 (95% CI 3.22–8.34, $p < 0.001$)
Mean monthly number of patients restrained	5.11 (±3.06)	2.78 (±1.39)	Poisson rate test 2.33 (95% CI 0.50–4.17, $p = 0.017$)
Mean rate of restraint incidents per patient restrained each month	1.91 (±0.56)	1.77 (±0.90)	Mann–Whitney <i>U</i> test 0.33 (95% CI –0.83–0.83, $p = 0.398$)
Mean total monthly time (minutes) of all patients in restraint	47.9 (±52.8)	21.78 (±14.01)	Log transformed and <i>t</i> -test $t = 0.95$; $p = 0.359$
Mean time (minutes) spent per patient restrained each month	7.94 (±6.22)	8.20 (±5.07)	Log transformed and <i>t</i> -test $t = -0.28$; $p = 0.785$
Mean monthly number of patients on 1:1 observations	3.67 (±2.45)	3.00 (±1.80)	Poisson rate test 0.67 (95% CI –1.02–2.35, $p = 0.519$)
Mean total monthly hours of 1:1 observations on all patients	859 (±753)	596.7 (±266.9)	Log transformed and <i>t</i> -test $t = 0.27$; $p = 0.794$
Mean monthly number of challenging behavioural incidents on St Peter's	7.67 (±5.17)	5.67 (±2.78)	Poisson rate test 2.0 (95% CI –0.39–4.39, $p = 0.120$)
Mean monthly number of challenging behavioural incidents elsewhere in hospital	4.22 (±2.82)	3.00 (±3.39)	Poisson rate test 1.22 (95% CI –0.53–2.98, $p = 0.215$)
Mean monthly occupancy rate St Peter's	13.24 (±2.18)	12.56 (±1.10)	<i>t</i> -test 0.689 (95% CI –1.10–2.48); $t = 0.85$; $p = 0.415$
Mean monthly occupancy rate in hospital	143.77 (±6.29)	137.81 (±9.83)	<i>t</i> -test 5.96 (95% CI –2.45–14.36); $t = 1.53$; $p = 0.150$

were recorded in the first 9-month period and 27 in the second. Although, incidents of challenging, violent or aggressive behaviour recorded declined between the two 9-month periods there were no statistically significant differences.

Between July 1st 2019 and March 30th 2020 the average ward occupancy on the high dependency ward was 13.24 compared with 12.56 between April 1st 2020 and December 31st 2020; a 5% drop. Occupancy levels in the whole hospital showed a similar level of decline over the period; 143.8 on average in the 9 months from July 1st 2019 to March 30th 2020 and 137.8 in the 9 months between April 1st 2020 and December 31st 2020, a drop of 4%. Neither the differences in the mean monthly occupancy rate on the high dependency ward ($p = 0.415$) nor in the mean monthly occupancy rate hospital-wide ($p = 0.150$) were statistically significant. Non-statistically significant trends were noted between occupancy rates and incidents of challenging behaviour, seclusion and restraint.

3-year comparison

We decided to also examine seclusion and restraint during the 18-month period prior to July 2019, for a longer-term view of any changes and also as it seemed from examining the raw data that there was a surge in the use of seclusion in the summer of

2019 (see Fig. 1) which accounted for some of the difference between the two 9-month periods examined above. Unfortunately we were only able to compare seclusion and restraint over the whole 3 year period and could not access data for challenging behaviour incidents, special observations or occupancy.

In the 9 months from January to September 2018 there were 69 incidents of seclusion, involving 47 patients for a total of 1312 hours. In the following 9 months from October 2018 to June 2019 there were 76 incidents of seclusion, involving 50 patients for a total of 1805 hours. There were 103 incidents of restraint in the 9 months from January to September 2018, involving 51 patients for a total of 613 minutes. In the following 9 months from October 2018 to June 2019 there were 93 incidents of restraint, involving 44 patients for a total of 389 minutes. These results as well as the figures for the two subsequent 9 month periods are displayed in Fig. 2 and make clear that there was a clear change in the use of seclusion and restraint in the 9 months after March 2020. However analysis of the results also indicates a downward trend in seclusion use after the summer of 2019, greater than that accounted for in the 9 months after March 2020. Significant reductions between the time periods January 2018–July 2019 and August 2019–December 2020 were observed in the mean monthly number of patients secluded (2.67 less per month,

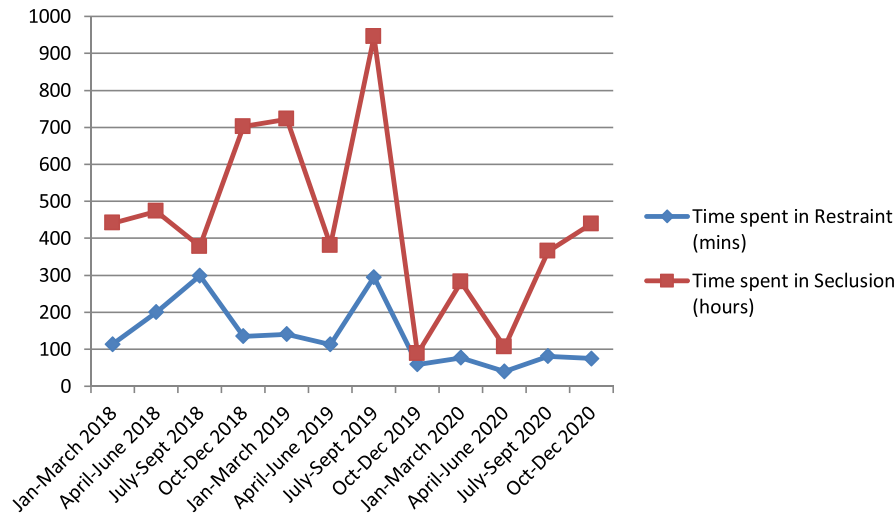


Figure 1. Time spent in seclusion and restraint in 3 month intervals 2018–2020.

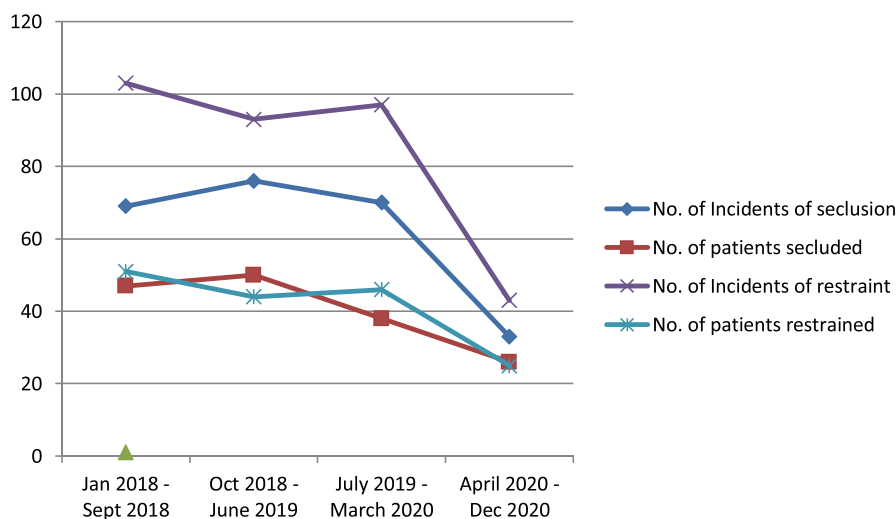


Figure 2. 3 year timeline of seclusion and restraint.

95% CI 1.32–4.04, $p < 0.001$), the mean rate of seclusion incidents (4.36 less per month, 95% CI 2.67–6.05, $p < 0.001$), the mean monthly hours that seclusion was utilised ($t = 2.63$, $p = 0.014$), the mean monthly number of patients restrained (2.16 less patients per month, 95% CI 0.77–3.55, $p = 0.003$), the mean rate of restraint incidents (5.54 less per month, 95% CI 3.58–7.50, $p < 0.001$), and the mean monthly hours that restraint was utilised ($t = 2.66$, $p = 0.012$). No differences were observed across the two time periods in the mean rate of seclusion incidents per patient secluded each month (1.54 ± 0.77 , Mann–Whitney U test, $p = 0.19$), the mean time spent in seclusion per patient (34.02 ± 25.36 minutes, $t = 0.72$, $p = 0.48$), the mean rate of restraint incidents per patient restrained each month (2.06 ± 1.17 , Mann–Whitney U test, $p = 0.30$), or in the mean time spent per month in restraint per patient restrained (9.39 ± 7.15 minutes, $t = 1.38$, $p = 0.18$).

Discussion

This study demonstrates a significant reduction in the use of restrictive interventions (seclusion and restraint) in St John of

God Hospital in the 9 month period from April 1st to December 31st 2020 compared with the preceding 9 months. Between the two time periods, episodes of seclusion fell by 53%, episodes of restraint by 56% while the hours devoted to special observation declined by 30%. Incidents of challenging behaviour also fell. Furthermore, the comparison with figures for seclusion and restraint over 2 previous 9 month periods (best illustrated in Fig. 2) reinforces the conclusion that the reduction in the use of restrictive interventions observed after April 1st 2020 was a clear departure from previous usage.

While it is not possible to conclude based on the data presented in this study that the COVID related reduction in bed numbers on the high dependency ward in St. John of God Hospital after March 2020 was responsible for the observed reduction in the use of restrictive interventions, there was a strong association demonstrated. This change in bed numbers on the ward meant that patients on the ward had more privacy and space available to them and the literature suggests that this should lead to a reduction in behavioural incidents (Ulrich *et al.* 2018) which should in turn reduce the need for restrictive interventions. The reduction in

recorded incidences of aggression or other forms of challenging behaviour by 26% on the high dependency ward, although not statistically significant, also goes some way to support this hypothesis, alongside the aforementioned reductions in restrictive interventions. These figures support efforts to provide a more spacious and therapeutic physical environment in the hospital.

However, while there was a trend indicating an association between occupancy on the high dependency ward and challenging behaviours and reductions in restrictive interventions, occupancy only fell by 5%. Similarly, the number of incidents of aggression and challenging behaviour in other areas of the hospital fell by 29% while overall occupancy fell by 4%. This suggests that the reasons for the observed changes are more complex and cannot be attributed to bed reductions alone.

These figures suggest that while reduced patient numbers in the hospital may have contributed to the reduced use of restrictive interventions, other factors were also important. While the negative impact of visitor restrictions and reduced access to leave from hospitals during the COVID pandemic have been well documented (Hugelius *et al.* 2021), it is possible also that these restrictions reduced some forms of relationship stress and limited access to intoxicants which may have had a role in reducing behavioural incidents (Phillips & Johnson 2003). The advent of COVID-19 called for social distancing and it is likely that patients on the ward would have absorbed this message and would have kept a greater distance from others than usual, thus reducing the potential for confrontations (Martin *et al.* 2021). The fact that the use of restrictive interventions was most reduced in the early months (see Fig. 1) of the pandemic suggests that this may have been a significant factor. It may have also been the case that staff members were more disinclined than usual to engage in hands-on interventions due to fears of infection and may have made additional efforts to avoid having to employ restrictive interventions (Yang *et al.* 2021). It is also likely that in the initial stages of the pandemic there was better communication and a greater sense of shared purpose and collaborative action between staff and patients and that this would have reduced conflict and the acting out of frustrations on the ward (Graham & Woodhead, 2021).

The longer comparison of 18-month periods either side of a surge in seclusion use in the summer of 2019, suggests that COVID related factors were not the only ones in the observed reduction in the use of restrictive interventions after March 2020. The fact that there was a sustained reduction in the use of restrictive interventions after a surge in their use in the summer of 2019 suggests that a cultural shift may have begun at that time and that was then augmented by the COVID related changes (Chandler, 2012). The timing of this would coincide with the establishment of a Seclusion and Restraint Committee in the hospital and resulting greater scrutiny being brought to bear on restrictive practices as well as the implementation of Safewards (Bowers, 2014). Unfortunately we did not have access to figures for the longer period of comparison for special observations or challenging behaviours so were unable to compare these figures.

Unfortunately due to the methodological limitations of this study, it was not possible to test these hypotheses and follow up qualitative studies exploring these ideas directly will be needed. The ethical approval received did not allow for any individual patient data to be collected with regard to demographics or diagnoses so we cannot know for sure if there were any significant differences between the people who were subjected to restrictive interventions in the various periods. However it seems unlikely that there would have been significant differences given that there

were no changes in admission criteria and occupancy levels were broadly similar across the study periods. It would have been useful to obtain information on ward staffing levels and seniorities as well as the proportion of agency to permanent staff but this was not available. It would also be extremely useful to explore with service users and staff their experiences of the reduced bed numbers as well as their ideas as to why restrictive interventions were used less following the onset of the COVID pandemic. It will be important to monitor the use of restrictive interventions in the hospital in 2021 and beyond as there was a notable upwards trend again in the use of seclusion and restraint in late 2020.

Despite the methodological limitations and the likely complicated explanatory factors, we were able to demonstrate a clear reduction in the use of restrictive interventions over the study period. This finding is in itself important and demonstrates that significant reductions can be made. At least one published study has thus far demonstrated a reduction in aggression and consequent restrictive interventions post-COVID-19 (Martin *et al.* 2021) and this study adds to that. This study adds the important additional information that the use of special observations and the incidence of challenging behaviours declined at the same time as seclusion and restraint, even in face of comparable levels of occupancy.

Conclusion

This study has demonstrated a significant reduction in the incidence of challenging behaviours and the consequent use of restrictive interventions in the post-COVID period on the high dependency ward in St. John of God Hospital. This may have related to reduced crowding on the ward after the admission beds were reduced in order to facilitate isolation for COVID or suspected COVID patients or it may have related to other COVID related factors such as the emphasis on social distancing and a greater sense of shared purpose on the ward. Further research into the causes of the observed changes is needed. It will also be critical to continue to monitor the use of restrictive interventions in the hospital. Improving standards of care in relation to the prevention and management of challenging behaviour is an ongoing critical endeavour for inpatient mental health services. It is critical now that we sustain and build upon these welcome reductions through a comprehensive, evidence-based and inclusive strategy with appropriate standards, protocols and monitoring practices.

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Conflict of interest. Authors have no conflicts of interest to disclose.

Ethical standards. The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committee on human experimentation with the Helsinki Declaration of 1975, as revised in 2008. The authors assert that ethical approval for publication of this study has been provided by their local Ethics Committee.

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