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Comparing costs and outcomes of supported living with group homes in Australia*

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ABSTRACT
Background: Supported living is perceived as more flexible than group homes for people with intellectual disability. This study identified costs and factors associated with quality of life (QOL) in supported living and compared this with group homes.
Method: Thirty-one residents in supported living participated in a survey incorporating measures of service user characteristics and QOL. Participants in supported living were compared to a sample of 397 people in 96 group homes, and QOL outcomes compared for a matched sample of 29 people in supported living and group homes.
Results: QOL differed little, supported living was cheaper, and 30–35% of both groups had similar support needs. Being younger, having autism, better health, family support, and participation in structured activities were associated with better outcomes in supported living.
Conclusions: Supported living holds potential for group home residents, but greater support is required in domains such as health and interpersonal relationships.

Introduction

Since the late 1970s, shared supported accommodation that combines housing with 24-hour staff support, usually in the form of group homes, has been the primary service to replace large institutions for people with intellectual disability who do not live with their families in Australia and the United Kingdom (UK). A significant body of research shows that overall the quality of life (QOL) outcomes in these services exceeds those of institutional or clustered arrangements (Kozma, Mansell, & Beadle-Brown, 2009; Mansell & Beadle-Brown, 2009). However, the outcomes between services are variable, with severity of disability, and staff and managerial practices the key determinants (Bigby & Beadle-Brown, 2016).

Concern about the limitations of group homes has generated a search for alternative models that might have greater potential to deliver, choice about with whom to live, flexible individualised support, and good QOL outcomes. One of the most common of these is generically known as "supported living" (Kinsella, 1993). In this model, housing is separated both financially and organisationally from support, which is focused on one person at a time, can be tailored to anyone regardless of their

level of disability, and is concerned with building social connections (Howe, Horner, & Newton, 1998; Stainton, Brown, Crawford, Hole, & Charles, 2011). This model reflects the intent of service system reforms in the UK and Australia to deliver greater person-centred support. As these reforms use social care markets, consumer-driven demand, and individualised self-directed funding mechanisms to replace block-funding of services, the availability of supported living models are likely to increase.

From a policy perspective, supported living represents a more efficient use of resources, for some people (Felce et al., 2008). Several studies suggest that a sizeable proportion of people living in group homes do not require 24-hour support and could live more independently with the right support arrangements (Mansell, Beadle-Brown, & Bigby, 2013; Stancliffe & Keane, 2000). Some people have already moved from group homes; for example, an initiative in Victoria, Australia, supported approximately 150 group homes residents to move to supported living between 2002 and 2009 (Department of Human Services [DHS], 2010).

There is, however, less research about supported living than group homes, particularly about outcomes and factors that make it successful, such as types of

support arrangements or communities (Mansell & Beadle-Brown, 2010). UK and United States research comparing QOL outcomes in supported living to group homes, controlling for individual service user differences, found a mixed picture. Supported living had better outcomes on domains of choice, frequency, and range of recreational or community-based activities, and was significantly more cost-effective, but had poorer outcomes in terms of safety (vulnerability to exploitation), frequency of scheduled activities, health, and money management (Emerson et al., 2001; Felce et al., 2008; Howe et al., 1998; Perry, Firth, Puppa, Wilson, & Felce, 2012; Stancliffe, 1997). Similar findings were evident in the first Australian study that used a matched sample of 27 people from group homes and supported living (Stancliffe & Keane, 2000). A large survey in Canada found the advantages of supported living only on the domain of choice and control (Stainton et al., 2011).

Research about group homes points to the significance of service characteristics and staff practice to good outcomes (Bigby & Beadle-Brown, 2016). Few studies have systematically investigated the characteristics of communities, or formal and informal support arrangements associated with better outcomes in supported living. Locality is suggested as important by Emerson et al. (2001). Stainton et al. (2011) speculated about the importance of having informal support from family, and a recent Australian study identified the importance of family support in moving to supported living (Wiesel et al., 2015). A small study found some support for propositions in the KeyRing model about the benefits of a locality-based peer networks and explicit assistance to build social connections (Bigby, Anderson, & Bould, 2015). An evaluation of innovative housing services suggested attention to collective as well as individual needs are important in supported living arrangements when people shared accommodation (Fyffe, McCubbery, & Bigby, 2007).

Managing self-directed funding and coordinating support arrangements are more challenging for people with intellectual disability than those without cognitive impairment, particularly in the absence of a strong network of informal support (Neely-Barnes, Graff, Marcenko, & Weber, 2008). To realise the potential cost and anticipated QOL advantages of supported living, more knowledge is required about the factors associated with good outcomes to inform service development, commissioning, and funding bodies.

We aimed to investigate the QOL of people with intellectual disability in supported living, identify the cost and configuration of support arrangements, factors associated with good outcomes, and finally compare the QOL of people living in supported living with those in group homes. The research questions were as follows:

(1) What are the QOL outcomes for people with intellectual disability living in supported living arrangements who receive disability-funded support, and how do they compare to the outcomes of people with comparable support needs living in group homes?
(2) What individual characteristics and support arrangements are associated with good QOL outcomes in supported living?
(3) What is the average cost of disability-related support in supported living arrangements?

Method

Design

The study had several elements and used a mixed methods approach. A survey was used to collect self-report and proxy data on characteristics, QOL, costs, and support arrangements of people with intellectual disability in supported living arrangements who receive disability-funded support. Inferential statistics were used to identify factors associated with better QOL outcomes for this group. A sample of group home service users was selected from an ongoing longitudinal study and matched to supported living service users on key characteristics. Corresponding data about QOL outcomes and indicative costs were compared across the matched samples (service users in supported living and service users in group homes) and inferential statistics used to identify differences.

Recruitment and description of participants

Supported living participants

A sample of 31 participants in supported living were recruited through advertisements circulated to disability service providers in Victoria inviting services that supported people in supported living arrangements to contact the research team and participate in the study. Additionally, a letter was sent by the Victorian Department of Human Services to people who had moved out of group homes to supported living inviting them to participate in the study. As many of these people were no longer their clients, it was uncertain how many letters actually reached the addressee. Many of the supported living participants were recruited from the earlier qualitative stage of the study, which had used a similar method of recruitment (as reported in Bigby, Bould, & Beadle-Brown, 2016).

The criteria for inclusion were people aged 18 years or over, self-identification as a person with intellectual disability, in receipt of a disability service funded by the Department of Human Services, and a supported living

arrangement (i.e., living alone, or with no more than two other people who were not parents or siblings, where housing and support were separated). This latter inclusion criterion was based on Kinsella's (1993) conceptualisation of supported living, as separating housing and support, and Emerson et al.'s (2001) definition as being a household of three or fewer people.

Sample of group home service users

We identified service users in group homes from a longitudinal study of group homes in Australia being conducted by the research team and colleagues (Mansell et al., 2013). This study included 397 service users in 96 group homes across three states in Australia. Comparable data had been collected about the characteristics of service users and elements of QOL to that collected in the survey of service users in supported living.

Matched sample

Samples of 29 service users in group homes and 29 in supported living matched on key characteristics were derived from the supported living and group home samples.

Data collection instruments

The design of the survey for supported living participants was informed by the literature, qualitative data about the experiences of living in supported accommodation (as reported in Bigby et al., 2016), and valid and reliable measures that had been used extensively in research on group homes, thus enabling QOL comparison to be made with other studies. The first part of the survey was designed to be completed by a support worker nominated by the participant, without the participant being present. This was because most of these measures were designed to be completed by a person who knew the participant well. This part of the survey collected data about participant characteristics, community inclusion, and formal support arrangements. It drew on the "People we support questionnaire" (Mansell et al., 2013) and included the short form of the Adaptive Behavior Scale Part I (ABS; Hatton et al., 2001), the Aberrant Behavior Checklist (ABC; Aman, Burrow, & Wolford, 1995), the Index of Participation in Daily Living (Raynes, Wright, Shiell, & Pettipher, 1994), and the Choice Making Scale (Conroy & Feinstein, 1986). Open-ended questions were also included about support, tenancy, and living situation of participants.

The second part of the survey was designed to be conducted as a face-to-face interview with the service user and a nominated support worker who knew them well. It comprised a modified version the Index of Community Involvement (Raynes, Sumpton, & Pettipher, 1989), Observed Secondary Health Conditions (Koritsas & Iacono, 2011), the Social Capital Questionnaire (Onyx & Bullen, 2000), and open-ended questions about experience of their living arrangements.

Procedures

The Human Research Ethics Committee of La Trobe University approved the study, and all participants gave either written or verbal informed consent to participate in the study. Surveys were sent to each participant's nominated support worker to be completed by them and collected at the time of the face-to-face interview with the participant to complete the second part of the survey. All the interviews were conducted by the same member of the research team, lasted between 15 and 60 minutes, and were recorded and fully transcribed.

Analysis

The matched sample was compiled by comparing levels of disability between people in supported living and the group home samples. The resultant samples were matched on the basis of age, level of disability (score on the ABS), physical disability, presence of autism, presence of social impairment, and presence of challenging behaviour (score on the ABC). Comparisons between the two samples were conducted using Mann–Whitney U and chi-square. As Table 1 shows, there were no significant differences on any of these attributes in the matched samples of 29 people. An inspection of the attributes (percentage with epilepsy, mental health problems, visual impairment, hearing impairment, and showing more than five severe behaviours on the ABC) other than those on which they were matched identified no significant differences at the $p < .01$ level.

Schalock et al.'s (2002) eight QOL domains – social inclusion, interpersonal relationships, personal development, physical wellbeing, emotional wellbeing, material

Table 1. Characteristics on which the supported living and group home samples were matched.

		Supported living	Group home
	N/n	29	29
Age (years)	M	46	42
	Range	24–64	23–65
Percentage male		(n = 13) 45%	(n = 16) 55%
Part I ABS score	M	242	239
	Range	166–282	210–263
Total score on the ABC	M	12	11
	Range	0–41	0–25
Percentage socially impaired		(n = 7) 24%	(n = 10) 35%
Percentage with a physical impairment		(n = 9) 31%	(n = 4) 14%

wellbeing, self-determination, and civil rights – were used as the framework to measure QOL. Items from the survey were extracted and used as indicators for each domain; these are set out in Table 2 together with the schema used to rate them. The choice of items used to score QOL was made by the research team based on knowledge of Schalock et al.'s framework and pragmatism given the limited number of relevant corresponding items between the two samples.

Data were entered into SPSS and analysed using both descriptive and inferential statistics. For each domain, each included survey item was rated as either Good or Poor, and scores were then combined at the domain level into one of three ratings categories: Good, Mixed, or Poor (see Table 2).

Based on domain scores, an overall category of QOL was calculated for all the sample of participants living in supported arrangements and the matched group home sample. Initially, QOL was categorised into one of four groups on the following basis: Good–Mixed (at least five of eight domains good, some mixed, no poor) $n = 0$, Mixed–Good (at least two domains good, remainder mixed, no poor) $n = 14$, Mixed (at least five of eight domains mixed or good, fewer than three domains poor) $n = 16$, Poor (no good, at least five of eight domains poor) $n = 1$. To ensure sufficient numbers for analysis, these four categories were collapsed, so that each person was categorised into one of two groups: Mixed–Good ($n = 14$) or Mixed–Poor ($n = 17$). Depending on level of measurement and whether other parametric assumptions were met, comparisons between the two groups were conducted using t tests, Mann–Whitney U and chi-square. As the study was primarily exploratory, Bonferroni adjustments were not used in order to reduce the risk of Type II errors. However, as the number of comparisons conducted was more than 20 (but less than 100), $p < .01$ was reported for significance of main effects. Cohen's (1988) guidelines were also used to report effect sizes where appropriate.

Estimating support costs

Neither participants nor their nominated support workers had a detailed understanding of the arrangements and costing that underpinned provision of direct support or attendance at day support or other services. Based on the qualitative data from the open-ended questions (see Table 3), we estimated a total weekly and annual cost for each participant in supported living. These are indicative figures, as some agencies receive funding as part of historic or locally negotiated agreements that does not reflect the current funding schema. For example, an organisation supporting a study participant received a mix of negotiated funding for infrastructure and individualised packages to support a flexible number of people that did not reflect either current items or rates. We used the Victorian Department of Human Services funding rates, current at the time of the analysis,[1] for outreach support and flexible day support level 3 to estimate cost using the following logic:

- Outreach or ISP support @ $42.68 an hour (DHS hourly rate)
- Any type of day support, such as attending a day program, volunteer, or supported work @ $84.25 a day (DHS flexible day support level 3, calculated from annual rate of $19,378 based on 46 weeks a year)
- Attendance at social group or self-advocacy group @ $42.13 a group (based on cost of 0.5 day of day program support)
- KeyRing support @ $113.40 a week (based on local negotiated funding of $5,896 a person a year).

For example, one participant received 2 hours of outreach support ($2 \times \$42.68$), regularly attended a social group ($42.13), attended a day program 3 days a week ($3 \times \$84.25$), and attended a self-advocacy group ($42.13), making a total estimated weekly support cost of $422.37 ($85.36 + $42.13 + $252.75 + $42.13), and an annual cost of $21,963.24. Costs such as the Home and Community Care program, employment, or allied health services were not included in cost estimates, as they are not funded directly by disability services and unit cost figures are not available or are too general to be useful.

Results

Participant characteristics

Supported living participants were predominately female (58%), had a mean age of 46 years (range: 26–63 years), and an average score of 239 on the ABS (range: 166–282). The lowest score on this scale of 166 was higher than the 151 normally used as an indicator of a severe level of intellectual disability. Every participant had one or more health conditions, with a mean number of 6. The most common health problems were associated with physical fitness or conditioning, vision, weight, joint and muscle pain, and dental (see Table 7). Sixteen percent of participants ($n = 5$) had mental health problems and 29% ($n = 9$) a physical impairment.

Over half the supported living participants lived alone ($n = 17$, 57%), in some form of rented social housing ($n = 22$, 71%). On average they had lived in their

Table 2. Quality of life domains, indicators of outcomes, and domain scores.

Quality of life domain	Survey questions used as indicators	Scores (Good, Mixed, or Poor outcomes)

Emotional Wellbeing	1. Survey Part 2, Social Capital Questionnaire. Q2. Are you satisfied with your life?
	  • Good outcome (Score of 3 or 4)
	2. Survey Part 1. Q26.1. Possible Problem Behaviour = Total score on the ABC
	  • Lowest average score in the literature 15.7
	  • Good outcomes (Score of < 16)
	3. Survey Part 1. Q26.1. Possible Problem Behaviour
	  • Good outcome (outcome (Stereotypic factor score < = 2)
		• Good outcomes (all good)
		• Mixed outcomes (either satisfaction is good OR level of CB = good)
		• Poor outcomes (at least satisfaction good and one CB measure poor)

Interpersonal Relations	1. Survey Part 2. Q4. Do you have regular contact with your family?
	  • Good outcomes (Yes)
	2. Survey Part 2. Q1. Had friends or family in for a meal OR Had guests to stay OR Been on an overnight stay to family or friends.
	  • Good outcomes (At least one of the above = YES)
	3. Survey Part 2. Q3b = YES (ever have social contact with the neighbours) AND contact is once a week or more.
	  • Good outcomes (Yes and Once a week)
	4. Survey Part 2. 2ic. The people I met spoke to me rather than a worker who was with me.
	  • Good outcomes (4–5, True)
	5. Survey Part 2. Q2h. I experienced negative attitudes or actions from others in the community.
	  • Good outcomes (1–3, Not True)
	6. Survey Part 2. Q5. Do you have contact with friends?
	  • Good outcomes (Yes)
	7. Survey Part 2. Q6a. Number of friends outside the home.
	  • Good outcomes (2 or more friends outside of the home)
	8. Survey Part 2. Q6b. Number of friends without intellectual disability.
	  • Good outcomes (1 or more friend without intellectual disability)
	9. Survey Part 2, Social Capital Questionnaire. Q17. How many people did you talk to yesterday?
	  • Good outcomes = spoke to at least someone yesterday – a score of 2 or above
		• Good outcomes (majority of outcomes [6 or more] good and none poor)
		• Mixed (roughly equal number of good/ poor)
		• Poor outcomes (no more than two good, remainder poor)

Material Wellbeing	1. Survey Part 2. Q1. Been to a cinema OR Been to pub OR Been to concert/play OR Been on holiday.
	  • Good outcomes (At least one of the above = YES)
	2. Survey Part 2. Q2. I used public transport while out in the community.
	  • Good outcome (3, 4, or 5)
	3. Survey Part 1. Q40. Are they renting their accommodation?
	  • Good outcomes (No; i.e., they own)
	4. Survey Part 1. Q43. What is their current income?
	  • Good outcomes ($45,000 and above)
	5. Survey Part 2. 2id. I handled money (e.g., paying for purchases) during the activity.
	  • Good outcomes (4–5, True)
	6. Survey Part 2. Q8. Any full-time or part-time paid employment.
	  • Good outcomes (Yes)
		• Good outcomes (majority of outcomes [5 or more] good and none poor)
		• Mixed (roughly equal number of good/ poor)
		• Poor outcomes (no more than one good, remainder poor)

Personal Development	1. Survey Part 1. Q28.1. Participation in Daily Life. Index of Personal Development.
	  • Mean Total Score = 75;
	  • Good outcomes (Score 76 >)
	2. Survey Part 2. Q8a.1; Q8a.2; Q8a.3; Q8a.5; Q8a.6; Q8a.8; Q8a.9
	  • Poor outcomes (If any Yes)
	3. Survey Part 2. 2ia. I participated in the activity with others rather than simply being present.
	  • Good outcomes (4–5, True)
	4. Survey Part 2. 2ik. The activity/ies helped me to develop skills in some way.
	  • Good Outcomes (4–5, True)
	5. Survey Part 2. Q8. Any employment or other structured daytime activities occurring at least once a week (or 5 or more times in a month).
	  • Good outcomes = yes AND number of attendances 4 or greater.
		• Good outcomes (majority of outcomes [3 or more] good and none poor)
		• Mixed (roughly equal number of good/ poor)
		• Poor outcomes (no more than one good, remainder poor)

Physical Wellbeing	1. Survey Part 2, Social Capital Questionnaire. Q6. Do you feel safe walking down your street after dark?
	  • Good outcome (score of 4)
	2. Survey Part 2, Extent of health condition – Overall Health Score
	  • Mean Overall Score = 12;
	  • Good outcomes (Score of <= 12)
	3. Survey Part 2. Q7b. Do you have a regular GP? And/or Q7c. Does the district nurse visit you?
	  • Good outcomes (Either Yes)
	4. Survey Part 2, Extent of health condition. Q1. Weight Problems
	  • Good outcomes (0–1, No problem–Mild)
		• Good outcomes (majority of outcomes [3 or more] good and none poor)
		• Mixed (roughly equal number of good/ poor)
		• Poor outcomes (no more than one good, remainder poor)

Table 2. Continued.

Quality of life domain	Survey questions used as indicators	Scores (Good, Mixed, or Poor outcomes)

Self-Determination	1. Survey Part 1. Q28.2 to Q28.7. Choice Making Scale.
	  • Looking at scores above and below 50 (midpoint of scale);
	  • Good outcomes (Score 49 >)
	2. Survey Part 2, Social Capital Questionnaire. Q21. If you need information to make a life decision, do you know where to find that information?
	  • Good outcome (score of 3 or 4)
		• Good outcomes (both good)
		• Mixed (one good/one poor)
		• Poor outcomes (both poor)

Social Inclusion	1. Survey Part 2, Index of Community Involvement,
	  • Mean Total Score = 54;
	  • Good outcomes (Score 55 >)
	2. Survey Part 2. Q3a. How many neighbours in the area know you by name or do you know by name?
	  • Good outcomes (1 or more)
	3. Survey Part 2. Q3b. Do you ever have social contact with the neighbours, other than saying hello?
	  • Good outcomes (Yes)
	4. Survey Part 2. 2if. I took part in an activity that contributed to the community in some way (e.g., volunteering, looking after someone's garden or pet, helping out someone).
	  • Good outcomes (4–5, True)
	5. Survey Part 2. 2ig. I took part in ordinary activities, not just special activities for people with disability.
	  • Good outcomes (4–5, True)
	6. Survey Part 2, Q2c. Did you interact with anyone other staff/or other people with intellectual disability who live in the same house or nearby?
	  • Good outcomes (Yes)
	7. Survey Part 2, Social Capital Questionnaire. Q1; Q13; Q14; Q15; Q20;
	  • Good outcome (If two or more of the above questions have a score of 3 or 4)
		• Good outcomes (majority of outcomes [6 or more] good and none poor)
		• Mixed (roughly equal number of good/poor)
		• Poor outcomes (no more than two good, remainder poor)

Rights	1. Survey Part 2. 2ib. I was treated with dignity and respect by others in the community.
	  • Good outcomes (4–5, True)
	2. Survey Part 2. Q7. Do you have an advocate?
	  • Good outcomes (Yes)
	3. Survey Part 2, Social Capital Questionnaire. Q5; Q23; Q24; Q25; Q26;
	  • Good outcome (If one or more of the above questions have a score of 3 or 4)
	4. Survey Part 2. 2ij. I was able to physically access all the facilities visited without any difficulties.
	  • Good outcomes (4–5, True)
		• Good outcomes (majority of outcomes [3 or more] good and none poor)
		• Mixed (roughly equal number of good/poor)
		• Poor outcomes (no more than one good, remainder poor)

current home for 5 years (range: 3 months to 10 years). Participants lived in various locations around metropolitan Melbourne and in two regional towns. The disability support pension was their main source of income, and no one had an income more than the Australian minimum wage, at that time, of A$33,326 per annum.

Support and participation

Table 3 summarises the types of support participants in supported living received and their involvement in various programs supporting social or economic participation. As this table shows, most had support for 8 hours or less a week with tasks of everyday living and

Table 3. Type of support of sample in supported living.

Type of support	n	%
Everyday living		
Outreach, max. 2 hours week, regular home visit, on call, support with problem-solving, and at least one other task of daily living.	8	26
Individualised support package or more intensive outreach, 3–8 hours a week, 2–4 home visits a week, on call, problem-solving, and other tasks of daily living.	22	71
Individualised support package and case management 42 hours a week, daily visits on call, problem-solving, and other tasks of daily living.	1	3
Home and community care (assistance with cleaning, meals, maintenance).	9	29
Health related		
Regular allied health, such as occupational therapy or physiotherapy, or contact with a medical professional.	4	13
Participation and social support		
Employment service job seeking.	3	10
KeyRing program (mutual support network and assistance with social connections).	10	32
Disability day program such as day service, volunteer, or supported employment, or combination 5 days a week.	9	29
Disability day program such as day service, volunteer, or supported employment, or combination 3 days a week.	18	58
Regular attendance at social group attendance disability or mainstream.	21	68
Self-advocacy group.	9	29

problem-solving from a disability worker who visited their home. One person was exceptional, having daily visits and 42 hours of support a week. On average (omitting the exceptional person), participants received 4 hours a week of this type of support, with a range from 30 minutes to 8 hours. Only one person received a case management service.

As Table 3 shows, all but four participants were involved in at least 3 days a week of structured activity through a day program, volunteering, or supported employment. In addition, 68% ($n = 21$) regularly attended a disability-specific or mainstream social group, such as a women's group attached to a self-advocacy group or a social group in a community centre, and 29% ($n = 9$) were members of a self-advocacy group that met fortnightly.

Scores on the Index of Participation in Daily Life ($M = 76$, range: 12–100) and Index of Community Involvement ($M = 54$, range: 19–94) indicated that participants were very involved in the tasks of everyday living and frequently made use of at least some community facilities. Scores on the Choice Making Scale were relatively high, with a mean of 76% but a wide range from 44 to 100%.

Most people ($n = 23$, 77%) had social contact with family and friends on a regular basis. Over three-quarters ($n = 19$, 86%) had weekly contact with a family member by phone, saw a family member at least monthly, and had regular contact with friends outside their home. Most of their friends were people with an intellectual disability, but just under half of the participants reported having contact with a friend without intellectual disability. Just over half ($n = 17$, 55%) had someone other than a paid staff person whom they saw as an advocate, which in most cases was a family member.

Costs of support

Table 4 shows that the estimated mean weekly cost of disability support of the sample living in supported arrangements rounded to the nearest Australian dollar was $585, and ranged from a low of $213 a week to a high of $1,877. If the person with an exceptional level of support is omitted from the calculations, the estimated weekly cost is $542 – an annual figure of $28,196.

Table 4. Estimated support costs of sample in supported living.

	Weekly			Annual		
	M	Lowest	Highest	M	Lowest	Highest
All sample	$585	$213	$1,877	$30,435	$11,068	$97,595
Sample outlier omitted	$542	$213	$750	$28,196	$11,068	$38,985

Quality of life

As described earlier, each participant in supported living was rated as Good, Mixed, or Poor on each QOL domain (see Table 2), and then rated across all domains as Mixed–Good or Mixed–Poor (Mixed–Good, with at least two domains good, remainder mixed, no poor; and Mixed–Poor, with at least five domains mixed). Participants fell fairly evenly across the two groups, with 45% ($n = 14$) categorised Mixed–Good and 55% ($n = 17$) Mixed–Poor, which suggested overall that participants experienced a mixed rather than good QOL.

Table 5 shows that participants did relatively better on the domains of emotional wellbeing (42%) and self-determination (39%), but even on these domains more were rated as having mixed rather than good outcomes. Ratings were particularly low on physical health and personal development, and no one rated good on domains of interpersonal relationships or material wellbeing.

A comparison of the Mixed–Good with the Mixed–Poor group on a range of different individual and contextual dimensions found very few statistically significant differences. This may be explained by the small sample size and the degree of similarity between groups. As Table 6 shows, a Mixed–Good QOL was associated

Table 5. Participant QOL by domain and categorisation of sample in supported living.

Categorised by QOL outcomes QOL domain	Mixed–Good QOL %	Mixed/Poor QOL %	All sample n	%
Emotional wellbeing				
Good	43	41	13	42
Mixed	57	47	16	52
Poor	0	12	2	6
Interpersonal relations				
Good	0	0	0	0
Mixed	100	94	30	97
Poor	0	6	1	3
Material wellbeing				
Good	0	0	0	0
Mixed	100	94	30	97
Poor	0	6	1	3
Personal development				
Good	50	0	5	16
Mixed	50	71	19	62
Poor	0	29	7	22
Physical wellbeing				
Good	7	0	1	3
Mixed	93	41	20	65
Poor	0	59	10	32
Self-determination				
Good	43	35	12	39
Mixed	57	59	18	58
Poor	0	6	1	3
Social inclusion				
Good	7	6	2	6
Mixed	93	71	25	81
Poor	0	24	4	13
Rights				
Good	21	6	4	31
Mixed	79	59	21	68
Poor	0	35	6	19

Table 6. Individual and contextual characteristics of sample living in supported living by QOL outcomes associated with better QOL.

		Mixed–Good	Mixed–Poor	p
	N/n	14	17	
Age (years)	M	40	50	p = .02
	Range	24–57	23–63	
Percentage with autism		(n = 3) 21%	(n = 0) 0%	p = .045
Family are closely involved in the individual's life, support, and decisions		(n = 11) 79%	(n = 7) 44%	p = .05
Any day service, supported voluntary work experience, or supported employment (or combination) at least 3 days week		(n = 14) 100%	(n = 13) 77%	p = .05

with younger age, having autism, participation in regular structured activities, such as paid or volunteer work or attendance at a day program for at least three days a week, and having closely involved family members. However, these factors were not significant at the $p < .01$ level. As Table 7 shows, a Mixed–Poor QOL was associated with significant or chronic health conditions, particularly problems with physical fitness and conditioning, fatigue, contractures, vision problems, or mobility. Wilson's (2001) effect size calculator was used to calculate Cohen's d, and, as shown in Table 7, the effect sizes were all large (range: 0.9969–1.8615).

Overlap of supported living and group home service users

To compare people in supported living and group homes in terms of severity of disability, we looked at the mean

and range of ABS scores for each group. As Table 8 shows, there is a wider range of severity of disability among people in group homes compared to those in supported living. There is, however, some overlap between the two groups: 30–35% of people in group homes were in the same ABS range as those in supported living.

Comparison of QOL in supported living and group homes

As Table 9 shows, comparison of the matched samples showed very few significant differences on the QOL measures or the Indexes of Participation in Daily Living and Community Involvement. The only significant difference was on access to a social club, in the direction of those in supported living having more access than those in the group homes. Wilson's (2001) effect size calculator was used to convert the p value from the chi-

Table 7. Percentage of health conditions rated as mild/infrequent–significant/chronic by QOL category of sample in supported living.

	Mixed–Good (n = 14)		Mixed–Poor (n = 17)			
	N/n	%	N/n	%	p	Cohen's d
Weight problems	6	43	13	76	p = .056	–
Physical fitness and conditioning problems	6	43	16	94	χ^2 9.79 p = .002	1.3345
Dental/oral problems and hygiene	6	43	14	82	p = .022	–
Respiratory problems	1	7	5	29	p = .118	–
Fatigue	3	21	13	76	χ^2 9.31 p = .002	1.3345
Joint and muscle pain	6	46	14	82	p = .037	–
Contractures	0	0	6	35	χ^2 6.13 p = .013	0.9969
Balance problems/dizziness	2	14	9	53	p = .025	–
Bladder problems	2	14	8	47	p = .052	–
Pressure sores	0	0	1	6	p = .356	–
Bowel problems	2	15	5	29	p = .368	–
Vision problems	6	43	15	88	χ^2 7.24 p = .007	1.1073
Hearing problems	1	7	8	47	p = .015	–
Problems with mobility	2	14	11	65	χ^2 8.02 p = .005	1.1676
Seizures	1	7	0	0	p = .263	–
Average score across health conditions	.40		1.13		Z -3.58 p = .001	1.6155
Mean number of health conditions (mild to chronic)	3.14		8.12		Z -3.7 p = .001	1.8615
Mean number of mild/infrequent problems	1.36		2.47		p = .1	–
Mean number of moderate/occasional problems	1.00		2.47		Z -2.96 p = .003	1.1646
Mean number of significant/chronic problems	.79		3.18		Z -3.47 p = .001	1.2463

Table 8. Percentage of overlap in level of disability of supported living and supported accommodation samples.

	Supported living sample	Group home samples			
		Year 1	Year 2	Year 3	Year 4
Part I ABS score (range)	239	154	144	139	148
	(166–282)	(39–253)	(31–277)	(22–263)	(22–263)
% Overlapping		30%	35%	30%	31%
		(166–253)	(166–277)	(166–263)	(166–263)
% Supported accommodation sample below 166 (lowest score of supported living sample)		54%	61%	60%	58%
% Supported living group score above the highest score of group home sample		16%	4%	10%	11%
		(above 253)	(above 277)	(above 263)	(above 263)

Table 9. Comparison of indicators of quality of life outcomes for matched samples.

		Supported living	Group home	p
	N/n	29	29	
Score on the Index of Participation in Daily Life	M	74.27%	65.5%	$p = .285$
	Range	11.5–100	19.2–100	
Score on the Index of Community involvement	M	53.68	56.60	$p = .662$
	Range	18.8–93.8	31.3–100.0	
Score on the Choice Making Scale	M	76.22	69.17	$p = .981$
	Range	44–100	2.78–100	
Regular family contact		79%	83%	$p = .664$
Contact with friends		76%	83%	$p = .504$
Have an advocate		65%	68%	$p = .653$
Advocate – family member		70%	82%	$p = .201$
Family are closely involved in the individual's life, support, and decisions		57%	68%	$p = .359$
Any type of work (paid or unpaid)		48.3%	52.6%	$p = .768$
Attended some form of day program		41.4%	47.4%	$p = .683$
Accesses a social club		44.8%	5.4%	χ^2 8.7
				$p = .003$

square test to Cohen's d, and the effect size for this association was large (0.9481).

Discussion

This is the first Australian survey of people with intellectual disability in supported living arrangements. Participants were predominantly middle-aged people, without a severe level of disability, living alone in social housing. They received drop-in outreach support with practical tasks and problem-solving for a mean of 4 hours a week. Despite claims about the greater potential of supported living, their QOL was comparable to people with similar characteristics living in group homes. Overall participants' QOL can be characterised as a "mediocre," falling into either a Mixed–Good or Mixed–Poor range. The consistent advantage of community living in terms of greater choice and control, found in international studies, was reflected in relatively high scores on the Choice Making Scale. Nevertheless, this appeared to have little overall impact on QOL. On the QOL domain of self-determination a higher proportion was rated as mixed than good, and there was no significant difference in scores on the Choice Making Scale between the matched samples from supported living and group homes. This finding was not consistent with the strong sense of choice and control expressed by many focus group participants in the first stage of the study, who asserted that this was a key point of difference in supported living compared to either group homes or with family (Bigby et al., 2016).

Participants' mediocre QOL made it difficult to draw conclusions about factors associated with good outcomes. A different research design that includes a more targeted sample of people with an identifiable good QOL may be necessary to do this. However, although not significant at the $p < .01$ level, some factors were associated with better outcomes: being younger, having autism, better health status, having strong family support, and participation in regular structured activities. These findings support the proposition that informal support from family is a factor enabling good outcomes (Stainton et al., 2011).

Contrasting with other studies of supported living, the present study found a high level of engagement in regular structured activity, through disability-specific day programs, volunteering, or supported employment. The pattern may be explained by the emphasis on attendance at day programs in Victorian deinstitutionalisation programs (Bigby, Cooper, & Reid, 2012). Given regular structured activity as one of the factors associated with better outcomes, the question arises: How and by

whom is such participation facilitated for people in supported living? In Australia, this may be particularly pertinent as the dominance of traditional day programs diminishes and block-funding ceases, replaced by individualised funding for things such as "community access" through the National Disability Insurance Scheme. Several recent studies have demonstrated the skilled support often required to negotiate and support participation in volunteer work or membership of mainstream social groups (Bigby et al., 2014; Craig & Bigby, 2015; Stancliffe, Bigby, Balandin, Wilson, & Craig, 2015; Stancliffe & Keane, 2000).

These studies suggest that facilitative and episodic support is necessary to negotiate and sustain participation in community groups. Together with the findings from the present study, this suggests that support for regular structured activities should be a component of individualised support packages for people in supported living. This is not always the case. Notably, in this regard, Stancliffe and Keane (2000), in the only published Australian study with a comparable definition of supported living, did not include the cost of type of support in their calculation of support costs.

Comparison of group homes and supported living found few differences between the two models; a mediocre QOL in both. The findings suggest that 30–35% of people in group homes have the potential to live more independently, given the similarity of their level of disability to those living in supported living. This lends further support to previous Australian studies that have concluded a proportion of residents in group homes may not need such a high level of support and could achieve similar or better outcomes living more independently (Mansell et al., 2013; Stancliffe & Keane, 2000).

Our study suggests significant differences in the cost of support between supported living and group homes. The estimated average annual cost for supported living, including day support, was $30,435 compared to the estimate of at least $80,000 per person, plus day program support, of approximately $19,000 for group homes. Such cost differentials are similar to Stancliffe and Keane's (2000) matched sample study. The characteristics of their participants differed slightly from the present study (they were younger, lived in their current home less time, and part of larger households). Comparison of estimated support costs between studies is hampered by the differing value of money over time and inclusion of different items, such as the omission of day support, and the unit used to calculate costs (household or individual). Nevertheless, both studies found the estimated cost of living in group homes was much higher than that of supporting living arrangements.

Supported living may be a preferable option to group homes economically and have some potential advantages in terms of increased choice and control. There are, however, important further considerations pointed out by Stancliffe and Keane (2000): "Although outcomes for the two groups were mostly similar, this did not imply that the outcomes were satisfactory. Conceivably, they could have been equally poor" (p. 299). This appeared to be the case from the data in the present study, which suggest that people in supported living would benefit from greater support, particularly in regard to health, material wellbeing, personal development, and social relationships.

Similar to other studies, our findings show that people in supported living were using local facilities and participating in a range of leisure and community activities, and unlike other studies were also engaged in regular structured activities. Despite this, there are indications (low levels of social capital, low rating on domain of interpersonal relationships, just over half of the sample not having any friends without intellectual disability) that these activities were not sufficient as pathways to wider social connections or friendships with community members. This suggests a more proactive approach is required to support building and maintenance of social connections or friendships. However, little evidence exists about the processes and costs of deliberate strategies, such as matching and formation of circles of support (Amado, 2014; Fyffe & Raskin, 2015; Poll, 2007; Simons, 1998). It is also not clear with whom the role of enabling friendships should lie; whether it should be with outreach workers who provide practical support with everyday living or differently skilled workers with enabling friendships as their primary focus.

The challenges of supporting people with intellectual disability to lead healthy lifestyles, access quality health care, and manage chronic health conditions are well documented (Emerson & Hatton, 2013). Many of the problems lie in the failure of the healthcare system to adjust or be responsive to the needs of people with intellectual disability (Ouellette-Kuntz et al., 2005). However, as the current cohort of middle-aged people in the study get older and experience age-related health and physiological changes, the challenges of maintaining good health will increase. As well as systemic change, individual support through case management, practice nurses, or clinical care coordination models may be necessary for people living more independently whose health is not regularly monitored by staff. A majority of participants in this study relied on social housing and many preferred living alone. This suggests that a major obstacle to the expansion of supported living may be the already identified shortage of affordable housing (Wiesel, 2015).

The limitations of this study relate to its small scale and coverage of only one Australia state. Despite repeated advertisements to disability service providers, and letters sent by the Victorian Department of Human Services, the size of the study was limited by the number of people who contacted us to participate. This may reflect the constraints on the time of disability support workers to discuss and support the people they support to be involved in research, and perhaps poor experiences with researchers in the past. Consequently, the small sample limits the power in the statistical analysis given both the size of the dataset and the type of data collected. The absence of data about housing and support arrangements for people with intellectual disability as a specific group also makes it difficult to judge representativeness of the sample. Costs of support are indicative only due to the variation of funding between organisations for similar services as a result of historic or negotiated arrangements, and absence of detailed knowledge by informants about costs of individualised support. Finally, although items were available across all eight domains corresponding to Schalock et al.'s (2002) conceptualisation of QOL, a validated QOL scale was not used.

Conclusion

This study has added new knowledge about supported living arrangements for people with intellectual disability in Australia, and to the wider literature. It has identified some of the factors associated with better outcomes, shortcomings of current support arrangements, and the challenges to be met if supported living expands in the future.

The significant cost differential between supported living and group homes and minimal differences in QOL for service users between these two models should inform commissioning, funding, and service development policies, and be considered in individualised planning decisions. The potential identified for a sizeable minority of people in group homes to live more independently suggests the need for initiatives to provide information about alternative options to people living in group homes and a more individualised approach, accounting for age, whereby people have the option to move into supported living arrangements should they choose to try this option.

Note

1. http://www.dhs.vic.gov.au/about-the-department/plans-programs-and-projects/plans-and-strategies/key-plans-and-strategies/department-of-human-services-policy-and-funding-plan-2012-2015

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