

Pilot study of a sensory room in an acute inpatient psychiatric unit

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Abstract

Objective: The use of sensory rooms (also known as comfort rooms) to reduce seclusion rates has generated a great deal of interest. This study examined the outcomes associated with the introduction of a sensory room in an acute inpatient psychiatric unit.

Method: Consumers rated distress and staff rated a variety of disturbed behaviours before and after each use of the room. Items used during each episode were recorded.

Results: Use of the room was associated with significant reductions in distress and improvements in a range of disturbed behaviours. Those individuals who used the weighted blanket reported significantly greater reductions in distress and clinician-rated anxiety than those who did not. No changes were noted in rates of seclusion or aggression.

Conclusions: The sensory room was an effective intervention to ameliorate distress and disturbed behaviour, although this did not translate into reductions in overall rates of seclusion or aggression. Weighted blankets appear to be particularly useful.

Keywords: comfort room, inpatient psychiatry, occupational therapy, seclusion and restraint reduction, sensory modulation

The use of sensory rooms to reduce seclusion and restraint has generated a great deal of interest in Australia in recent years. Sensory rooms are specialised rooms with various items that assist individuals to relax and perform 'self-soothing' routines.¹ The theoretical basis for sensory rooms has emerged from the trauma-informed care, sensory modulation, self-management and recovery literature.^{1–3} This is further supported by evidence for self-soothing techniques from dialectical behaviour therapy in the management of distress for consumers with borderline personality disorder, eating disorders and addictions.^{4,5}

Few studies have formally evaluated the effectiveness of sensory rooms. To our knowledge, only two have been published.^{3,6} Both demonstrated significant reductions in distress^{3,6} associated with sensory room use and in one, seclusion rates were decreased by 54%.³

Given the strong interest but limited research in the area, we sought to study outcomes following the introduction of a sensory room in a 40-bed acute psychiatric unit in inner-city Sydney. We hypothesised that the introduction of the room would: (1) reduce distress reported by consumers who used the room; (2) reduce disruptive and disturbed behaviours demonstrated by consumers who used the room; and (3) reduce rates of seclusion and aggression on the unit. We also set out to explore which items in the sensory room were most effective in reducing distress and improving behavioural disturbance.

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Table 1. Demographics of sample

	<i>n</i>	<i>%</i>
Gender		
Female	62	82.7%
Male	13	17.3%
Age		
Under 20 years	9	12.0%
20–39 years	56	64.7%
40–59 years	10	13.3%
60 year or over	0	0.0%
Diagnosis		
Schizophrenia/other psychoses	25	33.3%
Manic episode or bipolar affective disorder	18	24.0%
Depression	6	8.0%
Borderline personality disorder	4	5.3%
Other	3	4.0%
Missing	19	25.3%

Table 2. Frequency of use of different items in the sensory room

<i>Item</i>	<i>n</i>	<i>%</i>
Weighted blanket	29	38.7%
Listen to music	28	37.3%
Read magazine / book	26	34.7%
Rocking chair	21	28.0%
Scents	5	6.7%
Fitball	5	6.7%

Note: more than one item may have been used, so totals do not add up to 100%.

Staff were educated about the room and encouraged to offer time in the room to consumers at the first sign of distress or agitation. Over 80% of nursing and allied health staff and 40% of medical staff attended these sessions. Consumers were also routinely educated about the room and encouraged to use it when they felt distressed or needed 'time-out.'

Methods

This study was approved by the hospital's ethics committee. An existing interview room was converted into a sensory room. The design followed best practice principles¹ and included a homely environment with scenic pictures, comfortable furnishings and a range of sensory modulation items.

Instrumentation

A sensory room assessment form was developed. Consumers rated their level of distress on a 10-point scale (1: not distressed at all; 10: extremely distressed) and clinicians rated 11 common behavioural disturbances (also on a 10-point scale) before and after room

Table 3. Comparisons of distress and behaviour before and after use of the sensory room

<i>Criterion</i>	<i>Before</i>	<i>After</i>	<i>t value</i>
	<i>Mean (SD)</i>	<i>Mean (SD)</i>	
Self rating of distress (<i>n</i> =70)	4.87 (2.64)	2.54 (1.93)	9.97***
Physical aggression (<i>n</i> =5)	2.20 (2.49)	1.00 (1.41)	1.50
Pacing (<i>n</i> =14)	4.79 (2.08)	2.79 (1.97)	4.77***
Loud (<i>n</i> =13)	5.85 (1.95)	3.23 (2.59)	4.18***
Irritable (<i>n</i> =25)	5.16 (2.36)	3.00 (2.02)	4.97***
Intrusive (<i>n</i> =9)	5.33 (2.29)	3.56 (2.01)	3.60***
Paranoid (<i>n</i> =4)	6.50 (1.00)	4.50 (2.38)	1.85
Elevated (<i>n</i> =19)	5.42 (1.90)	3.32 (2.50)	4.88***
Anxious (<i>n</i> =32)	4.97 (2.42)	2.53 (1.98)	6.67***
Settled (<i>n</i> =17)	4.88 (3.18)	5.59 (3.86)	-1.62
Calm (<i>n</i> =18)	4.28 (3.41)	4.72 (4.08)	-1.05
Withdrawn (<i>n</i> =8)	3.44 (2.90)	1.50 (2.14)	2.83*

Notes: Not all criteria were rated for each use of the room; * $p < 0.05$; *** $p < 0.001$; SD: standard deviation.

Table 4. Change in seclusion and aggression rates

<i>Indicator</i>	<i>Prior to implementation</i>	<i>Following implementation</i>	<i>t value</i>
	<i>Mean (SD)</i>	<i>Mean (SD)</i>	
Episodes of seclusion	17.2 (6.0)	18.2 (7.7)	-0.35 (ns)
Aggression incidents	19.6 (13.1)	13.9 (7.8)	1.29 (ns)

Notes: Means based on raw numbers of events per month. SD: standard deviation; ns: not significant.

Table 5. Interaction effects for medication and diagnosis and self-rated distress

<i>Between-subjects factor: medication</i>	<i>Within-subjects factor: self-rated distress</i>		<i>Interaction effect</i>	
	<i>Pre</i>	<i>Post</i>	<i>F</i>	<i>p</i>
	<i>Mean (SD)</i>	<i>Mean (SD)</i>		
Medication used (<i>n</i> =17)	6.7 (2.1)	3.4 (1.7)	5.87	0.018
Medication not used (<i>n</i> =53)	4.3 (2.5)	2.3 (1.9)		
Total (<i>n</i> =70)	4.9 (2.6)	2.5 (1.9)		
<i>Between-subjects factor: diagnosis</i>	<i>Pre</i>	<i>Post</i>	<i>F</i>	<i>p</i>
	<i>Mean (SD)</i>	<i>Mean (SD)</i>		
Schizophrenia or other psychosis (<i>n</i> =23)	5.4 (2.1)	3.2 (1.9)	2.69	0.042
Manic episode or bipolar affective disorder (<i>n</i> =16)	4.1 (2.4)	2.6 (1.8)		
Depression (<i>n</i> =6)	7.3 (3.3)	3.0 (2.3)		
Borderline personality disorder (<i>n</i> =4)	3.8 (4.3)	1.3 (1.9)		
Other (<i>n</i> =2)	5.0 (2.8)	1.5 (2.1)		
Total (<i>n</i> =51)	5.1 (2.7)	2.8 (1.9)		

SD: standard deviation.

use. To prevent any delay in the use of the room, consumers were asked to report both before and after levels of distress upon exit. Data on age, diagnosis, duration of use, whether medication was used, what items were used in the room and whether seclusion was required were also collected. Monthly seclusion and aggression statistics were collated for the 12 months prior to and following implementation.

Analysis

Changes in self-rated distress and clinician-rated behaviour and rates of seclusion and aggression were examined using paired and unpaired *t*-tests, respectively. Repeated-measures general linear model analyses were used to examine whether use of various sensory items or

other factors were associated with changes in distress or behaviour. Each model included two observations of the within-subjects factor (pre- and post-ratings for self-rated distress or clinician-rated behaviour) and one between-subjects factor (i.e. gender, medication use, diagnosis, use of weighted blanket, use of rocking chair, reading or listening to music). A significant interaction effect would indicate significantly different changes related to the between-subjects factor under analysis. As each analysis was drawn from different sub-samples, no adjustments were made for multiple comparisons.

Results

Seventy-five occasions of use were recorded. Each occasion was recorded separately and no information was

Table 6. Interaction effects for sensory items in the sensory room

Between-subjects factor: use of weighted blanket	Within-subjects factor: self-rated distress		Interaction effect	
	Pre	Post	F	p
	Mean (SD)	Mean (SD)	Mean (SD)	
Used weighted blanket (n=27)	6.1 (2.1)	2.9 (2.1)	10.45	0.002
Did not use weighted blanket (n=43)	4.1 (2.7)	2.3 (1.8)		
Total (n=70)	4.9 (2.6)	2.5 (1.9)		

Between-subjects factor: use of weighted blanket	Within-subjects factor: anxiousness		Interaction effect	
	Pre	Post	F	p
	Mean (SD)	Mean (SD)		
Used weighted blanket (n=15)	6.0 (2.1)	2.7 (2.3)	5.18	0.030
Did not use weighted blanket (n=17)	4.1 (2.4)	2.4 (1.8)		
Total (n=32)	5.0 (2.4)	2.5 (2.0)		

Between-subjects factor: use of rocking chair	Within-subjects factor: self-rated distress		Interaction effect	
	Pre	Post	F	p
	Mean (SD)	Mean (SD)		
Used rocking chair (n=20)	6.0 (2.9)	3.1 (2.1)	2.45	0.123
Did not use rocking chair (n=50)	4.4 (2.4)	2.3 (1.8)		
Total (n=70)	4.9 (2.6)	2.5 (1.9)		

SD: standard deviation.

available regarding repeated use of the room by the same person. Demographic information for individuals using the room is presented in Table 1.

The mean duration of use was 39 minutes (range: 10–150 minutes; standard deviation 31 minutes). In 18 cases (24.0%), consumers were also given medication. Seclusion was used following time in the room in only four circumstances (5.3%). The sensory-modulation items used most frequently are noted in Table 2.

Changes in self-rated distress and clinician-rated behaviours are summarised in Table 3. Despite multiple significant improvements in these ratings, there were no significant changes in rates of seclusion or aggression (Table 4).

A total of 21 repeated-measures general linear model analyses were completed. Within-subjects factors were: (1) self-rated distress; (2) anxiousness; and (3) irritability (the most commonly-rated items). Between-subjects factors were: (1) gender; (2) medication; (3) diagnosis;

(4) use of weighted blanket; (5) use of rocking chair; (6) listening to music; and (7) reading.

There were no interaction effects for gender. There were interaction effects for the between-subjects factors of medication and diagnosis and within-subjects factor of self-rated distress (Table 5), although not for within-subjects factors of anxiousness or irritability. There were significant interaction effects present for use of weighted blanket and self-rated distress and clinician-rated anxiousness (Table 6). Although there were no significant interaction effects for use of rocking chair, the results for the analysis against self-rated distress (Table 6) suggest that this may be worthy of examination in a larger-scale study. No interaction effects were present for listening to music or reading.

Discussion

Two of the three hypotheses were supported. Hypothesis 1 (use of the sensory room will reduce distress reported

by consumers) was supported with a mean 2.3-point reduction on the 10-point scale. Hypothesis 2 (use of the sensory room will reduce disruptive/disturbed behaviours observed in consumers) was predominantly supported with significant improvements noted for seven of the 11 behaviours rated. Hypothesis 3 (use of the sensory room will reduce rates of seclusion and aggression) was not supported.

While use of the sensory room was effective in assisting individuals to self-soothe, implementation of the room did not have an overall effect on seclusion or aggression rates. As seclusion and aggression are key indicators reported to the Ministry of Health, the benefits of the sensory room were essentially 'invisible' at this level. Although disappointing, these results are consistent with previous assertions that both top-down and bottom-up strategies are required to effectively reduce rates of seclusion.⁷ Although Champagne and Stromberg³ reported a 54% reduction in seclusion, their study was undertaken in Massachusetts following the State Mental Health Authority's mandate to reduce, and then eliminate, seclusion and restraint.⁸

The majority of consumers who used the room reported a decrease in distress ($n=55$, 78.6%) and only one consumer (1.4%) noted an increase. Effectively reducing distress has far reaching implications for empowering consumers to improve their emotional self-management and reduce the trauma of hospitalisation. The sensory room provides a 'safe haven' from the potentially chaotic ward environment or the consumer's own internal turmoil. Objective ratings of consumer behaviours suggest that these reductions in distress also translated into observable improvements in behaviour. This may have a positive effect on ward milieu, supporting an environment that is more conducive to recovery. This also suggests that the use of self-soothing techniques (similar to those used in formal dialectical behavioural therapy⁵) is useful for the broader population of inpatient psychiatric consumers.

Results from the repeated-measures general linear models were interesting. Most notable were the positive results related to use of the weighted blanket. Previous literature supports the utility of weighted items for calming and grounding children⁹ and our study provides initial evidence for the effectiveness of weighted blankets in the adult psychiatric inpatient population. Even where a sensory room is not available, these results would suggest that weighted blankets may be a useful resource to assist consumers to self-manage distress. Rocking motions have also been reported to be effective for soothing older persons with dementia¹⁰ and, although not significant, trends emerging from our small sample (21 occasions of rocking chair use) indicate further investigation of this self-soothing resource is warranted.

Seclusion was required after use of the room on four occasions, as these consumers were unable to effectively self-contain their behavioural disturbance. Despite this, the presence of the sensory room did provide a less-invasive

early intervention option. This is in line with trauma-informed approaches¹⁻³ and supports a shift towards more humane methods to contain disturbed behaviour.

The gender disparity in room use (83% of episodes were by females) was noteworthy. This may be related to the items in the room or it may be that the room was seen as useful for distressed females but that seclusion was seen as more appropriate for disturbed males. This would also go some way to explaining the lack of effect of the introduction of the room on seclusion rates. Further work is required to ensure that the resources in the sensory room are appropriate for males and that staff are educated about the usefulness of the room for both males and females.

Limitations

The primary limitation of this study is that raters were not blinded. It is likely that at least some of the improvements noted are related to raters' expectation that there should be positive effects. A blinded trial of sensory rooms would be particularly helpful in controlling for this form of measurement bias. A second limitation is that the instrument used was not validated. Although different individuals may interpret the rating scales differently, this is partially controlled in the context of this study. As before and after ratings were completed by the same individual, the rating scale would be used in the same way at both times.

Conclusion

Use of the sensory room appears to be valuable in the attenuation of distress and behavioural disturbance. Results also support the usefulness of weighted blankets in inpatient psychiatric settings. Sensory rooms are a humane, non-invasive and effective method to support self-management in mild to moderately disturbed consumers. These results add to the emergent knowledge base around interventions designed to reduce the use of seclusion in Australian psychiatric inpatient units.

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Disclosure

The authors report no conflict of interest. The authors alone are responsible for the content and writing of the paper.

References

1. MacDaniel M, Van Bramer J and Hogan MF. *Comfort rooms: a preventative tool to reduce the use of restraint and seclusion in facilities that serve individuals with mental illness*. New York, NY: New York State Office of Mental Health, 2009.
2. National Executive Training Institute (NETI). *Training curriculum for reduction of seclusion and restraint. Draft curriculum manual*. Alexandria, VA: National Association of State Mental Health Program Directors, National Technical Assistance Center for State Mental Health Planning, 2003.

3. Champagne T and Stromberg N. Sensory approaches in inpatient psychiatric settings: innovative alternatives to seclusion and restraint. *Journal of Psychosocial Nursing and Mental Health Services* 2004; 42: 1–8.
4. Robins CJ and Chapman AL. Dialectical behavior therapy: current status, recent developments, and future directions. *J Pers Disord* 2004; 18: 73–89.
5. Linehan MM. *Skills training manual for treating borderline personality disorder. Diagnosis and treatment of mental disorders*. New York, NY: Guilford Press, 1993.
6. Chalmers A, Harrison S, Mollison K, et al. Establishing sensory-based approaches in mental health inpatient care: a multidisciplinary approach. *Australas Psychiatry* 2012; 20: 35–39.
7. Scanlan JN. Interventions to reduce the use of seclusion and restraint in inpatient psychiatric settings: what we know so far. A review of the literature. *Int J Soc Psychiatry* 2010; 56: 412–423.
8. Lebel J, Stromberg N, Duckworth K, et al. Child and adolescent inpatient restraint reduction: a state initiative to promote strength-based care. *J Am Acad Child Adolesc Psychiatry* 2004; 43: 37–45.
9. VandenBerg NL. The use of a weighted vest to increase on-task behavior in children with attention difficulties. *Am J Occup Ther* 2001; 55: 621–628.
10. Snyder M, Tseng YH, Brandt C, et al. A glider swing intervention for people with dementia. *Geriatr Nurs* 2001; 22: 86–90.