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## Effectiveness of Active Support on the quality of life and well-being of people with moderate to mild intellectual disabilities

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### ABSTRACT

Active Support is a support model designed to enhance quality of life through activity engagement in people with intellectual disabilities. The aim of the current study was to investigate whether implementation of Active Support affected quality of life, well-being, and activity engagement of residents with mild to moderate intellectual disabilities, using a cluster randomised controlled design. Fourteen services were recruited, and Active Support was implemented after conducting baseline assessments. Residents in both the intervention group ( $n = 47$ ) and the control group ( $n = 38$ ) reported on their Quality of Life, eudaimonic well-being, and activity engagement at pretest and at follow-up 9 months after pretest. Level of Active Support implementation was monitored by observing the quality of support and practice leadership. Active Support had a significant effect on independence and well-being, two subscales of quality of life. Residents in the intervention group showed a significantly larger increase on social activity engagement compared to the control group. There were no significant interaction terms for other resident outcomes. For the intervention group, there was a significant increase in quality of support. Findings indicated significant impact on some aspects of quality of life, though not all. Suggestions for future research are therefore discussed.

*What this paper adds?:* Active Support is a support model that is increasingly adopted across several countries. Although there is considerable evidence that Active Support increases activity engagement for people with an intellectual disability, there are very few randomised controlled trials to test effectiveness, and the impact of Active Support on overall quality of life has never been examined. To address these gaps, the current study therefore evaluated the impact of Active Support on quality of life and resident well-being using a randomised controlled trial. This evaluation of Active Support contributes to the existing body of knowledge on the support model, strengthening its evidence base for people with moderate to mild intellectual disability.

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## 1. Introduction

People with intellectual disabilities often require continuous care and support. The intensity of support varies among individuals, and is provided on different domains of life, such as personal care, and support with engagement in different daily activities. Support from professional caregivers generally aims at fostering community inclusion and a good quality of life (Gómez et al., 2020; United Nations, 2006). Service providers play a vital role supporting community participation of individuals with intellectual disabilities and mediate the degree of engagement in activities and relationships in the community (Bigby & Wiesel, 2015; Giesbers et al., 2019; Mansell & Beadle-Brown, 2012). Providing high quality individualised support could enhance engagement and foster quality of life of people with intellectual disabilities (Gómez et al., 2021; Schalock et al., 2008). This is important, as people with intellectual disabilities still experience limited levels of well-being and quality of life in comparison to people without intellectual disability (Blaskowitz et al., 2020; Simões & Santos, 2016).

Active Support is a support model aiming to improve quality of life of individuals with intellectual disabilities, by increasing their engagement in meaningful activities and relationships (Mansell & Beadle-Brown, 2012; Toogood et al., 2016). It aims to prevent people with intellectual disabilities from being disengaged and passive, and promote enriched lives by ensuring there is appropriate support in place for people to engage in activities of daily living. Two approaches to Active Support have been published to date. Both are similar in their philosophy, values, and principles, but place emphasis on different parts of the model. The approach reported by Jones et al. (2017) emphasises a technology-based implementation. The main principles of this Active Support model are: (1) staff facilitating resident engagement in activities using techniques from Applied Behaviour Analysis, (2) using a series of technologies (e.g., activity and support plans, activity scripts) that promote activity participation in the home and the community, and (3) keeping track of outcomes and service quality (Jones et al., 2017; Toogood et al., 2016). The other approach, called Person-Centred Active Support, places emphasis on teaching staff the principles behind Active Support rather than the procedures followed to get to increased activity engagement (Mansell, Beadle-Brown, et al., 2005; Toogood et al., 2016). This approach focuses on moment-to-moment interactions and less on producing paper plans (Mansell & Beadle-Brown, 2012). The present study relied more heavily on the Active Support model described by Jones et al. (2017), because this aligned more with the Dutch support context, where the study took place (De Vor, 2014). Active Support implementation comprises a training program for support staff, including a workshop and an interactive on-site training session. Moreover, the additional appointment of on-site Active Support practice leaders facilitates longer-term implementation of the support model (Beadle-Brown et al., 2014). While Active Support was originally developed for settings with individuals with more severe intellectual disabilities, it is currently being used in settings with people with moderate to mild intellectual disabilities (Bigby et al., 2019; Qian et al., 2019), and beyond residential settings (Lin et al., 2020).

Effectiveness of Active Support has been evaluated in several countries, and by different research groups. A systematic review and meta-analysis conducted by Flynn et al. (2018) provides an overview of the effects of Active Support on both resident and staff outcomes. Most frequently, the effectiveness of Active Support is expressed through the change in the amount of time people with intellectual disabilities spent engaging in activities and/or social interactions with staff. The meta-analysis showed that implementation of Active Support results in increased levels of total activity engagement in residents, including increases in domestic activity engagement and social activity engagement (i.e., social interactions or activities that involve social exchange with others). Finally, results also showed that staff assistance and its quality significantly improved after implementation of Active Support.

Studies on the effectiveness of Active Support have primarily focused on separate indicators of residents' quality of life, such as engagement, community participation, and choice making (Toogood et al., 2016). Engagement is suggested to be a robust indicator of quality of life, and is the most commonly used outcome measure in Active Support evaluation (Aspling et al., 2024). Quality of life is, however, a complex, multicomponent and comprehensive construct that includes several objective and subjective indicators, and for this, activity engagement alone cannot fully account for the overall quality of life construct (Lombardi et al., 2024; Schalock & Felce, 2004). To the best of our knowledge, no study has evaluated changes in quality of life following Active Support even though it has been suggested that Active Support could improve personal development and physical well-being (Beadle-Brown & Hutchinson, 2016; Reinders & Schalock, 2014; Schalock et al., 2016). Active Support might also increase eudaimonic well-being in residents, strengthening self-expression, environmental mastery, and purpose in life (Beadle-Brown & Hutchinson, 2016; Van Herwaarden et al., 2022b). Eudaimonic well-being is an aspect of well-being that refers to a person's fulfilment, meaning and purpose in life, and complements hedonic constructs such as life satisfaction and affective indicators of well-being (Huta & Waterman, 2014). People with mild to moderate intellectual disability can report on their eudaimonic well-being (Van Herwaarden et al., 2022b). While several eudaimonic well-being indicators are incorporated into quality of life measures (e.g., autonomy, social relationships), these do not typically include all aspects of eudaimonic well-being (e.g., purpose in life, self-acceptance). It is therefore essential that a comprehensive evaluation of Active Support examines its effects on overall quality of life and well-being. In conclusion, it remains unclear whether people with intellectual disabilities would report higher levels of well-being or quality of life as a result of Active Support.

A further limitation of the available evidence is that very few Active Support evaluations are controlled (Bradshaw et al., 2004; Chou et al., 2011; Mansell et al., 2008) and only one used randomisation (Qian et al., 2019). The single randomised controlled trial of Active Support reported limited implementation of the model and did not find the hypothesised positive effects on resident engagement in activities (Qian et al., 2019). Thus, there is a need for further randomised controlled trials that consider a wider range of resident outcomes to draw more firm conclusions regarding the effectiveness of Active Support on quality of life.

The current study used a cluster randomised controlled design to evaluate the effectiveness of Active Support. The aim was to investigate whether implementation of Active Support (+ Care as Usual; CAU), compared to CAU, affected quality of life and well-being of residents with mild to moderate intellectual disabilities. Secondary outcomes in the current study were quality of staff support and resident activity engagement, as these are suggested to be the working mechanisms of Active Support.

## 2. Methods

### 2.1. Design and procedure

Effectiveness of Active Support was evaluated by means of a cluster randomised controlled trial. Service locations ( $n = 14$ ) of the collaborating support organisation were invited to participate in the study. All services met the readiness criteria: person-centred planning in place, and no other training programs were planned. Before randomisation, services were matched at (service level) on resident characteristics (average age, level of support needs, and additional diagnoses) and living arrangement (number of residents, number of staff members, service model; see also Participant Characteristics and Setting). One service of the pair was randomly allocated to the intervention condition ( $n = 7$ ) and the other was allocated to the waitlist condition ( $n = 7$ ). Residents in all services were provided with information about the study during house meetings or designated service visits. Information materials consisted of an information letter, a flyer, and an information video. Of the residents who expressed an interest to participate ( $n = 92$ ), 89 signed an informed consent form. Following expression of interest, the resident's legal representative was also informed about the study. Residents without a legal representative provided informed consent themselves, whereas for residents with legal representatives, their representatives provided informed consent. Two representatives did not give informed consent, resulting in a final sample of 87 residents. Two participants dropped out during the course of the study; one participant moved to another care organisation, the other passed away.

Baseline assessments were conducted at the start of the trial (T1), post-test was conducted around six months after baseline (T2), and follow-up measures were collected at nine months after baseline (T3). At T1 and T3, measures of resident well-being and quality of life, resident engagement, and quality of support were collected for all residents and staff. At T2, only data on quality of support and resident engagement were collected, as we did not expect resident quality of life and well-being to change between T1 and T2. Active Support was implemented in the intervention group following T1 assessment. The services that were assigned to the waitlist condition (CAU) received Active Support training following T3 follow-up.

Resident-level measures were completed through a combination of self-report and proxy report (by staff). All residents were invited to an interview with a researcher (AvH) to complete the self-report instruments. When residents could not complete more than 70 % of the measure, the entire measure was completed by one proxy reporter; this was a staff member who had known the resident for at least three months. The study was reviewed and approved by the Ethics Committee of the affiliated university (ref. no. ECSW-2019-012) and the representatives board of the participating support organisation.

### 2.2. Participant characteristics and setting

The sample consisted of 14 service locations of an organisation in the eastern part of the Netherlands supporting adults with mild to moderate intellectual disabilities. The organisation was a regional provider of support services, offering support and psychological treatment to individuals with intellectual disabilities. Support was available 24/7 depending on resident need. Support ranged from on-site support to remote assistance, depending on the needs of the individual. Care as usual (CAU) encompassed support across several life domains, including domestic, leisure, and community living. During the day residents typically attended sheltered or supported workplaces, with staff available to facilitate these activities when needed. All residents had access to a team of in-house therapists, such as physical therapists, occupational therapists, speech therapists, psychologists, nursing specialists, and a physician in intellectual disability medicine.

Although organisational policies highlighted the need to improve residents' quality of life, CAU did not include any systematic tools or structured methods to promote engagement consistently. Support provided was primarily reactive, focused on meeting basic needs or addressing issues as they arose. Unlike Active Support, CAU lacked specific technologies or strategies to systematically encourage participation in meaningful activities.

The number of residents per service ranged from 6 to 29 ( $M = 19.5$ ;  $SD = 7.7$ ) and the number of staff ranged from 3 to 15 ( $M = 9.6$ ;  $SD = 3.8$ ). Participating residents were diagnosed with moderate or mild intellectual disability. Residents were on average 42.9 years old ( $SD = 14.9$ ; range 19 – 71 years); 38 % identified as female, 61 % as male, and 1 % was unknown. Co-occurring conditions were autism spectrum disorder, ADHD, sensory impairment, epilepsy, or physical impairment. Staff qualifications included mostly vocational training in social work (in the Netherlands these are educational programmes lasting 3–4 years depending on the specific qualification level). Students are trained to develop practical skills for supporting individuals with disabilities in residential and community settings. Each service was managed by two practice leaders, one team manager ( $n = 9$ ) and one psychologist ( $n = 10$ ). In some cases, practice leaders managed multiple services within the organisation: nine of the 19 practice leaders managed two services.

The study involved two different types of settings for people with mild to moderate ID. One type of setting included private apartments occupied by a single resident. Individual apartments were situated in the same area or street, with one apartment serving as a staff office and shared living room. This shared space allowed residents to meet one another, share meals, or engage in social activities such as having coffee together. This type of setting prioritises resident privacy, with community interactions occurring in designated shared spaces. The second type of setting was the more traditional group home model. Residents had their own personal rooms, and there was also a shared living room for communal activities. These group homes were either standalone shared houses or floors within a building, where 4–8 individuals with intellectual disability would live together. Staff were assigned to one specific section of the house per shift so they could provide personalised support to residents within that area. This second type of setting allowed for more proximity of staff to the residents.

### 2.3. Implementation of Active Support

To prepare for Active Support implementation, the organisation's policy documents were tailored to align with the Active Support values and technologies. The organisation's vision statement was tailored to be person-centred, focused on well-being and quality of life, and committed to providing opportunities for engagement and participation. Electronic resident filing systems were designed to accommodate the technologies of Active Support, for example enabling staff to digitally store and access (records of) activity plans. Dutch language training materials were developed for the current setting (i.e., residential support in a community setting) and population (i.e., individuals with mild to moderate intellectual disabilities). The main technologies or techniques developed were based on the manual of Jones et al. (2017). While the main focus was on activity and support plans, staff were also trained on technologies such as opportunity plans and teaching plans. Activity and support plans were used as working documents that guided staff in delivering person-centred care and in structuring daily activities and ensuring consistent staff support. Opportunity plans are not structurally incorporated in daily support schedules, but allow staff and residents to engage in (new) activities when there is opportunity for practising a new skill. Teaching plans were used for the more complex skills that require one-to-one training, enabling residents to become engaged in activities they had not yet mastered in their entirety.

The current implementation consisted of (1) an e-learning short course, (2) an on-site workshop, (3) three interactive training sessions, and (4) appointment and training of practice leaders. Each of this is described in detail below. The e-learning course was designed to introduce staff to the Active Support principles in an interactive way. E-learning described the values of Active Support and included an introduction to activity planning, opportunity plans and teaching plans (De Vor, 2014; Jones et al., 2017). Lastly, the e-learning platform contained all training materials that were discussed in the on-site workshop (drawn from the manuals by De Vor, 2014; Jones et al., 2017), so that staff could access them at any one time. During the on-site workshop, staff members engaged in several exercises in which they reflected on their relationship with the care receiver and learned to focus on doing things with the person instead of doing things for them. The workshop also introduced the concept of graduated guidance and ABA techniques (e.g., task analysis, prompting, reinforcement, self-management). Staff reflected on the materials resulting from the e-learning assignments and practised developing several technologies, i.e. activity plans, opportunity plans and teaching plans.

After the workshop, each staff member was offered three interactive training (IT) sessions with an Active Support trainer, consisting of one session of 15 minutes, and two sessions of 1 hour (Toogood, 2008; Totsika et al., 2010). The protocol of the interactive training followed the manual by Toogood (2009). Interactive training started with a preparatory 15-minute meeting, where support plans and activity protocols were discussed. The second IT session commenced with a pre-training observation, in which the Active Support trainer observed the staff member when supporting a resident. This was followed by a coaching session in which the Active Support trainer provided the staff member with feedback. Trainers were not directly managing trained staff. Active Support trainers used coaching techniques such as (non-)verbal instruction, modelling, and demonstration. Following coaching, trainers conducted observations to review learning during the coaching session. This procedure (observation-feedback-observation) was repeated in the third IT session.

Frontline managers received training in practice leadership, as this component appeared vital in the implementation and effectiveness of Active Support (Flynn et al., 2018). The practice leadership training involved a 1-hour preparatory meeting and a 3-hour workshop, training practice leaders on the principles of Active Support, how to coach staff and provide team feedback, and modelling good practice of Active Support (Mansell & Beadle-Brown, 2012). Practice leaders were trained and supported to organise allocation of staff support to maximise residents' quality of life, and they were guided on effective supervision strategies. They were also provided with practical tools and guidance on using existing team meetings to address quality of life issues and promote staff collaboration (Beadle-Brown et al., 2014). All practice leaders attended the training and individual coaching by the training team was offered to all practice leaders.

Staff training records were retrieved from trainers, training coordinators, and practice leaders after training was completed. Staff attendance at training was recorded for recruited staff, excluding long-term absent staff, domestic staff, and interns. The e-learning course was completed by 88.5 % of staff. In addition, 93.4 % of staff attended the on-site workshop and 91.8 % received at least one IT session while 62.3 % completed two IT sessions. At least 42.6 % of staff completed the entire Active Support staff training (e-learning, workshop, IT). Known reasons for dropping out of staff training were sick leave (23 %), staff leaving their job (11 %), though the reason was unknown for most staff (66 %).

### 2.4. Measures and materials

#### 2.4.1. Resident outcomes

**2.4.1.1. Activity engagement.** Although activity engagement is usually assessed through direct observation, other assessment methods (e.g., by completing a questionnaire) are more reliable for measuring engagement in individuals with mild intellectual disabilities because staff are not always present in all activities (in contrast to people with more severe intellectual disabilities; Schalock et al., 2021). Direct observation is, thus, not practically feasible for these individuals and cannot provide a comprehensive overview of engagement in all relevant activities. To assess residents' activity engagement, residents were interviewed about their engagement in activities. The Guernsey Community Participation and Leisure Assessment – revised (GCPLA-r; Baker et al., 2016) was used to assess the frequency of resident activities. We translated the measure to Dutch and then adopted a face-validity procedure to tailor the list of activities to the Dutch community context. Direct support staff ( $n = 4$ ), psychologists ( $n = 3$ ), and practice leaders ( $n = 2$ ) were invited

to complete a questionnaire on the translated GCPLA-r, answering questions about face validity. Their answers resulted in minor adaptations in wording and a rearrangement of the sports activities (as some sports are not common in the Netherlands) and community settings (to fit to the Dutch context). We added domestic activities to this list (i.e., household activities and cooking) resulting in a list of 50 activities in total. The total scale was found to have acceptable reliability, with Cronbach's alphas ranging from  $\alpha = .67$ ,  $\alpha = .69$ , and  $\alpha = .74$  across time points. The frequency of each activity was scored on a scale: *never* (= 0), *less than every three months* (=1), *at least every three months* (=2), *monthly or more often* (=3), *weekly or more often* (=4), *daily or more often* (=5). Residents self-reported on the measure in 76.5 % of the cases. Mean scores were calculated for domestic (4 items), leisure (19 items), social (10 items), and community activities (10 items).

**2.4.1.2. Quality of life.** Quality of life was measured with the Dutch version of the Personal Outcomes Scale (POS; Van Loon et al., 2008). The POS assesses quality of life in individuals with intellectual disabilities among eight dimensions (Schalock et al., 2002). Each dimension is assessed by six questions with three corresponding answer categories representing a high, average, and low quality of life. The eight dimensions can be arranged in three higher-order factors: independence (personal development and self-determination), social participation (personal relationships, social inclusion, and rights), and well-being (emotional well-being, physical well-being, and material well-being) (Carbó-Carreté et al., 2015; Wang et al., 2010). An average score was calculated for the three factors of QoL. Almost all participants self-reported on the measure (96.5 %). A *high* score on this measure indicates *low* quality of life, whereas a *low* score indicates *high* quality of life. Cronbach's alphas for independence, social participation, and well-being were  $\alpha = .67$ ,  $\alpha = .78$ , and  $\alpha = .63$  at T1 and  $\alpha = .70$ ,  $\alpha = .75$ , and  $\alpha = .66$  at T3 respectively.

**2.4.1.3. Well-being.** To measure eudaimonic well-being, we used the Psychological Well-Being Scale – Intellectual Disability (SPWB-ID; Van Herwaarden et al., 2022a). This scale contains 30 items measuring six sub-scales of eudaimonic well-being: personal relationships, growth, self-acceptance, purpose, autonomy, and environmental mastery. Participants rated whether they agree with the given statements on a scale ranging from *completely disagree* (=1) to *completely agree* (=5). Of all residents, 77.8 % completed the self-report version of the measure. Negatively worded items were reverse scored, and total well-being scores were calculated for each participant, averaging all items. High scores indicate a high level of well-being. Cronbach's alphas of the total scale were  $\alpha = .82$  at T1 and  $\alpha = .89$  at T3, indicating excellent internal consistency.

## 2.4.2. Staff and service outcomes

**2.4.2.1. Quality of Active Support.** To measure quality of Active Support, the Active Support Measure (ASM; Mansell et al., 2005) was completed based on observations at the services. The measure contains 15 items, rated on a scale ranging from 0 to 3. The items were slightly adapted to suit the Dutch care setting and residents with moderate to mild intellectual disabilities. An ASM score was computed for each service as a whole, with staff being at the centre of the observations rather than the residents. Observations were typically conducted between 3 pm and 8 pm, as this time frame included the hand-over between shifts, one-to-one support sessions, and resident gatherings at the common area (e.g., dinner or coffee break). Visits were planned until 70 % of the staff members of each service were observed in at least two of the settings (i.e., hand-over, one-to-one support, or group setting). This resulted in conducting between 1 and 4 visits per service at each time point. All observations ( $n = 141$ ) were conducted by one observer. This main observer was not blind to the arm (control or intervention) or to the timepoint (baseline, post-test, or follow-up), but was not involved in any of the training development or activities. Nine percent of all observations were coded by another observer in order to assess inter-rater reliability ( $ICC = .72$ ). Visits with two observers were planned randomly at different time points in services where it would be natural to include a second observer into the scene (12 out of 14). The second observer was blind to the arm of the service or the timepoint of assessment. Detailed field notes were made during these observations and the ASM was then completed by the primary observer for each visit. Scores were calculated for each visit based on Humphreys et al. (2024), forming a percentage-score of Active Support quality based on 12 items (i.e., excluding items on problem behaviour which is rarely observed). ASM total scores of each visit were then averaged, resulting in a final ASM score for each service per time point.

**2.4.2.2. Opportunity and teaching plans.** As opportunity and teaching plans were included in our Active Support implementation, and these components are not assessed by the Active Support Measure, we developed a measure to assess the quality of person-centred support plans. Person-centred plans were in place for all residents at the beginning of the study and contained all personal support goals and plans of the resident.

Within these plans, opportunity and teaching goals were identified. These were goals that are (part of) a learning goal enabling the person to develop new skills or provide the person with the opportunity to practise or use activities that they already master (Totsika et al., 2008). They are distinguished from more structural activities and support, in which there is no learning or teaching goal, or opportunity to explore or do new activities. Opportunity goals (medium-term goals integrated in daily life) were evaluated on whether they included (1) information about the person, (2) observed behaviour for when the goal is reached, (3) level of support provided, and (4) number of opportunities provided. Teaching goals are goals that are generally more complex and long-term and target skills that cannot be taught during the daily flow of activities. These plans should include structured teaching in which all steps of the task are specified, and which contain a detailed instruction plan. Teaching plans were evaluated on whether they included (1) descriptions of observed behaviour for when the goal was reached, and (2) all components of an instruction plan: number of sessions, number of teaching attempts during the session, criterion for success, time and place of sessions, necessary materials, introduction for an

attempt/natural cue, correct response, reinforcers, and additional prompts. Lastly, the use of these plans was evaluated by scoring whether the last report of the goals contained an evaluation of the attempt, and whether they contained the level of support provided. Criteria were scored lowest if they were *totally absent* (=0), *in less than half of the goals* (=1), *in half or more of the goals* (=2), *in all goals* (=3). Then scores on were summed into one total score, with higher scores indicating better quality of plans. Internal consistency of this scale was moderate, with Cronbach's  $\alpha = .63$ .

**2.4.2.3. Practice leadership.** Front-line managers from each service were interviewed and observed. Observations of practice leaders were conducted in parallel to the house visits for staff observations. Researchers completed the Observational Practice Leadership Measure (Beadle-Brown et al., 2015), which evaluates the practice leader on whether they (1) focus on quality of life of service users in all aspects of their work, (2) organise and plan staff so that support is available when needed, (3) coach staff on how to deliver better support, (4) review the quality of support during one-to-one supervision, (5) review team performance with regard to enabling residents to engage in meaningful activity and relationships (Beadle-Brown et al., 2014). During the visit, staff practices, such as handovers and shift plans, were observed to assess how staff were allocated to support resident activities. Interviews provided input on practice leaders' perspectives on support that is focused on improving quality of life as well as their approach to team meetings and supervision. Researchers also reviewed staff meeting notes. Detailed field notes were made, and the interviews were transcribed in

**Table 1**  
Means and Standard Deviations on Resident, Staff and Service Outcomes at all Time Points.

	<i>n</i>	<i>M (SD) at T1</i>	<i>M (SD) at T2</i>	<i>M (SD) at T3</i>
<b>Independence (POS)</b>				
Control group	38	1.58 (0.30)		1.55 (0.29)
Intervention group	47	1.51 (0.26)	-	1.42 (0.24)
Total	85	1.54 (0.27)		1.48 (0.27)
<b>Participation (POS)</b>				
Control group	38	1.58 (0.31)		1.54 (0.27)
Intervention group	47	1.58 (0.25)	-	1.58 (0.23)
Total	85	1.58 (0.27)		1.56 (0.25)
<b>Well-being</b>				
Control group	38	1.43 (0.22)		1.41 (0.22)
Intervention group	47	1.44 (0.21)	-	1.35 (0.19)
Total	85	1.44 (0.21)		1.38 (0.20)
<b>Domestic Activity Engagement (GCPLA-r)</b>				
Control group	36	1.90 (0.81)	1.88 (0.80)	1.93 (0.84)
Intervention group	47	1.82 (0.84)	1.62 (0.70)	1.74 (0.69)
Total	83	1.86 (0.82)	1.73 (0.75)	1.83 (0.76)
<b>Leisure Activity Engagement (GCPLA-r)</b>				
Control group	36	1.73 (0.43)	1.58 (0.42)	1.68 (0.42)
Intervention group	47	1.70 (0.53)	1.65 (0.43)	1.61 (0.50)
Total	83	1.71 (0.48)	1.62 (0.43)	1.64 (0.46)
<b>Social Activity Engagement (GCPLA-r)</b>				
Control group	36	1.95 (0.66)	1.76 (0.71)	1.73 (0.54)
Intervention group	47	1.78 (0.58)	1.71 (0.66)	1.84 (0.62)
Total	83	1.85 (0.62)	1.73 (0.68)	1.79 (0.59)
<b>Community Activity Engagement (GCPLA-r)</b>				
Control group	36	1.12 (0.57)	1.15 (0.50)	1.11 (0.49)
Intervention group	47	1.34 (0.36)	1.22 (0.38)	1.18 (0.42)
Total	83	1.25 (0.48)	1.19 (0.43)	1.15 (0.45)
<b>Well-being (SPWB-ID)</b>				
Control group	37	3.98 (0.44)		3.88 (0.48)
Intervention group	44	3.86 (0.42)	-	3.82 (0.55)
Total	81	3.92 (0.43)		3.84 (0.52)
<b>Quality of Support (ASM)</b>				
Control group	7	51.89 (6.48)	51.37 (6.56)	54.43 (5.71)
Intervention group	7	49.08 (7.41)	55.25 (8.50)	57.27 (6.65)
Total	14	55.49 (6.85)	53.31 (7.57)	55.85 (6.13)
<b>Practice Leadership (OPLM)</b>				
Control group	7	2.60 (0.20)		2.69 (0.32)
Intervention group	7	2.66 (0.28)	-	3.17 (0.39)
Total	14	2.63 (0.23)		2.93 (0.43)
<b>Person-centred plans</b>				
Control group	38	6.54 (4.29)	6.22 (4.02)	7.37 (4.41)
Intervention group	47	4.70 (4.49)	6.21 (4.99)	6.00 (5.10)
Total	85	5.52 (4.47)	6.22 (4.56)	6.61 (4.82)

summary form. Based on this information, performance of practice leaders was coded on the five items using a 5-point scale, ranging from 1 (= *very weak performance*) to 5 (= *excellent performance*). Scores on the five items were averaged into one mean score, with higher scores indicating higher quality of practice leadership.

### 2.5. Approach to analyses

Data were entered, processed, and analysed in SPSS 27 (IBM, 2020). Effectiveness of Active Support was evaluated by comparing pre- and post-test measures between residents in the Active Support condition and those in the control condition. Because data are clustered within home settings, the a priori power analysis took into account the effect of clustering. Simulation models indicated that, within available services, at least 20 residents per service should be needed to take part in the study for analyses to achieve a power of 0.75. The number of residents was, however, not possible, as many services were small and provided support to fewer than 15 residents. Therefore, the current study did not have enough power to conduct multilevel analyses. Resident-level outcomes (person-centred plans, quality of life, resident engagement, and well-being) were compared between groups (i.e., intervention group and control group) over time using mixed (M)ANOVAs. Service location was added to these models as a fixed effect to account for variation at the service level. Finally, service-level data (i.e., ASM scores and Practice Leadership) were analysed using non-parametric tests, as the sample size of services was small ( $n = 14$ ). Wilcoxon signed-rank tests were conducted, producing z-scores for differences in scores over time for the intervention and control group separately. No significant baseline differences were found between the intervention and control group on all measures. A significance level of  $p = .05$  was used for all analyses. Analyses were conducted for participants with complete data ( $n = 87$ ), excluding the two residents who dropped out as described in the procedure section above. There were no missing data for the services ( $n = 14$ ).

## 3. Results

### 3.1. Resident quality of life, well-being, and activity engagement

Overall, the MANOVA Time\*Group interaction term showed that the improvement in quality of life of residents in the Active Support arm significantly differed that of residents in the control arm ( $F(3,80) = 3.61, p = .017$ ). Specifically, the intervention group showed a significantly steeper improvement in independence and well-being compared to the control group (see interaction terms of these ANOVAs in Table 2). Average scores on the POS indicating the improvement in scales of independence and well-being are depicted in Table 1. Active Support did not have an effect on resident participation (Table 2), the third subscale of the POS. There was also no effect of Active Support on eudaimonic well-being (Table 1, Table 2). However, the Time\*Group interaction term suggested that residents in the Active Support condition significantly differed from residents in the control condition on activity engagement scores over time (MANOVA  $F(8,73) = 3.01, p = .006$ ). Looking at the different categories of activities in the post-hoc univariate ANOVAs, groups differed significantly over time on social activity engagement (Table 2). Residents in the Active Support group showed a significant increase in social activity engagement, compared to residents in the control group, who showed a decrease in social activity engagement over time.

### 3.2. Staff and service outcomes

Between T1 and T3, ASM scores ranged from 51.89 ( $SD = 6.48$ ) to 54.43 ( $SD = 5.71$ ) for the control group, and from 49.08 ( $SD = 7.41$ ) to 57.27 ( $SD = 6.65$ ) for the intervention group (See Table 1 for more details on these scores). The difference between T1 and T3 was significant in the intervention group ( $Z = -2.37, p = .018$ ), but not in the control group ( $Z = -0.85, p = .398$ ). Increase in quality of Active Support approached significance between T1 and T2 in the intervention group ( $Z = -1.86, p = .063$ ), then stabilised between T2 and T3 ( $Z = -1.15, p = .249$ ). With regards to practice leadership, a significant increase between T1 and T3 was observed for the

**Table 2**  
Results of the Mixed ANOVAs presented by Resident Outcomes.

	Main effect of time		Main effect of group		Group by time interaction	
	F(df)	p	F(df)	p	F(df)	p
Quality of Life (POS; $n = 85$ )						
Independence	0.41 (1,82)	.522	3.70 (1,82)	.058	4.49 (1,82)	.037
Participation	1.60 (1,82)	.210	0.03 (1,82)	.875	0.22 (1,82)	.640
Well-being	0.01 (1,82)	.941	1.75 (1,82)	.190	6.88 (1,82)	.010
Eudaimonic Well-being (SPWB-ID; $n = 81$ )	3.62 (1,78)	.061	0.52 (1,78)	.471	1.18 (1,78)	.281
Activity Engagement (GCPLA-r; $n = 83$ )						
Domestic	4.52 (2160)	.012	0.71 (1,80)	.401	1.91 (2160)	.152
Leisure	3.52 (1,80,143.62)*	.037	0.04 (1,80)	.836	3.16 (1,80,143.62)*	.051
Social	7.37 (2160)	< .001	0.28 (1,80)	.602	5.51 (2160)	.005
Community	5.47 (2160)	.005	1.64 (1,80)	.204	1.24 (2160)	.293

Note. Analyses controlled for service. \*Greenhouse-Geisser correction applied for the Leisure scale ( $\epsilon = .898$ ).

intervention group ( $Z = -2.21, p = .027$ ), but not the control group ( $Z = -0.65, p = .518$ ).

The quality of resident person-centred plans of residents improved significantly over time ( $F(2166) = 3.30, p = .047$ ), but no significant difference between the groups was found ( $F(2166) = 2.62, p = .085$ ). Plan quality increased significantly between T1 and T2 in the intervention group ( $F(1,46) = 5.35, p = .025$ ), and between T2 and T3 in the control group ( $F(1,37) = 5.80, p = .021$ ) (Table 1).

#### 4. Discussion

The current study aimed to add to the existing evidence base about the effectiveness of Active Support in residential services for adults with mild to moderate intellectual disability. This study is one of only two RCTs on Active Support available. Moreover, to the best of our knowledge, it is the first Active Support evaluation that specifically focused on quality of life and well-being of individuals with mild to moderate intellectual disabilities. Results indicated significant differences in self-reported resident independence and well-being, but no differences on eudaimonic well-being or participation. Results showed a significant effect of Active Support on social activity engagement. Findings indicated that implementation of Active Support improved the quality of Active Support offered by staff as well as practice leadership, but not the quality of the person-centred plans developed by staff.

##### 4.1. Active Support and resident quality of life, well-being, and engagement

The current study provided partial support for the association between Active Support implementation and quality of life of residents. Specifically, independence and well-being, as measured by the POS, increased significantly after Active Support implementation, compared to the comparison group. Previous studies that measured indicators of independence also found that choice making of people with moderate to profound intellectual disability increased after implementation Active Support (Beadle-Brown et al., 2012; Flynn et al., 2018; Koritsas et al., 2008). The current study supports these findings for people with mild to moderate ID. The current study, however, failed to find any association between Active Support implementation and an increase in community participation (as measured by the POS). This finding did not confirm our hypothesis that had been based on previous meta-analytic data supporting an association between Active Support and community participation (Flynn et al., 2018). This may be a result of the lack of consensus on a definition of community participation, and the way that it should be measured (Amado et al., 2013; Taylor-Roberts et al., 2019). Another explanation may be that the aftermath of restrictions reducing the spread of COVID-19 may have prevented Active Support to significantly affect community participation of residents. Although restrictions were not in place by the time of implementation, staff and residents may still have been hesitant to engage in community activities. An extensive investigation of community participation and specifically its relation to Active Support is therefore warranted. Findings however add to the existing knowledge by supporting the relationship between Active Support implementation and resident well-being, as measured by the POS (capturing emotional, physical, and material well-being). Findings highlight the role of Active Support in several dimensions of quality of life beyond activity engagement alone (Aspling et al., 2024).

Well-being as measured by the POS differs from eudaimonic well-being (Van Herwaarden et al., 2022b). Whereas the first combines hedonic and objective indicators of well-being, the latter includes only subjective evaluations of eudaimonic well-being. Although Active Support was hypothesised to affect several eudaimonic well-being outcomes (Beadle-Brown et al., 2012), this was not seen in the results of the current study. We expected that feelings of environmental mastery and purpose in life would increase following an intervention that targets engagement in meaningful activity. The lack of change may be related to the purely subjective nature of this measure. It has been reported that subjective aspects of well-being are more robust to change than the objective aspects of well-being (Cummins, 2005, 2020; Schalock & Felce, 2004). Current findings support this suggestion. Future research could, therefore, explore the qualitative process from Active Support to eudaimonic well-being, shedding light on the potential relationship between eudaimonic well-being and an intervention with meaningful engagement as the primary working mechanism. This is necessary to draw comprehensive conclusions on all aspects of well-being in the context of Active Support.

Findings indicated significant change in levels of activity engagement between the Active Support group and the comparison group. This was in line with our hypothesis and with the majority of the available research (Flynn et al., 2018). The results were, however, mixed. While there was a notable difference between groups on levels of social activity engagement, no definitive conclusions could be drawn about other types of activity engagement. The discrepancy in results between different categories of activity engagement is notable, and perhaps typical for the current study sample of people with mild to moderate ID. Previous research suggests that Active Support for people with lower support needs could be particularly effective for engagement in more complex activities (Bigby et al., 2020). Active Support has the potential to change engagement in rather superficial, easy activities into activities that are more person-centred, within social networks, and meaningful for the person (Mansell & Beadle-Brown, 2012). This is reflected in the current study through the changes in social activity engagement of residents in the Active Support group. Social activity engagement represented activities that are typically complex. Although not evident, activities in other categories could potentially be complex as well. For example, within the category of domestic activity engagement, cooking could refer to slicing a single tomato, or preparing a whole three-course meal. The study did not assess the complexity of the activities, which is a limitation that has been stated before (Taylor-Roberts et al., 2019). Moreover, whereas previous research used direct observation, the current study used self-report questionnaires to assess engagement. Future studies should take this methodological difference and the complexity of activities into account when examining the effectiveness of Active Support for people with mild to moderate ID. This difference may shed light on whether Active Support indeed affects the complexity of activities which people with mild to moderate intellectual disabilities do.



## 4.2. Active Support and service-level outcomes

The results of the analyses of staff and service-level outcomes suggest that implementation of Active Support was achieved. Quality of support increased significantly over time in the Active Support settings. Additionally, practice leaders in the intervention group showed a significant increase in levels of leadership. Maintaining the effects of Active Support is known to be challenging, but practice leadership has been suggested as one of the mechanisms that support maintenance of Active Support (Bigby et al., 2019; Bould et al., 2019; Mansell & Beadle-Brown, 2012). Providing practice leadership training to frontline managers seemed to be associated with a change in management behaviour, with mean scores on practice leadership indicating average, but enhanced levels of management quality.

Study findings should be interpreted with caution, as the number of services was small, and, for this, only allowed for non-parametric tests to be conducted for service-level outcomes. Moreover, an examination of the scores for quality of Active Support indicated that the increase in scores, although significant, was small (around 8 %). This has been the case in previous research as well (Bigby et al., 2019). Comparison of ASM scores between the current study and previous studies should be conducted with caution, as the current study used a new, validated approach to scoring the ASM (Humphreys et al., 2024). This approach uses fewer items to calculate a total score. The procedure by Humphreys et al. (2024) is currently the only validation of the ASM available and future studies may follow this approach to measurement.

Training records indicate not all of the staff in the intervention group completed full Active Support staff training. Incomplete training has been shown to diminish the effectiveness of the model (Flynn et al., 2018). Staff drop-out was most prominent for the IT sessions, and was due to staff turnover, scheduling challenges and variability in organisational support for attending training sessions. Studies suggest that IT is an important component of Active Support staff training, as it allows for transference of skills to real life support settings (Toogood, 2008; Totsika et al., 2010). This may have therefore prevented the optimal implementation of Active Support. Reaching a high level of training delivery has previously been reported as challenging. The Qian et al. (2019) RCT indicated that it took six months to train 75 % of staff, whereas training is expected to take 1–2 weeks, depending on service size (Toogood, 2008; Toogood et al., 2016). As such, it is remarkable that this level of staff training was associated with significant changes in staff and resident outcomes. To optimise effectiveness of the model, organisations need to provide additional support to staff to complete the training and remove logistical and scheduling barriers to participating in IT so as to increase levels of staff training completion.

Another implementation issue pertains to a more organisational matter. Despite tailoring the organisational documents to the Active Support values, the term “Active Support” was deliberately omitted. This approach carries both advantages and disadvantages (McVilly et al., 2011). Advantages of using the term are that it signifies organisational commitment, establishes a common language, sets clear expectations of staff performance, and promotes procedural fidelity. Avoiding the term intentionally prevented services in the control group from exposure to Active Support, given their affiliation with the same organisation, as contamination would have been a serious limitation of the study design (e.g., Chou et al., 2011). For this same reason, no kick-off meetings or “road shows” were undertaken for stakeholders to be introduced to Active Support and raise concerns or ask questions (Beadle-Brown et al., 2012). Instead, Active Support was introduced locally by the practice leader during a regular team meeting. This could have possibly led to a lack of organisational alignment and support. Although it was beyond the scope of the current study, future research could evaluate whether this is the case by exploring organisational alignment in the service by assessing group home culture (Humphreys et al., 2020). This design choice enabled a more robust evaluation but may have limited the organisational alignment with Active Support. The alternative, selecting participants for the Active Support and control conditions from different organisations, would have resulted in less comparable intervention and control settings. Differences in organisational culture, could in this instance, lead to bias, as suggested by previous research (Lin et al., 2020). This highlights the complexity of the evaluation of a support model in the context of supported living services.

The fact that randomisation took place within one organisation increases the risk of cross-group contamination. Although staff and services were located in separate geographical locations, and staff meetings and supervision meetings were actively separated for services in the control and intervention condition, it is not impossible that staff from different services interacted with each other – although the study had no means of assessing this. This may also explain the findings with regard to person-centred plans evaluations, which showed that plans in the control group improved significantly. An alternative possibility is that the increase in the quality of the person-centred plans is explained by a testing-effect (Flannelly et al., 2018). Whereas staff in the control group were blind the study arm in to which the setting had been allocated, they may have come across information about the assessment of person-centred plans in the consent letters of the residents. This may have prompted them to revise the person-centred plans extensively regardless of Active Support training. Whilst this pattern of findings was not seen for ASM scores, the extent of contamination or testing effects could not be evaluated but may have affected the pattern of findings seen in this study.

## 4.3. Limitations

Although the current study is a robust evaluation of Active Support, it is important to acknowledge several limitations inherent to the study design and methodology that may have impacted the robustness of our findings. As mentioned above, drop-out in the training programme and absence of explicit organisational commitment may have limited the potential to optimise effectiveness of the Active Support implementation.

One major difference between previous research and the current study, is the method of assessment of activity engagement. There are well documented issues with self-report in people with intellectual disability (Emerson et al., 2013). In addition, the adaptations made to the original scale, whilst necessary to align with Dutch services, may have impacted on the psychometric properties of the

measure. Although there was no alternative or better, measure to capture activity engagement through self-report (Taylor-Roberts et al., 2019), and the measure showed acceptable internal consistency, validation of this measure is an important goal for future research. Direct observation remains the gold standard (Toogood et al., 2016). However, as stated earlier, observing activity engagement in people with mild intellectual disabilities is complex, because they are more likely to engage in activities independently and in a greater variety of (community) settings (Amado et al., 2013; Bigby et al., 2020; Simpican et al., 2015), making observational assessments harder or impossible. Many residents had low support needs and lived in private apartments with limited staff time, which was often taking place outside planned observation times. Activities were often physically distant from staff and co-residents, making it time-consuming and intrusive to individually observe activity engagement. Crucially, in the absence of staff, observation would create ethical difficulties related to privacy and intrusiveness.

Another noteworthy limitation is the power of the current sample. Although common in the field of research on people with intellectual disabilities, the priori power analysis indicated that the available number of residents rendered the study underpowered. The power analysis indicated that, to achieve sufficient statistical power, 14 clusters (services) with 20 residents per cluster were needed. However, due to the nature and setup of the services, this target sample size was not feasible. Several services did not have 20 residents, or not all residents provided consent to participate. While the design (cluster RCT with a priori power analysis) was strong, the lack of sufficient power to detect effects on the primary outcome suggests that the absence of findings on some of the secondary outcomes might be associated with low power due to the small sample size. Future RCTs need to recruit a larger number of settings and participants for a more accurate evaluation of Active Support effects. This would require a large set of committed support organisations, perhaps requiring an (inter)national approach.

Lastly, although the cluster randomised design of the study is strong, the design could be improved by matching the samples on more detailed information about residents, such as adaptive behaviour scores. To reduce participant burden, we did not measure adaptive behaviour using a standardised measure. Matching was instead based on service-level data (i.e., service size and model, resident ages, average level of support needs, and additional diagnoses). Including resident-level data on adaptive behaviour may have improved matching and could therefore be considered in future research. Similarly, the study did not include a screening tool for the assessment of the cognitive and language skills that may be necessary to provide reliable self-reported data (Emerson et al., 2013). The variety and complexity of the measures in our study made it difficult to apply a single screening tool consistently across all participants. Future research may benefit from developing or employing screening tools better suited to the wide range of measures used in studies of this nature.

## 5. Conclusions

Findings from the current study support the effectiveness of the implementation of Active Support in community-located services providing support to people with mild to moderate intellectual disability. Following Active Support, there was a significant increase in resident independence, well-being, and social activity engagement. Moreover, quality of staff support and practice leadership improved after Active support training. Change in other aspects of quality of life, namely community participation, and eudaimonic well-being were not observed after Active Support. Similarly, levels of domestic, leisure and social activity engagement did not change significantly. Limitations of the current study included a restricted sample size and lack of direct observation of activity engagement which may explain some of the study findings. Future research on specific implementation pathways would allow for a better understanding of how Active Support might lead to resident eudaimonic well-being. In this way, future research could unravel the complex interplay between professional support, community opportunity, and well-being of individuals with intellectual disability.

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## Data availability statement

Data will be made available upon request

## CRedit authorship contribution statement

**Vaso Totsika:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Robert Didden:** Writing – review & editing, Supervision, Methodology, Conceptualization. **Monique Mulders:** Writing – review & editing, Resources, Project administration, Methodology. **Aniek van Herwaarden:** Writing – original draft, Project administration, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Nienke C. Peters-Scheffer:** Writing – review & editing, Supervision, Methodology, Investigation, Conceptualization.

## Declaration of Competing Interest

The authors have no competing interests to share.

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## Data availability

Data will be made available on request.

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