RESEARCH ARTICLE

Effective practice within day service centres for people with intellectual disabilities: a systematic review of quantitative research

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Abstract

Background

This review aimed to identify areas of consensus, contention, and any gaps in the literature that may exist with regard to what constitutes best practice and effective provision for people with intellectual disabilities within day service centres.

Materials and Methods

The review was prospectively registered on the PROSPERO registry (ID: CRD42024585737) and conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis guidelines. The International Bibliography of the Social Sciences, Scopus, and PsycInfo databases were searched in April 2026 for peer-reviewed research that investigated the effectiveness of day service provision in non-residential settings. Methodological quality was assessed using the Risk of Bias 2 tool for randomised studies and the Joanna Briggs Institute Critical Appraisal tools for non-randomised studies of different designs. Results were synthesised according to the Grades of Recommendation, Assessment, Development, and Evaluation framework.

Results

16 studies were included and methodological weaknesses were commonly found. The results showed that challenging behaviours were effectively reduced through positive interactions between staff members and people with intellectual disabilities. Furthermore, exercise-based interventions were successfully employed within day service centres, leading to positive changes in several health and fitness parameters. Trends in the data were generally in favour of community-oriented day service settings for activity engagement and participation.

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Conclusions

Day service centres offer significant opportunities for enhancing communication, engagement, relationships, health and community integration for people with intellectual disabilities. However, the current evidence base is marked by considerable variability in methodological quality and the certainty in the resultant findings.

Trial registry number

Prospectively registered in the PROSPERO register for systematic reviews (ID: CRD42024585737)

Background

Intellectual disability is typically characterised by limitations in intellectual functioning and adaptive abilities, with onset during the developmental period. People with intellectual disabilities are, however, a heterogeneous population, with considerable variation in their individual abilities, communication and support needs.

Attitudes towards support provision for adults with intellectual disabilities took a dramatic shift as early as the 1960s, when a move away from institutionalisation and towards social inclusion using newly emerging normalisation policies and practices, began to be championed in many Western societies [1,2].

Alternative models of provision have since emerged, such as residential support, day service centres, and employment-oriented support. Each of these offer variable levels of assistance and differing degrees of integration with the wider community [3–5]. The variation between provision types is indicative of the wide-ranging needs and capabilities of individuals with different types, severities, and expressions of intellectual disability [6,7].

While a substantial body of literature exists for day service centres providing support for populations such as those with dementia [8,9], the equivalent research and knowledge for people with intellectual disabilities is in its relative infancy. As such, a question remains regarding the specific factors that constitute effective and/or good quality day service provision for people with intellectual disabilities [5,10].

Therefore, the aim of this systematic review was to synthesise relevant findings from the literature and identify areas of consensus, contention, and any gaps that may exist with regard to what constitutes best practice and effective provision for people with intellectual disabilities within day service centres.

Importantly, terminology and diagnostic classifications of intellectual disability have evolved over time and vary across geographical contexts. This review therefore adopts the term ‘intellectual disabilities’ while recognising the terminology used within the included studies.

Materials and Methods

This systematic review was reported following the 2020 version of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [11,12].

Eligibility criteria

Peer-reviewed studies with quantitative designs that investigated the effectiveness of day service provision in non-residential settings (i.e., in dedicated centres), or its impact on outcomes for adult users with intellectual disabilities or members of staff, qualified for the final review. For clarity, "effectiveness" was defined broadly as the achievement of an intended purpose or the improvement of a desired outcome under investigation.

Research into the effectiveness of existing practice, comparisons between types of day service provision in non-residential settings, and studies assessing the impact of novel interventions within non-residential day service settings were all suitable for inclusion. Papers that purely described existing practice without investigating its optimisation, effectiveness, or impact on any outcomes were not included. Studies that involved people with intellectual disabilities and other people who might access day services (e.g., individuals with dementia or psychiatric conditions) were only included if the data related specifically to the former group could be distinguished from those of the latter. Finally, studies involving day service centres in addition to a different type of setting (e.g., residential or sheltered employment) were not eligible for the final review unless the data for the former could be distinguished from the latter. There were no other notable limitations for study eligibility.

Information sources and search strategy

This systematic review was prospectively registered on the PROSPERO database (ID: CRD42024585737), where the review protocol can be found. The International Bibliography of the Social Sciences, PsycInfo, and Scopus databases were originally searched in August 2024, followed by an identical subsequent search in April 2026 to ensure the most up-to-date findings prior to submission for peer-review. The following search strategy was used to return the search results from the three databases mentioned above: ("intellectual disabilit*" OR "development* disabilit*" OR "learning disabilit*" OR "mental* retard*" OR subnorma* OR "mental* handicap*" OR "mental* impair*") AND ("day activit*" OR "day service*" OR "day care" OR daycare OR "day centre*" OR "day center*") NOT (child*). Where possible, the option to have the search results automatically filtered was selected so that only peer-reviewed publications were returned. The reference lists of other review articles that appeared in the search results were manually screened for any potentially relevant studies that could also be included in the present review.

Selection process and data collection

Duplicate publications were firstly removed from the search results before the remaining ones were screened independently by the authors in three rounds according to the title, abstract, and full text of each article (Fig 1). Following the screening of full texts, any differences between the authors regarding the articles deemed suitable for inclusion were independently screened once again. If there were still any disagreements after the second independent assessment, the authors met to discuss the articles in question until consensus was reached.

The following data were then extracted from relevant articles: article meta-data, study design, participant demographics, inclusion/exclusion criteria, procedures, outcomes, and results. The second author independently collected the same target information from a sample of the included articles and then compared this against the collected data from the first reviewer to ensure consistent and comprehensive data extraction.

Study quality assessment

The methodological robustness of the included articles was assessed using a range of quality assessment tools due to the variety of study designs employed. The Cochrane Risk of Bias 2 (RoB-2) tool was used to assess the risk of bias in included randomised trials [13,14]. The Joanna Briggs Institute (JBI) critical appraisal tools were used for the non-randomised studies as their population-non-specific wording allowed them to reasonably be applied to research outside of the medical and healthcare fields from which many assessment tools for non-randomised trials originate [14].

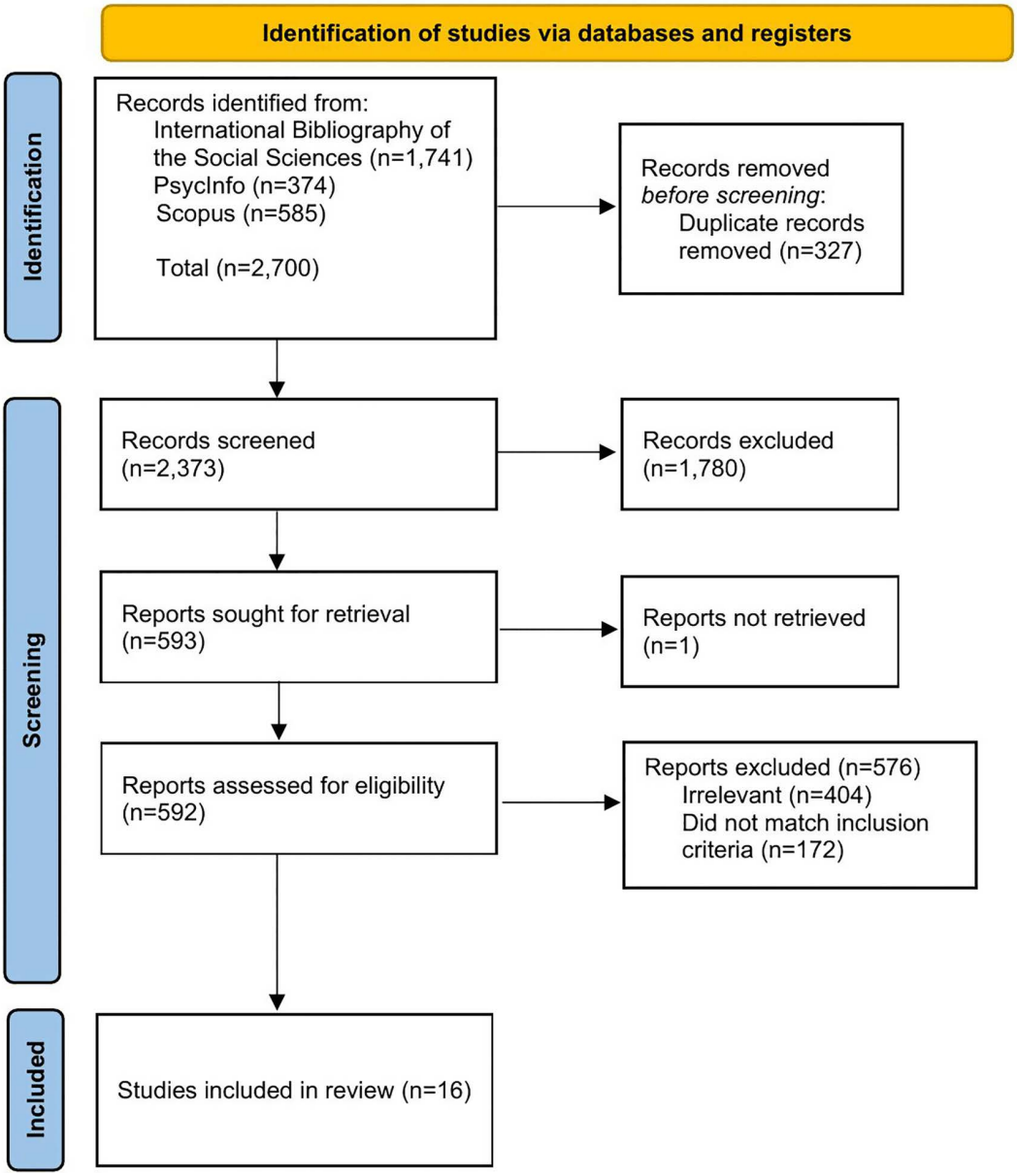


Fig 1. Flowchart demonstrating identification, screening and inclusion of studies in the systematic review, according to the PRISMA guidelines [11,12].

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Synthesis methods

Where appropriate, the Grading of Recommendation, Assessment, Development, and Evaluation (GRADE) framework was applied to synthesise common findings between studies [15]. GRADE ratings were allocated independently by the authors before meeting to discuss and resolve any disagreements. There was an absence of adequate statistical analyses in several of the included studies, meaning that meta-analysis was not possible. Therefore, the GRADE framework was applied according to the methods outlined by Murad et al. [16] to allow ratings for certainty of evidence to be established where data are only summarised narratively.

Results

Study selection and characteristics

2,700 articles were identified from the database searches, with no additional relevant publications being found from the manual review of seven review articles that appeared within them. Following the full screening process (Fig 1), a total of 16 articles across 9 countries were deemed eligible for inclusion for synthesis in the systematic review (Table 1). Ten of the included studies were interventional while six were cross-sectional [17–22].

People with intellectual disabilities were the sole participants in ten of the included studies, while five involved participants made up of some combination of: people with intellectual disabilities, members of staff at day service centres, carers, keyworkers, and family members [19–21,23,24]. The remaining study involved members of staff as the sole participants [18].

The included studies were originally reported in widely varying degrees of detail. Seven studies only presented descriptive statistics (S1 Table). Another eight studies analysed data using statistical tests to compare means between groups (S2 Table), while three studies conducted analyses to determine correlations between pairs of variables (S3 Table).

Assessment of study quality

The three randomised trials were assessed using the RoB-2 tool and were found to have high [25], low [24] and moderate [26] overall risk of bias (Fig 2).

The other 13 studies were assessed using the relevant JBI critical appraisal tool according to whether they employed a cross-sectional (n = 6), quasi-experimental (n = 2), case series (n = 3), or cohort (n = 2) design (Fig 3). All studies failed to fully satisfy at least one of the domains of their respective quality assessment tool. 10/13 studies satisfied at least 50% of the domains of their respective quality assessment tool. The remaining three studies all employed a cross-sectional design and only satisfied one [19] or two [17,20] of the domains on the relevant JBI tool.

Findings from individual studies

When comparing services offering traditional models of service design and delivery both Lowe *et al*. (1992) and Rose *et al.* (1993) found that traditional services emphasised best practice as having a focus on skill development, training and activities based within the day centres. Personal development, work preparation and daily living skills programmes were also found to be best practice within these segregated services. Participation in activities which most often related to personal care was also more prevalent in traditional settings.

In contrast, there was contention within the literature related to the types of activities which were considered best practice in services which instead adopted a community-based approach. Allen (1990) and Allen and Hill-Tout (1999) found that participation in leisure activities, access to community environments and social engagement was greater in community-oriented settings. Policy discussions also suggest that smaller services which are integrated into communities provide more opportunities for vocational and socially meaningful activities in ‘ordinary’ rather than segregated settings.

Studies of best practice approaches such as “Active Support” suggested that increased staff engagement and support can lead to people with intellectual disabilities demonstrating both higher levels of engagement with activities and reductions in behaviours of concern (Lin *et al.,* 2020; Allen, 1990). An inverse relationship between challenging behaviours and interactions with staff was found. Additionally, the literature suggests that staff interaction mediates some of the difficulties people with intellectual disabilities can face when engaging in activities and in relationships with others. This mediation in turn appears to reduce disengagement and behaviours labelled as challenging.

Finally, Martinez-Zaragoza *et al.* (2016), Rallis *et al.* (2025) and Van Schijnel-Speet *et al.,* (2016) found that structured physical activity and exercise programmes can be successfully implemented in day services and can improve fitness and physical health outcomes.

Table 1. Characteristics of the included studies (n = 16).

Authors (date)	Country of study	Design	Sample size (*n*)	Participants	Age (y)	Sex (M:F)	Severity of intellectual disability	Outcomes
Allen. D (1990)	Wales	Quasi-experimental	22	People with intellectual disabilities	24.5 (range 19-47)	17:5		Activities, appropriateness, engagement & behaviour
Allen & Hill-Tout (1999)	Wales	Cross-sectional observation	20	People with intellectual disabilities	30.4 (range 22-49)	7:3		Activities, engagement, behaviour & social interactions
Bachman & Sluyter (1988)	USA	Observational intervention	2	People with intellectual disabilities	41 (range 29-53)	1:1	Severe and profound	Behaviour
Bailey et al. (2006)	England	Cross-sectional	43	Staff	41 ± 10.3 (range 22-65)			Behaviour, social interactions & emotions
Campbell, M (2012)	Scotland	Survey	60	Staff, carers and people with intellectual disabilities	18-65 (people with intellectual disabilities)			Service quality
Lin et al. (2020)	Singapore	Longitudinal study	48	People with intellectual disabilities	30.3 ± 9.5	35:13		Engagement, behaviour, service quality, social skills & interactions
Martinez-Zaragoza et al. (2016)	Spain	Quasi-experimental	66	People with intellectual disabilities	34.4 ± 5.8	38:26	Mild-moderate	Health
McConkey & Mezza (2001)	Northern Ireland	Survey	275	Keyworkers in consultation with people with intellectual disabilities	38 (range 19-63)	121:154		Employment readiness
Moliner et al. (2017)	Spain	Cross-sectional primary study + replication study	1,326 + 1,420	Staff and family	Staff 37.5 ± 9.4; Family 57.3 ± 1.3	Staff 178:536 Family 204:408		Staff burnout & service quality
Otalvaro et al. (2020)	USA	Replication intervention case series	2	People with intellectual disabilities	41 (range 35-47)	2:0	Mild-moderate	Engagement & behaviour
Parsons et al. (1997)	USA	Intervention case series	3	People with intellectual disabilities	61.3 ± 9.9 (range 50-68)	0:3	Profound	Choices & decision making

(Continued)

Table 1. (Continued)

Authors (date)	Country of study	Design	Sample size (*n*)	Participants	Age (y)	Sex (M:F)	Severity of intellectual disability	Outcomes
Rallis et al. (2025)	Greece	RCT	32	People with intellectual disabilities	37.0 ± 4.3	15:12	Mild-moderate	Centre of pressure & mini-BESTest score
Rose et al. (1993)	England	Cross-sectional observation	12	People with intellectual disabilities	27.4 (range 21-49)			Activities, engagement & social interactions
Towery et al. (2014)	USA	Observational intervention	21	Staff and people with intellectual disabilities				Activities, social interactions, independence & emotions
van Schijndel-Speet et al. (2017)	Netherlands	Cluster RCT	237	People with intellectual disabilities	58.1 (range 42-83)	59:72	Mild (n=23); moderate (n=80); severe (n=20); unknown (n=8)	Health
Willner et al. (2013)	England, Scotland & Wales	Cluster RCT	492	Staff, carers and people with intellectual disabilities	Staff 46 (range 36-52) Carers 50 (range 34-58) People with intellectual disabilities 37.8 (range 28-49)	Staff 68:93 Carers 44:83 People with intellectual disabilities 126:54		Behaviour, social interactions, cost & emotions

Sample size column reflects the number of participants initially recruited for studies. Age column displays mean age plus standard deviation and/or range where reported. Mini-BESTest = mini balance evaluation system's test; RCT = randomised controlled trial.

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Synthesis of findings

The GRADE framework was applied, resulting in six synthesised findings (Table 2). The justification for each of these ratings can be found within the supplementary materials (S4 Table). 4/6 synthesised findings were assessed starting with a low certainty of evidence due to the lack of randomised studies contained within them. The remaining two findings – both related to blood pressure changes after exercise participation within day service centres – were assessed beginning with a high certainty of evidence, since the majority of participant data came from a single randomised trial [25].

Overall, there was "very low" certainty of evidence for four of the synthesised findings, while the remaining two were rated as having "low" certainty of evidence (Table 2). All findings were downgraded for serious issues related to imprecision, while three were additionally downgraded due to serious study limitations, and one due to inconsistency issues. None of the synthesised quantitative findings were suspected of publication bias.

Discussion

The aim of this systematic review was to summarise the literature related to the effectiveness of day service centres for people with intellectual disabilities, focusing specifically on studies that employed quantitative designs. Methodological

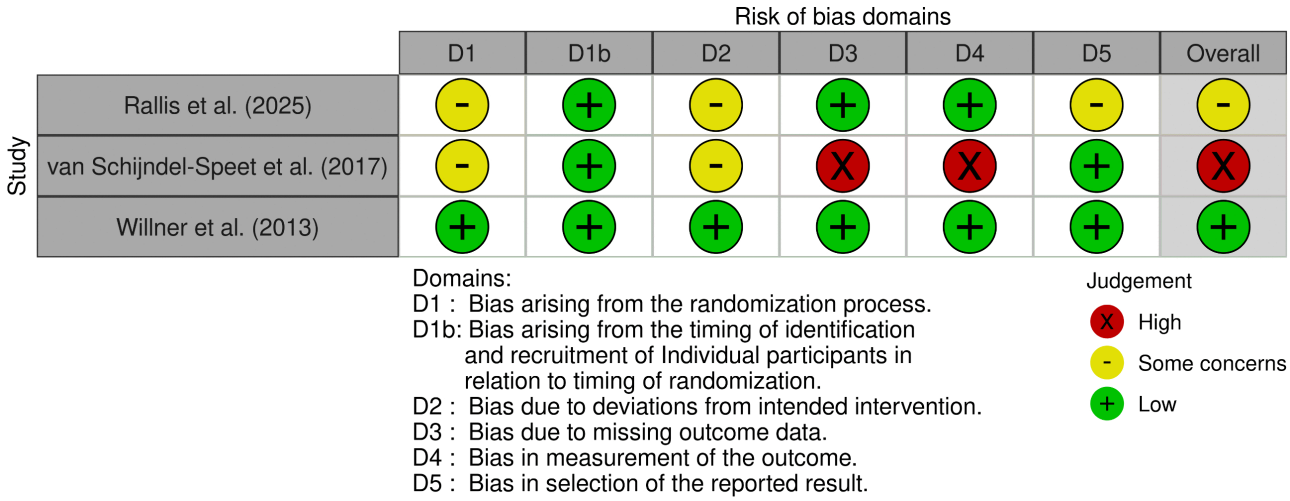


Fig 2. Study quality assessment of included randomised trials, according to the RoB-2 tool [13]. Figure created using the Robvis online tool [27].

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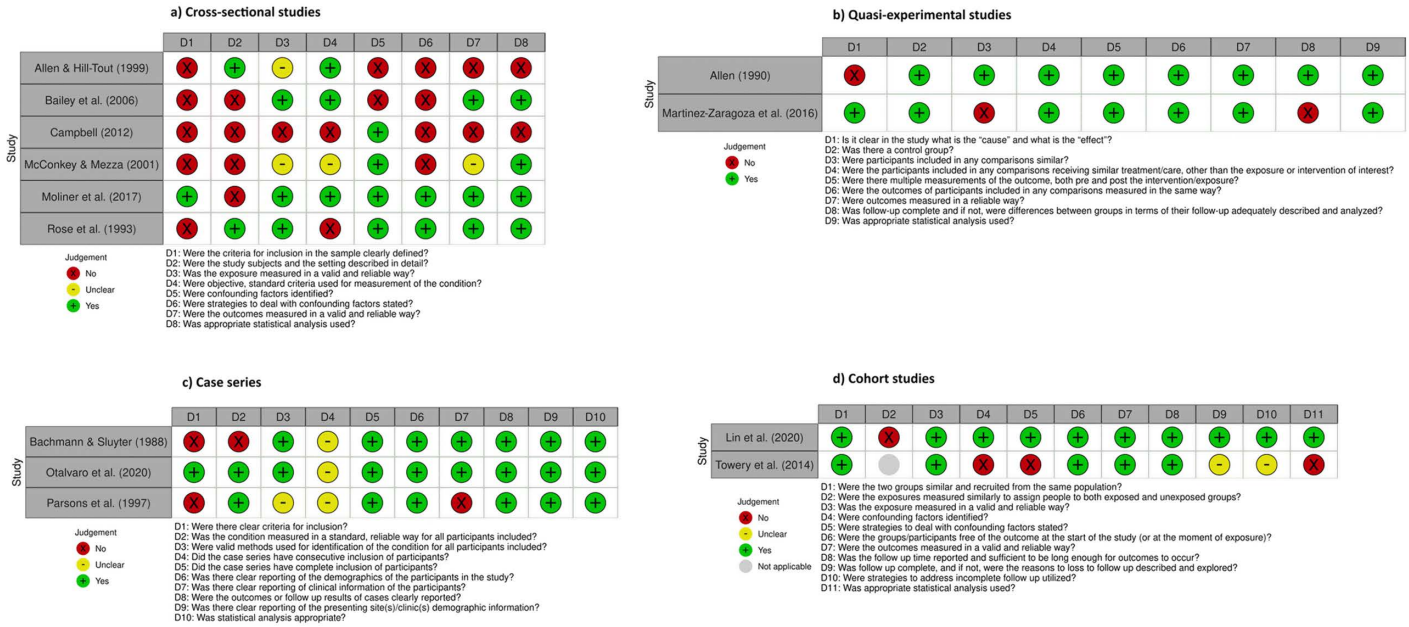


Fig 3. Study quality assessment of included non-randomised trials, according to the JBI critical appraisal tools for different study designs [14]. Figure created using the Robvis online tool [27].

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inconsistency between the included studies resulted in a body of literature with great heterogeneity, meaning that meta-analysis was not possible. Nevertheless, the main findings of this review indicated that challenging behaviours can effectively be reduced through positive interactions between staff members and people with intellectual disabilities. Furthermore, exercise-based interventions can successfully be employed within day service centres, resulting in positive

Table 2. Certainty of evidence ratings according to the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) criteria.

Outcome	Effect over time	Number of participants (study design type)	Certainty of evidence* (GRADE assessment)
Participation in personal activities in traditional settings vs community-based settings	2/2 studies found increased participation in personal activities within traditional day services. Both studies indicated that the difference was significant ($p<0.05$).	≤216¶ (2 NRC)	Very low ⊕OOO (due to serious imprecision)
Participation in leisure activities in traditional vs community-based settings	2/2 studies found increased participation in leisure activities in community-based day services. Both studies indicated that the difference was significant ($p<0.05$).	≤216¶ (2 NRC)	Very low ⊕OOO (due to serious imprecision)
Engagement levels in traditional vs community-based settings	1 study found significantly greater engagement levels within community-based settings ($p<0.01$), while another study found greater engagement levels in traditional settings, and a third found similar levels between settings. The latter two studies did not report statistical analyses alongside their findings.	≤238¶ (3 NRC)	Very low ⊕OOO (due to serious imprecision and inconsistency)
Behaviour is linked to interactions with staff	2/2 studies found a positive relationship between appropriate behaviours and interactions with staff. One study found this relationship to be statistically significant ($p<0.01$; $n^2_{partial}=0.2$), while the other study did not report statistical analyses.	68 (1 NRC and 1 NRNC)	Very low ⊕OOO (due to serious study limitations and imprecision)
Effect of exercise during day service participation on systolic blood pressure	2/2 studies found improvements in systolic blood pressure in groups who received an exercise intervention within day service centres. Both studies indicated that the difference was significant ($p<0.05$).	303 (1 randomised and 1 NRC)	Low ⊕⊕OO (due to serious study limitations and imprecision)
Effect of exercise during day service participation on diastolic blood pressure	2/2 studies found improvements in systolic blood pressure in groups who received an exercise intervention within day service centres. Both studies indicated that the difference was significant ($p<0.01$).	303 (1 randomised and 1 NRC)	Low ⊕⊕OO (due to serious study limitations and imprecision)

NRC = Non-randomised comparison; NRNC = Non-randomised non-comparative; *see S3 Table for details and justification of ratings;

¶one study [28] did not report the precise number of participants involved so the number reported in this table reflects the maximum possible sample size across the relevant studies.

Note: GRADE assessments were conducted starting from a "Low" certainty of evidence for all synthesised outcomes above, except those related to blood pressure, due to the greater proportion of non-randomised trials and/or non-randomised participants involved [29].

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changes in several health and fitness parameters. Finally, the observed trends in the data were generally in favour of community-oriented day service settings for activity engagement and participation.

Beyond this, making reliable recommendations for best practice within day service centres was difficult, largely due to a lack of methodologically robust research in this particular area. This was reflected in the certainty of the synthesised evidence, which was rated as "low" or "very low" for each finding. The absence of standardised outcome measures, coupled with weak study designs and incomplete reporting of methods and results, points to a critical issue regarding the ability of service providers to confidently pursue an evidence-based approach within their practice.

To maximise the effectiveness of a transition towards evidence-based delivery, quantitative research should endeavour to conduct power analyses *a priori,* include adequate sample sizes, and perform relevant statistical tests with collected data to improve study quality and the resultant findings [30,31]. Future studies should also endeavour to report their findings using relevant reporting guidelines to ensure that all appropriate information standardised [32,33].

Provision of care for people with intellectual disabilities in Western societies has changed drastically over time to the point where some forms of contemporary day service provision – with a focus on support and community integration – are almost unrecognisable in comparison to the segregated and medicalised institutions that were once standard [1,2].

The significance of a focus on integration was evident in the findings of this review, with community-oriented day service centres linked to positive outcomes such as participation in leisure activities and overall engagement. These findings align with broader efforts to move away from traditional, segregated models towards more inclusive community-oriented services. However, the transition to such models presents challenges, particularly in ensuring that community-oriented initiatives provide meaningful, individualised opportunities rather than replicating segregated settings in community locations [34]. Given the variation in community engagement opportunities across different day service centres, further study is needed to establish best practices for fostering genuine community inclusion and contribution. Such research should aim to develop a more holistic, person-centred framework that incorporates the voices of those directly affected by service provision, since a one-size-fits-all approach to evaluation is unlikely to capture the nuanced impacts of day service centres [35,36].

The findings of this systematic review have several limitations, which should be highlighted. The included studies did not consistently differentiate participants according to the level of their intellectual disabilities or their support needs. Consequently, it was not possible to determine whether particular approaches to day service provision were more effective for people with differing levels of intellectual disability, support needs or other demographic variables. This limits the extent to which the findings can inform recommendations for specific groups and highlights the need for future research to report participant characteristics more comprehensively.

Methodological heterogeneity, inconsistent reporting, and the frequency of descriptive statistics within the included studies hinder the ability to confidently draw robust and nuanced conclusions about the overall effectiveness of day service centres. The included articles originated from just eight countries, meaning that the findings of this review may be less relevant to other countries where different systems are in place for adults with intellectual disabilities. Finally, the inability to conduct meta-analysis of the synthesised findings limits the scope of this review to a qualitative interpretation only.

Conclusion

Day service centres offer significant opportunities for enhancing communication, engagement, relationships, health and community integration for people with intellectual disabilities. However, the current evidence base is marked by considerable variability in methodological quality and certainty in the resultant findings.

Future research should focus on developing methodologically robust protocols for evaluating effective practice within day service centres. Longitudinal studies are needed to explore the short- and long-term impacts of different service models on the independence, social inclusion, and overall wellbeing of adults with intellectual disabilities.

A more inclusive, rigorous, and contextually sensitive approach to evaluating day service centres is required: one that not only prioritises safety and skill development but also reflects the aspirations of the people whom centres are designed to support.

Supporting information

S1 Table. Findings from studies that were only presented as descriptive statistics.
(DOCX)

S2 Table. Results of comparison-of-mean analyses from included studies.
(DOCX)

S3 Table. Correlational analyses with significant results.
(DOCX)

S4 Table. Justifications for certainty of evidence ratings according to the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) criteria.
(DOCX)

S5 Table. PRISMA checklist.
(PDF)

Author contributions

Conceptualization: James Belsey, Rachel Harrison.

Data curation: James Belsey.

Formal analysis: James Belsey.

Funding acquisition: Rachel Harrison.

Investigation: James Belsey.

Methodology: James Belsey.

Project administration: James Belsey, Rachel Harrison.

Supervision: Rachel Harrison.

Visualization: James Belsey.

Writing – original draft: James Belsey.

Writing – review & editing: Rachel Harrison.

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