

Implementing Active Support in disability day services: A 6-month prospective study on engagement and behaviours of concern among adults with intellectual disability

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Abstract

Background: Adults with intellectual disability are often disengaged in disability services. While Active Support has found efficacy in residential settings, less is known in day services. This study examines the impact of Active Support in day services for adults with intellectual disability in Singapore, particularly on engagement and behaviours of concern.

Method: An experimental design was used, with a group of 32 participants receiving an Active Support programme over 6 months, compared to a control group of 16 participants with treatment as usual. Time sampling of behaviours was conducted every 4 weeks.

Results: The Active Support group saw increases in activity engagement and social engagement with staff, and decreases in disengagement and stereotypical behaviours, compared to the control group over time.

Conclusion: Results support the implementation of Active Support across other day services for adults with intellectual disability. Active Support principles should be considered in planning policies and service outcome measures.

KEYWORDS

Active Support, behaviours of concern, day services, engagement, intellectual disability, quality of life

Engagement in meaningful daily living activities and that in social relationships are universal indicators of quality of life (Power, Harper, & Bullinger, 1999). Adults with intellectual disability (ID) require greater support to engage in daily living activities and social relationships, compared to adults without disabilities (Macarthur, 2003; Wilson, Jaques, Johnson, & Brotherton, 2017). Hence, care staff play an important role in services by mediating the quality of interaction and access to equipment, facilities and activities, thereby conditioning clients to either (a) increase engagement in activities and relationships, or (b) recede into passivity and inactivity (Mansell & Beadle-Brown, 2012).

Research on adults with intellectual disability in community group homes found that they were disengaged majority of the time, only engaged 12% of the time in social activities and 35% of the time in non-social activities (Mansell, Beadle-Brown, & Bigby, 2013; Qian,

Ticha, Larson, Stancliffe, & Wuorio, 2015). Of concern, those with more severe disabilities typically receive less assistance from staff, as low as one minute each hour (Emerson et al., 1999). Reduced staff assistance in these settings may be attributed to limited manpower and supervision, higher work stress from managing severe disabilities and behaviours of concern, and consequently burnout (Gray-Stanley & Muramatsu, 2014).

1 | ACTIVE SUPPORT

To address these issues, the American Association on Intellectual and Developmental Disabilities proposes Active Support as a person-centric model of care, to help people to be “actively, consistently, and

meaningfully engaged in their own lives regardless of their support needs" (Olson, 2017). The Centre for Disability Studies (2018) stated these key aims of Active Support: (a) being part of a community, (b) having good relationships with friends and family, (c) having relationships that last, (d) having opportunities to develop experience and new skills, (e) having choice and control over their lives, (f) being afforded status and respect and (g) being treated as an individual.

To achieve these, the core principles of Active Support are as follows: (a) "Every moment has potential": utilizing all activities in daily life as opportunities to engage and support the clients' participation; (b) "Little and often": supporting them frequently, in shorter periods and in simple steps; (c) "Graded assistance": providing a level of assistance tailored to the support they need and (d) "Maximizing choice and control": offering options and opportunities for clients to experience autonomy (Mansell & Beadle-Brown, 2012; United Response, University of Kent, & Avenues Trust, 2014).

Research among adults with intellectual disability in community group homes found that homes with Active Support had increased engagement in activities and improvements in adaptive behaviours compared to homes without (Mansell, Elliott, Beadle-Brown, Ashman, & Macdonald, 2002; Stancliffe, Jones, Mansell, & Lowe, 2008). In the Asian context, one study done in Taiwan on 68 adults with intellectual disability in community living homes found that Active Support increased choice-making, adaptive behaviour and engagement in domestic activities, while decreasing symptoms of depression compared to homes without (Chou et al., 2011).

Active Support can also be a proactive strategy to reduce behaviours of concern—when people are meaningfully engaged and develop skills to fulfil their needs, they are less likely to exhibit behaviours that are disruptive or cause harm (Ockenden, Ashman, & Beadle-Brown, 2014; Jones et al., 2013). Supporting this, a study on 30 persons with severe and profound intellectual disabilities living in small group homes found that increased Active Support was associated with significant reduction in behaviours of concern, especially self-stimulatory behaviour (Beadle-Brown, Hutchinson, & Whelton, 2012).

Recognizing the higher rates of mental ill health and barriers accessing psychological therapies among persons with intellectual disability, Jahoda et al. (2017) examined different interventions for 161 adults with intellectual disability and clinical depression. They concluded that behavioural activation was effective in reducing depressive symptoms, through scheduling activity, overcoming barriers to participation and engaging the client. These practices are in common with Active Support and suggest the therapeutic potential of Active Support in mental health of persons with intellectual disability.

Given the important role played by care staff, one indirect mechanism to how Active Support works could be through improving staff job satisfaction and morale. One train-the-trainer study on 5 trainers delivering Active Support training to 65 staff from 6 group homes found significant improvements in staff job satisfaction and quality of work practices (Riches et al., 2011). A systematic review and meta-analysis of 24 studies concluded that Active Support was more effective following staff training, staff experienced increased

job satisfaction, and the maintenance of these effects was related to lower staff turnover and organization readiness (Flynn et al., 2018). Other mediating factors to the effectiveness of Active Support include organizational factors such as work processes, training, teamwork and understanding of engagement (Fyffe, McCubbery, & Reid, 2008).

2 | THE PRESENT STUDY: RATIONALE, AIMS AND RESEARCH QUESTIONS

There are several gaps in existing literature. Firstly, Stancliffe et al. (2008) critiqued in their review that all published research on Active Support involved residential service settings. Given that residential settings have round-the-clock staffing, the high frequency of support and exposure to the full range of activities throughout the day may play a big role in the efficacy of Active Support. Less is known about its implementation and efficacy in day services, where service duration is shorter and limited to daytime activities.

Secondly, while Singapore has seen increased awareness of Active Support, to the authors' knowledge there are currently no known local disability programmes based on Active Support and no research of their efficacy in Singapore. In Singapore, disability programmes are commonly run in a routine and fixed schedule dictated by care staff, with training in daily living skills often conducted through rote learning and removed from naturally occurring contexts. Among care staff, there is a predominant focus on custodial caregiving and managing of "classroom" order and behaviours of concern, leading to higher emotional stress among care staff and limited capacity for engaging clients in activities and social interactions. Even when activities are conducted, they are often too complex or the assistance provided does not match the client's level of need.

This present study sought to address these limitations by examining the following hypotheses across three Day Activity Centres (DACs) running day services for adults with intellectual disability in Singapore.

- a. An Active Support programme would increase both activity and social engagement among adults with intellectual disability, compared to a control (treatment as usual) day programme.
- b. An Active Support programme would reduce behaviours of concern among adults with intellectual disability, compared to a control day programme.

3 | METHODS

3.1 | Participants

3.1.1 | Setting

Participants were recruited from three DACs under the Movement for the Intellectually Disabled of Singapore (MINDS). MINDS DACs

serve adults aged 19 years and above with a formal clinical diagnosis of intellectual disability in the moderate to severe range, some with comorbid neurodevelopmental, mental health or medical conditions.

3.1.2 | Inclusion/exclusion criteria

Adult clients aged 19 years and above, who are Singaporean citizens or permanent residents and had obtained a clinical diagnosis of intellectual disability, were included in this study. Clients with extremely high support needs, exceeding 90th percentile rank as assessed by the government-mandated standardized Client Assessment Form—Revised (CAF-R; Ministry of Social & Family Development Singapore, 2017), were excluded due to possible outlier effects arising from profound impairment that prevent activity participation. Clients on a part-time schedule or undergoing service transitions limiting their time in the centre were also excluded, as they may not be exposed to the full programme.

3.1.3 | Characteristics

The final sample included 48 clients. A majority of the participants were male, with a mean age of 30 years old, and mean CAF-R percentile ranks of 47.9% in Activities of Daily Living, 46.8% in Emotional/Behavioural/Mental Health and 67.0% in Community Living Skills. See Table 1 for the breakdown.

3.2 | Measures

3.2.1 | Adaptive functioning

The CAF-R was developed and normed by the Ministry of Social and Family Development, Singapore (2017), as a tool to assess adaptive functioning and support needs for persons with disability in Singapore. It was administered in October–December 2017 by direct care staff. The tool comprised 19 items across 3 domains:

(a) Activities of Daily Living, (b) Emotional/Behavioural/Mental Health and (c) Community Living Skills. Items are rated on a 4-point scale ranging from no support (0) to significant support (3). Scores are summed to give a composite score and referred to norms standardized to persons with disability in Singapore to derive the percentile rank (MSF, 2017). A higher percentile rank indicated higher support needs.

3.2.2 | Engagement and behaviours of concern

Following previous studies on Active Support (Bradshaw et al., 2004; Jones et al., 1999), time sampling was done to examine the type and frequency of engagement and behaviours of concern. A pair of fixed researchers conducted simultaneous and independent sampling of participant behaviours every 10 s for 1 min for each participant, rotating in a fixed sequence through 16 clients per centre for 4 rotations. This sampling was done every 4 weeks, in the afternoon between 1:30 and 3:30 p.m. Participant behaviours were recorded in categories of:

- Activity engagement: defined as meaningful active participation in activity scheduled;
- Social engagement: defined as either verbal or physical interaction with another person—this was further sub-categorized into (a) with staff or (b) with peers;
- Disengagement: defined as detachment from the activity conducted, such as staring into space or pacing about;
- Behaviours of concern: sometimes referred to as “challenging behaviour,” defined as behaviours that may “threaten the quality of life and/or physical safety of the individual or others, and is likely to lead to responses that are restrictive, aversive or result in exclusion” (Royal College of Psychiatrists, 2007). This is sub-categorized into (a) stereotypical behaviours (e.g. rocking, flapping and echolalia), (b) disruptive behaviours (e.g. shouting, banging on table and running about), (c) self-injurious behaviours (e.g. hitting self and skin-picking) or (d) aggressive behaviours (e.g. hitting others).

TABLE 1 Participant characteristics by treatment group

| Participant characteristic | Total (N = 48) | Active Support group (n = 32) | Control group (n = 16) |
|-------------------------------------|----------------|-------------------------------|------------------------|
| Gender, n (%) | | | |
| Male | 35 (72.91%) | 23 (71.87%) | 12 (75%) |
| Female | 13 (27.08%) | 9 (28.12%) | 4 (25%) |
| Age, years, M (SD) | 30.3 (9.51) | 29.73 (8.5) | 31.44 (11.5) |
| CAF-R percentile rank, %, M (SD) | | | |
| Activities of Daily Living | 47.91 (22.84) | 42.35 (23) | 59.05 (18.51) |
| Emotional/Behavioural/Mental health | 46.78 (24.36) | 46.75 (22.04) | 46.83 (29.25) |
| Community Living Skills | 66.96 (25.45) | 65.02 (26.83) | 70.85 (22.75) |

For each participant, the tally of observed behaviours in each category was converted into percentage of time samples (dividing tally of observed behaviours by the total number of time samples) and averaged between both researchers. A concordance test session was run with 10 non-participant clients using the same protocol, and a high (>0.75) degree of inter-rater reliability was found for observed behaviours, with intraclass correlation coefficient (ICC; average measures) of 0.986, $F(99,198) = 69.657, p < .001$.

3.2.3 | Quality of Active Support

The Active Support Measure (ASM; Mansell & Elliott, 1996) was used. This was rated every 4 weeks by the same pair of researchers together with the time sampling of engagement and behaviours of concern. It comprised 15 items, with each item scored on a 4-point scale from 0 to 3. The scores were summed to give an ASM composite score (total 45) and averaged between both researchers.

3.3 | Procedures

3.3.1 | Ethics

Ethics approval was granted by the MINDS Institute of Intellectual and Developmental Disabilities (MIIDD).

3.3.2 | Study design

An experimental design was used, examining the effect of the Active Support programme as independent variable, on outcome variables of (a) activity engagement, (b) social engagement, (c) disengagement and (d) behaviours of concern. The Active Support programme would be implemented in two DACs (named Tampines and Napiri) forming the experimental group, compared with a control treatment-as-usual programme run in one DAC (named Yishun).

3.3.3 | Recruitment

Out of 168 adults with intellectual disability across three DACs, 80 met study criteria (20 from Yishun, 24 from Tampines and 36 from Napiri). Of these, 16 participants were randomly selected from each DAC to participate in the study, forming 32 in the experimental group (Tampines and Napiri) and 16 in the control group (Yishun). Researchers approached their parents/caregivers to inform about the study, answer questions and provide a participant information sheet and consent form for signing. Although informed consent could not be obtained from participants, care staff were consulted to interpret any behaviours that might indicate non-consent.

3.3.4 | Active Support workshop

An Active Support training workshop totalling 6 hr over two sessions was conducted by the first author a month prior to the programme, delivered to care staff from the experimental group. Active Support content covered was based on the books "Person-centred Active Support" by Beadle-Brown, Murphy, and Bradshaw (2017) and "Active Support: Enabling and Empowering People with Intellectual Disabilities" by Mansell and Beadle-Brown (2012). The workshop was conducted in English; all staff were English-speaking and had post-secondary education, such as a certificate or diploma. Staff from the control group were only given an administrative briefing.

3.3.5 | Active Support programme

The Active Support programme was run at the two DACs in the experimental group twice a week in the afternoon on a fixed schedule, for 2 hr each session (1:30–3:30 p.m.), for 6 months from April 2018 to September 2018. Although data collection was limited to study participants, all clients from these centres were invited to join the activities.

Aligned to the principle of "Maximizing choice and control," at the start of each session, staff presented to participants a choice of 3 activities represented by pictures on a lanyard, supported by concrete objects if necessary. Due to infrastructure and staff manpower constraints, only 3 activities could be conducted concurrently, rotated between sports, art and craft, music and dance, cooking, games and community outings in the week. These activities were selected based on staff's knowledge and ability to lead them. Participants chose 1 activity by wearing the corresponding lanyard. For participants unable to communicate (by vocalizing or gesturing) their choice, staff would make the selection based on the clients' known likes and dislikes.

Aligned to the principle of "Every moment has potential," staff would assist participants to prepare for the activity by integrating Activities of Daily Living, including taking equipment, changing into different attire, toileting and transiting to a different venue. At the end of the activity, staff would assist participants in packing of equipment, cleaning the area and showering/washing up.

Aligned to the principle of "Graded assistance," each client had an individual learning plan specifying each client's level of support needed so that staff could tailor their assistance to those needs.

Aligned to the principle of "Little and often," staff would adhere to an activity support plan specifying how the activity is broken down into simpler steps, so that staff could support client engagement in frequent and manageable doses. Participants who refused the activities were allowed to rest, and staff approached them periodically to re-invite. Participants who displayed disruptive behaviours or behaviours of risk were escorted away from the activity area to the rest area.

3.3.6 | Control group

The control group received treatment as usual based on the DAC default programme. Participants in the control group were usually involved in tabletop activities, training in domestic chores, therapy provided by allied health professionals and occasionally community outings.

3.3.7 | Data collection

Time sampling of engagement and behaviours of concern and rating of ASM were conducted at baseline (T0) and then every 4 weeks for a total of 24 weeks (T1 to T6 representing every 4 weeks, i.e., every month). The same pair of researchers would stand at the side of the activity venue to log down participant engagement and behaviours, keeping sufficient distance so as not to interfere with the activity. Participants who approached the researcher during data collection were redirected back to the activity.

3.4 | Statistical analyses

3.4.1 | Missing data

Missing data were due to clients' absence from the centre on the day of data collection, mostly due to medical reasons or early dismissal. There were no missing data at T0, 9 cases (28.1%) of missing data at T1, 5 cases (15.6%) at T2, 2 cases (6.3%) at T3, 7 cases (21.9%) at T4, 3 cases (9.4%) at T5 and 2 cases (6.3%) at T6. To mitigate the effect of missing data, for each outcome measure, values at T1 and T2 were averaged into T12, T3 and T4 were averaged into T34, and lastly T5 and T6 were averaged into T56.

3.4.2 | Data analyses

Repeated-measures analysis of variance (ANOVA) was conducted with between-subjects factor of treatment group (Active Support versus control group), within-subjects factor of time (T0, T12, T34 and T56), and dependent variables of (a) activity engagement, (b) social engagement, (c) disengagement and (d) behaviours of concern. If there was a significant treatment group \times time interaction, the main effect of treatment group was examined.

All analyses were planned to statistically control for the participants' age, gender and CAF-R percentile ranks in Activities of Daily Living, Emotional/Behavioural/Mental Health and Community Living Skills. This is because it is possible that the client's age, gender and adaptive functioning skills may affect their preferences, motivation and physical ability to participate in the activities planned, which are outside the scope of this study.

Due to the large number of analyses done, effect sizes are reported and guided the interpretation of the findings.

4 | RESULTS

4.1 | Preliminary analyses

4.1.1 | Descriptive statistics

At baseline T0, participants in both treatment groups spent over 60% of their time being disengaged, <20% of their time engaged in activities, <10% of their time engaged in social interactions and about 20% of their time exhibiting stereotypical behaviours. In the quality of support given, at baseline participants in both groups received minimal Active Support, with a mean score of 7.4 (out of 45).

By the end of the 6-month study at time T56, the Active Support group saw an increase in activity to 84.4% of their time, increase in social interactions with staff to 37.7% of time, decrease in disengagement to 7.8% of time and decrease in stereotypical behaviours to 1.0% of time; the Active Support group also saw increased provision of Active Support with a mean score of 31.2 (out of 45). Comparatively, the control group remained largely disengaged at 44.5% of the time, although there were slight increases in Active Support provided with a mean score of 19.1. See Table 2 for a summary.

There were very few recorded occurrences of aggressive behaviours (0 cases), self-injurious behaviours (2 cases) and disruptive behaviours (12 cases) across all time points, which were inadequate for further analyses; hence, these outcome measures were excluded.

4.1.2 | Differences in participant characteristics between treatment groups

Multivariate analysis of variance (MANOVA) analysed for pre-existing differences between the groups, as the participants were by default based in different centres and not randomly assigned to the treatment groups. MANOVA was run with treatment group as the independent variable and sample characteristics (age, gender and CAF-R percentile ranks in Activities of Daily Living, Emotional/Behavioural/Mental Health and Community Living Skills) as the dependent variables. Multivariate tests revealed no significant differences between groups at baseline, $F(5,42) = 1.962$, $p = .104$, $\eta^2_{\text{partial}} = 0.189$.

4.1.3 | Correlations of sample characteristics with outcome variables

Significant associations were found between the outcome variables and the participants' CAF-R percentile ranks in Activities of Daily Living, Emotional/Behavioural/Mental health and Community Living Skills (see Table 3). These characteristics were statistically controlled for in the main analyses.

TABLE 2 Engagement and behaviours of concern by treatment group

| Outcome variable | Time | Valid cases (Active Support group, control group) | Active Support group M (SD) | Control group M (SD) |
|---|------|---|-----------------------------|----------------------|
| Active Support Measure (ASM) composite score | T0 | 32, 16 | 6.79 (5.37) | 9.84 (2.97) |
| | T12 | 31, 15 | 28.8 (3.64) | 13.38 (5.37) |
| | T34 | 31, 16 | 31.59 (4.12) | 20.64 (5.11) |
| | T56 | 30, 16 | 31.19 (6.53) | 19.1 (7.74) |
| Activity engagement (% time samples) | T0 | 32, 16 | 19.85 (20.88) | 13.93 (14.7) |
| | T12 | 31, 16 | 55.34 (22.09) | 30.14 (23.01) |
| | T34 | 31, 16 | 68.61 (26.1) | 36.71 (20.18) |
| | T56 | 30, 16 | 84.37 (24.02) | 44.14 (33.35) |
| Social engagement with staff (% time samples) | T0 | 32, 16 | 4.62 (6.93) | 9.11 (10.8) |
| | T12 | 31, 16 | 23.31 (13.37) | 8.98 (8.13) |
| | T34 | 31, 16 | 19.85 (15.81) | 8.07 (6.88) |
| | T56 | 30, 16 | 37.7 (30) | 7.09 (8.07) |
| Social engagement with peers (% time samples) | T0 | 32, 16 | 1.56 (3.51) | 1.95 (3.35) |
| | T12 | 31, 16 | 2.31 (4.26) | 1.17 (2.37) |
| | T34 | 31, 16 | 1.88 (2.98) | 0.06 (0.26) |
| | T56 | 30, 16 | 1.18 (2.39) | 0.84 (1.66) |
| Disengagement (% time samples) | T0 | 32, 16 | 60.87 (23.64) | 61.84 (17.73) |
| | T12 | 31, 16 | 23.58 (18.53) | 55.79 (20.14) |
| | T34 | 31, 16 | 17.77 (22.81) | 55.46 (19.83) |
| | T56 | 30, 16 | 7.81 (16.2) | 44.53 (31.73) |
| Stereotypical behaviours (% time samples) | T0 | 32, 16 | 21.15 (20.56) | 15.49 (19.27) |
| | T12 | 31, 16 | 5.64 (9) | 11.52 (19.82) |
| | T34 | 31, 16 | 1.41 (4.58) | 5.98 (17.04) |
| | T56 | 30, 16 | 1.04 (4.66) | 3.45 (10.94) |
| Disruptive behaviours (% time samples) | T0 | 32, 16 | 0.39 (2.2) | 1.04 (2.52) |
| | T12 | 31, 16 | 0 (0) | 1.17 (3.22) |
| | T34 | 31, 16 | 0.4 (2.24) | 0.58 (1.61) |
| | T56 | 30, 16 | 0.2 (1.14) | 0 (0) |
| Aggressive behaviours (% time samples) | T0 | 32, 16 | 0 (0) | 0 (0) |
| | T12 | 31, 16 | 0 (0) | 0 (0) |
| | T34 | 31, 16 | 0 (0) | 0 (0) |
| | T56 | 30, 16 | 0 (0) | 0 (0) |
| Self-Injurious behaviours (% time samples) | T0 | 32, 16 | 1.56 (6.14) | 0 (0) |
| | T12 | 31, 16 | 0 (0) | 0 (0) |
| | T34 | 31, 16 | 0 (0) | 0 (0) |
| | T56 | 30, 16 | 0 (0) | 0 (0) |

Note.: T0 = baseline (0 weeks); T12 = average of T1 (4 weeks) and T2 (8 weeks); T34 = average of T3 (12 weeks) and T4 (16 weeks); T56 = average of T5 (20 weeks) and T6 (24 weeks).

4.1.4 | Effectiveness of Active Support training

To check the effectiveness of brief training in Active Support in improving the quality of Active Support provided, repeated-measures analysis of variance (ANOVA) was done with treatment group as between-subjects factor, time as within-subjects factor and ASM score as dependent variable. Mauchly's test indicated violation of

sphericity ($p < .05$), $\epsilon = 0.797$. Repeated-measures ANOVA with Greenhouse–Geisser correction determined that there was a significant interaction between treatment group and time in ASM scores, with a large effect size, $F(2,390,88.430) = 29.596$, $p < .001$, $\eta^2_{\text{partial}} = 0.444$. Analysis of main effects revealed the Active Support group had significantly higher quality of Active Support across time, with a large effect size, $F(1,37) = 51.286$, $p < .001$, $\eta^2_{\text{partial}} = 0.581$.

correction determined that there was a significant interaction between treatment group and time in social engagement with staff, with a large effect size, $F(1,38) = 7.429, p < .01, \eta^2_{\text{partial}} = 0.164$. Analysis of main effects revealed the Active Support group had significantly higher social engagement with staff across time, with a large effect size, $F(1,38) = 13.556, p < .01, \eta^2_{\text{partial}} = 0.263$.

4.2.3 | Social engagement with peers

Mauchly's test indicated violation of sphericity ($p < .001$), $\epsilon = 0.759$. Repeated-measures ANOVA with Greenhouse–Geisser correction revealed there was no significant interaction between treatment group and time in social engagement with peers, with a small effect size, $F(2,278,86.553) = 1.310, p = .276, \eta^2_{\text{partial}} = 0.033$.

4.2.4 | Disengagement

Mauchly's test indicated no violation of sphericity ($p > .05$). Repeated-measures ANOVA with sphericity assumed determined that there was a significant interaction between treatment group and time in disengagement, with a large effect size, $F(3,114) = 10.047, p < .001, \eta^2_{\text{partial}} = 0.209$. Analysis of main effects revealed the Active Support group had significantly reduced disengagement across time, with a large effect size, $F(1,38) = 29.045, p < .001, \eta^2_{\text{partial}} = 0.433$.

4.2.5 | Stereotypical behaviours

Mauchly's test indicated violation of sphericity ($p < .001$), $\epsilon = 0.462$. Repeated-measures ANOVA with Greenhouse–Geisser correction determined that there was a significant interaction between treatment group and time in stereotypical behaviours, with a

medium effect size, $F(1,387,52.714) = 3.835, p < .05, \eta^2_{\text{partial}} = 0.092$. However, analysis of main effects did not show significant differences between the treatment groups, $F(1,38) < 0.001, p > .05, \eta^2_{\text{partial}} < 0.001$. Further analyses of simple main effects revealed a significant interaction between treatment group and time between T0 and T12, with a large effect size, $F(1,40) = 10.263, p < .01, \eta^2_{\text{partial}} = 0.204$, with the Active Support group experiencing a sharper decline in percentage of stereotypical behaviours (from 21.6% to 5.6%) compared to the control group (from 15.5% to 11.5%). However, there were no significant differences between groups between time T12 and T34, and between time T34 and T56, indicating a "plateau" effect.

See Figures 1 to 5 for graphs of mean scores between treatment groups over time in Active Support Measure (ASM), activity engagement, social engagement with staff, disengagement and stereotypical behaviours, respectively.

5 | DISCUSSION

The current study is possibly the first to explore the effect of Active Support on day services for adults with intellectual disability and the first implementation of Active Support in Singapore.

In this study, brief training in Active Support has been effective in directly influencing quality of Active Support in the experimental group, compared to treatment as usual in the control group. Under the Active Support programme, the increases found in activity and social engagement, and decreases in disengagement and stereotypical behaviours, may be proxy indicators of an improvement in quality of life for adults with intellectual disability.

5.1 | Active Support and engagement

This study found the Active Support programme led to increases in activity engagement and social engagement with staff, and

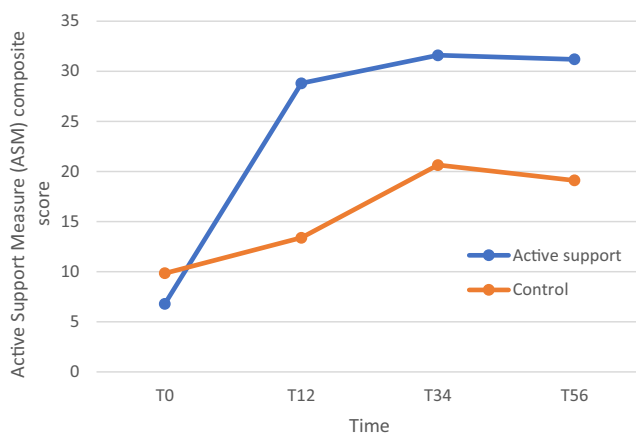


FIGURE 1 Mean Active Support Measure (ASM) composite scores between treatment groups over time. Note. T0 = baseline (0 weeks); T12 = average of T1 (4 weeks) and T2 (8 weeks); T34 = average of T3 (12 weeks) and T4 (16 weeks); T56 = average of T5 (20 weeks) and T6 (24 weeks)

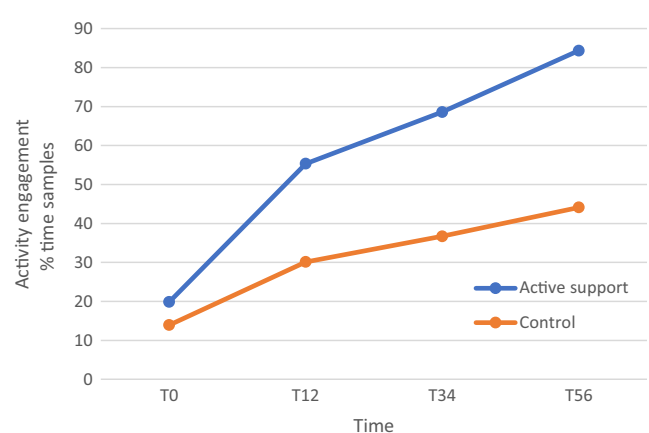


FIGURE 2 Mean activity engagement (in percentage of time samples) between treatment groups over time. Note. T0 = baseline (0 weeks); T12 = average of T1 (4 weeks) and T2 (8 weeks); T34 = average of T3 (12 weeks) and T4 (16 weeks); T56 = average of T5 (20 weeks) and T6 (24 weeks)

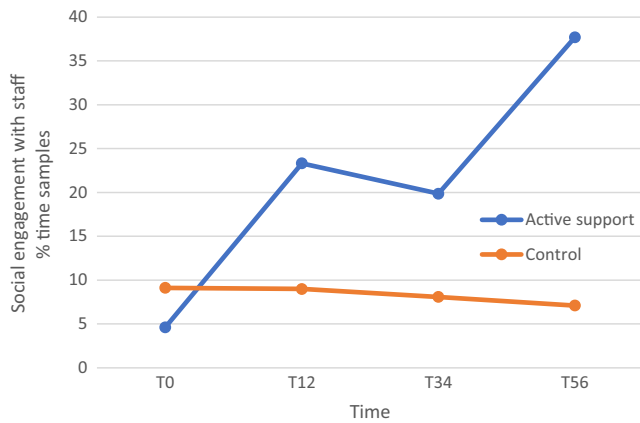


FIGURE 3 Mean social engagement with staff (in percentage of time samples) between treatment groups over time. *Note.* T0 = baseline (0 weeks); T12 = average of T1 (4 weeks) and T2 (8 weeks); T34 = average of T3 (12 weeks) and T4 (16 weeks); T56 = average of T5 (20 weeks) and T6 (24 weeks)

reductions in disengagement, compared to the control group. This is consistent with prior studies on Active Support in residential settings and extends the efficacy of Active Support to day services, addressing the research gap pointed out by Stancliffe et al. (2008). Although the suite of activities is limited in a day service compared to round-the-clock service in residential settings, this study evidenced that given deliberate planning to actualize Active Support principles, even a 2-hr twice-weekly programme can have a positive effect on engagement. As explained by Beadle-Brown et al. (2017), the increased engagement can be attributed to increased opportunities and accessibility of activities, tailored staff assistance and respecting the autonomy of clients.

However, social engagement with peers saw no significant change. This is likely because this study's Active Support programme focused on staff one-to-one support for clients and did not deliberately plan for peer-to-peer interactions. Hence, the time spent engaging in the activity or interacting with staff may displace peer-to-peer interactions. In one qualitative study on social interaction among adults with severe intellectual disability (Johnson, Douglas, Bigby, & Iacono, 2012), the keys to increasing peer-to-peer interactions are "having fun" (comprising routines and comedic interaction) and "hanging out" (comprising contact and presence). In line with "having fun," future Active Support programmes and staff training could incorporate elements of rhythmic play, mimicry, jests and pranks in a group setting to increase peer-to-peer interactions.

5.2 | Active Support and behaviours of concern

This study also found the Active Support programme led to a decrease in stereotypical behaviours, such as rocking, flapping, mouthing objects and echolalia. Ockenden et al. (2014) explained that many challenging behaviours functioned to meet certain needs or avoid aversive situations; when Active Support is well-implemented, the support and autonomy given could help clients to meet those

functions, thereby rendering challenging behaviour unnecessary. The present study supports this theory, as the decrease in stereotypical behaviour coincided with an increase in activity and social engagement, suggesting a constructive replacement function served by engagement.

5.3 | Strengths and limitations of the present study

Study strengths include the experimental design and prospective nature of the study, which allowed tracking of Active Support effects over time in comparison with a control group, thereby allowing causal connections to be derived. The methodology of real-time time sampling of behaviours served as an objective quantitative measure with low likelihood of recall bias. This study was also important in expanding research on Active Support to include its efficacy in day services and pioneering an Active Support programme in Singapore.

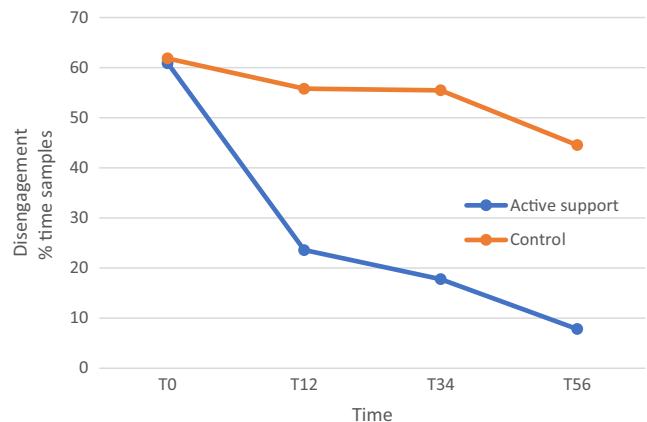


FIGURE 4 Mean disengagement (in percentage of time samples) between treatment groups over time. *Note.* T0 = baseline (0 weeks); T12 = average of T1 (4 weeks) and T2 (8 weeks); T34 = average of T3 (12 weeks) and T4 (16 weeks); T56 = average of T5 (20 weeks) and T6 (24 weeks)

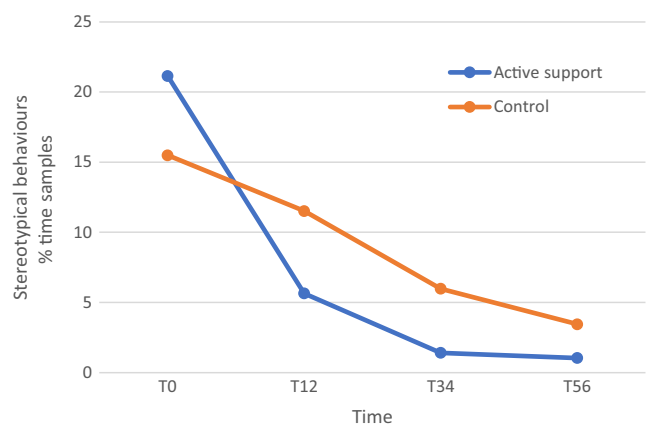


FIGURE 5 Mean stereotypical behaviours (in percentage of time samples) between treatment groups over time. *Note.* T0 = baseline (0 weeks); T12 = average of T1 (4 weeks) and T2 (8 weeks); T34 = average of T3 (12 weeks) and T4 (16 weeks); T56 = average of T5 (20 weeks) and T6 (24 weeks)

The study's findings should be interpreted in light of its limitations. In order to maintain the naturalistic environment of clients, random assignment of participants to treatment group was not possible. Together with the small sample size, this may contribute to bias due to differences in culture and practices between DACs, although this was mitigated by preliminary analyses confirming no significant pre-existing group differences. Secondly, time sampling of behaviours (every 10 s) meant that not all behaviours would be captured, especially momentary behaviours, such as a sudden act of aggression or self-injury. Therefore, there were insufficient data of these momentary behaviours of concern for analysis. It is also possible that the presence of two researchers doing direct observation may contribute to the Hawthorne effect improving programme delivery by care staff. A systematic review of 19 studies has found positive biases in outcomes due to awareness of being observed, social desirability and researcher expectations, with varied effect sizes (McCambridge, Witton, & Elbourne, 2014). One way of mitigating this is by doing remote video observation and making the experimental design double-blind to both researchers and care staff.

5.4 | Future directions, implications and recommendations

5.4.1 | For research

In validating the Active Support programme, a larger sample with random assignment of participants to treatment conditions within the same centre would be helpful to control for bias and reduce error. Video recording of participant's behaviours could help with capturing the full range and duration of behaviours especially momentary behaviours of concern, although at the expense of more time and multiple video-recording devices. The positive effects of a 2-hr twice-weekly Active Support programme may be contributed by staff dedicating all their energy to this short duration—it remains unknown whether these effects and quality of care are maintained outside of the scheduled timings, or whether there will be a converse decline due to staff exhaustion. Future studies may extend data collection beyond scheduled timings. In Singapore, given that the majority of adults with intellectual disability live with their families, it is worth exploring the implementation and impact of Active Support in the family home environment, compared to the supported accommodation model in many Western countries. This may be done through training of parents and caregivers in Active Support, where one study has found both a reduction in challenging behaviours and improvement in caregiver well-being (Avenues Trust Group & NHS England, 2019).

5.4.2 | For policy and practice

Given the effectiveness of the Active Support programme in day services in this study, local policymakers could consider promoting

this model of care to other day services through their influence of funding, training and regulation. In particular, service outcome and performance indicators could shift towards Active Support objectives of activity engagement, social engagement and opportunities for autonomy. In view of many existing services being geared towards training of skills and positive behaviour support, Ockenden et al. (2014) recommended for Active Support to serve as the foundation model of care that enables other forms of training, therapy and behaviour interventions to take place. Most importantly, Active Support reminds us that it is the moment-to-moment supporting, engaging and journeying that impacts quality of life for persons with intellectual disability.

CONFLICTS OF INTEREST

This seeks to inform that the appended paper represents an original contribution. It has not been previously published and is currently not being considered for publication elsewhere. There are no conflicts of interests or funding to disclose.

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