

A Comparison of Staff-Resident Interactions With Adults With Developmental Disabilities Moving From Institutional to Community Living

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Abstract

This study examined staff behaviour and its relationship to problem behaviour in a group of 17 adults with developmental disabilities who moved from a provincial institution to community group homes. Data were collected in both settings on resident and staff behaviours. Results indicated that staff:resident ratios were higher in the community settings than in the institutional setting. Consequently, community staff were able to provide more individualized attention to each resident. Staff in both settings were much more likely to attend to residents when they were displaying problem behaviours than appropriate behaviours. Levels of resident problem behaviour did not differ significantly between the two settings and were higher in both settings when staff were absent from the room compared to when they were present. Staff reported increased opportunities for social and leisure activities when residents were living in community settings. The findings of this study suggest that movement into community settings is not sufficient by itself to improve residents' behavioural functioning and that staff variables are an important factor in their adjustment.

In recent years, the movement to return individuals with developmental disabilities from institutional to community settings has progressed at a rapid rate. According to Lakin, Prouty, Polister and Coucouvanis (2003), the institutional population of adults with developmental disabilities in US facilities declined by 72% between 1977 and 2002. This decline in residential living in institutions was accompanied by a 12-fold increase in

people living in small residential settings. A similar trend has occurred in the Province of Ontario, Canada, where the number of individuals with developmental disabilities in institutions reduced from over 8,000 in 1975 to 5,200 in 1987 (Fotheringham, Abdo, Ouellette-Kuntz & Wolfgarth, 1993).

Although the movement of people with developmental disabilities to community settings is based on the laudable principles of normalization (Wolfensberger, 1972), there has not been a large number of empirical studies conducted on the impact of deinstitutionalization on residents' adjustment, or on the identification of factors that may affect that adjustment (Knobbe, Carey, Rhodes & Horner, 1995). In general, the studies that have been conducted indicate that the move of residents from institutional to community settings has been associated with positive outcomes in adaptive behaviour (Conroy, Spreat, Yuskasuskas & Elks, 2003; Emerson & Hatton, 1996; Heller, Miller & Hsieh, 2002; Kim, Larson & Lakin, 2001; Young, Ashman, Sigafos & Gravell, 2001) or with mixed results of changes in adaptive behaviour (Beadle-Brown & Forrester-Jones, 2003; Stancliffe, Hayden, Larson & Lakin, 2002). However, these studies have tended to use small sample sizes, rely on retrospective, non-randomized designs, and lack direct observational data (Anderson, Lakin, Mangan & Prouty, 1998; Emerson, 1985; Larson & Lakin, 1989).

Larson and Lakin (1989) reviewed 18 studies conducted from 1976 to 1988 and found eight that reported superior effects in adaptive behaviours for individuals moving from institutional to community settings compared to those remaining in institutions, and mixed results on the reduction of resident problem behaviours. A retrospective study by Fotheringham et al. (1993) found no change in the daily living skills of 108 individuals who moved from institutional to community settings, and had few, if any, meaningful relationships with non-delayed persons in the community other than with their paid caregivers.

Stancliffe and Lakin (1998) compared 116 adults with developmental disabilities living in community settings to 71 individuals remaining in an institution. They reported that supporting individuals in a community setting resulted in better outcomes and decreased costs compared to maintaining their care in institutional settings. Similar findings have been reported in other studies (e.g., Eastwood & Fishing, 1988). Lord and Pedlar (1991) completed a qualitative study of life in the community for 18 people with developmental disabilities who had moved from institutions. They found little community integration or social networks had developed but the quality of life had improved for 13 of the 18 individuals. Other studies have

examined changes in residents' quality of life following a move into community settings. Wehmeyer and Bolding (2001) reported an increase in autonomy, choice-making and self-determination following a transition of residents to community living. Spreat and Conroy (2002) found that residents moving into community settings increased their family contact. Similar positive changes in quality of life indicators have been reported by other researchers (Cooper & Picton, 2000; O'Brien, Thesing, Tuck & Capie, 2002; Stancliffe & Avery, 1997).

Although there is a pattern of finding increases in adaptive behaviour of residents after a move to community living arrangements, the impact of moving to community settings on residents' problem behaviours is less clear. Conroy et al. (2003) reported a modest decrease in the challenging behaviour of a large group of residents moving into community settings. In contrast, Stancliffe et al. (2002) found that residents in the Minnesota Longitudinal study showed initial deterioration in their challenging behaviour after moving from an institution to a community setting, but then returned to levels previously found when they lived in an institutional setting. In a review of research published on behaviour outcomes of deinstitutionalization between 1980 and 1999, Kim et al. (2001) found that nine of 12 studies failed to find a significant improvement in resident challenging behaviours after a move from an institution. These studies have relied on staff ratings of residents' problem behaviours. One of the limitations of using reported staff ratings of resident problem behaviour is that the same care providers do not evaluate residents' behaviours at the two time points. Differences found between the two ratings may be due to differences in the perceptions of the two sets of staff, rather than differences in the actual occurrence of resident problem behaviour. Direct observation and recording of resident problem behaviour may provide a more accurate picture of changes in resident problem behaviour between institutional and community settings (Emerson & Hatton, 1996; Kim et al., 2001).

Overall, the research evidence of improvement in the behaviour adjustment of adults with developmental disabilities after they moved into community settings has been mixed and characterized by methodological limitations. Placement into a community setting may be a necessary, but not a sufficient factor in the enhancement of the quality of life of residents. A fuller understanding of the impact of the move of residents into community settings would depend upon identifying factors in the institutional and community environments that are associated with any obtained gains in resident adjustment. For example, the amount of gains in residents' adaptive behaviour after a move from a nursing home to small community facility has

been associated with the physical attractiveness of the setting (Heller et al., 2002), small size of the setting, (Stancliffe et al., 2002), or "home-like" physical features (Thompson, Robinson, Farris & Sinclair, 1996). These studies examined the relationship between physical features of the residential environment and changes in residents' well-being. The environment of residences for people with developmental disabilities is not only composed of the physical surroundings, but also the quality and nature of interactions with care providers in those settings.

Emerson (1985) argued that the success of inclusion of residents into community settings is determined by the quality of staff interactions with residents and the arrangement of environments that teach and support positive behaviour adjustment. Few studies, if any, have examined the aspects of a residential environment associated with heightened or diminished behavioural adjustment of adults moving from institutional to community settings.

Ecobehavioural analysis is a methodology that holds promise to identify environmental factors between institutional and community settings associated with resident adjustment (Greenwood, Carta, Kamps & Arreaga-Mayer, 1990). It consists of conducting naturalistic observation of target behaviours and coding their co-occurrences with selected environmental events. Environment-behaviour relationships are revealed by calculating conditional probabilities of the co-occurrence of target behaviour with selected environmental event, compared to base rate occurrences of the behaviour. Ecobehavioural analysis has been used to assess activity engagement in community-based group homes and large hospitals for adults with developmental disabilities (Felce, deKock & Repp, 1986). Similar work has been completed for engagement in the workplace and the community (Felce & Emerson, 2000). Staff-resident ratios have been found to be associated with the amount of staff interaction with residents. Reese and Leder (1990) reported that more staff present resulted in lowered amounts of staff-resident interactions.

This study is unique in that it examines the ecobehavioural relationship between resident problem behaviours and staff behaviours using over forty thousand observations of 17 individuals with developmental disabilities who moved from institutional to community residential settings and their staff. The purpose of this study is to compare staff behaviour toward residents in community and in institutional settings and the relationship of these interactions with resident inappropriate behaviours.

Method

Participants

Client participants in this study were 17 adults with developmental disabilities who were residents of a large provincial institution that was planning to close as part of a multi-year provincial plan. The residents were selected by senior staff from receiving agencies to return to their community of origin and appeared to be representative of those in the facility. The 14 men and 3 women who participated in this study had a mean age of 42.8 years (range, 36-69 years) and had spent a mean of 29.4 years (range, 14-53 years) in the institution. Of the 17 participants, 6 were classified with profound mental retardation, 3 with severe mental retardation, 5 with moderate mental retardation and 3 with mild mental retardation. A breakdown of age, diagnosis, years in the institution, and major behaviour problems are shown in Table 1. Legal guardians of the residents provided informed consent for the residents' involvement. All staff and guardians approached, agreed to participate.

Participating staff consisted of 15 residential counselors employed by the institution to care for one or more of the participating residents. They had known the resident for at least six months and in some cases, for over 10 years. In addition, a total of 17 residential staff who were employed by community residential agencies participated in this study following the transition of residents out of the institution. Participating community staff had known the clients for at least one month. None of the institutional staff had been employed in the community settings. Residential staff, both in the institution and in the community group homes, tended to have an undergraduate degree or a community college diploma and tended to have had some additional general in-service training in behavioural interventions.

Settings

At the beginning of the study, all residents lived in a large residential facility for adults with developmental disabilities operated by the Province of Ontario. The Provincial government had decided to close the facility and initiated a process of returning residents to their communities of origin. Two agencies had agreed to provide residential placements in three community group homes for the seventeen residents involved in this study. Both of the agencies had been serving adult residents from their local community, but this was the first time they had accepted individuals from an institutional setting.

Table 1. Description of residents

<i>Name</i>	<i>Age (Yrs)</i>	<i>AAMR Classification</i>	<i>Years In Institution</i>	<i>Problem Behavior</i>
BK	41	Profound	34	Self-Injurious behaviour
PT	41	Mild	18	Stereotypy, aggression
BW	44	Severe	36	Aggression
SC	49	Moderate	38	Stripping, Self-injurious behaviour
VF	69	Profound	53	None
JJ	39	Moderate	14	None
RK	46	Profound	36	Self-Injurious behaviour, aggression
LM	38	Mild	15	None
GP	40	Profound	35	Stereotypy, pica, public masturbation
TP	37	Moderate	21	None
DH	39	Moderate	26	Stereotypy, pica
DP	41	Moderate	30	Aggression, stereotypy
DD	44	Mild	32	Aggression, stereotypy
GF	40	Profound	39	Stereotypy, pica
LL	36	Moderate	15	Stereotypy, Self-injurious behaviour
CW	44	Severe	43	Aggression
JW	40	Profound	15	Pica, aggression
Mean	45.2		27.1	

Institutional setting. The institution was built in 1906 in a small town in southwestern Ontario. At its peak in 1975, the institution was home for 750 residents. When the study was conducted in 1996, there were only 70 residents left in the institution. Approximately 30 residents lived together in wards, segregated by gender. Residential counselors provided daily care and facilitated leisure activities. Prior to the move to the community, a transition plan was formulated for each resident by the sending staff, receiving staff, family members (when available), and coordinated by a representative from government.

Community settings. After leaving the institution, residents lived in group homes situated in residential neighborhoods, located in the county in which they and their family had originally lived. Each home contained five residents and care was organized into three shifts of three residential staff. Residents spent their day in a combination of leisure activities (e.g., watching TV, outings) and supervised work placements (e.g., folding boxes) according to each resident's interests and abilities. Each resident slept in his/her own bedroom and was assigned household chores (e.g., cleaning room, washing dishes) to complete. Compared to life in the institution, participants had more privacy and increased contact with family members.

Measures

Trained coders observed residents in both the institutional and community settings during 15 minute sessions conducted over a 16 month period. Typically, four observation sessions were held each day between 10:00 a.m. and 4:00 p.m. Using a partial interval recording procedure (Kazdin, 1994), coders observed a resident's behaviour and staff interactions towards that resident during a 10 second interval and recorded the results during a subsequent 20 second interval. Observe-record intervals were cued to the coders by an audio signal via an audiotape machine and earphones. Three 15-minute observation sessions were conducted for each resident once a month for each of the 16 months of the study. To avoid reactivity to observation, observers spent three, 30-minute periods of time without recording behaviour when first sent to observe in the institutional and community settings. There were no signs that either residents or staff were reactive to the observers.

Code definitions for resident and staff behaviours are shown in Table 2. Definitions for staff attention to residents was adopted from Repp and Karsh (1994) and staff focus codes were adapted from Hundert (1994). A coding hierarchy was used for scoring behaviours when two or more behaviours

occurred during the same observation interval. The hierarchy for resident behaviour was from top to bottom: aggressive behaviour, problem behaviour, and appropriate behaviour. For staff focus it was: on the target resident individually (I+), on a group that included the target resident (G+), on a group that did not include the target resident (G-), on another staff (OS), no response (NR), and out of the room (OUT). Over the course of the study, a total of 22,248 observations of residents in the institutional setting and 30,132 observations of residents in the community settings were recorded.

Table 2. Behaviour Code Definitions for Resident and Staff Behaviours

Resident Behaviours

Aggressive Behaviour Verbal: (e.g., screaming, swearing), or nonverbal behaviour (e.g., hitting, kicking, throwing) behaviour directed toward self (e.g., SIB), others (e.g., punching a staff), or objects (e.g., throwing a lamp, ripping bed sheets)

Problem Behaviour: Not engaged in the task at hand but not aggressive (e.g., refusing to make bed, self-stimulatory behaviour)

Appropriate Behaviour: Engaging in the task appropriate to the situation (e.g., watching TV, dressing)

Staff Focus Toward Residents

Out (OUT): The staff was out of the room.

Target resident individually (I+): The staff's verbal or nonverbal behaviour was directed exclusively towards that resident.

Another resident individually (I-): The staff's verbal or nonverbal behaviour was directed exclusively towards another resident.

Group with target resident (G+): The staff's verbal or nonverbal behaviour was directed to a group that included the resident (e.g., "Okay everyone, its time for lunch.")

Group without target resident (G-): The staff's verbal or nonverbal behaviour was directed to a group that excluded the resident (e.g., "John, George, and Sam, do you want to go for a walk?")

Other staff (OS): This code was recorded when the staff directed her/his behaviour toward another staff.

No response (NR): No response was recorded when the staff made no observable response directed to another individual or group (e.g., reading the charts).

cont'd

*Table 2. (Cont'd)**Staff Behaviour*

Attention to appropriate behaviour: Delivering verbal or physical approval for appropriate behaviour

No attention to appropriate behaviour : Does not acknowledge appropriate behaviour with verbal or physical approval.

Attention to problem behaviour: Delivering reprimands, restraint, etc., for problem behaviour.

No attention to problem behaviour: Does not acknowledge behaviour with reprimands, restraint, etc.

In 10% of observations, a second coder simultaneously but independently recorded the same resident and staff behaviours during the same time interval, using an earphone connected to the same audiotape machine as the first coder by a Y adapter. Inter-observer reliability was calculated using Kappa coefficients (Cohen, 1960), with results ranging from 72.0% (staff attention to appropriate behaviour) to 97.7% (out) on individual behaviour codes and an overall agreement of 90.3%.

The three coders were trained using written manuals containing code definitions and observation procedures until each achieved 90% accuracy on a paper-and-pencil quiz and 90% agreement on a practice session of coding the behaviour of residents and staff not participating in the study.

Staff Rating

For each resident, staff completed a seven-item questionnaire adopted from the Inventory for Client and Agency Planning (ICAP) (Bruininks, Hill, Weatherman & Woodcock, 1986) about the resident's social and leisure activities during the previous month. This measure was selected because of its wide-spread use and well-established psychometric properties. The ICAP was completed by a staff member familiar with the resident in the institution one month before the transition and by different staff in community settings one and six months after the transition.

Data Analysis

Conditional probabilities of the co-occurrence of resident problem behaviours and staff focus were calculated and compared to the base rate of resident

problem behaviours. Statistical significance of obtained differences was calculated by a z-score formula described by Odom, Peterson, McConnell and Ostrosky (1990). The proportion of staff attention received by residents for problem behaviour compared to appropriate behaviour was converted to an odds ratio (Hosmer & Lemeshow, 1989) using the following formula:

$$\frac{\# \text{ staff attention for problem behaviour} / \# \text{ problem behaviour}}{\# \text{ staff attention for appropriate behaviour} / \# \text{ appropriate behaviour}}$$

Results

Change in resident behaviour adjustment

The mean percentage of intervals in which problem behaviour occurred across residents for each observation session in the institution and then after moving to community settings is shown in Figure 1. Residents displayed problem behaviour during approximately 24% of intervals while in the institution and 21% of intervals after moving to a community setting. There was very little difference in resident problem behaviour between institutional and community settings. Resident problem behaviour was maintained at levels similar to that found in the institutional setting. Table 3 shows the mean percentage of intervals in which appropriate problem or aggressive behaviours occurred for each resident while in the institution and in the community. Two residents (GP, DH) showed a reduction in problem behaviour of 10% or more from the institution to community setting, four residents (BW, GF, LF, JW) showed an increase in problem behaviour of 10% or more, and the rest showed little change in their behaviour across the two settings. Levels of resident aggression tended to be low in both the institution and community settings (about 1% of occurrences) with a slight increase in occurrence for seven residents and slight decrease for four residents from the institution to the community.

Environmental differences

Staff-resident ratio. The staff-resident ratio was higher in community settings at 1.6 residents per staff than in institutional settings at 3.1 residents per staff. This difference was significant ($t=12.7$; $df=16$; $p<.001$). Differences in staff-resident ratio found here were consistent with those reported by Stancliffe and Lankin (1998).

Figure 1. Session by session mean percent of resident problem behavior when in the institution and community settings

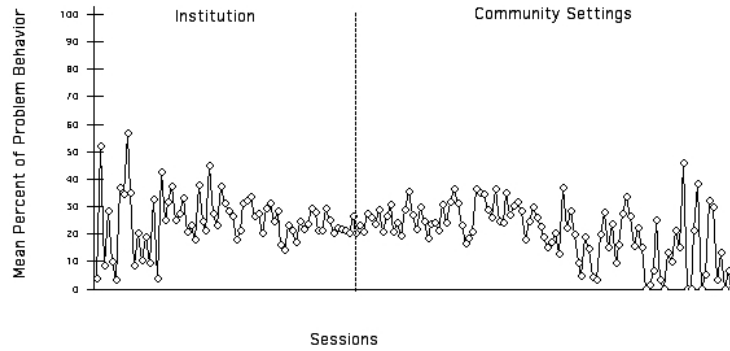


Table 3. Mean percentage of interval in which resident behaviour occurred in institutional and community settings

Residents	Aggression		Problem Behaviour		Appropriate Behaviour	
	Inst	Com	Inst	Com	Inst	Com
BK	3.1	5.7	53.7	50.0	42.8	45.3
PT	0.0	0.0	10.3	0.9	87.9	94.6
BW	0.6	3.4	14.4	39.2	85.4	57.3
SC	1.0	4.1	14.9	11.7	81.0	84.1
VF	0.0	0.0	0.3	0.1	99.7	99.9
JJ	0.2	0.0	0.2	0.0	99.5	100.0
RK	0.4	1.4	5.5	7.7	94.1	90.9
LM	0.0	0.0	0.0	0.0	100.0	100.0
GP	4.6	1.5	68.5	50.2	27.4	48.3
TP	0.0	0.0	0.3	0.0	99.7	100.0
DH	0.7	0.9	53.5	31.4	45.7	68.3
DD	0.0	0.0	18.5	8.5	81.4	91.4
GF	1.0	0.4	27.4	49.5	72.5	50.1
LF	0.4	0.2	15.8	27.7	83.8	72.2
CW	0.0	0.9	6.7	13.5	91.9	85.6
JW	0.0	0.6	33.4	48.9	67.8	50.5
DP	0.0	0.0	9.8	11.4	90.2	88.6
Mean	0.71	1.12	19.6	20.6	79.5	78.1

Staff behaviour towards residents. As shown in Table 4, there was little difference in the relative odds of staff attention to resident problem behaviours between community and institutional settings ($z=0.1$; ns). In both settings, residents were approximately four times as likely to receive staff attention following problem behaviour than following appropriate behaviours.

Table 4. Relative odds of staff attention for resident problem behaviour and for resident appropriate behaviour between institutional and community settings

	<i>Institutional Setting</i>	<i>Community Settings</i>
Number of intervals with incidents of staff attention for resident problem behaviour	178	1,071
Number of intervals with incidents of resident problem behaviours	1,930	3,030
Ratio of staff attention to resident problem behaviours	1:10.8	1:2.8
Number of intervals with incidents of staff attention for resident appropriate behaviour	181	799
Number of intervals with incidents of resident appropriate behaviours	8,239	8,796
Ratio of staff attention to resident appropriate behaviours	1:45.5	1:11.0
Relative odds of staff attention for resident problem behaviours and for resident appropriate behaviours	1:4.2	1:3.9

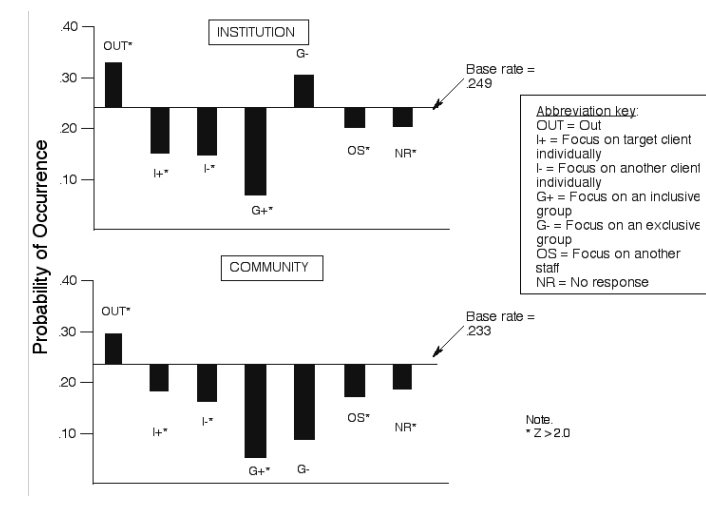
Staff focus. Table 5 shows the mean percentage of staff focus across codes in community and institutional settings. Staff focus toward residents was similar between the two settings except for staff focus on the resident individually (I+) which occurred more than twice as often in community than in institutional settings ($t = 10.6$; $df = 16$; $p < .01$). The total amount of time

staff focused on any single resident individually (the sum of I+ and I-) was not greatly different between community (36.7%) and institutional (30.3%) settings. However, with a higher staff-resident ratio, residents in community settings received more of the staff individually focused attention than when in the institution (24.7% vs 11.3%) (Chi-squared = 2190.7; df=1; $p < .001$).

Table 5. Mean percentage of staff focus codes in an institutional and community settings

	Institution Setting (22,248 observations)	Community Settings (30,132 observations)
Staff is out the room (Out)	54.1%	52.4%
Staff is focused on the resident individually (I+)	11.3%	24.7%
Staff is focused on another resident individually (I-)	19.0%	12.0%
Staff is focused on a group that includes the resident (G+)	2.1%	0.7%
Staff is focused on a group that does not include the resident (G-)	0.5%	0.0%

Figure 2. Conditional probabilities of resident problem behavior with staff behavior in institutional and community settings



Ecobehavioural relationships. Co-occurrences of resident problem behaviour and staff focus were examined by calculating conditional probabilities of these co-occurrences and comparing results to base rate occurrence of resident problem behaviour. Observation data was summed across residents and across sessions. Results of the eco-behavioural relationship between resident problem behaviours and staff focus in institutional and community settings are shown in Figure 2.

Results were similar in both settings. Significantly lower levels of resident problem behaviours were associated with staff focus on residents individually (.14 and .13), staff focus on groups including the resident (.07 and .02), staff focus on other staff (.18 and .18), and no response (.18 and .15) for institutional and community settings respectively. Significantly higher than base rate levels of resident problem behaviour was associated with staff absence from the room in both settings (.33 for institutional setting and .31 for community setting).

Ratings of social and leisure activities. Staff ratings of resident social and leisure activities during the previous month were compared to ratings completed when residents were in institutional settings, and at intervals of one and six months after residents moved to community settings. Results are shown in Table 6. When in institutions, one third of residents were reported to have telephone contact with their families and about one in four visited their families during the previous month. Immediately after the transition to community settings, residents were reported to have significantly more family visitation but less attendance in outside recreational activities. Six months after the transition to the community setting, the amount of social and leisure activities of residents increased substantially in all reported areas.

Table 6. Reported social and leisure activities of residents during the previous month completed in the institution and one and six months after moving to community settings

	<i>Institution</i> (N=17)	<i>Community</i> <i>1m</i> (N=17)	<i>Community</i> <i>6m</i> (N=12)
Talked to family or friends on the phone	33.3%	38.9%	47.1%
Visited with family	27.8%	61.1%	82.4%
Visited with friends or neighbors outside residence	16.7%	27.8%	41.2%
Went shopping or out to eat (alone or with someone else)	55.6%	55.6%	82.4%

(cont'd)

Table 6. (Cont'd.)

	<i>Institution</i> (<i>N</i> =17)	<i>Community</i> <i>1m</i> (<i>N</i> =17)	<i>Community</i> <i>6m</i> (<i>N</i> =12)
Attended outside social or recreational activity	61.1%	27.8%	100.0%
Engaged in hobby or personal leisure activity	27.8%	38.9%	70.6%

Discussion

This study compared selected environmental factors in institutional and community settings to the adjustment of adults with developmental disabilities. Of interest was the relationship between the staff interaction and resident problem behaviours. Although community settings were characterized by twice the staff-resident ratios and more staff time focused on individual residents, there was little difference in the level of resident problem behaviours between the two settings. Moreover, there was little difference in the eco-behavioural relationship between staff focus and resident problem behaviour in institution and community settings. In both settings, higher levels of resident problem behaviour were associated with staff being out of the room. Although heightened resident problem behaviour was associated with staff absence from the room, when staff were present, they were more likely to attend to resident problem behaviour than an appropriate behaviour.

This study contributes to the literature on deinstitutionalization by tracking changes in the direct measurement of resident behaviour and relating those changes to staff interaction in institutional and community settings. Other studies (e.g. Eastwood & Fisher, 1988; Heller et al., 2002; Kleinberg & Galligan, 1983; Starcliffe et al., 2002; Young et al., 2001) have tended to rely on indirect measures of resident adjustment. This study, like previous studies (e.g., Aanes & Moen, 1976; Kleinberg & Galligan, 1983; Stancliffe et al., 2002), found mixed results in residents' adjustment.

It should be pointed out that we did not direct the types of interactions that occurred between staff and residents in either setting. Observations were taken under natural conditions. It was interesting that in both institutional and community settings, residents received four times as much staff attention for problem behaviours than for appropriate behaviours. There is ample evidence indicating that staff attention contingent on resident problem

behaviour increases the frequency of that behaviour (e.g., Burgio et al., 1990; Meinhold & Mulick, 1990). These results would suggest that residential staff should receive training in how contingent interactions with residents can be used to decrease problem behaviours.

Removing residents from an institutional setting and placing them in smaller residential units in the community by itself does not necessarily produce experiences conducive to social development. Wetzel (1992) argued that institutions are less to do with the "bricks and mortar" of the settings, than the manner in which the lives of the residents are organized. This study suggests that in community group homes, residents did experience more frequent social and leisure activities compared to institutional settings, but staff interactions and their co-occurrences with resident behaviour remained unchanged. Knobbe et al. (1995) also found that the frequency of community activities increased after a group of 11 residents moved from an institution to community setting, but staff interactions did not increase. Resident behavioural adjustment may be at least partially dependent on the frequency and quality of staff interactions with the resident. Without systematic and consistent strategies by staff to promote resident interpersonal and lifestyle skills and reduce problem behaviours, there may be little reason to expect an improvement in resident behavioural adjustment.

There are several socio-political factors that limited the adequacy of planning the transition of residents in this study from institutional to community settings. First, because of tight timelines, issues of confidentiality, and lowered morale of institutional staff, there was little opportunity for the development of individual resident program plans coordinated between institutional and community staff prior to the actual moves of residents. In many cases, the community agency had no specific plans in place on how to accommodate a resident's behavioural or medical needs prior to the transition. Moreover, the community agencies involved were faced with procuring and readying residential properties as well as staff in just a few weeks prior to the move of residents from the institution to community settings, which may not have left them with the time to prepare adequately for the residents.

In contrast, Horner, Stoner and Ferguson, (1988) created detailed program plans for each resident while in institutions and then they developed a residential program to meet the residents' needs, trained staff in their implementation and monitored the adjustment of residents. In Horner et al. (1988) the frequency and nature of staff resident interactions were planned.

In the present study, greater gains in resident behaviour adjustment may have been obtained by developing resident specific behaviour support plans and training staff in their implementation.

The generality of this study may be limited by a number of factors. First, we used a small sample size of residents who were not randomly selected and compared resident adjustment in only three community settings and in one institutional setting. The extent to which these results are applicable to other residents in other settings is unclear.

Another limitation is that ratings of residents' social and leisure activities were conducted by different staff in institutional and community settings, thus raising the possibility of informant bias. It is possible that individual differences in factors such as the amount of work experience, job expectations, and working environment may have contributed to staff's rating of resident activities independent of the actual activities of residents.

Finally, this study examined differences between institution and community settings under natural conditions. The issue is no longer whether to include adults with developmental disabilities in community settings, but how best to arrange supports that result in improvement in resident adjustment and quality of life. Studies are needed that directly manipulate under experimental conditions one or more component of residential programming and measure their impact on resident adjustment. For example, what is the impact on residents' adjustment of providing supported employment, facilitating contact with family members, or encouraging resident participation in residential decisions?

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References

- Aanes, D., & Moen, M. (1976). Adaptive behavior change of group home residents. *Mental Retardation, 14*(4), 36-40.
- Anderson, L. L., Lakin, K. C., Mangan, T. W., & Prouty, R. W. (1998). State institutions: Thirty years of depopulation and closure. *Mental Retardation, 36*, 431-443.

- Beadle-Brown, J., & Forrester-Jones, R. (2003). Social impairment in the "Care in the Community" cohort: The effect of deinstitutionalization and changes over time in the community. *Research in Developmental Disabilities, 24*, 33-43.
- Bruininks, R. H., Hill, B. K., Weatherman, R. R., & Woodcock, R. W. (1986). *Examiner's manual: Inventory for client and agency planning*. Chicago: Riverside Publishing Co.
- Burgio, L. D., Engel, B. T., Hawkins, A., McCormick, K., Scheve, A., & Jones, L. T. (1990). A staff management system for maintaining improvements in continence with elderly nursing home residents. *Journal of Applied Behavior Analysis, 23*, 111-118.
- Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement, 20*, 37-46.
- Conroy, J., Spreat, S., Yuskas, A., & Elks, M. (2003). The Hissom Closure Outcome Study: A report on six years of movement to supported living. *Mental Retardation, 41*, 263-275.
- Cooper, B., & Picton, C. (2000). The long-term effects of relocation on people with an intellectual disability: Quality of life, behavior, and environment. *Research on Social Work Practice, 10*, 195-208.
- Emerson, E. B. (1985). Evaluating the impact of deinstitutionalization on the lives of mentally retarded people. *American Journal of Mental Deficiency, 90*, 277-288.
- Emerson, E. B., & Hatton, C. (1996). Impact of deinstitutionalization in the UK and Ireland: Outcomes for service users. *Journal of Intellectual and Developmental Disabilities, 21*(1), 17-37.
- Eastwood, E. A., & Fisher, G. A. (1988). Skill acquisition among matched samples of institutionalized and community-based persons with mental retardation. *American Journal on Mental Retardation, 93*, 75-83.
- Felce, D., deKock, U., & Repp, A. (1986). An eco-behavioral analysis of small community-based houses and transitional large hospitals for severely and profoundly mentally handicapped adults. *Applied Research in Mental Retardation, 7*, 393-408.
- Felce, D., & Emerson, E. (2000). Observational methods in assessment of quality of life. In T. Thompson, D. Felce, & F.J. Symons (Eds.), *Behavioral observation: Technology and applications in developmental disabilities* (pp. 59-74). Baltimore: Paul H Brooks.
- Fotheringham, J. B., Abdo, K., Ouellette-Kuntz, H., & Wolfgarth, A. (1993). Survey of community adjustment of previously institutionalized developmentally disabled persons. *Canadian Journal of Psychiatry, 38*, 641-648.
- Greenwood, C. R., Carta, J., Kamps, D., & Arreaga-Mayer, C. (1990). Ecobehavioral analysis of classroom instruction. In S. R. Schroeder (Ed.), *Ecobehavioral analysis and developmental disabilities* (pp. 33-63). New York: Springer-Verlag.
- Heller, T., Miller, A. B., & Hsieh, K. (2002). Eight-year follow-up of the impact of the environmental characteristics on well-being of adults with developmental disabilities. *Mental Retardation, 40*, 366-378.
- Horner, R. H., Stoner, S., & Ferguson, D. L. (1988). *An activity-based analysis of deinstitutionalization: The effects of community re-entry on the lives of residents leaving Oregon's Fairview Training Center*. Eugene, OR: University of Oregon, Specialized Training Program.

- Hosmer, D. W., & Lemeshow, S. (1989). *Applied logistic regression*. New York: Wiley.
- Hundert, J. (1994). Ecobehavioral relationships between teachers' and disabled preschoolers' behaviors before and after supervisor training. *Journal of Behavioral Education, 4*, 77-93.
- Kazdin, A. E. (1994). *Behavior modification in applied settings*. Belmont, NY: Brooks/Cole Publishing Company.
- Kim, S., Larson, S. A., & Lakin, K. C. (2001). Behavioural outcomes of deinstitutionalization for people with intellectual disability: A review of US studies conducted between 1980 and 1999. *Journal of Intellectual & Developmental Disability, 26*, 35-50.
- Kleinberg, J., & Galligan, B. (1983). Effects of deinstitutionalization on adaptive behavior of mentally retarded adults. *American Journal of Mental Deficiency, 88*, 21-27.
- Knobbe, C. A., Carey, S. P., Rhodes, L., & Horner, R. H. (1995). Benefit-cost analysis of community residential versus institutional services for adults with severe mental retardation and challenging behaviors. *American Journal on Mental Retardation, 90*, 533-541.
- Lakin, K. C., Prouty, R., Polister, B., Coucouvanis, K. (2003). Selected changes in residential service systems over a quarter century, 1997-2002. *Mental Retardation, 41*, 303-306.
- Larson, S. A., & Lakin, C. K. (1989). Deinstitutionalization of persons with mental retardation: Behavioral outcomes. *Journal of the Association for Person with Severe Handicaps, 14*, 324-332.
- Lord, J., & Pedlar, A. (1991). Life in the community: Four years after the closure of an institution. *Mental Retardation, 29*(4), 213-221.
- Meinhold, P. M., & Mulick, J. A. (1990). Counter-habilitation contingencies in residential institutions. In S. R. Schroeder (Ed.), *Ecobehavioral analysis and developmental disabilities* (pp. 105-121). New York: Springer-Verlag.
- O'Brien, P., Thesing, A., Tuck, B., & Capie, A. (2001). Perceptions of change, advantage, and quality of life for people with intellectual disability who left a long stay institution to live in the community. *Journal of Intellectual and Developmental Disability, 26*, 67-82.
- Odom, S. L., Peterson, C., McConnell, S., & Ostrosky, M. (1990). Ecobehavioral analysis of early education/specialized classroom settings and peer social interaction. *Education and Treatment of Children, 13*, 316-330.
- Repp, A. C., & Karsh, K. G. (1994). Hypothesis-based interventions for tantrum behaviors of persons with developmental disabilities in school settings. *Journal of Applied Behavior Analysis, 27*, 21-31.
- Reese, R. M., & Leder, D. (1990). Residential setting events. In S. R. Schroeder (Ed.), *Ecobehavioral analysis and developmental disabilities* (pp. 86-93). New York: Springer-Verlag.
- Spreat, S., & Conroy, J. W. (2002). The impact of deinstitutionalization on family contact. *Research in Developmental Disabilities, 23*, 202-210.
- Stancliffe, R., & Avery, B. (1997). Longitudinal study of deinstitutionalization and the exercise of choice. *Mental Retardation, 35*, 159-169.

- Stancliffe, R. J., Hayden, M. F., Larson, S. A., & Lakin, C. (2002). Longitudinal study on the adaptive and challenging behaviors of deinstitutionalized adults with mental retardation. *American Journal on Mental Retardation, 107*, 302-320.
- Stancliffe, R. J., & Lakin, C. K. (1998). Analysis of expenditures and outcomes of residential alternatives for persons with developmental disabilities. *American Journal on Mental Retardation, 102*, 552-568.
- Thompson, T., Robinson, M., Farris, M., & Sinclair, V. (1996). Interdependence of architectural features and program variables in community residences for people with mental retardation. *American Journal on Mental Retardation, 101*, 315-327.
- Wehmeyer, M., & Bolding, N. (2001). Enhanced self-determination of adults with intellectual disability as an outcome of moving to community-based work or living environments. *Journals of Intellectual Disability Research, 45*, 371-383.
- Wetzel, R. J. (1992). Behavior analysis of residential program development. *Research in Developmental Disabilities, 13*, 73-79.
- Wolfensberger, W. (1972). *Normalization: The principle of normalization in human services*. Toronto, Canada: National Institute of Mental Retardation (now the Roehrer Institute).
- Young, L., Ashman, A., Sigafos, J., & Grevell, P. (2001). Closure of the Challinor Centre II: An extended report on 95 individuals after 12 months of community living. *Journal of Intellectual & Developmental Disability, 26*, 51-66.

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