Journal of Applied Research in Intellectual Disabilities 2003, **16**, 63–74

Resident Involvement in Activity in Small Community Homes for People with Learning Disabilities

Jim Mansell, Julie Beadle-Brown, Susan Macdonald and Bev Ashman

Tizard Centre, University of Kent at Canterbury, Beverley Farm, Canterbury, Kent CT2 7LZ, UK

Accepted for publication *29 October 2002*

Background Determining the relative importance of variables including client characteristics, setting features, staffing and care practices on the lives of people with learning disabilities in residential care continues to be a relevant topic for research.

Methods Measurements were made of the adaptive and problem behaviour of 343 adults with intellectual disabilities living in 76 residential homes and of various aspects of staffing, care practices (extent of active support) and resident engagement in meaningful activity. Ordinal and logistic regression was used to identify variables best predicting engagement and care practices.

Results Only adaptive behaviour and care practices predicted resident engagement in meaningful activity; only age and adaptive behaviour predicted care practices.

Conclusions Given the limited scope for changing resident adaptive behaviour, attention should be given to improve active support in residential homes in order to promote greater engagement in meaningful activity by people with learning disabilities.

Keywords: active support, engagement in meaningful activity, quality of care, residential care

Introduction

The quality of residential care for people with learning disabilities has been a major focus of policy and research attention for nearly 40 years. At the beginning of this period, the dominant form of provision was the large institution (Ericsson & Mansell 1996). During the 1960s and 1970s, increasing concern was expressed about the quality of care provided by these institutions in terms of gross physical deprivation (overcrowding, poor food, clothing and environment), abuse (ill-treatment, theft of possessions and over-use of medication and restraint) and neglect and inactivity (lack of care, lack of contact and stimulation and extensive periods of disengagement and isolation) (Morris 1969; Martin 1984; Willer & Intagliata 1984).

Early research on determinants of the quality of care identified the orientation and autonomy of people managing the living unit (that senior staff should have a child care rather than nursing training, and should have effective control over many aspects of the day-to-day running of the setting) as more important than factors such as overall size, cost, staff ratio or level of disability of the residents (King *et al.* 1971; McCormick *et al.* 1975). Orientation and autonomy were associated with care practices aligned more with the needs of service users. Emerging evidence of generally superior outcomes in community-based services (Tizard 1964; Kushlick 1980; Haney 1988) supported policy decisions in favour of deinstitutionalization and community living, and in recent years there has been a substantial shift in favour of residential accommodation in the community (Ericsson & Mansell 1996).

In general, community-based services have been shown to provide much richer physical environments (Pratt *et al.* 1980; Felce *et al.* 1985), higher levels of staffing (Lakin *et al.* 1988), more user-focused care practices (Felce *et al.* 1980; Landesman 1987; Mansell 1995) and better outcomes for users in terms of adaptive behaviour (Larson & Lakin 1989; Emerson & Hatton 1996; Young *et al.* 1998; Kim *et al.* 2001), involvement in household activity (Emerson & Hatton 1996; O'Neill *et al.* 1981) and participation in community life (Raynes *et al.* 1994; Conroy 1996; Emerson & Hatton 1996; Young *et al.* 1998). However, although the worst features of physical deprivation and poor staffing levels

found in institutions have been remedied by the move to community services, there has been increasing concern at the wide variation in the quality of care offered and the results achieved for service users within these services (Emerson & Hatton 1996; Landesman 1988).

A central concern of commentators is the extensive inactivity and isolation still seen in community services. Participation in meaningful activity is important (i) as a primary outcome in its own right (Mansell *et al.* 1987; Bellamy *et al.* 1990; Saunders & Spradlin 1991; Risley 1996), (ii) because of the negative impact of inactivity on various important aspects of health (Robertson *et al.* 2000) and (iii) because of the possible connection between participation in meaningful activity and other important outcomes like relationships (Mansell *et al.* 1987) and skill development (Mansell *et al.* 2001, 2002b).

Among the most important determinants of levels of meaningful activity by people living in community residential services is adaptive behaviour (Felce & Perry 1995; Thompson *et al.* 1996), so that the more disabled the residents, the lower their activity level. For these residents in particular, staff occupy a central role in mediating access to opportunities, and facilitating and reinforcing resident engagement in activities (Mansell *et al.* 2002b). Although community services have more staff than the institutions they replaced, staff : client ratio is not closely associated with better client outcomes including higher levels of participation in meaningful activity (Mansell *et al.* 1982; Felce *et al.* 1991, 2000b). Instead, there is evidence that it is staff care practices which are important determinants of resident activity, both from comparative studies (Mansell *et al.* 1984; Felce *et al.* 1986; Mansell 1994) and, more recently, from experimental demonstrations (Jones *et al.* 1999; Felce *et al.* 2000a).

Despite the consistent thread of research evidence from King, Raynes and Tizard to the present day that staff care practices are important determinants of participation in meaningful activity, policy debates continue to be dominated by discussion about the gross characteristics of services – whether better results are achieved, for example, by village communities, supported living or group homes (Kinsella 1993; Cox & Pearson 1995; Allard 1996; Emerson *et al.* 2000) and by quality assurance processes such as accreditation (Accreditation Council on Services for People with Development Disabilities 1990) or the British Care Standards Act (Great Britain 2000), which often focus predominantly on setting variables such as size, staffing, building design and location. Determining the relative importance of variables including client characteristics, setting features, staffing and care practices continues therefore to be a relevant topic for research.

Recent multivariate studies (by Felce *et al.* 2000b focused on people with challenging behaviour and by Hatton *et al.* 1996 focused on people with sensory impairments) again found that client ability and staff/client interaction were the most important determinants of resident engagement in meaningful activity. However, these were relatively small-scale studies (34 and 40 participants, respectively). This study provided the opportunity to consider the effect of many variables in a larger sample of community group homes than has been previously studied. The aim of the study was to identify which variables predicted resident engagement in meaningful activity.

Method

Participants and settings

Participants were 343 adults with intellectual disabilities living in 76 residential homes in England. The homes were part of a larger study covering 95% of the residential services for people with intellectual disabilities provided by a national charity (Mansell *et al.* 2002a). Participants were included in this study if assessments had been made of their participation in meaningful activity and of staff care practices (described below).

Measurement

Information was collected on the adaptive and problem behaviour of participants, the cost and aspects of the staffing of each home, the care practices of staff and on the extent to which participants were observed engaging in meaningful activity.

Three instruments were used to measure the adaptive and problem behaviour of participants: the Adaptive Behaviour Scale (ABS) (part 1) (Nihira *et al.* 1993), Behaviour Problems Inventory (BPI) (Rojahn 1994) and a Social Impairment Scale (SIS) made up of selected items from the Handicaps, Behaviour and Skills (HBS) scale (Wing & Gould 1978), chosen to measure the degree of social impairment of each person.

Adaptive and problem behaviour

The ABS, BPI and the SIS were sent by post to the manager of every service who was asked to ensure that each questionnaire was completed by the member of staff who knew the individual resident best. Questions and clarification about the information required were dealt with by the fourth author, who also followed up data collection to obtain the fullest information possible, and dealt with queries arising during data processing.

The ABS measures independence and adaptive behaviour, and has a possible maximum total score of 322. It is divided into 10 behaviour domains: physical development, language development, domestic activity, numbers and time, economic activity, independent functioning, vocational activity, self-direction, responsibility and socialization. Normative data are provided to calculate percentile ranks from raw scores.

The BPI rates 29 specified problem behaviours in groups relating to self-injurious behaviour, aggression and stereotyped behaviour, with the opportunity to specify additional problems. Problems were rated for frequency (never occurred, less than monthly, monthly, weekly, daily, hourly or more than hourly). Following McGill *et al*. (2001), frequency of problem behaviours was summed to give a total score (maximum 222) indicating the overall burden represented by each person's challenging behaviour. Each behaviour was also rated for whether it presented a behaviour management problem for staff, distinguishing between those causing severe management problems (staff had to intervene, upset other residents, marked effect on social atmosphere or unacceptable in public), lesser problems, those not causing a problem and potential problems (where the problem was controlled in the present environment but was likely to reoccur as a severe problem if the environment changed).

The SIS comprised seven items relating specifically to social impairment from the Abnormal Behaviour section of the Handicaps, Behaviour and Skills Schedule (Wing & Gould 1978). These items related to whether the person made and used eye contact with other people, spontaneous showing of affection, their response to age peers, social play, willingness to join in leisure activities and overall quality of social interaction. These items were summed to give a total score, expressed as a percentage. The degree of social impairment was then classified as profound, severe, moderate or mild.

The reliability and validity of the ABS, BPI and the HBS (from which the SIS was drawn) have been studied and reported as acceptable by their authors. Reliability was measured in the study of which this was part by asking the same member of staff to repeat the rating a few weeks after initial data collection (i.e. the measure was of pretest/post-test reliability). Pairs of ratings were made for 4% of the population studied (19 residents for the ABS and 21 for the BPI and the SIS). Pearson product–moment correlation coefficients were calculated for pairs of total scores on each measure. Table 1 shows the level of reliability achieved.

Table I Reliability

	*Pearson's r**	*n*
ABS	0.955	19
BPI Frequency	0.745	21
BPI Severity	0.786	21
SIS	0.848	21

*All values significant at $P < 0.0001$.

Cost and staffing

Information was abstracted from the computerized records of the charity on the annual cost per place, various aspects of staffing and staff training of each home.

The total staff in post was calculated as the number of whole-time equivalent staff actually employed by the charity to support the residents in each home at the point of data collection, including, where appropriate, a share of a first-line manager post. The staff ratio was calculated as the number of residents per whole-time equivalent staff in post. The seniority of the staff team was calculated as the percentage of whole-time equivalent staff in post graded as Manager, Deputy Manager or Senior Team Member. The average length of service of all staff in each home in months was recorded. Staff turnover was calculated as the number of staff leaving the service in the previous year divided by the mean number of staff in post, expressed as a percentage. Whether senior staff had attended training provided by the charity was also recorded.

Active support

Each home was visited in order to observe the way staff provided support to residents. Observations were made over a 3–4-h period around a meal time, because this seemed likely to provide many opportunities to see staff providing support. For each resident, the nature and quality of staff support was rated for the whole session using a 15-item rating scale, the Active Support Measure (ASM) (Mansell & Elliott 1996). Each item was scored on a scale of 0 (very poor performance, e.g. because no activities provided), 1 (weak, inconsistent performance), 2 (mixed performance), 3 (good, consistent performance), yielding a range of total scores from 0 to 45. The items were:

- Age appropriateness of activities and materials.
- 'Real' rather than pretend or very simple activities.
- Choice of activities.
- Demands presented carefully.
- Tasks appropriately analysed to facilitate client involvement.
- Sufficient staff contact for clients.
- Graded assistance to ensure client success.
- Speech matches developmental level of client.

- Interpersonal warmth.
- Differential reinforcement of adaptive behaviour.
- Staff notice and respond to client communication.
- Staff manage serious challenging behaviour well.
- Staff work as a co-ordinated team to support clients.
- Teaching embedded in everyday activities.
- Specific, written individual programmes in routine use.

Inter-rater reliability was assessed by having a second rater make independent assessments for 38 residents. Individual item scores made by each observer were highly correlated (*rho* ranges from 0.688–0.996) as were total ASM scores ($rho = 0.98$; $P < 0.001$). Internal consistency in the main study for all residents with a rating ($n = 409$) was high (Cronbach's $\alpha = 0.92$).

Engagement in meaningful activity

At the same time that ratings of active support were made, researchers rated the engagement in meaningful activity of residents in each home using a similar 4-point scale (0 = largely disengaged, 1 = engaged less than 50% time, 2 = engaged between 50 and 75% time and 3 = engaged more than 75% time). Inter-rater reliability was assessed using Cohen's kappa (Cohen 1960) for 38 residents. Kappa was 0.953 ($P < 0.001$).

Design and analysis

The design was a multivariate analysis, using ordinal and binary logistic regression. The data were analysed using MINITAB (MINITAB Ltd. 1998) and SPSS (SPSS Inc. 1998). The first dependent variable studied was engagement in meaningful activity by participants. The independent variables were client characteristics (age, ABS, BPI frequency score, whether the person had any severe or potentially severe behaviour problem, social impairment); cost and staffing (cost per place, total staff in post, staff : client ratio, seniority of staff group, management development, active support training, length of service, staff turnover) and care practices (active support score).

The variables identified were checked for intercorrelations (Table 2). Social impairment, cost and staff : client ratio were all highly correlated with ABS (*rho* > 0.5); staff : client ratio and cost were also highly correlated. ABS was therefore selected for inclusion, since social impairment is one aspect of adaptive behaviour and staff : client ratio and costs are probably largely dependent on adaptive behaviour. The remaining variables (age, ABS score, BPI frequency score, whether the person had any severe or potentially severe behaviour problem, total staff in post, seniority of staff group, management development, active support training, length of service, staff turnover and

Table 2 Correlations between independent variables

	Age	*ABS*	*BPI (all)*	*Any sev/pot problem*	*Social impairment*	*Cost*	*Total staff in post*	*Staff : client ratio*	*Seniority*	*Management development*	*Active support training*	*Length of service*	*Staff turnover*	*Active support score*
Age	1.00	0.17	−0.20	−0.10	0.10	−0.34	0.11	0.34	−0.09	−0.08	−0.24	−0.07	0.13	−0.05
ABS		1.00	−0.40	−0.12	0.71	−0.56	−0.23	0.51	0.05	0.03	0.16	0.13	−0.10	0.35
BPI (all)			1.00	0.48	−0.40	0.28	0.03	−0.28	0.03	0.01	−0.03	0.02	0.05	−0.06
Any sev/pot problem				1.00	−0.10	0.18	0.06	−0.12	0.11	0.04	0.06	0.12	0.02	0.05
Social impairment					1.00	−0.41	−0.03	0.31	−0.07	0.12	0.15	0.14	−0.11	0.21
Cost						1.00	0.11	−0.71	0.22	−0.26	−0.09	−0.09	0.11	−0.13
Total staff in post							1.00	−0.45	−0.29	0.29	−0.17	0.19	−0.15	−0.10
Staff : client ratio								1.00	0.06	−0.12	0.10	−0.02	0.02	0.08
Seniority									1.00	−0.21	−0.04	−0.05	−0.08	0.02
Management development										1.00	0.21	0.09	−0.15	−0.01
Active support training											1.00	0.12	−0.20	0.18
Length of service												1.00	−0.46	0.03
Staff turnover													1.00	−0.04
Active support score														1.00

active support score) were then entered in an ordinal regression. In order to emulate a backward stepwise regression procedure, the variable with the least significant coefficient was then removed and the regression rerun. This procedure was repeated until only significant coefficients remained.

A second analysis was run for the dependent variable active support categorized into quartiles. The independent variables (age, ABS score, BPI frequency score, whether the person had any severe or potentially severe behaviour problem, total staff in post, seniority of staff group, management development, active support training, length of service and staff turnover) were entered in an ordinal regression in the manner already described.

Results

Participant characteristics

The mean age of participants was 40 years (range 16–89). Sixty per cent of participants were men and 97% were White British.

The total ABS score of participants in this study averaged 135 (range 11–298). Table 3 presents the average percentile rank for participants for each of the 10 domains of the ABS, compared with the normative data presented by Nihira *et al*. (1993) drawn from a representative sample of 4103 people with intellectual disabilities in USA. This shows that participants in this study have a very wide range of ability, but on average, they were in the most disabled half of all people with intellectual disabilities.

Rating of any problem behaviours shown by the participant were made using the BPI. On average, participants had a total frequency score of 13 (range 0–96). Table 4 presents the number of participants rated as having problem behaviour of different levels of severity. This shows that 78% of individuals had some problem behaviour; almost all homes included at least one person with such problems.

Table 4 Severity of problem behaviour ($n = 343$)

	People (%)			
Behaviour problem	*Lesser*	*Potential*	*Severe*	*Total*
Self-injury	25	8	20	53
Aggression	20	8	24	53
Stereotypy	31	5	5	41
Other	5	2	10	17
Any of above	25	13	39	78

Table 5 Degree of social impairment ($n = 343$)

	Degree of social impairment				
	Profound (0–24%)	*Severe (25–49%)*	*Moderate (50–74%)*	*Mild (75–100%)*	*Total*
%	21.3	28.6	26.5	23.6	100.0

The degree of social impairment, based on the total percentage score on relevant items of the HBS scale (Wing & Gould 1978) was classified as profound, severe, moderate or mild (Table 5).

Setting characteristics

Participants lived in homes averaging 6.4 residents (range 2–14), with 72% of residents living in homes of less than eight places. The total number of staff in post in each home

Table 3 Mean percentile rank for each ABS domain ($n = 343$)

ABS (part 1 domains)	*Minimum*	*Maximum*	*Mean*	*SD*
Independent functioning	1	100	35.69	29.72
Physical development	1	98	57.31	29.12
Economic activity	9	98	28.13	23.28
Language development	1	99	30.51	31.68
Numbers and time	9	98	30.63	27.69
Domestic activity	5	100	50.76	34.67
Prevocational/vocational activity	1	91	31.83	23.85
Self-direction	1	99	36.86	32.26
Responsibility	2	95	34.35	31.02
Socialization	1	99	41.86	29.37

Table 6 Provision of active support by staff ($n = 343$)

	Active support			
	Weak (0–15)	*Mixed (16–30)*	*Good (31–45)*	*Total*
%	24.2	51.3	24.5	100.0

averaged 11 (range 1–25). The average staff : client ratio was 1 : 0.67, ranging from 1 : 0.29 to 1 : 3.13. The length of service of all staff in each home averaged 45 months (range 5–116 months). Average staff turnover was 45% (range 0–227%). The revenue cost per place per year averaged £43 179 at June 2000 prices (range from £10 635 to £67 416).

Staff teams had widely varying compositions and training: the percentage of senior staff (Manager, Deputy Manager or Senior Team Member) ranged from 27 to 100% with an average of 63%. The percentage of the charity's own management development programme completed by each Service Manager averaged 68% (range 0–100%). The percentage of the Manager and Deputy Managers in each service who had attended 'active support' training (concerned with care practices designed to promote and facilitate resident engagement in meaningful activity) averaged 70% (range 0–100%).

Care practices were assessed using the ASM (Mansell & Elliott 1996). Only about a quarter of participants were rated as receiving good, consistent performance from staff on this measure (Table 6), another half were rated as receiving mixed, inconsistent performance and the remaining quarter as receiving poor or no support.

Table 7 Engagement in meaningful activity ($n = 343$)

	Engagement in meaningful activity				
	Largely disengaged	*Engaged <50% time*	*Engaged 50–75% time*	*Engaged >75% time*	*Total*
%	38.8	48.1	9.6	3.5	100.0

Resident engagement in meaningful activity

Table 7 shows the distribution of engagement levels among participants. Thirty-nine per cent of residents were observed to be largely disengaged during the 4-h observation period, with another 48% engaged for less than half the time.

Determinants of resident engagement in meaningful activity

Table 8 presents the results of the first regression, including all the independent variables. Following the sequential removal of variables where the coefficient failed to reach significance, only two variables remained: ABS and active support score (Table 9). In each case, the coefficients had a negative sign and the Odds ratios were less than 1, indicating that an increase in the independent variable was associated with an increase in engagement in meaningful activity. The regression model correctly identified 92% of cases and the G statistic was highly significant ($G = 342.007$; d.f. $= 2$; $P < 0.0001$).

Table 8 Results of initial regression on engagement in meaningful activity

					95% Confidence interval	
Predictor	*Coefficient*	*Z*	*P*	*Odds ratio*	*Lower*	*Upper*
Age	0.0129	1.15	0.249	1.01	0.99	1.04
ABS	−0.0106	−4.45	0.000	0.99	0.98	0.99
BPI	0.0142	1.27	0.205	1.01	0.99	1.04
Sev/Pot	−0.4642	−1.56	0.119	0.63	0.35	1.13
Staff	0.0362	1.43	0.152	1.04	0.99	1.09
Senior	0.8354	1.21	0.226	2.31	0.60	8.91
Management development	0.0021	0.41	0.683	1.00	0.99	1.01
Active support training	0.0008	0.17	0.863	1.00	0.99	1.01
Length	−0.0078	−1.22	0.223	0.99	0.98	1.00
Turnover	−0.0022	−0.58	0.561	1.00	0.99	1.01
AS Score	−0.2959	−10.82	0.000	0.74	0.71	0.78

Table 9 Final regression on engagement in meaningful activity

Predictor	Coefficient	Z	P	Odds ratio	95% Confidence interval	
					Lower	Upper
ABS	−0.0117	−5.68	0.000	0.99	0.98	0.99
AS score	−0.3019	−11.47	0.000	0.74	0.70	0.78

The coefficient in the regression equation indicates the change in logit of an increase in one unit of the independent variable. The observed range of active support scores was 40 and of ABS scores was 287. Multiplying these values by the coefficients to determine the relative effect of these two independent variables shows that active support was about 3.6 times more powerful than adaptive behaviour in predicting engagement in meaningful activity.

However, although the model appeared highly predictive of engagement, the goodness of fit tests indicated that the model did not fit the data very well (Pearson $\chi^2 = 10902.775$; d.f. = 1075; $P < 0.0001$). After further investigation using categorized variables of active support and ABS (scores were divided into four ranked categories by quartile scores), it was apparent that the model was explaining only some of the engagement values well, for example, when people were coded as being largely disengaged, both ASM and ABS scores were low, and when people were scored as being engaged more than 50% of the time, both ABS and ASM scores were higher (above the 50th percentile). However, for those who were engaged at least part of the time but not more than 50% of the time, there was no obvious pattern, with scores on both ABS and ASM reasonably well spread across all categories.

A binary logistic regression using a dichotomous coding of engagement (0 = largely disengaged, 1 = any engagement) and the same variables as entered in the initial ordinal regression described above but using the categorized ASM and ABS variables had a model significance of $\chi^2 = 256.517$ (d.f. = 20; $P < 0.001$). This model correctly predicted 88.6% of the observed values and revealed that ASM predicted engagement, in particular, low ASM scores predicted low engagement levels (ASM in 1st quartile: Wald, 53.370; $P < 0.001$; coefficient, 6.828; ASM in 2nd quartile: Wald, 17.447; $P < 0.001$; coefficient, 3.319). In this initial analysis ABS was not significantly predictive but the presence of a severe or potentially severe challenging behaviour was predictive of low engagement (Wald, 4.697; $P < 0.05$; coefficient, 0.947). Stepwise elimination of the smallest non-significant coefficient at each step resulted in only two variables left in the model – ASM and ABS (see Table 10 for variables in the equation output). The overall model coefficient was highly significant ($\chi^2 = 259.204$; d.f. = 6; $P < 0.001$), and this reduced model still correctly predicted 87% of observed values. As can be seen from Table 10, all levels of ASM are significant predictors of engagement, although lower scores are most predictive of low engagement. For ABS, however, only a score in the first quartile was significantly predictive of lower engagement scores.

Finally, the binary logistic regression was run exactly as before, but for engagement categorized into 0 = engaged less than 50% of the time and 1 = engaged 50% or more of the time. For this analysis the final model ($\chi^2 = 105.889$; d.f. = 6; $P < 0.001$) predicted 90% of the observed values and again included just ASM and ABS. In this model, ABS was predictive at more than the lowest level but ASM still produced higher coefficients (See Table 11).

A further analysis was undertaken in which categorized ASM was the dependent variable. Table 12 presents the

Table 10 Results of final binary logistic regression on engagement (where 0 = largely disengaged and 1 = engaged)

Variables in the equation	B	Wald	d.f.	Significance	Estimated Odds ratio
ASM2	–	83.264	3	0.000	–
ASM2(1)	−6.679	57.127	1	0.000	0.001
ASM2(2)	−2.976	15.646	1	0.000	0.051
ASM2(3)	−2.976	3.906	1	0.048	0.204
ABS2	–	12.623	3	0.006	–
ABS2(1)	−1.626	9.561	1	0.002	0.197
ABS2(2)	−0.831	2.422	1	0.120	0.436
ABS2(3)	−0.338	0.361	1	0.548	0.713

ASM2 is the total ASM score divided into quartiles where ASM2(1) = total ASM score in the first quartile of the distribution. ABS2 is categorized in the same way.

Table 11 Results of final binary logistic regression on engagement (where 0 = engaged less than 50% of the time and 1 = engaged 50% or more of the time)

Variables in the equation	*B*	*Wald*	*d.f.*	*Significance*	*Estimated Odds ratio*
ASM2	–	43.404	3	0.000	–
ASM2(1)	−3.851	13.539	1	0.000	0.021
ASM2(2)	−2.518	18.781	1	0.000	0.081
ASM2(3)	−2.605	23.137	1	0.000	0.074
ABS2	–	23.678	3	0.000	–
ABS2(1)	−2.372	8.754	1	0.003	0.093
ABS2(2)	−2.429	15.874	1	0.000	0.088
ABS2(3)	−1.364	9.231	1	0.002	0.256

Table 12 Results of initial regression on active support

					95% Confidence interval	
Predictor	*Coefficient*	*Z*	*P*	*Odds ratio*	*Lower*	*Upper*
Age	0.0209	2.55	0.011	1.02	1.00	1.04
Staff	−0.0352	−1.85	0.065	0.97	0.93	1.00
Senior	0.2450	0.49	0.626	1.28	0.48	3.42
Management development	0.0057	1.52	0.128	1.01	1.00	1.01
Active support training	−0.0060	−1.61	0.107	0.99	0.99	1.00
Length	−0.0002	−0.04	0.969	1.00	0.99	1.01
Turnover	−0.0026	−0.94	0.345	1.00	0.99	1.00
BPI	−0.0047	−0.57	0.572	1.00	0.98	1.01
ABS	−0.0117	−6.85	0	0.99	0.99	0.99
Sev/pot	−0.2715	−1.2	0.228	0.76	0.49	1.19

results of the initial regression, including all the independent variables. Following the sequential removal of variables where the coefficient failed to reach significance, only two variables remained: ABS and age (Table 13). For ABS, the coefficient was negative and the Odds ratio was less than 1, indicating that an increase in ABS was associated with an increase in active support. Younger age was associated with an increase in active support. The regression model correctly identified 67% of cases and the G statistic was highly significant ($G = 53.264$; d.f. $= 2$; $P < 0.0001$). Goodness of fit tests indicated that the model fitted the data well (Pearson $\chi^2 = 1127.209$; d.f. $= 1102$; $P = 0.292$).

Table 13 Results of final regression on active support

					95% Confidence interval	
Predictor	*Coefficient*	*Z*	*P*	*Odds ratio*	*Lower*	*Upper*
Age	0.0206	2.89	0.004	1.02	1.01	1.04
ABS	−0.0101	−6.95	0	0.99	0.99	0.99

Discussion

Adequacy of the data

Where data were abstracted from records no reliability information is available, but since staffing and finance records are critical to the operation of the charity, they are likely to be more accurate than ratings by staff or observers. Behavioural characteristics in this study were assessed by staff: pretest/post-test reliability showed acceptable levels of agreement. Care practices and resident engagement were rated by observers: interrater reliability showed acceptable levels of agreement.

There are three important possible limitations of these data. Since the data depend on ratings by independent

observers of staff support and care to residents, there is the possibility of reactivity. The likely direction of any reaction would be to improve the quality of support and care offered by staff, and this possibility cannot be excluded.

Although inter-rater reliability was good, some caution should be exercised over the validity of the observational data because they were not collected independently. There is therefore the possibility that observers rated engagement as occurring more extensively when they rated more active support. In the absence of independent data (e.g. contemporaneous time sample observation collected by others) it is not possible to rule this out.

The third possible limitation is that the data were all obtained from services provided by the same agency and therefore they may not be representative of all community-based residential services for people with intellectual disabilities. In the absence of comparable data from a national sample, this possibility cannot be excluded and caution should be used in generalizing from these findings to other services. However, some comparative data is available. The homes in this study were on average slightly larger than those studied by Emerson *et al*. (2000) and Felce *et al*. (2000b). The average costs were similar to those in homes of 4–6 places in the study of Emerson *et al*. (2000) (the basis for cost calculation in the Felce *et al*. (2000b) study does not permit direct comparison). Staff : client ratios were on average approximately half those found by Felce *et al*. (2000b) and were comparable to those found by Emerson *et al*. (2000). They were almost double those reported in a 1988 study of 143 homes by Raynes *et al*. (1994), reflecting the shift to small-scale settings and the increasing needs of people with learning disabilities in residential care (Mansell *et al*. 2002a). Thus these data are broadly comparable, in some respects at least, with some other major studies of community-based residential homes.

Conclusions

The regression of independent variables on engagement in meaningful activity by residents shows that only two variables appear to be important predictors: the overall level of adaptive behaviour of the resident and the care practices of the staff. This is consistent with earlier studies (Mansell *et al*. 1984; Felce *et al*. 1986; Mansell 1994; Felce & Perry 1995; Thompson *et al*. 1996; Jones *et al*. 1999; Felce *et al*. 2000a). Despite extensive literature demonstrating the efficacy of behavioural intervention to increase personal skills (Berkson & Landesman-Dwyer 1977; Reid *et al*. 1991), there is evidence from studies of deinstitutionalization that, after an initial increase on transfer to community-based services, adaptive behaviour remains relatively stable over many years in community services (Cambridge *et al*. 1996; Cambridge *et al*. 2001). In terms of improving resident engagement in meaningful activity, expecting increases in adaptive behaviour to feed through into increased activity therefore, seems likely to be a relatively weak strategy. It would also have the disadvantage of denying access to many important activities at home and in the community to people who did not yet have the adaptive behaviour to undertake them relatively independently (Saunders & Spradlin 1991). In contrast there is good evidence that when care practices are changed the engagement of people in meaningful activity increases (Jones *et al*. 1999; Mansell *et al*. 2002b). This also has the advantage that its benefits are experienced by the most disabled individuals (Felce *et al*. 2000a).

Although care practices can be changed readily in demonstration projects, there is mixed evidence about the ease with which change can be implemented more widely, and the extent to which staff will maintain the changes needed to sustain greater engagement in meaningful activity by the people they serve. Jones *et al*. (1999) reported maintenance over 8–12 months in three of five houses, whereas others (Mansell *et al*. 1994; McGill & Mansell 1995) give examples of mixed results in maintaining trained changes. Jones *et al*. (2001) have reported failure of trained managers to train staff in the practical work required, with consequent failure to change care practices. Factors implicated in the difficulty of introducing and sustaining changes in care practices include conflict between staff values and the working methods required (McGill & Mansell 1995), the difficulty of working intensively with residents, the belief that other work is more valued (Mansell & Elliott 2001) and beliefs that senior managers and commissioners of services only pay lip service to the goal of improving resident quality of life (Mansell 1996).

In this study the only variables predictive of the implementation of 'active support' care practices were resident age and adaptive behaviour; implementation was more likely for younger, more able residents. None of the staffing, staff characteristics or training variables predicted implementation.

Implications and further research

This study provides further evidence that the inputs provided in residential services – seniority, length of service, turnover, training– are not in themselves important determinants of the level of engagement in meaningful activity of people with learning disabilities. The most important factor is the adoption by staff of care practices which

directly facilitate engagement, particularly for people with the most severe disabilities. For policy makers, this study should caution against expecting improvements in engagement in meaningful activity when resources alone are changed; attention needs to be given to care practices and decision makers should remain sceptical of service proposals for people with severe and profound intellectual disabilities, unless they attend to this issue.

Further research is needed to identify the factors associated with the adoption and maintenance of 'active support' care practices. In particular, since the resource inputs in this study were not important, attention needs to be focused on the values, skills and motivation of first-line managers and the extent to which they provide 'practice leadership' through direct teaching and coaching of their staff (Mansell 1996; Jones *et al*. 2001).

Acknowledgements

The authors wish to thank the people with intellectual disabilities and their staff who provided the information used in this study, and the charity which provided access to its services and funded part of the study. This study was also partly funded by the National Health Service Executive. Thanks are also due to Eryl Bassett for statistical advice and assistance.

Correspondence

Any correspondence should be directed to Prof. Jim Mansell, Tizard Centre, University of Kent at Canterbury, Beverley Farm, Canterbury, Kent CT2 7LZ, UK (e-mail: j.mansell@ukc.ac.uk).

References

Accreditation Council on Services for People with Developmental Disabilities (1990) *Standards for Services for People with Developmental Disabilities: National Quality Assurance Program*, pp. 115. The Accreditation Council on Services for People with Developmental Disabilities, Landover, Maryland.

Allard M. A. (1996) Supported living policies and programmes in the USA. In: *Deinstitutionalization and Community Living: Intellectual Disability Services in Britain, Scandinavia and the USA* (eds J. Mansell & K. Ericsson), pp. 97–116. Chapman & Hall, London.

Bellamy G. T., Newton J. S., LeBaron N. M. & Horner R. H. (1990) Quality of life and lifestyle outcome: a challenge for residential programs. In: *Quality of Life: Perspectives and Issues* (eds R. L. Schalock & M. J. Begab), pp. 127–137. American Association on Mental Retardation, Washington.

Berkson G. & Landesman-Dwyer S. (1977) Behavioral research on severe and profound mental retardation, 1955–1974. *American Journal of Mental Deficiency* **81**, 428–454.

Cambridge P., Carpenter J., Beecham J., Hallam A., Knapp M., Forrester-Jones R. & Tate A. (2001) *Twelve Years On: the Outcomes and Costs of Community Care for People with Learning Disabilities and Mental Health Problems*. Tizard Centre, University of Kent at Canterbury, Canterbury.

Cambridge P., Hayes L. & Knapp M. (1996) 'Care in the community' 5 years on. *Tizard Learning Disability Review* **1** (3), 44–46.

Cohen J. A. (1960) A coefficient of agreement for nominal scales. *Educational and Psychological Measurement* **20**, 37–46.

Conroy J. (1996) Results of deinstitutionalization in Connecticut. In: *Deinstitutionalization and Community Living: Intellectual Disability Services in Britain, Scandinavia and the USA* (eds J. Mansell & K. Ericsson), pp. 149–168. Chapman & Hall, London.

Cox C. & Pearson M. (1995) *Made to care: the case for residential and village communities for people with a mental handicap.* Rannoch Trust, London.

Emerson E. & Hatton C. (1996) Impact of deinstitutionalization on service users in Britain. In: *Deinstitutionalization and Community Living: Intellectual Disability Services in Britain, Scandinavia and the USA* (eds J. Mansell & K. Ericsson), pp. 169–184. Chapman & Hall, London.

Ericsson K. & Mansell J. (1996) Introduction: towards deinstitutionalization. In: *Deinstitutionalization and Community Living: Intellectual Disability Services in Britain, Scandinavia and the USA* (eds J. Mansell & K. Ericsson), pp. 1–16. Chapman & Hall, London.

Emerson E., Robertson J., Gregory N., Hatton C., Kessissoglou S., Hallam A., Knapp M., Jarbrink K., Walsh P. N. & Netten A. (2000) Quality and costs of community-based residential supports, village communities, and residential campuses in the UK. *American Journal on Mental Retardation* **105** (2), 81–102.

Felce D., Bowley C., Baxter H., Jones E., Lowe K. & Emerson E. (2000a) The effectiveness of staff support: evaluating active support training using a conditional probability approach. *Research in Developmental Disabilities* **21**, 243–255.

Felce D., de Kock U. & Repp A. C. (1986) An eco-behavioural comparison of small community-based houses and traditional large hospitals for severely and profoundly mentally handicapped adults. *Applied Research in Mental Retardation* **7**, 393–408.

Felce D., Lowe K., Beecham J. & Hallam A. (2000b) Exploring the relationships between costs and quality of services for adults with severe intellectual disabilities and the most severe challenging behaviours in Wales: a multivariate regression analysis. *Journal of Intellectual and Developmental Disability* **25** (4), 307.

Felce D., Mansell J. & Kushlick A. (1980) Evaluation of alternative residential facilities for the severely mentally handicapped in Wessex: staff performance. *Advances in Behaviour Research and Therapy* **3**, 25–30.

Felce D. & Perry J. (1995) The extent of support for ordinary living provided in staffed housing: the relationship between staffing levels, resident characteristics, staff–resident interactions and resident activity patterns. *Social Science and Medicine* **40** (6), 799–810.

Felce D., Repp A. C., Thomas M., Ager A. & Blunden R. (1991) The relationship of staff : client ratios, interactions and residential placement. *Research in Developmental Disabilities* **12**, 315–331.

Felce D., Thomas M., de Kock U., Saxby H. & Repp A. (1985) An ecological comparison of small community-based houses and traditional institutions: physical setting and the use of opportunities. *Behaviour Research and Therapy* **23** (3), 337–348.

Great Britain. (2000) *Care Standards Act 2000: Chapter 14*. Stationery Office, London.

Haney J. I. (1988) Empirical support for deinstitutionalization. In: *Integration of Developmentally Disabled Individuals in the Community* (eds L. W. Heal, J. I. Haney & A. R. N. Amado), pp. 37–58. Paul H Brookes, Baltimore.

Hatton C., Emerson E., Robertson J., Henderson D. & Cooper J. (1996) Factors associated with staff support and resident lifestyle in services for people with multiple disabilities: a path analytic approach. *Journal of Intellectual Disability Research* **40** (5), 466–477.

Jones E., Felce D., Lowe K., Bowley C., Pagler J., Stong G., Gallagher B., Roper A. & Kurowska K. (2001) Evaluation of the dissemination of active support training and training trainers. *Journal of Applied Research in Intellectual Disabilities* **14** (2), 79–99.

Jones E., Perry J., Lowe K., Felce D., Toogood S., Dunstan F., Allen D. & Pagler J. (1999) Opportunity and the promotion of activity among adults with severe intellectual disability living in community residences: the impact of training staff in active support. *Journal of Intellectual Disability Research* **43** (3), 164–178.

Kim S., Larson S. A. & Lakin K. C. (2001) Behavioural outcomes of deinstitutionalisation for people with intellectual disability: a review of US studies conducted between 1980 and 1999. *Journal of Intellectual and Developmental Disability* **26** (1), 35–50.

King R. D., Raynes N. V. & Tizard J. (1971) *Patterns of Residential Care: Sociological Studies in Institutions for Handicapped Children*. Routledge and Kegan Paul, London.

Kinsella P. (1993) *Supported Living: a New Paradigm*. National Development Team, Manchester.

Kushlick A. (ed.) (1980) Evaluation of alternative residential facilities for the severely mentally handicapped in Wessex. *Advances in Behaviour Research and Therapy* **3**, 1–47.

Lakin K. C., Hill B. K. & Bruininks R. H. (1988) Trends and issues in the growth of community residential services. In: *Community Residences for Persons with Developmental Disabilities: Here to Stay* (eds M. W. Janicki, M. W. Krauss & M. M. Seltzer), pp. 25–42. Paul H Brookes, Baltimore.

Landesman S. (1987) The changing structure and function of institutions: a search for optimal group care environments. In: *Living Environments and Mental Retardation* (eds S. Landsman & P. Vietze), pp. 79–126. American Association on Mental Retardation, Washington, DC.

Landesman S. (1988). Preventing 'institutionalization' in the community. In: *Community Residences for Persons with Developmental Disabilities: Here to Stay* (eds M. Janicki, M. W. Krauss & M. M. Seltzer), pp. 105–116. Paul H Brookes, Baltimore.

Larson S. A. & Lakin K. C. (1989) Deinstitutionalization of persons with mental retardation – behavioral outcomes. *Journal of the Association for Persons with Severe Handicaps* **14** (4), 324–332.

Mansell J. (1994) Specialized group homes for persons with severe or profound mental retardation and serious problem behaviour in England. *Research in Developmental Disabilities* **15**, 371–388.

Mansell J. (1995) Staffing and staff performance in services for people with severe or profound learning disability and serious challenging behaviour. *Journal of Intellectual Disability Research* **39**, 3–14.

Mansell J. (1996) Issues in community services in Britain. In: *Deinstitutionalization and Community Living: Intellectual Disability Services in Britain, Scandinavia and the USA* (eds J. Mansell & K. Ericsson), pp. 49–63. Chapman & Hall, London.

Mansell J., Ashman B., Macdonald S. & Beadle-Brown J. (2002a) Residential care in the community for adults with intellectual disabilities: needs, characteristics and services. *Journal of Intellectual Disability Research* **46** (8), 625–633.

Mansell J., Elliott T., Beadle-Brown J., Ashman B. & Macdonald S. (2002b) Engagement in meaningful activity and 'active support' of people with intellectual disabilities in residential care. *Research in Developmental Disabilities* **23** (5), 342–352.

Mansell J. & Elliott T. E. (1996) *Active Support Measure*. Tizard Centre, University of Kent at Canterbury, Canterbury.

Mansell J. & Elliott T. (2001) Staff members' prediction of consequences for their work in residential settings. *American Journal on Mental Retardation* **106** (5), 424–447.

Mansell J., Felce D., Jenkins J. & de Kock U. (1982) Increasing staff ratios in an activity with severely mentally handicapped people. *British Journal of Mental Subnormality* **28** (2), 97–99.

Mansell J., Felce D., Jenkins J., de Kock U. & Toogood A. (1987) *Developing Staffed Housing for People with Mental Handicaps*. Tunbridge Wells, Costello.

Mansell J., Hughes H. & McGill P. (1994) Maintaining local residential placements. In: *Severe Learning Disabilities and Challenging Behaviour: Designing High-Quality Services* (eds E. Emerson, P. McGill & J. Mansell), pp. 260–281. Chapman & Hall, London.

Mansell J., Jenkins J., Felce D. & de Kock U. (1984) Measuring the activity of severely and profoundly mentally handicapped adults in ordinary housing. *Behaviour Research and Therapy* **22** (1), 23–29.

Mansell J., McGill P. & Emerson E. (2001) Development and evaluation of innovative residential services for people with severe intellectual disability and serious challenging behaviour. In: *International Review of Research in Mental Retardation*, Vol. 24 (ed. L.M. Glidden), pp. 245–298. Academic Press, New York.

Martin J. P. (1984) *Hospitals in Trouble*. Basil Blackwell, Oxford.

McCormick M., Balla D. & Zigler E. (1975) Resident-care practices in institutions for retarded persons: a cross-institutional, cross-cultural study. *American Journal of Mental Deficiency* **80** (1), 1–17.

McGill P., Hughes D., Teer K. & Rye L. (2001) Variability in staff reports of the frequency of challenging behavior. *Research in Developmental Disabilities* **22** (3), 221–231.

McGill P. & Mansell P. (1995) Community placements for people with severe and profound learning disabilities and serious challenging behaviour: individual illustrations of issues and problems. *Journal of Mental Health* **4**, 183–198.

MINITAB Ltd. (1998) *Minitab Version 12.1*. MINITAB Ltd., Coventry.

Morris P. (1969) *Put Away*. Routledge and Kegan Paul, London.

Nihira K., Leland H. & Lambert N. (1993) *AAMR Adaptive Behavior Scale – Residential and Community*, 2nd edn. Pro-eds, Austin, Texas.

O'Neill J., Brown M., Gordon W., Schonhorn R. & Greer E. (1981) Activity patterns of mentally retarded adults in institutions and communities: a longitudinal study. *Applied Research in Mental Retardation* **2**, 367–379.

Pratt M., Luszcz M. & Brown M. (1980) Measuring dimensions of the quality of care in small community residences. *American Journal of Mental Deficiency* **85** (2), 188–194.

Raynes N. V., Wright K., Shiell A. & Pettipher C. (1994) *The Cost and Quality of Community Residential Care*. Fulton, London.

Reid D. H., Phillips J. F. & Green C. W. (1991) Teaching persons with profound multiple handicaps – a review of the effects of behavioral research. *Journal of Applied Behavior Analysis* **24** (2), 319–336.

Risley T. R. (1996) Get a life! Positive behavioral intervention for challenging behaviour through life arrangement and life coaching. In: *Positive Behavioral Support: Including People with Difficult Behavior in the Community* (eds L. K. Koegel, R. L. Koegel & G. Dunlap), pp. 425–437. Brookes, Baltimore.

Robertson J., Emerson E., Gregory N., Hatton C., Turner S., Kessissoglou S. & Hallam A. (2000) Lifestyle related risk factors for poor health in residential settings for people with intellectual disabilities. *Research in Developmental Disabilities* **21** (6), 469–486.

Rojahn J. (1994) *Behavior Problems Inventory*. Nisonger Centre for Mental Retardation, Ohio State University, Ohio.

Saunders R. R. & Spradlin J. E. (1991) A supported routine approach to active treatment for enhancing independence, competence and self-worth. *Behavioral Residential Treatment* **6** (1), 11–37.

SPSS Inc. (1998) *SPSS for Windows* (Statistical Package for the Social Sciences) Version 9.0.0. SPSS Inc., Chicago.

Thompson T., Robinson J., Dietrich M., Farris M. & Sinclair V. (1996) Interdependence of architectural features and program variables in community residences for people with mental retardation. *American Journal of Mental Retardation* **101** (3), 315–327.

Tizard J. (1964) *Community Services for the Mentally Handicapped*. Oxford University Press, London.

Willer B. & Intagliata J. (1984) An overview of the social policy of deinstitutionalization. *International Review of Research in Mental Retardation* **12**, 1–23.

Wing L. & Gould J. (1978) Systematic recording of behaviors and skills of retarded and psychotic children. *Journal of Autism and Childhood Schizophrenia* **8** (1), 79–97.

Young L., Sigafoos J., Suttie J., Ashman A. & Grevell P. (1998) Deinstitutionalisation of persons with intellectual disabilities: a review of Australian studies. *Journal of Intellectual and Developmental Disability* **23** (2), 155.