Interventions to improve social, community & civic participation of adults on the Autism Spectrum or living with Intellectual or Psychosocial Disability

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Research & Evaluation Branch, NDIA

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About the Research and Evaluation Branch

The Research and Evaluation Branch is responsible for ensuring that NDIA policies, guidance, practices and priorities are informed by trustworthy and robust evidence so decisions can be based on an understanding of what works, what doesn’t and what the benefits are to participants and the Agency. Our research is based on a collaborative approach in which we engage with participants and other key stakeholders to address scheme priorities. Our collaborative approach helps us to develop tailored approaches to the translation of the research. This includes developing resources for participants and providers to engage with best practice, as well as for partners in the community and other government departments to understand and apply evidence into their practices.

What does this report cover?

This report covers interventions for enhancing social, community and civic participation for adults (≥18 years of age) on the autism spectrum or who have intellectual disability or psychosocial disability.

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How is this report structured?

The **introduction** provides a brief background to the context of the review, and the **methods** section summarises how the review was conducted. The **results** provide an overview of the interventions and supports identified under broad topics of (1) processes and supports to help people connect with social, community or civic participation opportunities; (2) opportunities for participation; and (c) interventions to build skills, psychosocial wellbeing and broader capacity to participate socially and in the community. As this review includes information from 57 existing systematic reviews and more than 500 studies, not every piece of evidence is cited in this report. Additional details on the effects of the interventions, and the relevant citations for all studies and reviews are provided in the appendices. The **discussion** summarises the key findings and the feasibility, acceptability and barriers of interventions.

Citation

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The appendices are available upon request. Email research@ndis.gov.au to request a copy.

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Contents

Abbreviations

Abbreviation	Term
A*	AMSTAR
AAT	Animal Assisted Therapy
AIDS	acquired immunodeficiency syndrome
ASD	Autism Spectrum Disorder
AMSTAR	Assessing the Methodological Quality of Systematic Reviews
APA	American Psychological Association
ASSIA	Social Systems Evidence, Applied Social Sciences Index & Abstracts
CBT	Cognitive Behavioural Therapy
CCA	Corrected Covered Area
CINAHL	Cumulative Index of Nursing and Allied Health Literature
CRPD	Convention on the Rights of Persons with Disabilities
EMILIA	Empowerment of Mental Illness service users: lifelong Learning, Integration and Empowerment
ERIC	Educational Resources Information Center
ESCAPE	Effective Strategy-Based Curriculum for Abuse Prevention and Empowerment
H	High quality
HIV	Human immunodeficiency viruses
ICF	International Classification of Functioning, Disability, and Health
ID	Intellectual Disability
L	Low quality
LGBT	Lesbian, gay, bisexual and transgender
M	Moderate quality
MeSH	Medical Sub-Heading
N	Number
NDIA	National Disability Insurance Agency
NDIS	National Disability Insurance Scheme
NDS	National Disability Services
NICE	National Institute for Health and Care Excellence
NMHCCF	National Mental Health Consumer and Carer Forum
nr	Not reported

Abbreviation	Term
PCP	Person Centred Planning
PICO	Participant Intervention Comparison and Outcomes
PEERS-YA	Program for the Education and Enrichment of Relational Skills for Young Adults
PRISMA	Preferred reporting Items for Systematic Reviews and Meta-Analyses
PROSPERO	PROSPEctive Register Of systematic reviews
PSD	Psychosocial Disability
PTSD	Post-traumatic Stress Disorder
RAC	Residential Aged Care
RCT	Randomised Controlled Trial
SCC	Social, Community and Civic
SCIT	Social Cognition and Interaction Training
SO	Special Olympics
SMI	Serious Mental Illness
SMS	Short Message (or Messaging) Service
SPIDER	Sample, Phenomena of Interest, Design, Evaluation, Research type
SR	Systematic Review
SST	Social Skills Training
TEACCH	Treatment and Education of Autistic and related Communications Handicapped Children
UR	Umbrella Review
USA	United States of America
VR	Virtual Reality
WHO	World Health Organization

Note: Some abbreviations are only used in tables in the Appendices

Glossary

Autism Spectrum Disorder is a developmental condition that includes: persistent deficits in social communication and interaction across multiple contexts; restricted, repetitive patterns of behaviour, interests, or activities; with disturbances that cause clinically significant impairments (APA, 2013).

Civic refers to engagement of citizens in civic and political life of the state (Marshall 1965; Wilenski, 1986; Wolfe, 2002; as cited in Frawley & Bigby, 2011).

Community is "a group of people that interact and support each other, and are bounded by shared experiences or characteristics, a sense of belonging, and often by their physical proximity" (p.195, Cobigo, Martin, & Mcheimech, 2016). In relation to people with disabilities, community is sometimes expressed as an opposite of segregated or service settings, but it can also refer to self-authored segregated spaces (Milner & Kelly, 2009).

Developmental disabilities are a set of abilities that impose limitations on independent participation and as such very from what is considered a norm in society (Odom et al., 2007). Examples of developmental disabilities include autism, behaviour disorders, brain injury, cerebral palsy, Down syndrome, foetal alcohol syndrome, intellectual disability, and spina bifida (Institute on Community Integration, 2021).

Intellectual and Developmental Disabilities are characterised by impairments of core cognitive functions important for the development of knowledge, reasoning, and symbolic representation of the level expected of person's age group, cultural and/or community settings (Salvador-Carulla et al., 2011). Intellectual and Developmental Disability is the term used to refer to situations where intellectual disability and other disabilities are present together (Institute on Community Integration, 2021).

Intellectual Disability originates before the age of 18 and is characterised by significant limitations in intellectual functioning (e.g., with an IQ<70) and adaptive behaviour that covers many everyday social and practical skills (Schalock et al., 2007).

Person Centred Planning is not a single intervention, but is an umbrella term defined by five key features: (1) the person is the focus; (2) family, friends or other people from a circicle of support may be partners in the planning process; (3) the plan captures what is important to the person at the centre, their capacity, and their support needs; (4) the plan generates actions focused on life and not just the services or resources that are needed or available; and (5) the plan involves ongoing learning, listening and opportunities for action (Ratti et al., 2016).

Psychosocial disability is the term used to describe disabilities arising from mental health issues. Psychosocial disabilities are considered to be "multi-axial" and can comprise psychological, social, and occupational impacts of psychiatric, psychological, or developmental disorders, with an emphasis on the social consequences as opposed to the nature and severity of psychiatric impairments (NMHCCF, 2011).

Social capital is defined as the resources that one can access through their social connections.

Society is living together in organised communities where “every individual, each with rights and responsibilities, has an active role to play” (United Nations, 2009).

Social prescribing is a primary care health service in the United Kingdom that links patients with non-medical needs to supports that are provided by the community and voluntary sector in order to help improve their health and wellbeing (Pescheny, Randhawa, & Pappas, 2020).

Theory of Mind reflects the process of understanding and describing the mental states of others in order to explain or predict another person’s behaviour.

Executive Summary

People on the autism spectrum, and people with intellectual or psychosocial disability, often have difficulty initiating and maintaining social, community and civic participation due to impairments in social skills, cognitive function, limited access to social and financial resources, and broader social and community barriers.

This systematic review is part of the NDIA research program that aligns with the objectives of the NDIS Act to “support the independence and social and economic participation of people with disability” (Part 2; Commonwealth of Australia, 2020), and the strategy outlined in the NDIA Corporate Plan 2021-2025 to “Sustain improvement in participant outcomes (participation in employment and social/community activities)” (Page 26; NDIA, 2021). In particular, the corporate plan aims to increase the social and community participation rate of 45% at the end of the 2020-21 financial year to 48% in the 2022 financial year.

The review aimed to gather the best available evidence to inform and strengthen priority initiatives of the scheme, determine gaps in evidence, and to identify opportunities for future research. The review supports the NDIA to address the recommendations raised in the recent Independent Advisory Council paper (IAC, 2021) to support genuine social and community inclusion of people living with disability. In particular, the IAC recommended that the NDIA:

- support a planning process that enables participants to focus on inclusion and to build their independence safely (**Recommendation 2**);
- focus on capacity building supports through multipronged plans and leveraging peer networks (**Recommendation 4**); and
- support plan implementation through the generation of evidence guides for participants so that they know “what works” and to build provider practice consistent with inclusion of people living with disability (**Recommendation 5**).

In this review, we sought to appraise the effectiveness, facilitators of, and barriers to, interventions, programs and supports for improving the social, community and civic participation of adults on the autism spectrum, or living with intellectual or psychosocial disability.

What did we do?

This is an umbrella review, which is a method that examines evidence reported in existing systematic reviews. Eight databases were searched to identify systematic reviews published from 2010 to 2020 that included studies evaluating the effectiveness or feasibility of interventions to enhance social participation capacity, or to directly support social and community participation, of adults on the autism spectrum, or living with intellectual or psychosocial disability. We focused on these three cohorts as approximately two thirds of

NDIS participants have one or more of these disabilities. For the purpose of this review social, community and civic interventions were defined as something that is done to, with or for the person with a disability and/or the environment in which they interact or want to interact to address one or more individual or environmental characteristics (in different life domains) to achieve social, community or civic participation outcomes. Study quality was extracted where possible, and systematic review quality was assessed with the Assessing Methodological Quality of Systematic Reviews checklist.

What are our key findings?

Fifty seven systematic reviews that reported findings from a total of 522 studies were included. Most studies were conducted in North America and the United Kingdom, and for interventions for people with psychosocial disability. Most of the included evidence was low or moderate quality, although studies evaluating interventions for people with psychosocial disability were generally better quality. No studies examined the cost-effectiveness of the interventions. As many programs or supports needed to be adapted to individual needs and preferences, particularly for people with intellectual disability, manualised randomised controlled trials were generally not feasible or appropriate.

There were three main types of interventions with evidence of effectiveness for one or more of the disability groups of interest. This included: (1) interventions that helped people to identify and connect with participation opportunities; (2) interventions that were a participation opportunity; and (3) interventions to build skills and capacity to participate socially and in the community.

1. Interventions involving processes or supports to help people connect with social, community or civic participation opportunities

These interventions sought to help people to identify participation opportunities that matter to them, and to connect them with those social, community or civic participation opportunities. Effective interventions included:

- **Person centred planning**, and assistance from skilled support workers to link people with participation opportunities that build on their existing skills and assets for people with intellectual disability. While no reviews included evaluation of these approaches for people with psychosocial disability or on the autism spectrum, it is broadly accepted that these approaches are important in supporting participation, quality of life and recovery in people with disability.
- **Social prescribing** and supports to connect people with intellectual or psychosocial disability with community groups
- **Dog walking** alongside a dog handler for people with intellectual disability to facilitate convivial encounters in the community
- **Befriending programs** for people with psychosocial disability. These interventions should be used with caution for people with intellectual disability who have reported

unintended negative social network impacts, although the latter studies had small samples and were of low quality.

- **Peer support** and **mentoring** for people with psychosocial disability, for young adults on the autism spectrum to **transition into post-secondary education**, and for older people with intellectual disability to **transition into community participation after retirement**

2. Interventions offering participation opportunities

142 studies evaluated the effects of participating in social or community settings on broader participation and wellbeing outcomes. Interventions that enhanced participation were:

- **Community group participation** (e.g., Men's shed) for people with intellectual or psychosocial disability
- **Participation in physical activity**, including for people with psychosocial disability, and unified Special Olympics programs for people with intellectual disability; however there were inconsistent effects in many studies.
- **Art, drama** and **music participation** for people on the autism spectrum or with intellectual or psychosocial disability
- **Farm, ecotherapy, gardening and horticulture programs** for people with psychosocial disability
- **Outdoor nature-based activities or camps** for people with psychosocial disability.

Volunteering had inconsistent effects on participation outcomes for people with psychosocial disability, and dance-based programs had inconsistent effects for people on the autism spectrum or with intellectual disability.

3. Interventions to develop skills or psychosocial capacity to participate

The third category of interventions focused on building social and communication skills, psychosocial wellbeing, and broader capacity to participate socially and in the community. Interventions that were effective included:

- **Group-based social skill training** for people with intellectual or psychosocial disability; however, only **individualised social skills training** to learn conversation and communication skills were consistently effective for people on the autism spectrum. Interventions that targeted specific social competencies, such as theory of mind or social cognition, were effective for people with psychosocial disability but were not effective for people on the autism spectrum.
- **Social skills training in vocational settings** such as programs targeting specific social behaviours for work roles and settings (for people with intellectual disability) or during on-the-job coaching or internships to support work-related social skills (for people on the autism spectrum and with psychosocial disability). However, some vocational social skills programs had inconsistent effects on participation (e.g., the Aspirations program).
- **Relationship, family planning, abuse prevention**, and **parenting** skills and knowledge training for people on autism spectrum, or with intellectual or psychosocial disability

- Digital literacy training improved capacity to participate; however, both digital literacy and travel training had inconsistent effects on social functioning.
- Helping people with intellectual disability to create a **Life Story** to share their history

As an umbrella review, information regarding the factors impacting intervention acceptability, feasibility, facilitators and barriers were not always available. However, several key factors were reported to influence intervention the implementation and success.

Attributes of the program or intervention*.* Effectiveness was supported in programs that provided multidimensional supports to enhance participation, and build or maintain broader social networks. People preferred to have skilled facilitators who followed a structured program and to have regular breaks, rewards and positive feedback. Supports and participation opportunities ideally needed to offer person-centred supports that fostered participant choice (e.g., recognising participant preference for individual versus group, or participation in mainstream or disability-specific settings or activities). Interventions were more effective if they gave people opportunities to practice skills and participation in real life. While engaging with people in mainstream settings was often important, people also liked meeting others with similar disabilities or experiences. Participants disliked programs and supports with disorganised rules and policies, did not want to be given meaningless activities, and their financial, psychosocial support and travel needs had to be met to enable participation.

Attributes and attitudes of carers, staff, facilitators or peer mentors. The relationship between program staff and the person with disability was a key facilitator of participation and learning, and program facilitators need to build a sense of safety and trust with participants. People liked working alongside facilitators, rather than “under” their direction.

Attributes of the person with disability. Participation was often facilitated by the person’s pre-existing social skills, social capital and literacy. Expectations of benefits or harms, as well as fluctuating health, wellbeing, and age-related changes impacted on participation.

Community-specific characteristics. Opportunities for participation through social prescribing, “connecting people” and person centred planning supports were often dependent on engagement with existing groups in the community, or identifying and recruiting volunteers; however, poor engagement and negative attitudes from community members could negatively impact on participation and wellbeing for people with disabilities.

In summary, to enhance participation, the evidence in this umbrella review highlights that people may need a multifaceted approach based on their individual needs and goals to:

(a) be supported to identify and connect with participation opportunities;
(b) have the financial and social resources, as well as access to programs and settings to take up participation opportunities; and
(c) build the social and communication skills, psychosocial wellbeing, and other fundamental skills and knowledge to engage socially and navigate the community.

Ultimately, however, the social and political environment also needs to value, encourage and enable the participation of people with intellectual disability or psychosocial disability, and people who are on the autism spectrum. These conclusions are consistent with the multi-faceted domains outlined in the socio-ecological (Shogren et al., 2018), Quality of Life models (Schalock, 2004), and the critical realist and interactional models (p.76, Shakespeare, 2013). That is, multiple domains related to individual, social, community, cultural and political domains should be addressed in order to enhance participation of people with disability.

Key insights and considerations from the evidence

This research has several implications for the disability community that are outlined below.

4. Make participation a priority in planning

Skilled planning conversations are needed to identify multi-faceted supports and activities to help participants achieve desired social and community participation outcomes. Relevant paid and informal supports should be identified, included and reviewed in plans over time to ensure that the participant’s needs are still being met. Participants will need flexibility and choice to build their capacity for participation as well as to enable that they can safely and comfortably participate in social and community settings (e.g., building their social skills, relationship knowledge, travel skills, or support to link with community groups).

5. Identify meaningful participation preferences

Participants should consider what participation means to them, and which opportunities they want to pursue. Some participants may need assistance, such as through person centred planning, to identify their participation priorities. A combination of supports may be needed to build capacity to participate, and to link people with participation opportunities. Some activities, such as drama therapy to share one’s life story or experiences, can be empowering for some people, but may exacerbate existing feelings of vulnerability for others. Therefore, it may be important to try several options to find the right activities and supports that suit each person, and to understand that these may change over time. Participants and their networks may benefit from improving their knowledge and skills in self-advocacy and person centred planning so that the participant’s choices are respected.

6. Identify where to participate and how to enable ongoing participation

NDIS participants are more likely to successfully connect and network with other people both with and without disabilities if they receive support, coaching or mentorship to participate in mainstream or disability-specific settings. Providing training to existing members in mainstream community groups can also create more opportunities for genuine inclusion and participation. Targeted supports can also help with the development of relationships that extend beyond those settings. People living with disability may enjoy and feel safe socialising and learning from other people who experience similar disabilities. However, some intensive supports or activities can limit the amount of time or energy available to engage with existing social networks, or the time available to participate in other valued social or leisure activities. Activities like walking a dog increase the opportunity for social interactions with people within the individual’s neighbourhood.

7. Identify support or capacity building needs

Participants should be helped to identify what supports they need to facilitate social encounters in the community, and whether those sources of support will be accessed through informal networks, paid support workers, or through other systems. When identifying the need and availability for both informal and paid supports the participant’s existing social skills, confidence and related competencies (e.g., task management, self-determination, digital literacy) and overall needs (e.g., symptom management to maintain general wellbeing) should be considered and addressed. Moreover, having accessible transport, or learning to travel independently using public transport, can enable greater participation in places that are otherwise not accessible to participants. A multi-pronged approach is likely to be needed to support both capacity for participation, that will then lead to improved social and community participation outcomes.

8. Build expert knowledge

Planners and partners in community may benefit from various strategies to enhance their understanding of participation of people with disability. For instance, participation in training, or meeting with other staff through formal or informal networks to share innovative options or access mentoring. These strategies will ensure that appropriate participation opportunities are identified that fit with participant choice and preference, while diminishing the likelihood that the participant’s priorities will be overpowered by the perspectives of planners, staff, or family members.

9. Develop and identify supports

Participants or partners in the community may need to be creative in developing and delivering relevant and effective supports or opportunities for participation. People providing support should have appropriate skills and attributes for each participant (e.g., experience in mental health and trauma informed care, knowledge about autism or managing challenging behaviours). Moreover, support staff and family members should provide Active Support to help the participant to engage socially, or to advocate for the participant in public spaces to overcome biases and assumptions about their abilities or preferences.

10. Provide appropriate levels of support

Effective interventions and supports to build capacity and skills typically required 1-3 hours per week over as little as 6-weeks, but for up to 6-12 months. Effective participation-focused activities and supports typically comprised 1-5 hours per week, and also required transport, support and health-related needs to be met.

11. Facilitate access to peer support and self-advocacy

Peer support programs and transition programs in which a person with disability is partnered with a mentor can help people with disabilities to learn self-advocacy skills and to successfully transition through key life stages (e.g., from adolescence to increased independence in young adulthood, or from working in a social enterprise to social participation during retirement). People reported enjoying meeting others with similar experiences in group training or peer support settings as these disability-specific groups are seen to provide a welcoming community where participants can “be themselves”, share coping strategies, fill their free time, interact with others, and foster social belonging and connectedness. However, peer support programs do not necessarily have broader impacts on social network size or relationships outside of the peer group setting, so opportunities beyond the peer group should be considered to extend participation opportunities.

12. Consider linkages with broader systems

Participants may need to be linked with supports that are not funded by the NDIS, but that are available in mainstream systems (e.g., health system for clinical therapies, justice system for behaviour change programs, or education system for transition supports) in order to address broader needs.

13. Focus on outcomes

It is important to continue to measure relevant participation outcomes for participants receiving support to enable their social and community participation.

Next steps

The NDIA will continue to work with the broader disability ecosystem to promote knowledge of and access to effective strategies to support social, community and civic participation of people with disabilities. We are developing resources, including Guides for Understanding Supports and accessible information summaries, to assist people with disability to make informed decisions about their social, community and civic participation, and the types of supports that they can access.

1. Background

1.1 The issue

Social, Community and Civic (SCC) participation has important benefits for people with disabilities, their family and carers, including improved wellbeing, lower long-term costs of care and support, and increased study, volunteering or paid employment opportunities. There are also benefits to the community through improved social capital and accessibility.

Two thirds of all NDIS participants have an intellectual disability, psychosocial disability or are on the Autism Spectrum (NDIA, 2020), and impairments that may have direct or indirect impacts on social and community participation. Key features of each condition are defined below, although co-occurrence of two or more of these types of disabilities is common. For instance, it is estimated that approximately 50-60% of people on the autism spectrum also have an intellectual disability (Kim et al., 2011), and adults on the autism spectrum have higher rates of psychiatric comorbidity than people not on the spectrum (Joshi et al., 2013).

For people living on the autism spectrum, or who have intellectual or psychosocial disabilities, SCC participation can be affected by personal factors such as health, mobility, poverty, communication, support from family/carers or friends, confidence, life experience, and interests (NDS, 2018). Societal and environmental factors can also impede community participation for people with disabilities including distance, the physical accessibility of buildings, transport and the community, accessibility of information, community perceptions, or actions and attitudes. Lastly, community participation can be obstructed by the systemic exclusion of people with disabilities, availability of supports for disability needs, and lack of support for, or access to, education or employment (NDS, 2018).

1.2 NDIS perspective

The focus of this systematic review aligns with the objectives of the NDIS Act to “support the independence and social and economic participation of people with disability” (Part 2; Commonwealth of Australia, 2020). In particular, the review focuses on the the strategy outlined in the NDIA Corporate Plan 2021-2025 to “sustain improvement in participant outcomes (participation in employment and social/community activities)” (Page 26; NDIA, 2021). In particular, the NDIS corporate plan aims to increase the social and community rate of 45% at the end of the 2020-21 financial year to 48% in the 2022 financial year. This review also aligns with the guiding insurance principles that NDIS guidance and policy will support participants to contribute to social and economic life using evidence-based and consistent decision making principles, with a life-time person-centric approach and early investment to drive improved participant outcomes, while also monitoring for risks.

This systematic review focused on identifying interventions to improve SCC participation for adults on the autism spectrum, or who have intellectual or psychosocial disabilities, and to summarise the effectiveness of those interventions. The research complements an original NDIS mixed methods research project exploring the NDIS participant experiences and pathways to community participation, and barriers and enablers of participation.

The Independent Advisory Council (IAC, 2021) to the NDIA recently emphasised the need for genuine social and community inclusion supports for people living with disability. Key recommendations that are relevant to this review were:

> **Recommendation 2**: support a planning process that enables participants to focus on inclusion and to build their independence safely;
>
> **Recommendation 4**: focus on capacity building supports through multipronged plans and leveraging peer networks; and
>
> **Recommendation 5:** support plan implementation through the generation of evidence guides for participants so that they know "what works" and to build provider practice consistent with inclusion of people living with disability.

As participants of the NDIS, people with disability should receive timely and adequate access to reasonable and necessary supports to build their social, community, civic and economic participation. It is important that planners use a life stage, or lifespan, approach given that participation priorities and support needs vary across the life-spectrum.

1.3 The intervention/s

Broadly, interventions are defined as something that is done to, with or for the person with a disability and/or the environment in which they interact or want to interact to address one or more individual or environmental characteristics to achieve community participation outcomes (Gross et al., 2020). For instance, person-targeted interventions may aim to improve confidence, knowledge, skill or capacity (e.g., training in public transport), whereas environment-targeted interventions may create or adapt existing groups so that they are more welcoming and accessible to people with disabilities. These can be further classified into uni-faceted interventions (which work on one particular aspect of either people with disabilities or the environment) or multifaceted interventions (which address two or more individual or environmental characteristics). In this review, we sought to identify both uni- and multi-faceted interventions.

1.3.1 How do we define SCC participation?

Social, Community and Civic participation is considered one of the core domains of the International Classification of Functioning, Disability, and Health (ICF) framework (WHO, 2001), which recognises the important relationships between disability, function, the environment and health. In the ICF, Chapter 7 (Interpersonal Interactions and Relationships) and Chapter 8 (Major Life Areas) refer to SCC participation, and all other chapters focus on individual activities or functions (Whiteneck & Dijkers, 2009). For this review, we considered

SCC participation in line with the Convention on the Rights of Persons with Disabilities (United Nations (UN) Department of Economic and Social Affairs Disability, 2006), including rights of people with disabilities to:

- Full inclusion and participation of people with disability in the community (Article 28);
- Effective and full participation in political and public life (Article 29);
- Participation in mainstream and disability-specific sporting and recreational activities at all levels to the fullest extent possible (Article 30); and
- Access to sporting, recreational and tourism venues or services for organising recreational, tourism, leisure and sporting activities (Article 30).

SCC participation and outcomes were conceptualised as activities that:

- are ideally chosen or desired by the individual with a disability;
- occur in a social, community or civic setting;
- enable people with disabilities to:
    - participate alongside and/or with people without disabilities, or
    - build the skills, self-efficacy, social networks etc. to enable participation alongside/with people without disabilities.

1.3.2 How the interventions might work

Interventions work by improving the fit between the person and their physical, social, or institutional environments by changing the capacity of the individual with a disability to participate, connecting them with participation opportunities that they might otherwise be unable to access, or by making the environment more accessible to enable their participation.

1.4 Objectives of the review

This review systematically identified and synthesised the available evidence for the effectiveness of interventions or supports for improving SCC participation of people on the autism spectrum, or who have intellectual or psychosocial disabilities. The review aimed to answer the following questions:

(a) What works?
    - What interventions are effective for whom, how, under what conditions/contexts, and for which participation modes (e.g., individual versus group settings) and activities?
    - How was the effectiveness of the intervention measured, were validated measures used, at what scale was the intervention evaluated, and what is the overall level of evidence?

(b) Where the evidence is sufficiently strong and consistent for implementation:
    - What do we know about the **acceptability** of the interventions to providers, participants, or the community?

- What **resources are required** to support successful implementation (e.g., who (individual/organisation) implements the intervention, what qualifications or training do providers need, what skills do participants need, what amount of time or funding is required; what engineering, environmental conditions or resources are required))?
- What **barriers** need to be overcome or **facilitators** need to be enhanced in order to support implementation, acceptability and effectiveness?
- Is there evidence of **cost-effectiveness**?

(c) What are the **gaps in the current evidence base**?

2. Method

The protocol for the review was submitted to PROSPERO on 6th January 2020 (CRD42021229580). Minor deviations to the protocol are outlined in Appendix 1 (available upon request to research@ndis.gov.au).

2.1 Eligibility

Given that this review sought to synthesise evidence using a broad range of methods, we used the Sample, Phenomena of Interest, Design, Evaluation, Research type (SPIDER) framework (Cooke, Smith, & Booth, 2012). Detailed eligibility criteria are provided in Appendix 1. Publications were eligible for inclusion if they met the inclusion criteria outlined in Table 1, and if they were published between 2010 and 2020. This time-frame coincides with the increased use of systematic review methods in the past ten years, and allows for the identification of contemporary empirical evidence as well as older studies published since deinstitutionalization and the independent living movement.

Publications could use umbrella, systematic, scoping or rapid review methods, as long as they (a) included a clear statement of the purpose of the review; (b) described the search strategy, used two or more databases, described the search terms used and the inclusion/exclusion criteria; (c) presented data on search and screening results, and presented all findings relevant to the main purpose of the review.

The *primary outcomes* included: aspects of social participation (e.g., communication, social relationship maintenance, participation through telecommunications or online platforms, convivial encounters); social networking (e.g., friendships, relationships, networks and faith related attendance); navigating or accessing the community (e.g., access or skills to use public or private transport); recreation, sports and leisure activity participation in the community (e.g., sports, art, music, community or cultural events, libraries, tourism); civic involvement (e.g., voting, volunteer work, advocacy/activism, committees/leadership club/organisational membership, political engagement). Studies that only measured housing or employment outcomes, or leisure activity with no social and community participation potential (e.g., watching television) were ineligible. *Secondary SCC outcomes* included related dimensions of community participation (e.g., self-determination, autonomy, choice, decision-making, self-advocacy), physical or mental health, quality of life, and family support/activities in the home (e.g., caregiving, parenting).

2.1 Search strategy: databases and search terms

Medical Sub-Heading (MeSH) and keyword search terms for autism spectrum disorder, intellectual disability and psychosocial disability and social, community and civic participation were adapted for eight search engines (Figure 1). Grey literature was identified using the DuckDuckGo search engine, which does not track search terms, and reduces the chance that the reviewer will be presented with biased website results based on previously viewed websites. Web results were limited to the top 50 results for each disability population. Reference lists of included publications were hand searched to identify additional reviews.

2.1 Study selection

Screening was conducted using Endnote, Covidence and Abstrackr. Abstrackr is a web-based platform that uses an active machine learning algorithm (using uni-grams and bigrams in citation titles, abstracts and keywords) from reviewer judgements to predict the relevance of remaining citations, which are then sorted by predicted relevance to enable rapid identification of relevant records (Giummarra, Lau, & Gabbe, 2020; Wallace et al., 2012). Search results were first consolidated in an Endnote library, and duplicates were removed. Due to the breadth of the review results once duplicates were removed, clearly ineligible citations were omitted when reviewing citation title, based on studies with ineligible disorders, paediatric populations, questionnaire validation methods, biomarker and neurophysiology studies, and document type, consistent with previous large-scale reviews (Fleming et al., 2019). Study selection was undertaken in accordance with Cochrane Rapid Review methods (Plüddemann et al., 2018) as follows. Reviewer 1 screened all citations in Endnote, and all full text articles in Covidence, and Reviewer 2 screened in Abstrackr for the first 20% of citations predicted to be relevant, or until no further citations had > 50% relevance, whichever threshold was reached first. Systematic Review authors were contacted for additional information to determine eligibility of full texts, where necessary. If the reviewers were unsure about full text eligibility, a final decision was made in consultation with a third reviewer.

Table 1. Eligibility criteria

Domain	Inclusion criteria	Exclusion Criteria
Sample	• ≥50% of participants aged 18+ years on autism spectrum, with intellectual or psychosocial disability • Living in the community, including small group homes/supported living	• People living in large group homes • People with acquired intellectual or cognitive disabilities • ≥50% of participants were secondary school students.
Phenomena of Interest	• Interventions, supports or programs in a community setting or that aimed to influence social, community or civic participation or capacity to participate.	• Interventions with a medical basis or focused on management of symptoms for delivery in the health system, consistent with previous reviews (Palmen, Didden, & Lang, 2012). • Reviews of Cognitive Remediation interventions as a separate evidence snapshot specific to this topic was already underway. • Reviews of employment or residential interventions that did not include an active social or community participation component as separate reviews were already commissioned to evaluate that evidence. • Interventions targeting the environment or community, which were beyond the scope of this review.
Design	• Systematic, scoping, rapid reviews of quantitative or qualitative research • Studies measured ≥1 capacity or participation outcome or intervention acceptability/feasibility	• Primary research studies not included in the systematic and scoping reviews.
Evaluation	• Quantitative and case study designs must evaluate a within or between group change in participation or capacity • Qualitative studies explored participation experiences, acceptability, barriers and facilitators or outcomes	
Research type	• Published in English from 2010-2020 • Journal articles, dissertations/theses and grey literature	• Books, book chapters, editorials, letters, conference abstracts, organisational website content, or publicity materials from disability services due to potential conflicts of interest.

2.2 Data Extraction

Data were extracted into excel spreadsheets. Consistent with rapid review methods data extraction was completed by a single reviewer, and extraction accuracy and completeness was discussed between authors. Original study papers were accessed, or authors contacted, if key details were not in the systematic review.

Data extraction was conducted in the following two phases. In phase one summary information on the systematic reviews was extracted including: the review aim, design, key theoretical frameworks, and review inclusion and exclusion criteria; study selection and the number of studies that met our SPIDER criteria; pooled sample characteristics in each review (number, age, sex, disability types, countries); summary of interventions included; design of eligible studies; type of control groups; and overall quality or risk of bias of the included studies. Overall effects on participation capacity, participation, quality of life, and other secondary outcomes (e.g., mental health or quality of life), and the community were recorded, including: positive effects (≥60% of studies had positive effect), negative effects (≥60% of studies had negative effect), null effect (≥60% of studies had null effect) or inconsistent effect (no effect direction to meet ≥60% threshold). For meta-analyses, the inclusion of sensitivity analyses and whether those analyses showed biases was recorded. Heterogeneity of the pooled sample or methods of included studies, and whether review authors disclosed their funding sources and conflicts of interest were recorded.

In phase two information about the individual studies included in the systematic reviews were extracted, including: the first author, publication year and country; study recruitment strategy and sample demographics (e.g., sample size, age, sex, disability or diagnoses); study design (e.g., descriptive or cross-sectional, mixed or multi-methods, multiple baseline case study, randomised controlled trial (RCT) or quasi RCT, non-randomised controlled trial with (NRCT-CG) or without a control group (NRCT-NoCG), qualitative, or review); intervention and control group characteristics (e.g., design, mode of delivery, the agent providing the intervention, the services provided, the duration and frequency of sessions in the intervention); and whether the intervention was in a disability-specific or mainstream setting. The effects of each intervention were extracted for social participation capacity, participation, and “other” outcomes. Data regarding cost-effectiveness and barriers/ facilitators to participation or effects of interventions were documented where possible. Study quality or risk of bias was also extracted where possible.

2.3 Methodological quality of included reviews

The quality of included reviews was assessed using the checklist for Assessing the Methodological Quality of Systematic Reviews Version 2 (AMSTAR; Shea et al., 2017). Each review was rated for 16 key quality criteria, which are outlined in the Appendix 3 Footnotes. The proportion of relevant AMSTAR criteria that were met was calculated to summarise review quality. AMSTAR and study quality were generally classified as low, moderate or high according to the original study classification, or based on tertiles of summary scores (e.g., studies that met <33.3% of quality criteria were considered low quality, but those that met >66.7% of quality criteria were considered high quality).

2.4 Data synthesis

The findings across systematic reviews are presented in a narrative synthesis of the characteristics of the included reviews, interventions, outcomes and effects on outcomes, and evidence quality. As multiple systematic reviews may have included data from the same original studies the Corrected Covered Area (CCA) was calculated across all studies, and studies on similar broad topic areas (e.g., social skills training and psychoeducation) to provide insight into the level of overlap of original publications (Pieper et al., 2014). The level of overlap was considered slight (<5%), moderate (6-10%), high (11-15%) or very high (>15%; Pieper et al., 2014). The following formula was used to calculate the CCA:

$$CCA = 100 \times \frac{(\mathrm{N} - \mathrm{R})}{((\mathrm{R} \times \mathrm{C}) - \mathrm{R})}$$

N = number of publications including double counting
R = number of index publications
C = number of reviews

3. Results

3.1 Study selection

Study selection is summarised in Figure 1. A total of 40,644 records were identified, including 149 from reference lists and expert guidance. Data were extracted from 57 reviews that did not completely overlap with other included reviews (Appendix 2; available upon request to research@ndis.gov.au). These included a total of 1170 original studies, of which 522 met the SPIDER inclusion criteria. Most included reviews were systematic reviews (40 reviews), followed by meta-ethnographies (6 reviews), Cochrane reviews (2 reviews), meta-analyses (5 reviews), scoping reviews (2 reviews), and umbrella reviews (2 reviews).

Of the studies included in the reviews, the most prevalent research design was RCT or quasi RCT (167 studies); qualitative (112 studies) and mixed or multi-methods (43 studies); non-randomised controlled trials with (42 studies) or without a control group (64 studies); cross-sectional studies (13 studies); and descriptive (17 studies) or multiple baseline case studies (35 studies). Sixteen of the 522 studies were systematic reviews from the two umbrella reviews (Morin & Franck, 2017; Roche et al., 2019), and study design was not clear for 13 studies.

3.1 Study characteristics

3.1.1 Corrected covered area (CCA)

The overall CCA was 0.29%. Studies in four of the intervention categories had no overlap and were each included in one review (i.e., travel and navigation training, art interventions for psychosocial disability and intellectual disability, parenting role training and vocation focused interventions). The remaining interventions had a median CCA of 1.8%, indicating only slight overlap. Only three topics had high or very high overlap, including social skills training for people on the autism spectrum which (CCA= 10.2%; 17/44 studies included in 2-5 reviews), transition programs for people with intellectual disability or on the autism spectrum (CCA=16.7%, 2/3 included in 2 reviews), and animal interventions for psychosocial disability (CCA=33.3%, 2/6 studies included in two reviews).

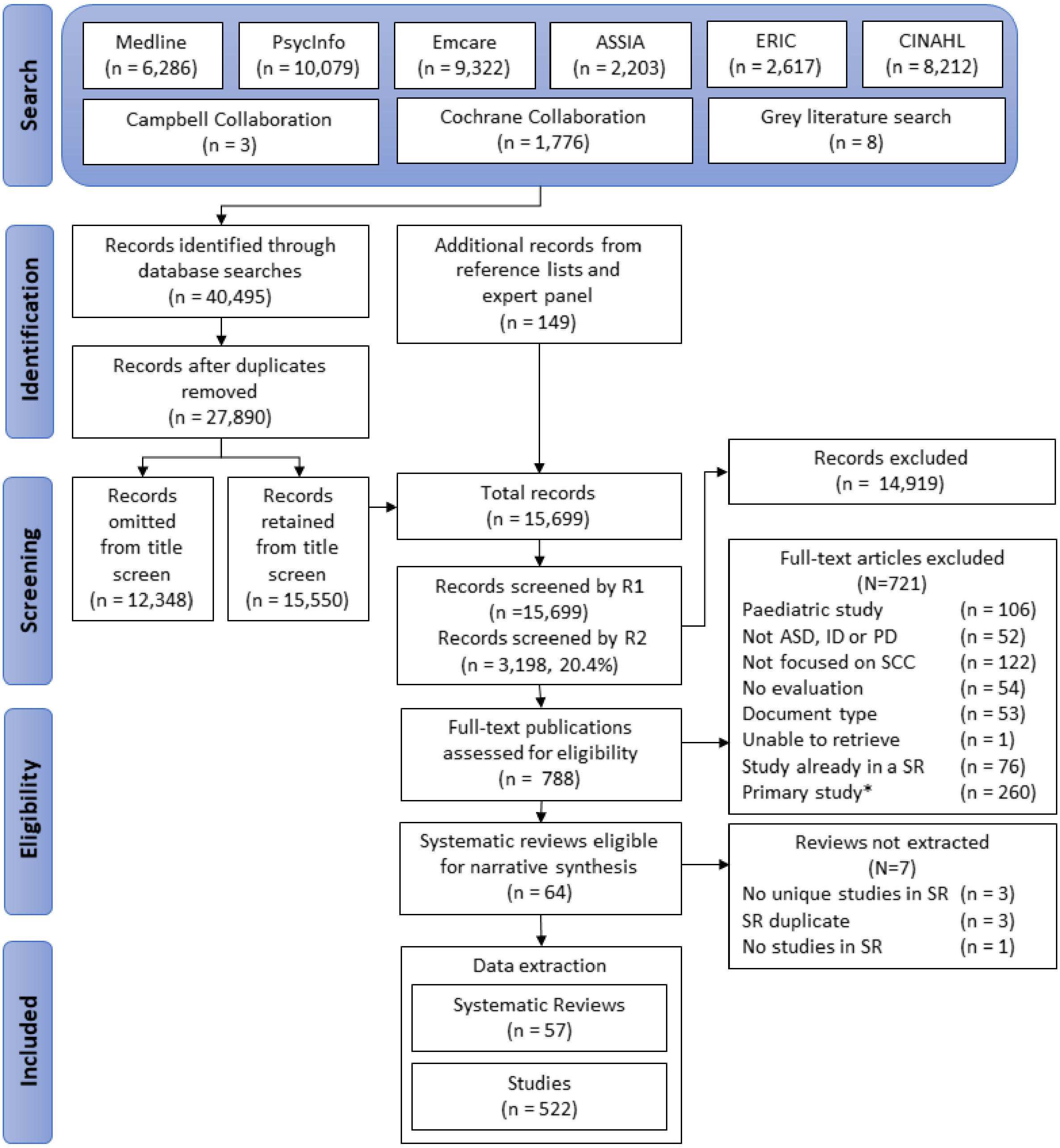

Figure 1. PRISMA chart * These studies that met the SPIDER study design eligibility criteria, but did not meet the criteria for inclusion in an umbrella review.

3.1.2 Intervention settings and outcomes

The 522 eligible studies included a pooled sample of 28,154 people with disability. Interventions were focused on psychosocial disability (31 reviews, 311 studies), intellectual disability (23 reviews, 139 studies), or the autism spectrum (15 reviews, 85 studies), with 11 reviews (13 studies) including people with more than one of the eligible types of disability.

Thirty nine reviews reported the country in which studies were conducted, of which the most commonly represented global regions were North America (31 reviews; 153 studies, 128

USA, 25 Canada), the United Kingdom and Ireland (26 reviews; 96 studies), Europe (22 reviews; 38 studies), Australia (18 reviews; 37 studies), Asia (10 reviews; 7 studies), Israel and Iran (7 reviews; 11 studies), South America (1 review; 1 study) and New Zealand (1 review; 1 study). The country was not reported for 176 studies.

The most common capacity-focused outcomes were: theory of mind (i.e., the ability to recognize and understand the mental states of others; 22 studies), affect recognition (20 studies), attribution style (9 studies), and empathy (eight studies); social skills (15 studies) and communication skills (six studies); and dating knowledge and sex-related behaviours (18 studies) and social knowledge (eight studies).

The most common social and community functioning outcomes were: loneliness (22 studies), isolation (11 studies) or inclusion (13 studies); social functioning (17 studies), social disability (3 studies), social acceptance (3 studies), social participation or socialisation (6 studies); aspects of social networks, including social network size (17 studies) or composition (4 studies), interpersonal, social or peer relations (33 studies) friendships/making friends (22 studies), contact with friends (6 studies) or other social interactions (15 studies), and social support (21 studies). Aspects of social functioning that demonstrate the level of actual participation in the community were less common, but included social (7 studies), leisure (5 studies) or community activity participation (3 studies); community involvement or participation (8 studies), access to community venues (4 studies), and confidence to be in the community (3 studies).

The most common “other” outcomes were: psychiatric symptoms (50 studies), depression (31 studies) or anxiety symptoms (9 studies); quality of life (43 studies), general functioning/wellbeing (9 studies), mental health (10 studies), emotional/psychological wellbeing (7 studies), physical health (5 studies); self-esteem (20 studies), confidence (17), self-value (11 studies) or self-efficacy (10 studies); self-determination (8 studies), empowerment (8 studies) or choice (4 studies); challenging behaviours (13 studies) or adaptive behaviour (4 studies); cognitive functioning (6 studies); employment (5 studies); and fitness (4 studies), sport skills (4 studies) or other health-related outcomes (4 studies).

No studies examined the cost-effectiveness of the interventions.

3.2 Quality of the evidence

Forty-four reviews (77.2%) met less than 50% of the AMSTAR quality domain criteria (median proportion of criteria met=0.41; Q1=0.19, Q3=0.46). Nineteen reviews (33.3%) met <25% of quality domains, 25 (43.9%) met 25-49% of quality domains, seven (12.3%) met 50-74% of quality domains and four met 75-100% of quality domains (Appendix 3 provides a detailed quality appraisal for each review, available upon request to research@ndis.gov.au). The quality domains that were most often not described, or that did not fully meet the AMSTAR quality criteria, were: having no a-priori protocol (51 reviews, 89.5%); poor or lacking explanation of the study selection procedures (31 reviews, 54.4%); not screening records (31 reviews, 54.4%) or extracting data in duplicate (44 reviews, 77.2%); not reporting full text exclusion details (50 reviews, 87.7%); not reporting funding of included studies (55 reviews, 96.5%); not conducting a risk of bias assessment or taking risk of bias into consideration in the synthesis (45 reviews, 78.9%); and not examining or discussing sources of heterogeneity (32 reviews, 57.9%).

The overall evidence included in each review was predominantly low quality (22 reviews; 51.2% of reviews reporting study quality) or moderate quality (14 reviews; 32.6%), with only seven studies including high quality evidence. Overall, however, the studies evaluating interventions for people with psychosocial disabilities were generally higher quality than the studies focused on interventions for people with intellectual disability or on the autism spectrum. Quality or risk of bias were not assessed in 14 reviews, and was not clear in one review (Geretsegger et al., 2017).

3.3 Intervention outcomes and effects

A summary of the intervention quality and effects is provided in Tables 2-4, with the interventions or programs falling into 57 categories. Detailed summaries of each of the types of intervention, study designs and quality, and their effects on outcomes are provided in Appendix 4 (available upon request to research@ndis.gov.au). The category numbers below correspond between the main text, tables and appendices.

3.3.1 Interventions including processes or supports to help people connect with social, community or civic participation opportunities

These interventions focused on supporting people to connect with social or community participation opportunities through person centred planning or individualized supports to enhance social functioning and participation; befriending, peer-based supports to broaden social networks; animal-based interventions to facilitate social interactions in public; and transition supports in younger or older adults. In the UK, one way of providing individualised supports to link people with participation opportunities is through primary care referrals to “social prescriber” services, which are defined further on Page 32. The overall effects of these interventions are summarised in Table 2.

Table 2. Overall effects of intervention processes and supports to help people connect with social, community or civic participation opportunities, including AMSTAR quality rating of the SRs and quality of the original studies.

Intervention • *No. of studies* • *A* for each SR reporting studies*	Disability cohort, pooled sample size, age range, sex	Typical intervention duration and/or frequency	Effects on outcomes [study quality]		
			Social functioning	Social Skills	Other outcomes
1. Person Centred Planning • 10 studies • A*: L L L M	ID, N=640, 13-85 years, sex nr	≥1 individual or group meeting, no set frequency	$+^{**}$ [L-H]		$+^{**}$ [L-H]
2. Individualised behaviour and participation support • 5 studies • A*: L M	ID, N=65, 14-39 years, sex nr	As needed to generate & review plans	+ [nr]	o/+ [nr]	+ [nr]
3. Choice-making and “asset-based” approaches • 1* study • A*: L L	ID, N=2*, 69 years, sex nr	Nr	+ [M]	o/+ [M]	+ [M]
4. Animal companionship with dog walking or in home • 4 study • A*: L L H	ID, N=106, aged 18-64 years, sex nr	14 X 1-hr walking sessions Continuous or 50 mins to 3-hrs p/wk	o/+ [L-H]		+ [M]
5. Community group participation linkage supports • 4 studies • A*: L L M M	ID or PSD, N=13, N nr for 2 studies, age, sex	30-min staff introduction or 30 hours of meetings with a recreational therapist over 9-10 weeks	+ [M]		
6. Social prescriber and “connecting people” interventions • 20 studies • A*: L L M M	PSD, N=357, sample was nr for 16 studies, age and sex nr	≥1 assessment plus 1-5 additional contacts, over 3-18 months	+ [L-H]	+ [nr]	$+^{**}$ L-H]
7. Befriending interventions with a non-disabled volunteer • 2 studies (ID), 5 studies (PSD) • A*: M M (ID), L M M (PSD)	ID, N=38, age and sex nr	nr	-/o/+ [L]		
	PSD, N=637, age and sex nr	2 hrs/wk for 6wks to 12 months	o/+ [M-H]		o/+ [M-H]
8. Peer-based friendship programs • 5 studies • A*: L L M	PSD, N=489 with a range of mental health diagnoses, age nr, 60% male	35-38 X 3-hr sessions (nr for most studies)	o/+ [L-M]		o/+ [L-M]
9. Peer support in the community • 9 studies (PSD), 1 study (ASD), 1 study (ID) • A*: L L M M M M H H (PSD), M (ASD), M (ID)	PSD, N=1,337, age and sex nr	1.5 to 2-hr sessions for 4-weeks up to 12-months	o/+ [M-H]		o/+ [M-H]
	ASD, N=35, 24-77 years, 69% male		+ [H]		
	ID, N=10, 19-48 years & 30% male		+ [M]		
10. Peer support in mental health services • 36 studies • A*: L M H	PSD, N=340 PSD mentors, N=2,152 PSD mentees, N=138 staff, age and sex nr	Typically 2.5hrs per week	o/+ [L-H]		o/+ [L-H]

Intervention • *No. of studies* • *A* for each SR reporting studies*	Disability cohort, pooled sample size, age range, sex	Typical intervention duration and/or frequency	Effects on outcomes [study quality]		
			Social functioning	Social Skills	Other outcomes
11. Transition to young adulthood • 13 studies • A*: L L M M	ID or ASD, N=210, aged 17-33 years, sex nr	Camp Campus for 1 wk or 10-month program (frequency & length nr)	+ [L-H]		
12. Transition to retirement • 2 studies • A*: L M	ID, N=17, aged 48-62 years	weekly for 5-10 months (session length nr)	+** [M]		o/+ M]

Notes: Blank cells indicate no evidence available. Detailed summaries of the study and sample characteristics and outcomes are provided in Appendix 4, the numbered intervention categories in column one correspond to the numbered paragraphs below and the numbered rows in Appendix 4.

Abbreviations: L=low quality, M=moderate quality, H=high quality; A*: AMSTAR (A MeaSurement Tool to Assess systematic Review); ASD=autism spectrum disorder; ID=Intellectual Disability; PSD=Psychosocial Disability; PEERS-YA = Program for the Education and Enrichment of Relational Skills for Young Adults; SR=systematic review; UR= Umbrella Review

Symbols: + positive effect (green); o null effect (red); - harmful effect (red); / indicates mixed effects (amber); * sample size does not include the participants included in SRs within URs; ** effects in most studies were positive, but some studies showed no effect.

Person centred planning (PCP) interventions involve identifying goals and needs of a person with a disability in partnership with family, friends or other people from the individuals circle of support with a focus on meaningful life participation and goals, and not just the identification of available services or resources (Ratti et al., 2016). The PCP interventions in this review (Category 1, low-high quality studies) were primarily designed for people with intellectual disability or on the autism spectrum. They aimed to support lifestyle plans, behaviour management, health and participation, including future planning, and were implemented by staff in residential or day centre settings. PCP reduced loneliness and improved interpersonal relations, social inclusion, contact with friends, and sense of connection and contact with acquaintances in community settings (e.g., restaurants, museums); increased community participation and involvement, time spent participating in meaningful and active participation and community activities; the variety of community locations visited, and level of access to community settings; and increased self-determination. There were inconsistent effects of PCP on social network size, with no impacts beyond close family and staff in social networks, and most people continued to have very few friendships with peers.

While PCP led to 2.8-fold higher rates of participation in choice-making this was primarily seen for short-term goals (e.g., whether to participate in specific activities; Robertson et al., 2006), with no impacts on making major life decisions or planning their own care (Parley, 2001). There were challenges engaging family and community members who could facilitate community connections in planning meetings (Espiner & Hartnett, 2012). Plan implementation can be impeded by external factors such as limited availability of work places and opportunities for employment goals (Heller et al., 2000), and a plan was not developed for 30% of people within the timeframe of the study by Robertson et al. (2006). To remain relevant, plans to help people to maintain their participation needed to be integrated given that lifestyle and needs change over the lifespan (Carr et al., 1999). For PCP to be successful Parley (2001) highlighted that it needs to be embraced at all levels of the organisations providing care, from service planners and managers through to staff providing individualized support, and not just frontline staff working with people with a disability. Other studies highlighted planning meetings can easily be overpowered by staff or family members and the contributions of people with intellectual disability are often ignored, reinterpreted or misinterpreted, which negatively impacts on choice (Hagner, Helm, & Butterworth, 1996). Overall the quality of studies varied from low to high, and implementation was affected by existing staff attitudes and policies (Lowe, Felce, & Blackman, 1996), and PCP may face challenges to implementation and maintenance in the absence of research project resources to support staff.

Skilled individualised support (Category 2, study quality nr) interventions included various strategies such as *active support*, positive behaviour support, behavioural and residential assessment, functional communication training, planning meetings, respite care, crisis response, and environmental modifications. Individualised support led to increased use of, and time spent in, community settings and activities, and facilitated both convivial encounters when in mainstream settings in the community (e.g., helping them to express their wishes using body language), and helped reduce barriers to interactions for community members (e.g., reassuring community members about the abilities of the person with intellectual disability). Individualised support appeared to help people on the autism spectrum or with intellectual disability to participate in employment or training opportunities, but did not affect challenging behaviours.

A previous umbrella review (Roche et al., 2019) summarised effects in one systematic review examining interventions supporting *choice-making and asset-based approaches, social skills, setting goals and peer support* (Category 3, moderate quality study; frequency n/a). These interventions enhanced social inclusion, connectedness and quality of life, and reduced depression. Asset-based approaches improved self-esteem and health outcomes, but had inconsistent effects on self-determination. However, choice making can be overpowered by caregivers of people with intellectual disability (Treece et al., 1999). Moreover, goal setting interventions rely heavily on the nature of the relationship between clinical staff and study participants, and are not as effective as interventions that use asset-based approaches and social skills development strategies to promote social inclusion (Newlin et al., 2015).

Active and passive animal companionship interventions were identified (Category 4). There was a dog walking program for people with intellectual disability to increase convivial encounters in the community (high quality study), and short-term passive *companionship* and opportunities for people with schizophrenia or depression to interact with birds, cats, or dogs (low-moderate quality studies). Walking a dog alongside the dog handler increased convivial encounters and confidence to engage in social exchanges. One passive companionship study found improvements in social-adaptive functioning, and two others reported reduced depression symptoms or improved self-esteem, self-determination and psychiatric symptoms. There were no improvements in social support or loneliness. Some participants were afraid of the animals or did not interact with them, and it is not clear if effects of the passive animal companionship were specific to the presence of animals, or the corresponding structured activity (Chu et al., 2009).

Some interventions focused on *enhancing community linkage* for people with psychosocial disability or intellectual disability by linking the person with disabilities with community-based recreation or interest-based activities (Category 5, study quality nr). Similarly, for "*social prescriber*" and "connecting people" interventions people at risk of chronic health conditions, including psychosocial disabilities, are referred to a 'navigator' or a staff member in a mental health service who assesses their social and/or mental health needs, interests and preferences. The navigator or staff member then helps to connect the individual with programs or activities in community-based settings to improve their participation and social inclusion (Category 6, low-high quality studies). The community linkage and social prescribing interventions did not increase service support costs, and led to improved increased social network size, including for non-paid contacts, social connections and friendships, and reduced loneliness. Social prescribing and linkage supports improved community involvement and participation, although there were low levels of substantive engagement in social activity and interactions in community settings. Moreover, these interventions led to improved interpersonal skills, self-esteem, confidence and feeling worthwhile, but had inconsistent effects on mental health and general wellbeing.

The success of social prescribing and community linkage supports required establishment of trust to build relationships with the social prescriber (Friedlie, Themessl-huber, & Butchart, 2012), and for people with disability to gain the confidence needed to engage with the referred services (Brandling et al., 2011; Moffatt et al., 2017). For some people a single assessment can be enough to make health and social changes (Brandling et al., 2011; ERS Research Consultancy, 2013), whereas other people need ongoing need-driven support from their social navigator (Moffatt et al., 2017). Social prescribing interventions tend to focus broadly on improving health, reducing loneliness, and enhancing social connectedness. If expectations are not realistic or realised, participants can experience reduced confidence (ERS Research Consultancy, 2013). To maximise the effectiveness of social prescribing and community connector programs, staff should share their knowledge of available community connections with each other (Webber et al., 2018). Few of these compared the intervention with a control condition, and acceptability was low in some studies with low levels of uptake from people who were referred to a social navigator.

Befriending interventions that matched a person with psychosocial disability (quality nr) or intellectual disability (moderate-high quality studies) with a volunteer befriender from the community (Category 7). Most befriending supports for people with psychosocial disability were matched based on shared characteristics and interests, and some also included stipends to support activities. For people with intellectual disability there were limited effects on community participation as most shared activities were home based (e.g., watching television); one of the four participants in one study increased their social network size; and there were potential negative effects on existing social networks if the befriending activities interrupted their regular schedules. Befriender programs for people with psychosocial disability had no effects on loneliness, social functioning, social networks, general wellbeing or psychiatric symptoms but increased perceptions of social support. Providing a monthly stipend both to the group with receiving befriending support and without befriending had similar increases in social functioning and network size. Befriending programs for people with psychosocial disability had limited engagement with 23%(Harris, Brown, & Robinson, 1999) to 36%(Davidson et al., 2004) of participants never meeting their befriender in two studies. Befriending interventions for people with intellectual disability had difficulties recruiting, training and retaining the befrienders, and the person with disability had little choice in the nature and frequency of interactions with their volunteer (Heslop, 2005). The SR by Siette, Cassidy, and Priebe (2017) highlighted that to enhance success of befriending programs they need to (1) define the target population; (2) balance frequency, length and modality of befriending; and (3) ensure there is appropriate infrastructure in community befriending services to support training and maintenance

Some *befriending interventions* matched people with psychosocial disability to a peer who also had a psychosocial disability (Category 8), including the “Buddy Care” intervention or a friends-focused intervention that provided psychoeducation to the friends of the person with disability to educate them about psychosocial disability, and to re-establish shared activities. Peer-based befriending programs increased social contacts and perceived social support, but had no effect on loneliness or social network size. Peer interventions also improved overall mental health, but did not affect psychiatric symptoms or service use. Friend-oriented psychoeducation re-established social networks and increased social contacts with existing friends. In summary, while there is inconsistent evidence of the effectiveness of befriending interventions that connect someone with a volunteer from the community, people with psychosocial disability experience improved social support and connections from peer-based befriending interventions.

Peer support groups in the community for people on the autism spectrum, or with intellectual or psychosocial disability facilitated access to peers through the internet, a mobile application or face-to-face. Some programs included a mental health professional who facilitated peer support alongside routine case management (Category 9). Community-based peer support groups were reported to be a welcoming community where people with disability could be themselves, share coping strategies, fill their free time, interact with others, and led to feelings of social belonging and connectedness. Some studies showed that people with psychosocial disability experienced improvements in wellbeing, social belonging, connectedness, empowerment, hope and self-efficacy. However, other studies reported limited improvements in social relationships with peers, no change in social isolation, loneliness or connections with friends or family, and only short-term improvements in satisfaction with the ability to get along with others that were not maintained to 6-months post-intervention. Peer support led to inconsistent effects on quality of life and psychological wellbeing, but significant improvements for people who attended more regularly. On the contrary, one study found that higher levels of participation in an internet-based peer support program led to higher levels of distress (Kaplan et al., 2011), which the authors attributed to potentially being overwhelmed by the volume of interactions or “absorbing” distress from others through the communications in online discussion pages. Alternatively, people with higher distress may have participated more.

Participants reported that they preferred peer support programs to be structured and carefully facilitated, to comprise homogeneous groups with minimal turnover, and for group facilitators to help identify and support opportunities for them to participate in recreational activities in the community, and to develop and maintain friendships, based on the participant’s specific goals (Jantz, 2011). Integrating opportunities to build social networks with peer social support, including participating in activities in the community together and through home visits and telephone contacts was considered to be a key driver of the strengths-based case management model evaluated by Rivera, Sullivan, and Valenti (2007). While only four studies had a quality appraisal, all were moderate to high quality, and seven of the ten studies compared peer support with a control condition.

Other peer support programs were integrated in statutory mental health services where peer mentors typically worked alongside clinical staff to provide support to people with psychosocial disability (Category 10, low-high quality studies). A meta-ethnography by Walker and Bryant (2013) examined mentor, mentee, staff, and service experiences, and other studies examined social and health effects of statutory peer supports. For service users with psychosocial disability, peer support had no objective impacts on social network support, social functioning, psychiatric symptoms, or quality of life, and peer support workers were not always seen as appropriate role models as they don’t have “formal” training, because of their psychosocial disability. Peer support did, however, reduce feelings of alienation and was reported to improve recovery and wellbeing (e.g., hope, motivation, friendships and social network, and illness management skills), and community reintegration. Service users also liked having peer role models, and found it easier to build rapport with them compared with clinicians because there is less professional distance and they are “street smart” (e.g., they know where a person would likely go after absconding from hospital, where a person’s money may go, and the effect of environment on drug use). For mentors with psychosocial disability, being a peer support worker improved their own recovery, increased social networks, and provided a stepping stone to other opportunities. Drawbacks for peer workers included low pay, few hours, feeling excluded or rejected in the mental health service workplace (e.g., not being invited to work social events), and facing prejudicial attitudes from paid staff who sometimes treat peer workers as patients. Non-peer staff and services reported that they learned from psychosocial disability peer workers, and identified benefits from peer workers who could help service users belong in the community beyond being a “patient”. Some staff worried that their jobs may be replaced by the cheaper peer support roles, and reported some tension about the professionalism of peer support workers. Staff sometimes inappropriately used “black humour” when talking about people in recovery or peer workers.

Transition programs for young adults with intellectual disability or on the autism spectrum predominantly focused on adjustment to post-secondary education, learning social and academic skills, and setting goals (Category 11, low-high quality studies). For young adults, transition support and mentoring improved social participation with friends and people both with and without disabilities, participation in leisure activities, and learning practical life and self-advocacy skills. Peer transition mentoring relationships were reported to take time to develop, and successful peer mentors were understanding, empathetic, punctual, flexible, professional, and took the time to get to know their mentee (Roberts & Birmingham, 2017). Ideally mentor-mentee pairs should be matched based on personality, hobbies and interests (e.g., sports), age, and gender (Hamilton, Stevens, & Girdler, 2016), and should take into consideration whether the mentee would prefer their mentor to be on the autism spectrum or not (Hotez et al., 2018). For successful implementation, mentors needed to have a general awareness of autism spectrum disorder, to learn about the mentees' needs, goals, and career aspirations (Hamilton, Stevens, & Girdler, 2016; Hotez et al., 2018) and to clarify boundaries between the mentor and mentee where necessary (e.g., in the study by Curtin et al. (2015) one mentee thought that they were dating the mentor).

Other transition programs supported older adults with intellectual disability to move into retirement and focused on pathways to continue active participation in community groups that aligned with the person's individual interests (Category 12, moderate quality studies). Transition to retirement interventions improved intimate relationships and awareness of rights, but had inconsistent effects on interpersonal relationships, social inclusion, self-determination, and emotional wellbeing, especially if participants were not supported to maintain old social networks or build new networks. Participants benefited more when programs provided a positive leadership response to inclusion of people with disability, warmly accepted participants into the group, facilitated opportunities to be integrated into group activities, and were flexible in dealing with differences among members (Bigby, Anderson, & Cameron, 2018). People with intellectual disability who had friendly dispositions and relatively good social skills tended to have more positive experiences in their transition to retirement and community participation (Bigby, Anderson, & Cameron, 2018). In one study, transitions were facilitated by existing group members who were trained to mentor the person with intellectual disability to participate (Craig & Bigby, 2015). Aspects of community group participation that were not enjoyed, or that impeded participation, were being given meaningless activities, a lack of support to maintain existing networks or to build new networks, and having insufficient money and transport options to participate (Bigby et al., 2011).

3.3.2 Interventions offering participation opportunities

These interventions focused on providing direct opportunities to participate socially or in the community, including community groups, music therapy, and dance, drama, art, gardening and ecotherapy, and sport or outdoor nature-based programs. It should be noted that several types of participation opportunities also seek to build social and communication skills to support broader participation opportunities, particularly dance and drama-based interventions. The majority of these interventions were in disability specific settings, with the exception of community groups (e.g., men’s shed; category 13), some gardening interventions (category 19), and some sport-based interventions (categories 20-23). The effects of interventions did not appear to vary by whether they were in a mainstream or disability-specific setting. The overall effects of these interventions are summarised in Table 3.

Three studies supported people to *join existing community group*s such as Men’s Sheds or other groups that matched the participant’s interests, and trained existing group members to enable them to support the person with a disability to participate (Category 13, low study quality). Community group participation led to improved social satisfaction, social network size and the time spent with new social contacts, but did not change loneliness, depression, physical health or quality of life. The lack of change in loneliness was attributed to the limited efforts to build social relationships beyond the group setting, and the new social connections were specific to the mainstream community group setting (Bigby et al., 2014; Stancliffe et al., 2015). Men’s sheds offered the opportunity for meaningful participation, adult learning, and health or wellbeing but one study found no effect on loneliness. Mentors enjoyed supporting people with disability to participate in their groups. Effects were enhanced if groups provided multiple types of support, particularly active mentoring (similar to the transition to retirement programs above), so that the person with intellectual disability was not only present but supported to have genuine and enjoyable participation in activities and social interactions among group members (Stancliffe et al., 2015). Community groups offered people with intellectual disability an informal learning environment that may be better suited than traditional educational or training settings as the task-oriented activities (e.g. woodworking and crafts) allow participants to establish camaraderie and build a support network (Wilson et al., 2013).

Table 3. Overall effects of taking up opportunities for participation on participation and other outcomes, including AMSTAR quality rating of the SRs and quality of the original studies.

Intervention - *No. of studies* - *A* for each SR reporting studies*	Disability cohort, pooled sample size, age range, sex	Typical intervention duration and/or frequency	Effects on outcomes [study quality]		
			Social functioning	Social skills	Other outcomes
Participation in existing groups/activities/programs in the community					
13. Community group participation - 4 studies* - A*:L L M M	ID or PSD, N=58, mean age 56-59 years, 72-100% male	1-3 times per week for an average of 3.6 hours per week	+ [L]		
14. Music therapy - 1 study (ASD), 30 studies (PD) - A*: M (ASD), M H (PSD)	ASD, N=22, age and sex nr	nr	+ [nr]		
	PSD, N=1819, 15-60 years, 56.5% male	1 to 6 sessions for a total of 45 mins to 2 hrs p/wk	+** [L-M]		+** [L-M]
15. Dance therapy - 6 studies - A*:L L M M M	ASD, N=233 (ASD) including 151 with ID and 3 with PSD, 14-53 years, 72% male	weekly for 1 to 1.5-hrs p/wk for 7-10 wks		o/+ [M-H]	o/+ [M-H]
16. Dramatherapy and drama programs - 13 studies - A*:M M	ID or PSD, N=31 (ID), N=171 (PSD), age and sex nr, but 4 programs for men only	Most 10-11 sessions or over 4-6 months (session length & frequency nr).	+ [nr]	+ [nr]	+ [nr]
17. Art therapy - 1 study (ID), 8 studies* (PSD) - A*: M (ID), L L M (PSD)	ID, N=5, aged 21-27 years	Two days p/wk	+ [L]		+ [L]
	PSD, N=60, age, sex and quality nr	2-hr p/wk to unlimited access to an open studio	+ [nr]		+ [nr]
18. Farm, ecotherapy, gardening and horticulture interventions - 14 studies - A*: L L L L H H	PSD, N=405, aged 20s to 70s, 22% male	1 to 3 sessions of 1.5-3 hrs p/wk 2 X to 3-hr sessions p/wk for 12 wks	+ [M]		+** [M]
19. Outdoor nature experiences and camps - 7 studies - A*: M H H	PSD, N=211, 18-65 years, 20-39% male	1-5 weekly 1-3 hr sessions	+ [M-H]		+ [M-H]
Sport or physical activity interventions					
20. Motivations to participate in sport or physical activity - 37 studies - A*: M M M	PSD, N=6466 psychosocial disability, N=80 clinicians, aged 19-67 years, 71% male	1-2 weekly sessions of 45 minutes to 2-hrs	o/+ [M]		o/+ [L-H]
21. Sport or physical activity programs - 11 studies - A*: M	PSD, N=552, mean age 25-45 years, sex nr	2-3 X 1-2 hrs p/wk for 8-24 wks	o/+ [M]		o/+ [L-H]
22. Mainstream sport/ physical activity in community - 5 studies	ID, N=356, aged 11-83 years, sex nr	Nr	o/+ [L-H]		+** [L-H]

Intervention - *No. of studies* - *A* for each SR reporting studies*	Disability cohort, pooled sample size, age range, sex	Typical intervention duration and/or frequency	Effects on outcomes [study quality]		
			Social functioning	Social skills	Other outcomes
- A*: L L M M			🟨		🟩
23. Unified Special Olympics participation - 6 studies - A*: L M M	ID, N not clear, average age 25-31 years, sex nr	Nr	+ [L]		+ [L-M]
24. Disability-specific physical activity programs - 12 studies - A*: L L L M M	ID or ASD, N=448 (ID) & N=89 (ASD), 13-77 years, 56.3% male	2-3 X wk for total of 1.5-hrs to 3-hrs p/day for 8 wks to 10 months	+** [L-H]		+** [L-H]
25. Disability-specific Special Olympics participation - 7 studies - A*: M M M	ID, N=181 intellectual disability, N= 101 parents, siblings coaches or caregivers; aged 12-50 years, 52% male	3 X 1.5 hrs p/wk	+ [L]		+ [L]
26. Special Olympics participation (setting nr) - 10 studies - A*: L M	ID, N=1247 intellectual disability, N=746 other people, aged 9-69 years, 50% male	Nr	+ [L]		+ [L]

Notes: Blank cells indicate no evidence available. Detailed summaries of the study and sample characteristics and outcomes are provided in Appendix 4, the numbered intervention categories in column one correspond to the numbered paragraphs below and the numbered rows in Appendix 4.

Abbreviations: L=low quality, M=moderate quality, H=high quality; A*: AMSTAR (A MeaSurement Tool to Assess systematic Review); AAT=Animal Assisted Therapy; ASD = autism spectrum disorders; ID=Intellectual Disability; PSD=Psychosocial Disability SR=systematic review; UR = Umbrella Review

Symbols: + positive effect (green) o null effect (red) - harmful effect (red) / indicates mixed effects (amber); * sample size does not include the participants included in SRs within URs; ** effects in most studies were positive, but some studies showed no effect; *** study examined acceptability and experiences only, not effects on participation or skills.

Music based programs (Category 14, low-moderate quality studies) included the *Soundscape* program for people on the autism spectrum, which was found to enhance peer relations and self-esteem. For people with psychosocial disability music-based activities included group singing in community groups or music therapy focused on receptive processes (e.g., music appreciation and discussion) and/or active processes (e.g., music production or improvisation, singing, playing instruments) for people with psychosocial disability. Group-based singing improved social functioning, including feelings of belonging and connection to community. Attrition from choir groups was problematic for many studies for both positive (e.g., gaining employment) and negative reasons (e.g., worsening mental health, family problems, accommodation issues), and could raise anxiety about singing ability (Williams, Dingle, & Clift, 2018). Music programs for people with psychosocial disability increased short, medium and long-term social functioning, and had mixed effects on perceived social support, with greater effects for programs that included coping and support group components compared with education-focused programs. Music programs also led to reduced anxiety, but had inconsistent effects on depression, cognitive functioning, psychiatric symptoms and quality of life. Music therapy was found to be particularly effective at improving negative symptoms such as affective flattening and blunting (i.e., a lack of emotional reactions), poor social relationships, and a general loss of interest and motivation for people with psychosocial disability (Geretsegger et al., 2017). Most of these latter interventions were provided in inpatient or outpatient clinical settings, and it was not clear how acceptable or effective these programs are in community-based settings.

Dance therapy for people on the autism spectrum with or without an intellectual disability, and for people with psychosocial disability, generally focused on improving perspective taking and mirroring or imitation and synchronisation with others in order to improve interaction skills (Category 15, moderate-high quality studies). Dance programs improved interaction, imitation, emotion expression and regulation but had no effects on social skills, self-other awareness, empathy, cognition, communication or psychological wellbeing. Qualitative studies highlighted that participants with psychosocial disability felt valued by others in the sessions, and that they experienced greater empathy.

Drama-based activities for people with intellectual disability and/or psychosocial disability included various types of program predominantly delivered within disability specific settings as a clinical intervention to foster storytelling, self-awareness and insights into others, and to create positive relationships with others. Two programs involved developing a performance to present to mainstream students or the public (Category 16, one study high quality, but quality nr for all others studies). Interventions that involved a public performance increased social acceptance, and led to relationships with other participants or members of the community. Therapeutic drama group participation led to improved social inclusion and acceptance, new relationships and friendships with other participants and with members of the community, increased participation in leisure activity, reduced isolation and motivation to continue meeting other group members in peer support group after completion of the program. Drama participation also led to improved communication and social skills, increased engagement with others, self-awareness and awareness of others, impulse control, and reduced challenging behaviours. Participants reported increased creativity, empowerment, confidence, self-worth, self-esteem, resilience, quality of life, mood, and recovery, and reduced perception of discrimination and self-stigma.

Qualitative studies highlighted three key ways that drama therapy appeared to affect social capacity and participation. First, the *social aspects of group drama therapy* contributed to personal organisational and social development and enhanced equality in the group (Jacques, 2011). Moreover, playing games supported learning social rules (Foloştină et al., 2015). Second, the group environment and collaborative activities influenced *experiences of support and trust* more than one-to-one therapy (Holloway, 2012). Group drama enhanced participants’ ability to share with others, build relationships (Gardner-Hynd, 2010) and work together (Foloştină et al., 2015). The group setting provided opportunities to observe the resilience and resourcefulness of others in a crisis, and to think about the future (Lahad, 1999). Being around others with a similar story was experienced as helpful (Jaaniste, 2008; Lahad, 1999), and allowed participants in a program for offenders to build trust so that they could safely disclose and explore inappropriate behaviours (McAlister, 2011). However, people with psychosocial disability may feel heightened vulnerability in drama groups (Dent-Brown & Wang, 2006). Third, group drama therapy helped people to *learn more about themselves, build their confidence and empowerment*. Being able to offer something to others was reported to improve self-concept, confidence (Foloştină et al., 2015; Gardner-Hynd, 2010), and empowerment (Dent-Brown & Wang, 2006; Hackett & Bourne, 2014). Participants could explore their individual experiences, which helped them to learn more about themselves (Lahad, 1999), which improved their self-awareness and sense of control (Grainger, 1992). Playing, storytelling, and imagination were also reported to help people to build trust and facilitate self-disclosure, insight and remorse in participants in a program for offenders (McAlister, 2011). As none of the drama interventions were compared with a control condition the mechanisms of benefit could therefore have been related to the group setting or social interactions and not drama therapy per se (Holloway, 2012; Orkibi, Bar, & Eliakim, 2014).

Arts-based activities (Category 17, low quality studies) for people with intellectual disability or psychosocial disability focused on developing artistic skills and creating art, and often gave the opportunity to present their work to the community in exhibitions and to sell their artwork. All programs for people with psychosocial disability were “open” art studio programs in community centres or psychiatric rehabilitation settings, and were generally open to anyone with a mental health problem, or as “arts on prescription”. In some programs participants created art alongside artists without disabilities, whereas in other programs participants received instruction or guidance from an art therapist. Art studio participation enabled creation of a “community of artists” that provided a “bridge” to the broader community, and led to increased social inclusion, sense of belonging, engagement, mutual support, social connections and friendships, meaning in life, self-esteem, happiness and confidence. Participants enjoyed receiving public praise for their work and selling their art, and gave artists a presence and voice in a social community space, which created a meaningful sense of achievement, and positively contributed to forming new identities, roles, and a sense of self. In particular, exhibitions generated opportunities for social interactions or convivial encounters with other community members (Darragh et al., 2016). Art participation led to several other positive life outcomes for people with psychosocial disability (e.g., employment, housing and recovery), improved quality of life and wellbeing and reduced distress, negative mood and psychiatric symptoms. Facilitators who were perceived to be equal to the participant, working side by side, was highlighted as a facilitator of inclusion and belonging by enhancing equality and intersubjectivity Allan et al. (2015). Participants enjoyed being able to take risks and to recognise that they had something unique to offer and to share with others (Allan et al., 2015). Similar to drama programs, arts interventions were not compared with a control condition, and some of the social inclusion benefits may be due to the broader collaborative and creative group settings rather than arts-based, per se (Bungay & Clift, 2010).

Farm, ecotherapy, gardening and horticultural interventions and groups for people with psychosocial disabilities (Category 18, low-high quality studies) were evaluated as short-term interventions, vocational training programs or as part of long-standing community gardening projects. The farm-based programs involved working with farm animals including feeding and grooming animals, milking cows, and riding horses. These interventions were found to reduce loneliness and increase social activity and participation, the formation of new relationships and friendships within the group and with people from the wider community. These interventions also led to improved self-efficacy, coping, mood and general mental health. The evidence for these programs is considered to be weak and limited as no studies compared the interventions with a control condition and the evidence was predominantly low-moderate.

Outdoor recreation and leisure programs for people with psychosocial disability included structured programs comprising information sessions, personal development workshops, self-help groups, community walks and forums. Other outdoor therapies included nature-based programs, camps or a program that gave participants opportunities for unstructured free and spontaneous play with the dolphins (Category 19, high quality studies). Leisure and nature-based recreation led to several social participation benefits including connectedness, relationships, interpersonal relationships, personal growth, confidence, wellbeing, self-determination and empowerment, as well as reduced loneliness and depression.

Sports and physical activity participation opportunities were evaluated primarily for people with psychosocial disability and intellectual disability.

First, three meta-ethnographic reviews examined motivations and barriers to physical activity and exercise participation for people with schizophrenia (Firth et al., 2016), experiences in starting community-based group physical activity for people with SMI (Quirk et al., 2017), and experiences of participating in physical activity, exercise or lifestyle programs (Soundy et al., 2014) (Category 20, moderate-high quality evidence). Other studies evaluated *physical activity programs* or *sport participation* for people with psychosocial disability such as soccer training and games, learning yoga during a short period of supervision followed by unsupervised practice, outdoor or nature-based recreation (e.g., white-water rafting) and fitness programs (e.g., aerobic, interval, resistance and strength training; Category 21).

The most common motivators for participation in physical activity for people with schizophrenia were to improve general physical health, lose weight, improve appearance, and increase fitness/energy (physical motivators); improve overall mental health, manage mood, reduce stress, and improve sleep (psychological motivators) (Firth et al., 2016). Only 27% endorsed the social aspect of exercise as a motivator (socio-ecological motivators) (Firth et al., 2016). People with schizophrenia generally had intentions to initiate participation in physical activity if they had prior positive experiences, felt “well enough”, the activity was affordable and in a location that was perceived to be appropriate for “people like us”, and if they had positive expectations about the effects of participation (e.g., controlling symptoms, health & weight control, access to support, talking with others with similar experiences, seeing/making friends, a reason to get out of the house; Quirk et al., 2017).

The most common barriers for participation in physical activity were being tired or having low energy. Only 25% of people endorsed physical health as a barrier (physical barriers); whereas a lack of support was a barrier for 50% of people (socio-ecological barriers) (Firth et al., 2016). Psychological barriers included stress or depression, feeling unsafe, fears of injury, low motivation, and having low confidence. Lower participation was reported to be most often due to lifestyle factors (e.g., smoking, diet, sleeping patterns, fitness level and confidence), intrusive or fluctuating symptoms, fatigue and sedative effects of medications, low self-esteem, social anxiety and apprehension about being around strangers, feeling dependent on others (e.g., needing reminders, transport/financial help, or needing a support person), having negative expectations (e.g., feeling vulnerable, embarrassed, disliking feeling controlled by others, having to interact with others, pain), and having conflicting personal commitments (Quirk et al., 2017; Soundy et al., 2014). Some people with psychosocial disability preferred one-on-one physical activity participation, and found new environments challenging (Soundy et al., 2014).

Physical activity participation was associated with several outcomes, including:

(a) **Psychosocial**: Improved socialization and social/emotional support, empathy, sense of warmth, companionship, sense of control, sense of achievement, self-appreciation, confidence, self-esteem to engage in the community, and autonomy. While interval training had no effect on psychosocial functioning, yoga led to improved psychosocial functioning by 17-23%, and both nature-based therapeutic recreation and soccer and football participation had positive impacts on relationships, social inclusion and isolation.

(b) **Mental health and recovery**: Experiencing fewer hallucinations, psychiatric symptoms and improved overall functioning, but only for participants who attended ≥50% of exercise sessions (Scheewe, Backx, et al., 2013; Scheewe et al., 2012; Scheewe, van Haren, et al., 2013). Improved mood, relaxation, and mental health, but only for studies with aerobic with resistance training methods with ≥90 minutes per week of moderate-vigorous exercise (Battaglia et al., 2013; Marzolini, Jensen, & Melville, 2009). Programs that enhanced cohesion and relatedness between participants led to reduced anxiety. Improved focus on future gains.

(c) **General health**: Improved fitness, sleep, and quality of life. Moreover, weight loss was motivating and considered “a yardstick for recovery” (Soundy et al., 2014).

Mainstream sports programs or physical activity in the community for people with intellectual disability were delivered through team sports, active recreation, or walking with a person without intellectual disability (Category 22; low-high quality studies). *Unified Special Olympics* (SO) programs brought together athletes with intellectual disability and age and ability matched people without intellectual disability to play in the same teams (Category 23, low-moderate quality). Sport participation in mainstream settings led to increased opportunities for convivial encounters in public gym settings, but had mixed effects on interpersonal relations. Participation in unified SO teams improved friendships, social inclusion, access to community venues and sense of community belonging, built alliances within local communities, and gave participants the opportunity to “be a part of society... a platform for the development of social relationships" (Harada 2011). Wilhite and Kleiber (1992) found bigger improvements in community involvement for people with moderate to severe intellectual disability, perhaps because people with mild intellectual disability already had relatively good community involvement. Participants enjoyed learning and playing sports and receiving praise or acknowledgement from others, and had improved emotional wellbeing and physical activity levels, but no change in quality of life or self-efficacy. Participation in unified SO led to better social self-perception and acceptance, reduced maladaptive behaviours and improved sport skills.

The most common reasons for participating in unified SO opportunities were to have fun (54%) and for social interactions (21%; Harada & Siperstein, 2009), as well as to win ribbons and medals, play with others on the team, and to get exercise (Shapiro, 2003). Winning ribbons and medals were considered to be a sign of accomplishing personally relevant goals, and a reward for their effort that led to further recognition and social acceptance. Participants preferred programs that offered choice (Matthews et al., 2016; Melville et al., 2015) and followed a routine structure, include breaks, provide rewards or positive feedback, and identify appropriate activities and offer alternative options if the chosen activity proves to be inappropriate (van Schijndel-Speet et al., 2014). Consistent input and engagement from carers to encourage participants’ behaviour change and participation, using tools like pedometers to enhance motivation, and goal setting and self-monitoring were identified as key factors to support physical participation for people with intellectual disability (Matthews et al., 2016; Melville et al., 2015). Barriers to participation included: disorganised rules or policies, social conflicts with other participants, and teasing from others (Farrell et al., 2004); missing out on regular activities to participate in the sporting program (Lante et al., 2011), staff discouraging some people from being active (e.g., older people), and difficulties with transportation and staff shortages (van Schijndel-Speet et al., 2014); participating in groups with wide age ranges (Goodwin et al., 2006); and when the people who should be encouraging healthy behaviour and active lifestyles actually enable and reinforce sedentary behaviour (Frey, Buchanan, & Rosser Sandt, 2005). It should be noted that the effects of methods were used to evaluate mainstream and unified programs, only three studies including a control group, and few studies provide evidence to substantiate claims that they enhance “access to the community” or the development of social relationships that transferred beyond the sport setting (Harada et al., 2011).

Disability-specific exercise, physical activity and leisure programs for people on the autism spectrum or who have intellectual disability primarily focused on improving strength, balance, fitness and health (Category 24, low-moderate quality studies). The leisure program for people on the autism spectrum used a person-centred planning approach and focused on helping people to work together with others, to build social support and to increase leisure activity participation in the community and included 2-hours leisure activity five days each week. Physical activity participation led to improved interpersonal relationships, social support, and belonging, but had mixed effects on community integration. There was no change in social integration, leisure needs, engagement, or satisfaction in one leisure program. There were inconsistent effects on adaptive behaviour, but improvements in life satisfaction, quality of life, self-efficacy, psychosocial wellbeing, quality of life, and empowerment as well as employment outcomes. Barriers to continued participation included a lack of transport and psychosocial support to encourage people to participate (Heller, Hsieh, & Rimmer, 2004).

Seventeen studies evaluated *traditional Special Olympics* training and participation for people with intellectual disability that did not include athletes without a disability (Category 25, low quality studies) or did not report whether the Special Olympics setting was unified or disability-specific (Category 26, low quality studies). Traditional SO participation was associated with improved social self-perception, meeting people and making friends, community awareness, inclusion and involvement, independence in the community, improved social behaviour, and reduced challenging behaviour. Participation was also associated with improved social skills, exercising choice, receiving social approval and acceptance, having fun, improved happiness and enjoyment from planning and playing recreational games, improved physical health and sport skills, but there were inconsistent effects on self-efficacy. While SO participation often plays an important role in the lives of individuals with ID, their families and the greater community (Glidden et al., 2011), ongoing participation was negatively impacted by age-related changes in capacity for both the person with intellectual disability and their parents, who are typically required to support their aging child’s involvement (Tedrick, 2009).

3.3.3 Interventions to develop skills or psychosocial capacity to participate

Capacity-focused interventions enabled people to build social and communication skills, including participation in romantic relationships, and enhanced psychosocial wellbeing and life skills for participation in significant life roles (e.g., parenting), as well as navigation of digital information or the community. The majority of these interventions were delivered in disability-specific settings or groups, with the exception of the vocational social skills training or coaching interventions where people were supported to communicate with other people while in a work setting or role (category 43-47). The overall effects of these interventions are summarised in Table 4. While several interventions targeting psychosocial wellbeing also included treatment of symptom-based barriers to social and community participation, they were included if they also addressed social participation linkage, capacity or outcomes.

Table 4. Overall effects of interventions to build skills, psychosocial wellbeing and broader capacity to participate socially and in the community, including AMSTAR quality rating of the SRs and quality of the original studies.

Intervention • *No. of studies* • *A* for each SR reporting studies*	Disability cohort, pooled sample size, age range, sex	Typical intervention duration and/or frequency	Effects on outcomes [study quality]		
			Social functioning	Social Skills	Other outcomes
Social skill and communication interventions					
27. Social Skills Training that did not include a “cognitive” focus • 14* studies • A*: L L L M M M	PSD, N=549, 17-51 years, 76% male	45 min to 1.75 hrs/wk for up to 18 months	+** [L]	+ [L]	o/+ [L]
28. Social Cognition training focused on loneliness & self-control • 3 studies • A*: L M	PSD, N=269, mean age 20-50 years, 64% male	30-60 mins/wk for 9-12 wks	+ [M]	o/+ [M]	
29. Individual or group Social Cognition and Interaction Training (SCIT) • 13 studies • A*: L M M M	PSD, N=719, M=33-51 years, 68% male	1-2 X 1.5 hrs p/wk for 16-24 wks	+ [L-M]	o/+ [M]	
30. Group social skills training • 4 studies (ID), 7 studies (ASD) • A*: L L M M (ID), L L L M M (ASD)	ID, N=71, 17-48 years, 38% male	2 hrs/wk for 12-14 wk s	+ [M]	+ [M]	
	ASD, N=78, 16-55 years, 85% male	30 mins to 3-hrs sessions over 4-6 wks or up to 18-wks	o [nr]	o/+ [L]	
31. PEERS-YA social skills training program • 4 studies • A*: L L M M	ASD, N=97, 20-24 years, 80% male	1.5 hr sessions over 14-16 wks	o/+ [L]	o/+ [L]	
32. Individual social skills training • 7 studies • A*:L L M M	ASD, N=31, aged 17-20 years, 77% male	40 mins to 1-hr for up to 33 wks	+ [L]	+ [L-H]	o/+ [L]
33. Intensive Interaction Support for specific communication skills • 8 studies (ID), 6 studies (ASD) • A*: L M (ID), L L M M M (ASD)	ID, N=27, 28-53 years, 59% male	Frequent, usually daily, short-interval training	+ [L-H]	+ [L-H]	
	ASD, N=57, 17-32 years, sex nr	10-50 mins 1-2 times each week for 4-9 wks	+ [H]	+ [L]	
34. Theory of mind/ emotion/ social cognition training • 5 studies (ASD) 11 studies (PSD) • A*:L M (ASD), M (PSD)	ASD, N=146, age and sex nr	30-min to 2 hrs/wk for 5-10 wks	o [L]		
	PSD, N=495, mean age 25-44 years, 64% male	12 to 20 X 1-hr sessions	+ [M]	+ [M-H]	
Psychosocial wellbeing and capacity building support					
35. Telehealth-based supports or SMS prompting • 4 studies • A*: M M M	PSD, N=178, 61-92 years, 15% male (nor for 2 studies)	12 weeks to 9 months (frequency nr)	+** nr		o/+ nr
36. Psychoeducation • 9 studies • A*: L L M M M	PSD (1 study PSD+ASD), N=912, mean 32-38 years 85% male	1-2 sessions per week for 8 weeks to 2 years, from	o/+ L-H		o L-H

Intervention • *No. of studies* • *A* for each SR reporting studies*	Disability cohort, pooled sample size, age range, sex	Typical intervention duration and/or frequency	Effects on outcomes [study quality]		
			Social functioning	Social Skills	Other outcomes
		30-40mins to 1.5-3h p/week	🟧		🟥
37. Mindfulness for social anxiety • 2 studies • A*: L	ASD, N=91, age and sex nr	2.5 hrs/wk for 9 wks	+ L-M		+ L-M
38. Cognitive Behavioural Therapy (CBT) based interventions targeting social functioning • 5 studies (ASD) 2 studies (PSD) • A*: L M M M	PSD, N=87, 14-45 years, 100% female	Weekly or monthly 1-4hrs sessions for 6 to 24 weeks	o/+ L-M		
	ASD, N=147, age and sex nr		+ M		+ M
39. Cognitive reframing • 4 studies • A*: L M M	PSD, N=204, age and sex nr	1-2 or 14-22 sessions for 1-2 hrs each	+** L-M	+ M	+ L-M
40. Meta-cognitive training, Cognitive Enhancement Therapy • 4 studies (PSD) 2 studies (ASD) • A*: L M M	PSD, N=143, mean 26-40 years, 66% male	36-45 sessions		+ o/+ L-M	+ M
	ASD, N=68 ASD, mean 25 years, 86% male	18 months (session frequency/length nr)		+ L-M	+ M
41. Behaviour activation • 2 studies • A*: M	PSD, N=113, age and sex nr	Up to 12 sessions	o M		o/+ M
42. Recovery-oriented clinical therapy • 2 studies • A*: L M	PSD, N=56, mean 37-43 years, 45% male	20-45 minutes 1-2 times per week for up to 21 sessions	+ L/nr		
Vocational social skills interventions of supports					
43. Vocational internships and training and volunteering • 2 studies, 1 SR from an UR • A*: L L M	PSD, N=112, M=28-31 years, 64% male	nr	-/o/+ [M]		+ [M]
44. Vocational social skills or coaching programs • 3 studies • A*: L	ID, N=15, 18-26 years, 60% male	3 hrs/wk for 12 weeks or during unpaid internships for 4-8 hrs/wk	+ [H]	+ [H]	+ [H]
45. Aspirations Program – vocational skills • 3 studies • A*:L L L M M	ASD, N=71, 19-22 years, 86% male	4 to 20-hrs p/wk until independent in the workplace	o/+ [L]	+ [L]	+ [L]
46. Job interview and conversation skills training • 3 studies • A*: L L M	ASD, N=150, M=24-25 years, 86% male	1.5 to 2-hrs p/wk for up to 12 weeks		o/+ [L-M]	o [L]
47. Broad vocational social skills programs • 7 studies • A*: L L L M M	ASD, N=153, 18-27 years, 85% male	~15-min sessions to learn specific skills, 6-26 X 1-1.5-hrs sessions, or daily support for up to 6m		+ [L-M]	+ [L]
Relationship-focused interventions					
48. Dating, sex and relationship programs, mostly in group settings • 7 studies	ASD, N=201, 18-60 years, 62% male	1-2 or 1.5-2 hr X 10-20 sessions	+ [L-M]	+ [L-M]	

Intervention • *No. of studies* • *A* for each SR reporting studies*	Disability cohort, pooled sample size, age range, sex	Typical intervention duration and/or frequency	Effects on outcomes [study quality]		
			Social functioning	Social Skills	Other outcomes
• A*: L L L M M M M M					
49. Sex, relationship & family planning (group or individual programs) • 15 studies • A*: L M M	ASD or ID, N=722, 12-59 years, sex nr	25-30 min to 2.5-3 hr sessions for a total of 6-30 group sessions or 13-30 individual sessions	+ [L]	+** [L]	o [L]
50. Abuse prevention programs • 8 studies • A*: L M	ASD or ID, N=175, 11-57 years, 50% male	40-60 min for 2-5 or 18-40 sessions		+** [L]	
51. SexG program on sexual health and responsibility • 4 studies • A*: H	PSD, N=595, M=37-40 years, 100% male	brief (6 X 1-hr session) and enhanced (13-15 X 1-hr sessions)		o/+ [M-H]	
52. Relationship and AIDS/HIV-prevention interventions • 9 studies • A*: H	PSD, N=1,268, aged 22-59 years, 47% male	1.5-2 hrs X 4-10 sessions		+** [L-M]	
Life skill focused interventions					
53. Life Skills Training • 2* studies • A*: L M	PSD, N=272, M=48-52 years, 65% male	two X 2-hrs p/wk for 12 weeks		+ [L]	+ [L-M]
54. Parenting skills, knowledge, and safety training • 6 studies • A*: L H	ID, N=155, aged 16-49 years	1-2-hrs X 4-5 or 10-26 sessions with home-visits in one study	+** [M-H]		
55. Digital literacy skills training • 4 studies • A*: L M	ID, N=67, 18-23 years, sex nr	Duration/ frequency nr	o/+ [L-H]	+ [H]	
56. Navigation and travel training interventions • 11 studies • A*: L	ASD or ID, N=171, M=19-32 years, sex nr	Frequent short sessions for a total of 30-60 mins	o/+ [nr]		
57. Life Story work • 2 studies • A*: L	ID, N=71, aged 55-63 years, sex nr	2 individual 1hr sessions or 16 individual + group 1.5-2hr sessions	+ [M]		o/+ [M]

Notes: Blank cells indicate no evidence available. Detailed summaries of the study and sample characteristics and outcomes are provided in Appendix 4, the numbered intervention categories in column one correspond to the numbered paragraphs below and the numbered rows in Appendix 4.

Abbreviations: L=low quality, M=moderate quality, H=high quality; A*: AMSTAR (A MeaSurement Tool to Assess systematic Review); ASD=autism spectrum disorder; ID=Intellectual Disability; PSD=Psychosocial Disability; PEERS-YA = Program for the Education and Enrichment of Relational Skills for Young Adults; SR=systematic review; UR= Umbrella Review

Symbols: + positive effect (green); o null effect (red); - harmful effect (red); / indicates mixed effects (amber); * sample size does not include the participants included in SRs within URs; ** effects in most studies were positive, but some studies showed no effect.

Group-based social and communication skills training interventions

For people with psychosocial disabilities, studies evaluating group-based social skills interventions were low-moderate quality and primarily included *Social Skills Training* (SST; Category 27)*, Social Cognitive Training* (SCT; Category 28), and *Social Cognition and Interaction Training* (SCIT; Category 29). Most interventions were for people with schizophrenia, schizoaffective disorders, psychotic disorders, depression, social phobia, personality disorder or other serious mental illnesses, and interventions were often delivered alongside other clinical supports (e.g., case management, illness management, family-oriented psychoeducation). The SST interventions focused on interpersonal skills, social problem solving, social perception, social information processing, affiliative skills, interaction skills, understanding social norms, applying skills to everyday situations, and theory of mind. While SCT emphasised reframing perceptions of loneliness and self-control, learning coping strategies, and increasing sense of belonging and stress management, SCIT interventions specifically targeted social cognitive dysfunction and could include augmented reality simulation and cognitive remediation approaches. Both SST and SCIT improved social functioning, including role functioning, social relations, and social activity participation, and reduced social isolation. SCT only reduced loneliness after more intensive programs, and improved affect recognition, but did not change theory of mind or attribution style. SST also improved behavioural skills, social skills, theory of mind and progress towards goals and recovery, but had minimal effect on non-verbal social skills and no effect on perceived social support, whereas SCIT had inconsistent effects on global social capacity, theory of mind, affect recognition and attribution style and no effect on interpersonal communication. Social skill training programs for people with psychosocial disability that provided frequent contact with a therapist (Pilling et al., 2002), used a range of methods to enable transfer of learned skills into everyday life (Elis, Caponigro, & Kring, 2013), and provided elements of training in community settings (Glynn et al., 2002) were most effective at helping people to apply learned social skills into everyday life and community settings. To enhance generalisability, interventions should provide participants with opportunities to identify and practice social skills in everyday life with the support of a therapist (Elis, Caponigro, & Kring, 2013; Kurtz & Mueser, 2008; Mueser & Penn, 2004; Pfammatter, Junghan, & Brenner, 2006; Pilling et al., 2002).

Group-based social skills interventions targeted social awareness and competencies such as interpersonal communication and listening skills for people with intellectual disability (e.g., a TEACCH-based program; moderate-high quality studies (Category 30; e.g., SCIT program, ‘Putting feet on my dreams’ and ‘Problem Solving Skills 101’; low quality studies). Group programs for people with intellectual disability reduced social withdrawal and improved relationships with partners and friends; increased confidence and knowledge to participate in the community, and joining or establishing support/social groups; and improved self-concept and quality of life in people whose understanding of civil rights and engagement also improved after group training. The acceptability or effectiveness of interventions for people with intellectual disability would be enhanced if the people who deliver the interventions are involved in the design of the programs (McConnell et al., 2009). People who had poor digital literacy skills for social media use faced greater barriers in connecting with others (Iconaru &

Ciucurel, 2014). Therefore, facilitators should ensure that participants have digital and text-based literacy support, and that materials are adapted to enhance accessibility for people with different levels and types of impairments. As only one study included a control group it is not clear if the effects were due to the group setting, or whether the components addressed in the intervention also contributed to changes in psychosocial functioning (McGaw, Ball, & Clark, 2002).

Other group-based programs used instruction, discussion and rehearsal of social and communication skills with video feedback for people on the autism spectrum, including the *PEERS-YA* program (Category 31; low quality studies). Group-based training for people on the autism spectrum had limited effects given that improvements in social functioning and theory of mind were similar between the intervention and control groups who also participated in social interactions without training. Moreover, while the PEERS-YA intervention increased invitations to social get-togethers there were inconsistent effects on social responsiveness (autism-specific social functioning symptoms) and socialisation quality, and no effects on hosting get-togethers or loneliness. Further, group programs for people on the autism spectrum had inconsistent effects on social skills and behaviour; conversation skills (e.g., initiating and maintaining conversation, reducing inappropriate utterances, attention and feedback to questions), emotion identification, theory of mind, and no effects on broad social communication skills, social performance, empathy and social body language (e.g., eye contact, gestures). Social skills group training was not expensive or time-consuming, and had moderate to high levels of attendance (70-92%). The effectiveness of formal group training programs may be largely attributable to the informal social supports fostered, which participants reported being enjoyable, and fostering their sense of community while giving the opportunity to interact with and learn from other adults on the autism spectrum (Gantman et al., 2012). Attendance was fairly poor in at least one study, which may be improved by including people on the autism spectrum as service designers and facilitators (Ashman et al., 2017).

Individual social skills training and interventions targeting specific social capabilities

Individual multifaceted social skills interventions for people on the autism spectrum or with intellectual disability typically provided psychoeducation, coaching, reinforcement and strategy training (e.g., to use a digital planner to schedule activities; Category 32, low-high quality studies). Individual training broad social competencies increased attendance at social events, satisfaction with peer interactions; and social skills including improved initiation and maintenance of interactions with peers, improved social skill performance, and reduced time to respond to questions. Individual training also improved employment, satisfaction with college, and quality of life but did not affect executive functioning.

Other programs provided individualised interaction support *targeting specific communication impairments* for people with intellectual disability or on the autism spectrum (Category 33, low-high quality studies). Targeted training for specific communication skills improved social behaviour and the targeted social skills, and reduced challenging or problem behaviour for people on the autism spectrum or with intellectual disability, but gains were not consistently maintained post-intervention for people with more severe intellectual disabilities highlighting the need for continued reinforcement. One RCT compared a Virtual Reality (VR)-integrated computerised training program with an active control group who also received computerised training, and did not find any differences between groups. Some studies found that it can be difficult for staff to maintain individualised interaction support, and there were limited effects for people with severe and chronic challenging behaviours in short-term interventions (Elgie & Maguire, 2001). Some practitioners reported struggling with providing individualised interaction support (Zeedyk, Caldwell, & Davies, 2009; Zeedyk et al., 2009), and over time staff appear to taper off provision of support with increasing cancellation of sessions (Leaning & Watson, 2006) and reduced logging of the supports provided (Samuel et al., 2008).

Some interventions targeted other *specific social competencies* (e.g., theory of mind, emotion perception, and social perception; Category 34) for people on the autism spectrum (low quality studies) or with psychosocial disability (moderate to high quality studies). These interventions did not affect social functioning for people on the autism spectrum, but improved social and occupational functioning, social perception, theory of mind and affect recognition for people with psychosocial disability receiving more intensive interventions.

Psychosocial wellbeing supports and interventions to enhance participation capacity

Telehealth-based interventions provided people with schizophrenia, schizoaffective disorder, or depression, and people on the autism spectrum through telephone or SMS-based prompting to encourage wellbeing through medication adherence, socialization, and symptom management (Category 35, study quality nr). These interventions increased social interactions and leisure activity participation, but did not change loneliness. Improvements in goal achievement were not maintained after the supports were withdrawn.

Psychoeducation for people with psychosocial disability, including people on the autism spectrum who also had a psychosocial disability, were provided through computer or web-based programs or in-person programs. Interventions focused on learning problem solving and coping skills, illness management and encouraging social participation (Category 36, low-high quality studies). Some interventions also included *family therapy*. Psychoeducation improved social functioning and increased social contacts, but reductions in loneliness were not maintained, and there was no change in perceived social support. There were inconsistent effects on quality of life and no change in psychological wellbeing or depression.

Group-based *mindfulness* programs for people on the autism spectrum focused on awareness of social anxiety (Category 37), and led to reduced anxiety, depression, rumination, agoraphobia and somatisation, and improved positive affect.

Individual or group-based *Cognitive Behavioural Therapy* interventions focused on behaviour activation, social interactions, and social anxiety for people with psychosocial disability or people on the autism spectrum (Category 38, low-moderate quality studies). Similarly, *cognitive reframing and remediation* interventions for people with psychosocial disability focused on developing cognitive capacity and strategies to analyse social situations and to increase interactions in social situations (Category 39, low-moderate quality studies). Cognitive behavioural and remediation interventions did not influence loneliness after brief interventions (e.g., two 30 minute cognitive reframeing sessions), but did reduce loneliness after for a more intensive intervention (e.g., five 4 hr sessions). There were reductions in depression and anxiety, and increases in personal and social performance, but no changes in perceived social support. The Family of Heroes cognitive education program for people with PTSD after military deployment reported negative impacts on perceived social support (Interian et al., 2016), which the authors suggested was a spurious finding with a marginal p-value of 0.04 and given that participants also reported improved reactivity to criticism of family members. Alternatively, it could have been that interpersonal skills needed more supported practice than the brief intervention offered. Cognitive remediation interventions improved social cognitive processes, attribution style, empathy, theory of mind, schizophrenia symptoms and daily functioning.

Cognitive Enhancement Therapy, or *meta-cognitive training*, for people with schizophrenia or on the autism spectrum were delivered through both individual and group sessions to treat impairments in social and non-social information processing and problem solving, and to change social cognitive structure (Category 40, low-moderate quality studies). These interventions led to improved global social functioning and perception, cognitive style and social cognition, and reduced disability, but had inconsistent effects on theory of mind and affect recognition.

Behaviour activation interventions involved teaching people with depression to assess their values and goals, create an activity hierarchy, and select value-based behaviours and goals (Category 41, moderate quality studies). Behaviour activation support did not change perceived support, but led to decreased depression symptoms.

Integrated Psychological Therapy for Schizophrenia and *Interpersonal Community Psychiatric Treatment* are both clinical treatments that focus on recovery and enhancing community participation (Category 42, low quality or quality nr). These interventions led to improved social perception knowledge, social networks and social activity. Goal setting was reported to be universally helpful for recovery motivation, but not for participants who felt that staff preferences were emphasised too strongly.

Vocational social skills training

Vocational interventions were included if they specifically included a focus on social functioning, participation or skills. For people with psychosocial disability interventions focused on creating occupational opportunities for people with psychosocial disability to work as trainers, educators, researchers, and auditors in mental health services (e.g., the *Empowerment of Mental Illness service users: lifelong Learning, Integration and Empowerment* project; Category 43, moderate quality studies). Other vocational participation experiences for people with psychosocial disability included volunteering work (Category 43). The internship intervention led to improved overall quality of life as well as social life, social contacts, and networks for most people, but maintaining relationships was difficult. Volunteer work increased social inclusion, social ties, and opportunities for social engagement; however, volunteering also put people at risk of experiencing prejudice or stigma in the community, and strain from over-commitment (Farrell & Bryant, 2009). Moreover, volunteering can increase experience of exclusion if activities are regarded as low status, participants have lower confidence, or access to other sources of income could be negatively impacted.

For people with intellectual disability interventions targeted social work skills (Category 44; e.g., Walker Social Skills Curriculum, covert job coaching or video-based instruction; high quality studies). For people with intellectual disability and on the autism spectrum, social vocational training increased social interactions that were maintained over time; improved social competence, interpersonal skills, social skill mastery (e.g., social greeting initiation/response, appropriate social behaviours); improved employment rates and ability to perform work roles; and reduced challenging behaviours. Prompting and coaching social behaviours can help improve job security and social participation within those environments (Gilson & Carter, 2016). Social skills training interventions should also ensure that people have other important foundation skills, such as task management, to support their social functioning and to build relationships that extend beyond the school or workplace (Walsh, Holloway, & Lydon, 2018)

Programs for people on the autism spectrum focused on social and vocational skills education as well as broader support to find and maintain employment (the *Aspirations Program*; Category 45, low quality studies), *job interview conversation skills* for people on the autism spectrum (Category 46; e.g., The Molly Porter Job Interview VR training program, or Social Skills Curriculum for job interview-related skills, low-moderate quality studies), or provided *broad training or support for social skills for vocational settings* (Category 47; e.g., social skills required for a work role, such as gestures like waving, while dressed as a mascot; low-moderate quality studies). Vocational social skill training for people on the autism spectrum led to improved empathy but no change in objective measures of peer relations or socialisation, despite anecdotal reports of improved peer relations. Job interview skill training improved interview skills, but did not improve interview performance in one study, and had no effects on confidence or adaptive behaviour.

Relationship-focused skills, knowledge and behaviour training

Relationship and dating programs for people on the autism spectrum without intellectual disability (e.g., Ready for Love) or for people with intellectual disability were predominantly delivered in group formats (e.g., Friendships and Dating Program, Early Dating Skills Training, or Dating Skills Program; Category 48, low-moderate quality studies). One program was delivered individually ("Living Your Life"). Dating interventions improved social and dating skills and knowledge; and increased support for a range of dating behaviours (e.g., kissing, gay and lesbian relationships, sexual intercourse values and morals, keeping secrets), empathy and social responsiveness (i.e., autism-specific social impairments and skills), as well as social functioning. While social network size increased there was no change in social network composition. Young people and adults with intellectual disability reported willingness to participate in relationship and sex education programmes, and wanted the program content to cover their relationship and sexuality aspirations and to address shared learning needs, including lesbian, gay, bisexual and transgender (LGBT) issues and concerns (Dukes & McGuire, 2009). People already in a relationship wanted intervention content to be tailored to their needs and to involve their partners (Cunningham et al., 2016).

Other programs focused on *sex, relationship and family planning* for people on the autism spectrum and with intellectual disability in group or individual programs (Category 49, low quality studies), with broad curricula on topics of anatomy, puberty, reproduction, sexually transmitted diseases, sexual intercourse, relationships, dating/romantic skills, safety/consent/abuse, self/other in sexuality and relationships and private/public appropriate/inappropriate behaviours. Sex and relationship programs improved “social entertainment”; understanding of friendship and interactions with people of the opposite sex in naturalistic settings; dating problem solving skills; knowledge of sexuality rights, responsibilities and vocabulary; and endorsement of liberal dating behaviours. There were inconsistent effects on sexual knowledge, improved social skills, and self-protection skills. Given that a broad range of topics were covered in each intervention, there is clearly poor consensus on the most important functions to cover in dating and sex or relationship interventions (Exell, Hilari, & Behn, 2020). Practitioners need to reflect on their prevailing attitudes, assumptions and stereotypes about relationship skills, knowledge, and interests of people with intellectual disability (Gardiner & Braddon, 2009). Successful program delivery may require simplified language and reading questions aloud as people with intellectual disability may know more or less than they seem to (Garwood & McCabe, 2000). All studies were low quality, and included three studies with multiple baseline design, eight that did not have a control group, and four RCTs for which the control group conditions were not described.

Sex and relationship abuse prevention interventions (Category 50, low quality studies or quality nr) for people on the autism spectrum or with intellectual disability specifically taught participants to resist sexual, physical and verbal abuse using effective decision-making strategies (low quality studies). While abuse prevention training increased knowledge of abuse concepts, empowerment, and recognition of inappropriate touching requests, there were inconsistent (but mostly positive) effects on decision making ability, and no effects on appropriate touching requests. Some people required booster training to maintain and generalise abuse prevention skills. Younger people and those who found the program more difficult made the biggest gains in relationship knowledge and behaviour (Dekker et al., 2015). Some people may need additional training to maintain behavioural abuse prevention skills (Egemo-Helm et al., 2007). Three studies had a multiple baseline design targeting specific relationship skills, and only one study was an RCT with an inactive control group. Therefore, the evidence for relationship and abuse prevention training is considered weak.

Sex and relationship programs for people with psychosocial disability from long-term mental illness focused on increasing safe and responsible sex behaviours and attitudes (e.g., SexG group based interventions; Category 51, moderate-high quality studies) or targeted sex and relationship behaviour to prevent *AIDS and HIV* transmission risks (Category 52, low-moderate quality studies). In the SexG interventions with men, discussion and role play of safe sex, responsibility, and knowledge, confidence and motivation to use condoms led to inconsistent (but mostly positive) effects on a global score of risky sexual behaviours. Interventions targeting knowledge and behaviour to prevent HIV and AIDS led to reduced risky sex acts, casual sex partners, number of partners and level of unprotected sex in most studies; increased condom use and protected sex that was not maintained to four months post-intervention; increased knowledge and confidence to deal with high-risk situations; and increased sexual assertiveness.

Life Skill focused interventions

Interventions targeting life skills varied from broad programs on medication management, organisation and planning, transportation and financial management for people with psychosocial disability (Category 53, low-moderate quality studies; e.g., Functional Adaptations and Skills Training program). Training led to improved social skills, but had no effect on quality of life.

Several programs targeted skills, knowledge and confidence to perform social roles, such as parenting, for people with intellectual disability (Category 54, moderate-high quality studies). All parenting interventions were delivered individually to improve parenting safety and interpersonal and communication liaison capability, and led to improved: child care skills that were maintained over time; knowledge of health (e.g., life threatening emergencies and using medicine); home environment quality. Parenting interventions had inconsistent effects on attunement, and no change in sense of parenting competence. Training materials should be adapted to the reading/comprehension abilities of participants (Feldman & Case, 1999; Feldman, Ducharme, & Case, 1999) and focus on priority topic areas for families (Mildon, Wade, & Matthews, 2008). The more intensive behavioural based parenting programme was most effective (Llewellyn et al., 2003). Homework was considered to be helpful by participants (Brisson, 2009), and helped to generalise skills into real life (Feldman & Case, 1999; Feldman, Ducharme, & Case, 1999). The evidence was considered to be moderate to high quality; however, two studies did not include control groups, and one used a multiple baseline design to target specific parenting skills.

Inaccessible information is an obstacle for people with intellectual disability to independently navigate in the community, which is particularly problematic for participation in social media (Cihak et al., 2015; Shpigelman & Gill, 2014). Therefore studies have evaluated interventions including *digital literacy skills training* for people with intellectual disability to use email or to participate in social media or blogging (Category 55, most studies high quality). Training in digital literacy led to improved ability to complete tasks in social media platforms (i.e, Facebook); reduced social isolation after email training, but no change in social capital (i.e., the resources that one can access through their social connections) after blogging training despite enjoyment of social activities with blogging mentors in the university setting. This research shows that universities are suitable settings to support young people with intellectual disability to participate with peers and mentors both with and without disabilities to enhance their independence and social participation (McClimens & Gordon, 2009). Participation in programs in these settings, however, can be hampered by low levels of social capital in the person with intellectual disability; i.e., low education or financial resources of people with intellectual disability (McClimens & Gordon, 2009). Training, text-based literacy support, and cognitively accessible prototype interfaces with language simplification are needed to enable social media use for people with intellectual disability (Davies et al., 2015).

Independent *travel and navigation skills* training for people on the autism spectrum or with intellectual disability (Category 56, quality nr) was evaluating using various tools. Augmented reality training led to reduced travel planning time, and improved navigation skills and public transport use. Multimedia and video-based travel skill training improved pedestrian bus route navigation skills that were maintained over time, but participants were always accompanied by another person during bus travel so it was not clear if training led to independent travel ability. In some studies participants had more difficulty and errors using google maps and paper maps than augmented reality and preferred virtual reality to printed maps; however, in other studies they had better outcomes when using google maps than the AssisT-OUT augmented reality application.

Before providing travel training interventions it is important to consider developing other essential life skills that are related to travel (e.g., literacy, time management, problem-solving, and other cognitive process skills; Davies et al., 2010). People with intellectual disability who do not have experience with computers or gaming may find it difficult to use virtual and augmented reality (Courbois et al., 2013), and they rarely used video prompts (Mechling & Seid, 2011). It is not clear from most of the research whether the skills learned in a virtual environment would transfer to the natural environment (Mengue-Topio et al., 2011; Purser et al., 2015), and generalisability was not clear from one study that did not observe participants travelling without a support person on a bus network (Mechling & Seid, 2011). However, participants did benefit more from interventions that blended real world and digital information in a meaningful way (McMahon, Cihak, & Wright, 2015). Seven of the 12 studies used a multiple baseline design targeting individualised travel skill needs, but four compared travel skill interventions with a control group without disability and one included a control condition (not described) in an RCT design.

Finally, people with intellectual disability were supported to share personal history using Life Story work (Category 57, moderate quality studies), particularly when moving residential locations or joining a new day program or group. Life Story work improved interpersonal relationships, rights, social inclusion and self-determination; but had inconsistent effects on emotional and physical wellbeing.

4. Discussion

Three main types of interventions were identified in this umbrella review: **supports to help people connect with social, community or civic participation opportunities** (e.g., person-centred planning or social prescribing); taking up **opportunities for participation** (e.g., art, music, dance, or drama groups, participating in physical activity or joining a sports team); and **capacity building interventions to enhance social skills and psychosocial wellbeing** to enable people to participate socially and in the community (e.g., social skills training). While most interventions successfully improved capacity and skills to participate, or actual levels of participation, some interventions had the potential to lead to worse participation or quality of life. Most of the included evidence was low or moderate quality, although studies evaluating interventions for people with psychosocial disability were generally better quality. The effectiveness of interventions for each disability cohort are detailed below, as well as an overview of the factors impacting on intervention acceptability and feasibility.

Overall, the findings reinforce the need for individualised planning and support to identify and link people with participation opportunities, and to use approaches that take into account existing skills, social networks, and confidence to participate socially or in the community, as per the socio-ecological (Shogren et al., 2018) and Quality of Life models (Schalock, 2004). The evidence identified in this umbrella review highlights that each of the domains in Figure 2 were important for enhancing social and community participation for each of the disability cohorts. While interventions for the broader social, cultural and political environmentwere beyond the scope of this review, they must be acknowledged as important contributors to participation of people with disability.

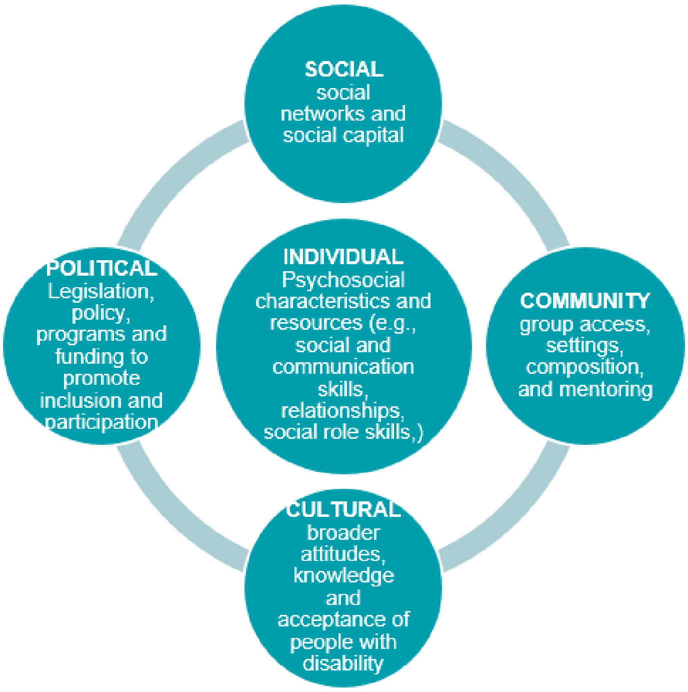

Figure 2. Support domains to enhance social, community and civic participation for adults on the autism spectrum, with intellectual disability, or psychosocial disability.

4.1 Interventions for people with intellectual disability

Overall, for people with intellectual disability, interventions that were consistently effective at linking people with participation opportunities used individualised and person-centred approaches, based on Active Support principles, which is defined as “providing enough help to enable people … to participate successfully in meaningful activities and relationships” (p.14; Mansell & Beadle-Brown, 2012). While asset-based approaches provided excellent opportunities to enhance participation, other successful interventions targeted specific deficits, such as communication or social skills, or targeted important life domains such as dating or parenting roles. The following interventions and supports effectively supported social and community participation for people with intellectual disability:

- Strengths or asset-based interventions to support choice making
- Person centred planning
- Skilled individualised interaction support
- Receiving support to link with community groups, and community group participation
- Peer support and transition programs both for youths transitioning into post-secondary education and older people transitioning to retirement
- Group-based social skills interventions
- Vocational social skills supports
- Relationship and family planning programs
- Parenting skills and knowledge interventions
- Helping people to create a “Life Story” to share their history

- Dog walking in the community
- Art and drama participation
- Participation in physical activity, especially in Special Olympics programs

Interventions that had inconsistent effects on participation for people with intellectual disability included programs targeting digital literacy and participation in online settings, abuse prevention, and training to travel or navigate in the community. Participating in physical activity and sports events can help people with intellectual disability to build acceptance, self-confidence, sharing and friendships (Bota, Teodorescu, & Şerbănoiu, 2014). However, the evidence in this review highlights that there were inconsistent effects for some sport and physical activity programs for people with intellectual disability, including activities in both mainstream and disability-specific settings. For people with intellectual disability, befriending interventions were typically poorly implemented, and the person with intellectual disability had limited choice and control over their interactions. Moreover, there were negative impacts on existing social networks for some people. Most of the evidence for interventions for people with intellectual disability was low or moderate quality, and many programs or supports needed to be adapted to the individual needs of each person given the varied level and nature of impairments, comorbid conditions, needs and social and community participation preferences.

4.2 Interventions for people on the autism spectrum

Most of the interventions for people on the autism spectrum focused on building social, communication and relationship skills. The following interventions effectively supported social skills and participation of people on the autism spectrum:

- One on one social skills training to learn conversation and communication skills
- Dating and relationship skills and knowledge programs
- Some vocational social skills programs that targeted specific work social behaviours or that also provided daily on the job coaching
- Peer support programs and mentoring and support for young adults to transition into post-secondary education
- Music programs, and mindfulness to reduce social anxiety

While people on the autism spectrum reported that they enjoyed meeting with other people with similar disabilities and experiences, group-based social skills training had limited effects on their social and communication skills. Instead, one-on-one training of individualised strategies targeting each person’s social and communication impairments were more effective. However, these benefits did not extend to interventions targeting higher order social competencies, such as theory of mind or social cognition. Other interventions that had inconsistent effects on social and participation skills, or the uptake of participation opportunities, for people on the autism spectrum included dance-based programs, and some vocational social skills programs (e.g., the Aspirations program, or training in job interview or conversational skills). Therefore, the findings in this review call into question the NICE (2016) guidelines that recommend social skills groups as a first-line treatment for people on the autism spectrum given that only individualized programs were consistently effective for adults on the autism spectrum. Finally, there were inconsistent effects on participation from disability-specific sports and physical activity programs, use of telehealth or SMS-based supports, psychoeducation and interventions targeting ways of thinking (i.e., meta-cognition), including social cognition, for people on the autism spectrum. Most studies evaluating interventions and supports for people on the autism spectrum were low quality, and only a small number of studies compared the interventions with a control condition.

4.3 Interventions for people with psychosocial disability

All three broad types of interventions were effective for people with psychosocial disability, highlighting the importance of linking people with serious mental illness with participation opportunities and building their skills and psychosocial wellbeing to enable participation. Moreover, many of the interventions for people with psychosocial disability focused on enhancing social and/or community participation alongside illness management in line with the recovery framework (Commonwealth of Australia, 2013), particularly through person centric holistic care, supporting personal recovery, promoting hope and optimism and understanding the role of social inclusion and the social determinants of overall health, mental health and wellbeing .

Interventions that effectively supported social and community participation of people with psychosocial disability included:

- Befriending when matched with volunteers with common characteristics and interests
- Peer-based supports, either as a peer mentor or mentee in the community or in clinical services
- Social skill training in individual or group settings, and training of specific competencies (e.g., theory of mind)
- Sex and relationship and life skills training
- Social prescribing, community linkage and "connecting people" interventions
- Art and music participation
- Ecotherapy, gardening and horticulture programs
- Outdoor nature-based activities and camps
- Sport and physical activity participation
- Vocational and internship programs that include a focus on social skills or participation
- Psychoeducation and telehealth or SMS-based supports
- Recovery-oriented supports (e.g., psychoeducation) that include a focus on social functioning and participation

Peer support and volunteer participation had enormous merit for people with psychosocial disability, tapping into unique skills and experiences. However, being a peer mentor in a clinical setting, or being a volunteer in the community, could lead to experiences of prejudice and stigma. Therefore these participation opportunities need to be carefully facilitated to minimise potential negative impacts.

Overall, most of the social skills training programs led to improvements in social skills and social and community participation (e.g., social skills training, social cognition training, or theory of mind training). Social skills training was not recommended in the most recent NICE guidelines for people with schizophrenia due to insufficient robust RCT evidence (NICE, 2014). The present review highlights that there is now reasonably consistent evidence of positive effects on social functioning and skills of social skills training interventions for people with psychosocial disability, with most of the included studies having been published between 2017 and 2020 using RCT study designs. Contrary to studies with people on the autism spectrum, training higher order social competencies in people with psychosocial disability did lead to improved social skills. While most of the studies in both populations used RCT methods, the autism studies had small samples and were predominantly low quality whereas the psychosocial disability studies had large samples and were predominantly moderate-high quality. Sex and relationship training programs for people with psychosocial disability predominantly had positive effects on sex and relationship behaviour, safety and knowledge.

While cognitive interventions that included a focus on social functioning predominantly had positive effects on psychosocial functioning and participation, one psychoeducation and cognitive education program for returned soldiers with PTSD had negative impacts on perceived social support. Behaviour activation, which is an approach that emphasises scheduling enjoyed activities, had no effects on social functioning.

Person-centred planning and coaching are considered to be driving principles of social care and supporting social functioning for people with psychosocial disability (Miller et al., 2017); however, there were no systematic reviews that addressed these supports for people with psychosocial disability. Likewise, other interventions such as Supported Education play an important role in skill and education acquisition for people with psychosocial disability (Ringeisen et al., 2017), but none of the systematic reviews on supported education reported impacts of those supports on social, community or civic participation. Most studies evaluating interventions for people with psychosocial disability were of moderate to high quality, and a large proportion compared the active intervention with a control condition.

4.4 What are the intervention implementation considerations?

4.4.1 What is the intensity and duration of effective programs?

The intensity of interventions focused on linking people with participation opportunities varied from one to five face-to-face or telephone-based interactions (e.g., transition mentoring and social prescribing). Other participation opportunities such as structured physical activity or peer support programs comprised 1-2 hours per week for a set period of time (e.g., 12-weeks up to 18-months), or involved participation in existing community, therapeutic or sporting groups for an average of 4 hours per week.

Most interventions targeting social and relationship skills had one to two sessions per week over varying periods of time, from a single sessions for specific social skills (e.g., asking questions) to structured programs delivered over 6 to 12 weeks, or continuous support, planning, or coaching from carers, support workers, or colleagues (e.g., intensive tailored support or vocational support).

Few studies evaluated multicomponent interventions. However, it is likely that people may require multiple supports with a combination of skill or capacity building supports as well as participation-focused supports and opportunities, with more intensive support needs for people with more complex impairments.

4.4.2 What is the acceptability of interventions to providers, participants, or the community, and what barriers need to be overcome or facilitators need to be enhanced to support implementation, acceptability and effectiveness?

Acceptability, implementation and maintenance
Existing staff skills, attitudes and policies can negatively affect implementation (Lowe, Felce, & Blackman, 1996), and programs in residential or community settings need to be embraced at all levels of the organisations from direct-carers to service planners or managers (Parley, 2001). Staff and practitioners who provide interventions or supports should consider their own prevailing attitudes, assumptions and stereotypes about the capacity, knowledge, skills,

knowledge, and interests of people with disability (Gardiner & Braddon, 2009). Moreover, staff may need training and support to enhance their ability to provide the support required by people with disability to enhance their social and community participation (e.g., see Zeedyk, Caldwell, & Davies, 2009; Zeedyk et al., 2009). In particular, dedicated time and resources are needed for successful planning support (Robertson et al., 2006), and for staff to maintain that support over time (Elgie & Maguire, 2001; Leaning & Watson, 2006; Zeedyk, Caldwell, & Davies, 2009; Zeedyk et al., 2009).

Factors influencing acceptability of program content and delivery

To enhance intervention acceptability and maintenance, and to reduce participant attrition, both the intervention agents who deliver the interventions (McConnell et al., 2009) and those with lived experience should be involved as both service designers and facilitators (Ashman et al., 2017). To enhance acceptability and effectiveness, interventions should also address essential life skills that people with disabilities need to function independently (e.g., literacy, time management, problem-solving, and other cognitive skills) and to participate socially (i.e., both receptive and expressive communication). These fundamental skills are likely to be required for people to have opportunities to connect, network, to bond with peers and colleagues, and to build and sustain relationships over time (Davies et al., 2010; Gantman et al., 2012; Walsh, Holloway, & Lydon, 2018).

Programs should ensure that materials are adapted to the accessibility needs and literacy levels of participants with different levels and types of impairments (Feldman & Case, 1999; Feldman, Ducharme, & Case, 1999; Garwood & McCabe, 2000), and that participants receive digital and text-based literacy support if necessary (Iconaru & Ciucurel, 2014).

Young people and adults with intellectual disability report a willingness to participate in relationship and sex education programmes, and want the program content to include content that is relevant to their own relationship and sexuality aspirations, including lesbian, gay, bisexual and transgender (LGBT) issues and concerns (Dukes & McGuire, 2009). Moreover, participants with disability attending sex or relationship programs may know more (or less) than they seem to, so presenting information in multiple formats using simplified language, and reading questions aloud may improve the acceptability and effectiveness of the program (Garwood & McCabe, 2000).

Facilitators and barriers

The key facilitators and barriers to participation in programs included (a) attributes of the program or intervention; (b) attributes and attitudes of carers, staff, facilitators or peer mentors; (c) attributes of participants; and (d) community-specific characteristics, which are described further below. Most of the key insights applied across disability cohorts, unless distinguished below.

(a) Attributes of the program or intervention

Program design features: The success of participating in group activities depended on the skills of the facilitator. Programs were effective at engaging participants if facilitators provided multiple types of support, such as active mentoring to support participation in activities and social interactions (Stancliffe et al., 2015), and positive leadership and acceptance of people who are different (Bigby, Anderson, & Cameron, 2018). Participants liked having programs with a structured approach, and homogeneous group characteristics with minimal participant turnover (Jantz, 2011; van Schijndel-Speet et al., 2014). Participants liked having regular breaks, receiving rewards and positive feedback, and being matched to appropriate activities (van Schijndel-Speet et al., 2014).

Program design barriers included disorganised rules or policies (Farrell et al., 2004), and if there was a wide age range of participants (Goodwin et al., 2006). Participation in community groups was hampered for people who felt that they were given meaningless activities (Bigby et al., 2011) and if there was a lack of support to maintain existing networks or to build new networks (Bigby et al., 2011). Some people with psychosocial disabilities preferred individual over group formats, and reported that attending new environments was challenging (Soundy et al., 2014)).

Programs that foster person-centred and participant choice: Participation was facilitated in programs that use person-centred, strengths-based approaches, and included supports to: enable people to have freedom of choice (Matthews et al., 2016; Melville et al., 2015); set their own goals (Ashman et al., 2017; Jantz, 2011; Matthews et al., 2016; Melville et al., 2015); and review needs and priorities over time to ensure participation opportunities remained relevant (Carr et al., 1999). Interventions targeting relationship or parenting skills benefited from tailoring interventions to participant needs, involving their partners (Cunningham et al., 2016), and adapting or selecting content for priority topic areas for each person (Mildon, Wade, & Matthews, 2008). While fostering choice was a facilitator, some studies impeded participation when choice making of the person with intellectual disability was ignored, reinterpreted or misinterpreted (Hagner, Helm, & Butterworth, 1996), or if it was overpowered by caregivers, staff, family (Hagner, Helm, & Butterworth, 1996; Treece et al., 1999), or community volunteers (Heslop, 2005).

Supported practice of skills and participation in real life: Participation was enhanced when people could have frequent contact with the intervention provider (Pilling et al., 2002), and when programs blended real world and digital information in a meaningful way (e.g., for travel training; McMahon, Cihak, & Wright, 2015). Facilitators of participation and program effectiveness included having opportunities to practice and apply skills in real life community settings (Elis, Caponigro, & Kring, 2013; Glynn et al., 2002; Hillier et al., 2007; Kurtz & Mueser, 2008; Mueser & Penn, 2004; Pfammatter, Junghan, & Brenner, 2006; Pilling et al., 2002) with the support of a trained facilitator (Elis, Caponigro, & Kring, 2013; Hillier et al., 2007). Homework activities also gave participants the opportunity to consolidate their learning in real life settings (Brisson, 2009; Feldman & Case, 1999; Feldman, Ducharme, & Case, 1999). While a single session might be enough for some participants to learn new social skills, other people required booster support or training to maintain skills (Egemo-Helm et al., 2007).

Meeting others with similar disabilities or experiences: Program adherence was enhanced when a facilitator had lived experience of the same disability (Proudfoot et al., 2012). Being around others with similar experiences enhanced the sense of community and opportunity to interact with and learn from other adults with similar disabilities and experiences (Gantman et al., 2012; Jaaniste, 2008; Lahad, 1999).

Unmet financial and travel needs: A key barrier to participation in sport or community groups was having difficulties with transportation, lack of psychosocial supports or staff to encourage participation, and limited financial resources to continue to participate (Bigby et al., 2011; Heller, Hsieh, & Rimmer, 2004; Quirk et al., 2017; Soundy et al., 2014; van Schijndel-Speet et al., 2014). People with psychosocial disability reported that feeling dependent on others (e.g., needing reminders) was a barrier to participation (Quirk et al., 2017; Soundy et al., 2014).

(b) Attributes and attitudes of carers, staff, facilitators or peer mentors

Carer, staff, facilitator or peer mentor attributes: Goal setting interventions relied heavily on the nature of the relationship between staff and study participants (Newlin et al., 2015). Staff were one of the most important sources of emotional and instrumental support to facilitate goal attainment in person-centred planning (Heller et al., 2000). In art participation, moderators working side by side “equal to the participant” facilitated inclusion and belonging (Allan et al., 2015). Physical activity-based participation was more successful if there was consistent input and engagement from carers to encourage participation or behaviour change (Matthews et al., 2016; Melville et al., 2015). However, participation was hampered if there was a lack of support to participate (Firth et al., 2016), or if the people who should be encouraging healthy behaviour and active lifestyles actually reinforced their sedentary behaviour (Frey, Buchanan, & Rosser Sandt, 2005; van Schijndel-Speet et al., 2014).

Befriending and peer mentorship were more successful if partners were matched on multiple attributes including personality, hobbies and interests (e.g., sports), age and gender (Hamilton, Stevens, & Girdler, 2016). In transition mentorship it was important to consider the mentee’s preference to have a mentor with or without the same type of disability (Hotez et al., 2018). Successful peer mentors were described as being understanding, empathetic, punctual, flexible, and professional, and took the time to get to know their mentee and to establish a comfortable relationship (Roberts & Birmingham, 2017).

The ability of program agents to build a sense of safety and trust: Building trust was integral to establishing a sense of safety in drama programs (McAlister, 2011), to build relationships with social prescribers (Friedlie, Themessl-huber, & Butchart, 2012), and to build confidence to engage with referred services (Brandling et al., 2011; Moffatt et al., 2017). However, people with psychosocial disability have reported several safety-related barriers to physical activity participation, including feeling unsafe, having fear of injury (Friedlie, Themessl-huber,

& Butchart, 2012), social anxiety, apprehension of strangers, and having negative social expectations (e.g., feeling vulnerable, embarrassed, disliking feeling controlled by others, having to interact with others, pain; Quirk et al., 2017; Soundy et al., 2014). People with psychosocial disability can feel vulnerable in group programs in which they share their personal experiences (e.g., in drama programs) and can find it difficult to build trust and participate in role play (Dent-Brown & Wang, 2006).

(c) Attributes of participants

Participant attributes: People with intellectual disability who had friendly dispositions and relatively good social skills tended to have more positive experiences in their transition to retirement and community participation (Bigby, Anderson, & Cameron, 2018). Participation can be hampered for people with intellectual disability who have low levels of “social capital”, which includes their level of education or literacy, age and financial resources (McClimens & Gordon, 2009). Digital literacy and experience can hamper participation and intervention effectiveness (Iconaru & Ciucurel, 2014). For instance, people with no computer or gaming experience may not be able to easily use virtual or augmented reality (Courbois et al., 2013).

Incompatible expectations or conflicts: Conflicts with existing personal commitments or valued activities can impede physical activity program participation (Lante et al., 2011; Quirk et al., 2017; Soundy et al., 2014). Moreover, participation in sport, such as the Special Olympics, can be hampered if participants experience teasing from other participants (Farrell et al., 2004) or peers (Harada & Siperstein, 2009). Social prescribing interventions should establish realistic expectations as failure to achieve expected benefits can lead to reduced confidence (ERS Research Consultancy, 2013).

Participant health or general wellbeing: Several factors were associated with lower participation in physical activity for people with psychosocial disability including lifestyle factors (e.g., smoking, diet, sleeping patterns, fitness level and confidence), intrusive or fluctuating psychiatric symptoms, fatigue, sedative effects of medications, and self-esteem (Firth et al., 2016; Quirk et al., 2017; Soundy et al., 2014). For people with intellectual disability, continued physical activity participation can be hampered by age-related changes in both the person with intellectual disability and their aging parents (Tedrick, 2009).

(d) Community-specific characteristics

Poor engagement and negative attitudes from the community: It can be challenging to engage family and community members who could facilitate community connections in community connector or person centred planning interventions (Espiner & Hartnett, 2012). Befriending programs faced difficulties with recruiting, training and retaining the volunteer befrienders from the community (Heslop, 2005), and many befriending programs have low levels of engagement (Siette, Cassidy, & Priebe, 2017). Peer support workers (Walker & Bryant, 2013), and volunteers (Farrell & Bryant, 2009) with psychosocial disability are at risk of experiencing prejudice or stigma in the community, strain from over-commitment, and social exclusion if activities are regarded as low status, especially for participants with lower confidence. Moreover, volunteering can negatively interfere with access to other income support programs (Farrell & Bryant, 2009).

4.4.3 What resources are required to support successful implementation, and is there evidence of cost-effectiveness?

Very few systematic reviews reported on the resources required to deliver the programs and interventions evaluated. Some reviews reported that a clinician or trained staff member was required to implement the respective intervention; however, the agent responsible for delivering the intervention was rarely described. Cost-related impacts were only noted for two of the 522 studies, both of which highlighted that a social skills program for people on the autism spectrum was not expensive or time consuming (Howlin & Yates, 1999), and that increasing the frequency of targeted activities in a program that aimed to link people with intellectual disability with activities did not increase support costs (Ouellette, Horner, & Stephen Newton, 1994). Given that both of these studies were more than twenty years old and no robust economic analyses were conducted no robust conclusions on cost-effectiveness can be made.

4.5 Limitations and gaps in the evidence base

The majority of the systematic reviews included in this umbrella review were considered to be low quality, and many of the included reviews did not report the specific outcome measures or magnitude of effects for interventions that they examined. Moreover, as a large-scale umbrella review we were predominantly limited to the level and type of details provided in respective systematic reviews, and we had limited insights into factors affecting the feasibility, acceptability and effectiveness of different interventions.

As 260 additional studies were identified as evaluating interventions that met our inclusion criteria, it appears that some systematic reviews may have missed some eligible studies. Moreover, there is often a substantial time between conducting and publishing a systematic review. The final search dates for the reviews included in this report ranged from 2009-2020, and 75% of reviews did their last search before 2018. Therefore, it is likely that there is new evidence for several of the documented interventions that has since been published.

Several types of intervention or support were not included in systematic reviews for some or all disability cohorts, despite growing evidence that they are effective. These interventions include transition programs focused on independent living for all disability cohorts, and supported education/transition support (Ringeisen et al., 2017) and person-centred planning (Miller et al., 2017) for people with psychosocial disability. The utility of training to use communication support tools was included in a small number of studies focused on mainstream social media or email use. The use of communication aids and strategies have been studied and reviewed extensively in paediatric populations (Morin et al., 2018), but there were no eligible reviews of augmentative and alternative communication for adults. Interventions to support civic participation were only identified for volunteering for people with psychosocial disability, and building civic rights awareness in people with intellectual disability. Interventions or programs targeting other aspects of civic participation such as voting or advocacy participation were not identified.

The low quality evidence in this review is likely to have been driven by several factors. First, disability research has historically been under-resourced, making it difficult to conduct large-scale robust RCTs. Moreover, social, communication and participation-related impairments in intellectual disability, the autism spectrum and psychosocial disability often vary substantially both within and between cohorts, and often people need individually tailored supports. Therefore designs such as multiple baseline or case study approaches are often more suitable than RCT designs of manualised and standardised interventions. That said, studies evaluating interventions for people with psychosocial disability were typically better quality, and more often used an RCT design, probably because of the more prevalent use of health services evaluation approaches and higher levels of funding in psychiatric and health research compared with disability and social services research.

We did not include psychosocial interventions if they did not target or measure changes in participation. A small number of studies evaluating cognitive remediation for adults with serious mental illness were included if they were in broader reviews examining psychosocial interventions, and if they examined social outcomes. However, as there is already a large evidence base on cognitive remediation evaluated in many systematic reviews, recently examined in a separate evidence snapshot by the NDIA Research and Evaluation Branch, that literature was not included in the present report. In brief, however, some of those reviews found positive effects on social skills, but there appear to be limited impacts on building relationships or enhancing functioning in the community (van Duin et al., 2019). Other cognitive interventions, such as Cognitive Adaptation Training (Velligan, 2018), were not included in any of the systematic reviews, but may also play an important role in the development and use of compensatory strategies and environmental supports to improve engagement in functional and social activities.

Interventions targeting the community or built environment (e.g.,Carnemolla, Robinson, & Lay, 2021; Doroud, Fossey, & Fortune, 2018), or attitudes towards people with disability are important (e.g.,Seewooruttun & Scior, 2014), especially in the social model of disability (Ware et al., 2007). However, it was apparent that the search strategy did not identify pertinent literature, and including a scant representation of this literature would not do the research justice. We therefore chose to omit this category of interventions from the present review. Instead, we recommend that a future review focus specifically on interventions targeting the community and built environment for all disability cohorts given that this is important not only for people on the autism spectrum or with intellectual or psychosocial disability, in order to inform national disability policy and participation strategies.

4.6 Conclusions

Overall, interventions that support people to have both the capacity and access to social and community participation opportunities improved participation for people on the autism spectrum, and with intellectual or psychosocial disabilities. It is important that people have access to personalised supports, where possible, and that they are given the opportunity to practice skills with active support or mentoring in the community in real-life settings.

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