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SPECIAL ISSUE ARTICLE

Digital inclusion and participation of people with intellectual disabilities during COVID-19: A rapid review and international bricolage

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Abstract

The COVID-19 pandemic has meant a rapid transfer of everyday activities to the online world. Information and communication technologies (ICTs) have become more embedded than ever in people's lives. This investigation addresses how this change has affected the lives of people with intellectual disabilities (ID). A two-step design was used. A rapid review was conducted on empirical studies published between January 2019 and June 2021. Search terms related to ID, ICT use and COVID-19. A qualitative international bricolage was also conducted corresponding to author nationalities. Data gathered from the review and bricolage were analysed separately using thematic analysis and relationally synthesised. Digital solutions to provide access to COVID-19 information and guidance seemed inadequate but were seldom empirically studied. Digital poverty, literacy and exclusion remain significant issues for people with ID internationally. People and their carers experienced reduced and removed service provision, loneliness and impoverished daily lives during the pandemic; amelioration of which was facilitated by digital solutions. One solution often used was videoconferencing. Prior experience of digital participation, adequate finances, connection, support and digital literacy mentoring for both people with ID and those providing services and support facilitated digital inclusion. Digital exclusion during COVID-19 was exacerbated by sociopolitical, structural, individual and support-related barriers. Although awareness of digital exclusion appears to have been raised, the extent to which this has led to action and change remains unclear. Despite digital exclusion and digital participation benefitting continuation of life, social and emotional well-being and autonomy, COVID-19 has not provided the impetus to eradicate digital poverty for people with ID. Governmental support, digital education, creativity and problem solving are required to enable

List of abbreviations: AMSTAR, assessing the methodological quality of systematic reviews; ASD, autistic spectrum disorder; ICT, information and communication technologies; ID, intellectual disability; PRISMA, preferred reporting items for systematic reviews and meta-analyses; UNCRPD, united nations convention on the rights of persons with disabilities; WHO, world health organisation.



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people with ID the human right to be included in the digital world at this essential time and into the future.

KEYWORDS

COVID-19, digital inclusion, digital participation, digital poverty, information and communication technologies, intellectual disabilities, pandemic, telehealth

INTRODUCTION

Information and communication technologies (ICTs) have become more embedded than ever in people's lives. Nearly all areas of everyday life are becoming digitised (Larsson-Lund & Nyman, 2020). Digital skills are necessary in order to gain access to the labour market, higher education, to take part in society or benefit from various services (Carretero Gomez et al., 2017). Unfortunately, a digital divide negatively affects people who suffer the consequences of a lack of technology availability, accessibility and usability (Sachdeva et al., 2015; Scheerder et al., 2017; Seah, 2020).

Although the United Nations' Convention on the Rights of Persons with Disabilities (CRDP) defines access to the Internet as a human right (United Nations, 2006), people with an ID are especially at risk of being left behind and digitally excluded (Chadwick et al., 2013). Recent research has revealed an increased use of devices and the Internet (Chiner et al., 2017); however, a digital divide still exists compared with the younger typically developing population (Alfredsson Ågren et al., 2019). This cannot be explained by impairment alone, but from a number of personal, environmental and sociopolitical determinants interconnecting, thereby creating barriers or facilitators to digital participation (Caton & Chapman, 2016; Chadwick et al., 2019; Heitplatz et al., 2021; Johansson et al., 2021; Lussier-Desrochers et al., 2017).

Since March 2020, when the world health organisation (WHO) declared the COVID-19 a global pandemic (WHO, 2020), the use of digital devices has increased exponentially and extremely rapidly. All over the globe, to various degrees, restrictions in social contact were prescribed by health authorities. This has led to much greater utilisation of remote digital technology for all aspects of life, as a rapid transfer of everyday life activities to the online world was made. Indeed, the number of Internet users increased by nearly 10% worldwide during this past year (Statista, 2021). However, it is unclear whether people with disabilities, and ID specifically, are included in this trend. In line with previous research, people with ID, especially those with other risk factors for digital exclusion, for example, higher support needs, older age, lower socio-economic status, may have experienced further digital exclusion and digital poverty (Seah, 2020). Alternatively, the lockdown may have acted

as a catalyst, pushing individuals with an ID, and carers and services providing support (Embregts et al., 2021; Willner et al., 2020) to embrace the use of digital devices and commence or increase digital participation (Lancioni, Singh, O'Reilly, Sigafos, Alberti, Chiariello, & Carrella, et al., 2020; Lancioni, Singh, O'Reilly, Sigafos, Alberti, Perilli, et al., 2020).

This investigation addresses how the rapid transfer to online communication, activities and services during the COVID-19 pandemic has affected the lives of people with ID. More specifically, our objectives are to identify:

- the current state of knowledge regarding how people with ID have been given information via ICT regarding COVID-19;
- the impact of digital inclusion/exclusion on the lives and well-being of people with ID during the pandemic;
- the barriers and facilitators of digital inclusion among people with ID during the pandemic; and
- what we have learned and how this information can be leveraged to improve digital inclusion in future similar global circumstances.

These objectives have been investigated by synthesising findings from a two-step study design starting with a rapid review of the most recent literature, presented in Part 1 of this article. Concurrently an international pragmatic bricolage, presented in Part 2, which used multiple sources to explore the objectives in order to gather the most up to date nonpublished findings during this time of COVID-19-related rapid change. The international perspective for the bricolage was based on the network of authors who came together to work for this article, based on the countries they resided in. Findings from these two parts are synthesised in the discussion.

PART 1: RAPID REVIEW OF RESEARCH EVIDENCE REGARDING THE DIGITAL INCLUSION OF PEOPLE WITH ID DURING THE COVID-19 PANDEMIC

A rapid review was conducted to synthesise existing global knowledge surrounding digital inclusion during

the COVID-19 pandemic (Khangura et al., 2012). The review was conducted over a short time frame between March and June 2021. Processes typically conducted within a systematic review were simplified by compressing title and abstract search, and omitting risk of bias and article quality evaluation checks. Nonetheless, preferred reporting items for systematic reviews and meta-analyses and assessing the methodological quality of systematic reviews reporting processes were incorporated in line with recommendations (Kelly et al., 2016). No funding supported the conduct of this review. For full details of the search strategy employed in the rapid review, see supplemental materials. Figure 1 details the flowchart for article selection and review.

Data extraction and synthesis

Data synthesis involved reading and tabulating articles extracting findings germane to the review focus (see Supplemental File 1 for summary table of articles). A preliminary framework was developed based on initial meetings by authors to support accelerated organisation of the findings from the studies during data extraction and summary. Article summaries were developed and tabulated by two authors and reviewed by at least two other

authors. Once summarised, groups of two authors collaborated to extract and summarise key descriptive and interpretive themes from the findings across the selected studies and drafted findings for inclusion in the paper. For parsimony of presentation, a convention of emboldened italics to indicate subthemes and italics to indicate basic themes which sit under these subthemes was adopted. Drafts were then reviewed and further cross checked with the tabulated summaries and article details by two co-authors.

Summary of included articles

A total of 16 full-text articles were included in the rapid review. Four studies were from the United Kingdom (Datlen et al., 2020; Power et al., 2021; Rawlings et al., 2021; Rothman, 2021); two from Canada (Lake et al., 2021; Lunsy et al., 2021); two from Spain (Amor et al., 2021; Navas et al., 2021); two from the Netherlands (Scheffers et al., 2021; Zaagsma et al., 2020); one from Australia (Masi et al., 2021); one from Ireland (McCausland et al., 2021); and one from the United States (Spencer et al., 2021). One study was carried out in Ireland and the Netherlands (Burke et al., 2021); another was carried out mainly in the United States (Jeste et al., 2020) and one was

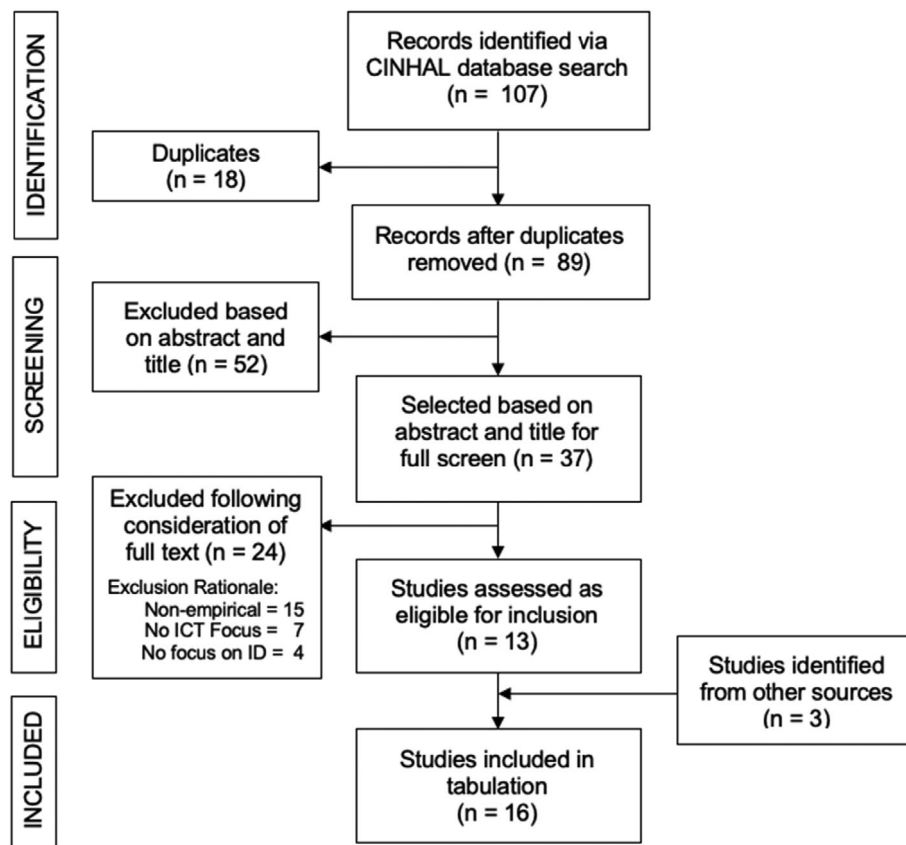


FIGURE 1 Prisma flowchart of study identification

entirely online and therefore not country specific (Araten-Bergman & Shpigelman, 2021). Settings included: education (Burke et al., 2021; Spencer et al., 2021); independent residences and residential services (McCausland et al., 2021; Zaagsma et al., 2020); health care (Lunsky et al., 2021; Masi et al., 2021); education and health services (Jeste et al., 2020); therapeutic settings (Datlen et al., 2020; Lake et al., 2021; Power et al., 2021; Rawlings et al., 2021; Rothman, 2021); and finally a combination of various settings due to surveys being sent out through large organisations (Amor et al., 2021; Navas et al., 2021; Scheffers et al., 2021) or on the Internet (Araten-Bergman & Shpigelman, 2021).

Study design and methods used

A variation of study designs were used in the 16 papers included in the rapid review. Of all 16 papers reviewed, 10 were descriptive (Amor et al., 2021; Araten-Bergman & Shpigelman, 2021; Burke et al., 2021; Jeste et al., 2020; Lunsky et al., 2021; Masi et al., 2021; McCausland et al., 2021; Navas et al., 2021; Rawlings et al., 2021; Scheffers et al., 2021) and had a cross-sectional design, of which three used mixed methods (Lunsky et al., 2021; Navas et al., 2021; Rawlings et al., 2021). All three included open-ended questions that were analysed mainly through qualitative content analysis.

Additionally, of the above 10, one employed a co-creation study design (Burke et al., 2021) and another was a quantitative longitudinal study comparing pre- and post-COVID-19 survey responses (McCausland et al., 2021).

All but one of the cross-sectional studies (Rawlings et al., 2021) used online surveys. The use of online surveys is likely to exclude those participants without online access. Therefore, only part of the perspectives of the population under study may have been reflected.

One paper gathered retrospective service data about digital service provision (Zaagsma et al., 2020). Qualitative study designs were used in three of the papers (Lake et al., 2021; Power et al., 2021; Spencer et al., 2021), of which, two employed thematic analysis (Lake et al., 2021; Power et al., 2021). Finally, two papers employed case-study methodologies (Datlen et al., 2020; Rothman, 2021).

Study participants

The majority of the studies ($n = 11$) focused on adults with an ID with ages ranging from 18 to 65+ years old, and three of these included both children and adults (age range: 3–83 years old). In four papers, family members participated to help answer the survey. Numerous

additional support needs or diagnoses were identified in five studies (e.g. developmental delay, ASD, Down syndrome, psychiatric diagnosis, sensory impairments, cerebral palsy). The sample size varied from a case study with only one participant to 982 participants. Female participation represented between 44.9% and 85% of the sample in the different studies. Only five studies provided additional demographic background with regard to the housing (i.e. family, own home, and residential settings) and one study regarding participants' occupation. Three papers recruited support workers or therapists as the primary participants (N range = 105–942), while three studies focused on family caregivers of children and adults with ID.

Findings from the articles in the rapid review

Findings are presented in five themes relating to the first three objectives of this article. Objective 4 is addressed partially in the bricolage and in the discussion and recommendation sections of this article. Theme 1.1 addresses Objective 1; Themes 1.2 and 1.3 address Objective 2; and Themes 1.4 and 1.5 address Objective 3.

Theme 1.1: Use of ICT to gain information about COVID-19

Only three of the included studies investigated how ICT was used by people with ID or those providing support to access information about COVID-19 (e.g. national rates of infection, reducing risk via sanitary measures or vaccination). Navas et al. (2021) presented empirical data on ICT being used to provide information to people with ID. Few had accessed **COVID-19 information from the internet and social media** (only 4% living in service homes and 12% living in family care). Power et al. (2021) reported that **telephone calls** were used to check on people's well-being and provide guidance during COVID-19. Lake et al. (2021) reported on people's feelings of anxiety due to an **inability to access updated and easily understandable COVID-19 information**.

Theme 1.2: ICT integration in everyday life during COVID-19

Fourteen papers explored **how ICT had been integrated into the lives of people with ID during the COVID-19 pandemic**. Technology access and use increased during lockdown (McCausland et al., 2021), particularly the use of videoconferencing software in *education* (Amor

et al., 2021; Jeste et al., 2020; Rawlings et al., 2021; Spencer et al., 2021), in *therapy* (Datlen et al., 2020; Navas et al., 2021; Power et al., 2021; Rothman, 2021) or to maintain visual *social contact* (Araten-Bergman & Shpigelman, 2021; McCausland et al., 2021; Scheffers et al., 2021).

Professional carers used diverse and distal means to *provide services and supports* to stay in touch with people with ID. Participants reported using technology to connect with mental health care providers (e.g. therapists, counsellors) (Lake et al., 2021; Rawlings et al., 2021), or attend at least one video-based medical appointment (Lunsky et al., 2021). Family carers used telehealth services for their child (Masi et al., 2021). Videoconferencing and online whiteboards were also used to provide body movement and dance therapy (Rothman, 2021), as well as art therapy (Navas et al., 2021; Power et al., 2021).

As part of their *employment*, some people with ID (11.3%) had to adapt to working remotely with others. However, employment challenges were also evident with work disruption (67.5%), restricted working (11.9%) and lay-off (4.2%) reported, though the reasons for these challenges are not elaborated in this article (Amor et al., 2021).

Integration of ICT into *education* was investigated in three studies. Tele-education (i.e. video and/or e-mail) provided continued services, and only a small proportion of participants did not find tele-education helpful (Jeste et al., 2020). Adaptation to online learning varied considerably across people with ID, some reporting no difficulty, others claimed that they had not received the necessary support for online education (Amor et al., 2021; Spencer et al., 2021). Younger people with ID (under 21 years) received more support (79.4%) than did adults (38.7%), from their family caregivers rather than from the education system (Amor et al., 2021).

In addition to global Government guidelines, additional ***reasons reported for increased contact and provision via ICT*** included increased anxiety and worry at the beginning of the pandemic due to the sudden rapid transfer to online provision (Zaagsma et al., 2020), the ease of using ICT to contact services, the (un)availability of services and the influence support staff could exert on the use of services (Scheffers et al., 2021).

With regard to the ***efficacy of ICT provision of support and services***, most people with ID could not engage within videoconference therapy (Rawlings et al., 2021). There was acknowledgment that online was not the first choice with numerous logistical issues (Rothman, 2021), and telehealth was not always viewed by carers as ideal (Masi et al., 2021). The quality of contact was rated as significantly diminished following COVID-19 (Scheffers et al., 2021). Nonetheless, positives of online provision

were also noted in terms of allowing more space and time for progress/development and building of the therapeutic relationship (Rothman, 2021) and many family carers viewed online videoconferencing as helpful during COVID-19 (Araten-Bergman & Shpigelman, 2021).

Theme 1.3: The influence of digital inclusion on well-being during the COVID-19 pandemic

The relationship between well-being and digital inclusion for people with ID was often not considered in the papers reviewed. Seven of the papers in the review considered the effects of digital inclusion and ICT use during COVID-19 on people with ID. The definitional frameworks of well-being as balance, homeostasis and equilibrium (Dodge et al., 2012) and the domains of quality of life as outlined by Schalock et al. (2002) were utilised to identify themes to address the impact on well-being within Objective 2.

The primary aspect of well-being considered was ***social and interpersonal well-being***, manifest as acknowledgement of greater need for online contacts so that people were less likely to feel isolated during the pandemic. Maintenance of interpersonal relationships and social inclusion with friends, family and others through digital inclusion use was subjectively reported in interviews, observations and surveys by people with ID and staff more often than influences on other dimensions of well-being (Lake et al., 2021; McCausland et al., 2021; Navas et al., 2021; Rothman, 2021; Scheffers et al., 2021). Such contact was linked with greater ***life satisfaction*** and ***happiness*** (Navas et al., 2021).

Other aspects of well-being enhanced by digital inclusion during COVID-19 included ***emotional wellbeing*** and ***choice and power***. Benefits to ***emotional wellbeing*** were reported, in qualitative interviews and a cases studies, for people whilst they were engaging with online therapeutic, social and leisure activities through the opportunity to discuss and express feelings and via increased structure and routine (Datlen et al., 2020; Lake et al., 2021). The opportunity for increased ***agency, power and choice*** afforded by digital inclusion was highlighted. For example, online therapy to enhance well-being may ***increase autonomy and accessibility*** for people with ID (by allowing people to have therapy whilst doing other activities and whilst eating) (Power et al., 2021). ***Confidence*** was reported to have increased in a case study, during online dance therapy (Rothman, 2021).

In addition to the domains of quality of life, well-being as the ***maintenance of balance*** in life during COVID-19-related life challenges was evident in the

prioritisation of finding ways technology could facilitate life continuing as usual. Where an activity was lost or reduced in quality due to the lack of a digital alternative the negative impact on the general well-being of the person with ID was inferred but not evaluated in the studies reviewed, few of which directly addressed well-being as their primary aim.

Theme 1.4: Challenges and barriers to digital inclusion and participation during COVID-19

Of the 16 papers included, 14 papers reported on challenges and barriers related to digital use during the pandemic. Evidence is shared from perspectives of children and adults with ID, healthcare staff, support staff and family members. Digital poverty during COVID-19 was exacerbated by being **dependent on support for access** (Lake et al., 2021) and **protection and security concerns** being prioritised over online opportunities (Power et al., 2021; Rawlings et al., 2021).

As with many other aspects of their lives, **dependence on carers to proxy access technology** from home (Datlen et al., 2020) especially for people with ID who were non-verbal or could not use digital devices was also reported (Power et al., 2021).

Lack of **digital literacy skills and confidence** in prior use of ICT also reduced social participation (Lake et al., 2021; McCausland et al., 2021). **Lack of prior support and training** for both people with ID, support staff as well as health care staff was both a barrier and a challenge to pivot in person meetings and support to online meetings (Jeste et al., 2020; Lake et al., 2021; Lunskey et al., 2021; Masi et al., 2021). For some, **loss of autonomy** and an increased need for support were drawbacks of digital opportunities (Datlen et al., 2020; Lunskey et al., 2021; Power et al., 2021).

Other structural barriers for ICT use for people with ID were health care using **different tools and platforms** within telehealth (Lunskey et al., 2021; Rawlings et al., 2021), the **cost of digital devices** (Lake et al., 2021) and **no internet connection** (Power et al., 2021). **Sensory impairments** were mentioned to interfere with successful digital communication (Rothman, 2021). **Dependence on carers** to proxy access technology from home (Datlen et al., 2020) especially for people with ID who were non-verbal or could not use digital devices was also reported (Power et al., 2021).

With regard to children with ID' experiences of digital exclusion almost half of students had difficulties in remote learning and reported receiving no support to access online education (Amor et al., 2021). Masi et al. (2021) report that parents' reported an

inaccessibility of telehealth services and that telehealth therapy was not working well for their children. Older adults were reported to experience higher levels of poor access and use of ICT (McCausland et al., 2021).

Theme 1.5: Facilitators of digital Inclusion during the pandemic

Eleven papers mentioned facilitators to using ICT during COVID-19. Having **prior experience** made it easier to pursue educational activities (Amor et al., 2021; Jeste et al., 2020; Rawlings et al., 2021), receive services (e.g. art therapy) (Datlen et al., 2020; Navas et al., 2021; Power et al., 2021; Rothman, 2021), or virtual visits from family members (Araten-Bergman & Shpigelman, 2021; McCausland et al., 2021; Scheffers et al., 2021) through videocalls. This relied on **financial resources** for procuring ICT devices and an **internet connection** being available and accessible (Burke et al., 2021; McCausland et al., 2021). Other personal characteristics, measured among older people with ID, that were associated with greater ICT access and use were mild or moderate levels of ID, and being under age 65 (McCausland et al., 2021). As for searching information online, people with ID wished for more **cognitive accessibility** (Lake et al., 2021). Most often, **technical support** was reported as a prerequisite often needed to profit from online social participation and services (Amor et al., 2021; Burke et al., 2021; McCausland et al., 2021). Caregivers or one's personal support network were the most likely persons to provide technical support to service users (Power et al., 2021; Rawlings et al., 2021), especially for students under the age of 21 (Amor et al., 2021).

The support in ICT use received varied according to **living context**. Persons living in supported accommodation received less according to one study (Navas et al., 2021), but in another study, elderly persons living independently reported less access and less use of ICT (McCausland et al., 2021). This highlights the importance of **training and support** in ICT use **for and by service providers and caregivers**, who also benefit from **peer technical support and mentoring** (Power et al., 2021; Scheffers et al., 2021). Among strategies shared by professionals to make teletherapy successful, establishing a contract or **netiquette guidelines** for online interactions were offered by art therapists (Power et al., 2021) and could be generalised to other settings (e.g. dress appropriately, log in on time, keep device still). Having met in person first or having an **established relationship** (Burke et al., 2021; Power et al., 2021) between service user and provider was also mentioned as a facilitator to personal meetings going online during the lockdown.

PART 2: INTERNATIONAL BRICOLAGE EXPLORING DIGITAL INCLUSION AND PARTICIPATION OF PEOPLE WITH ID DURING COVID-19

Bricolage is a methodological approach that allows bite-size chunks of research to be pieced together to create a more meaningful whole (Wibberley, 2012). A methodological bricolage (Denzin & Lincoln, 2000) employs numerous data-gathering strategies that respect the complexity of the lived world whereby researchers actively construct research methods from the tools at hand (Kincheloe, 2005; Transken, 2005). Here, a pragmatic bricolage design was employed to enable the inclusion of the richer, unpublished contemporary information about digital inclusion from multiple sources. Human-rights, interdisciplinary, socioecological and cross-cultural contextual perspectives informed our selection, collation and synthesis of information from the various sources (Table 1). This enabled the research team to use what was 'to hand', a common approach in bricolage (Transken, 2005), to provide information about digital inclusion of people with ID during COVID-19. All data for the bricolage were gathered between March and June 2021 but spanned the duration of the pandemic.

Data collection and sources

In pairs or individually, authors from each country gathered relevant information for the bricolage. Multiple data

sources (Table 1) were used to gather salient information by authors for their respective home countries. These were collated using MIRO™, an online whiteboard programme. Data sources were not limited by rigour and quality related criteria, instead authors focused on the relevance of articles to answering the research questions. Having an international team allowed the bricolage to gather common perspectives from different countries and include media and news accounts from those countries, in languages other than English. Countries included were Australia, Canada, Germany, Ireland, Poland, Spain, Sweden, UK.

Data synthesis/analysis

One to three authors thematically analysed the bricolage sources for their respective countries to identify key interpretive and descriptive themes which addressed the research questions. Sources and themes were integrated into MIRO™ and grouped for each country for each theme. Links and similarities in sources and explanatory relationships were identified. Following this, a series of four cross-country coding and discussion sessions were held to identify key findings common across the participating countries. These descriptive and interpretive themes were iteratively checked with the original sources for each country. Each theme was written into the bricolage findings by two authors. Examples from the bricolage data were grouped in MIRO™ by authors alongside each theme. Finally, written accounts of each theme were

TABLE 1 Bricolage data sources/collection approaches for each of the participating countries

Country data source	Sweden	Ireland	UK	Poland	Spain	Germany	Canada	Australia
Primary empirical data ^a								
Interviews/focus groups with people with ID or other stakeholders ^a	✓	✓	✓	×	×	✓	✓	✓
Survey/questionnaire with people with ID or other Stakeholders ^a	✓	✓	×	✓	×	✓	×	×
Direct observations of people with ID or other Stakeholders ^a	✓	×	×	×	×	×	×	×
Anecdote/personal communications from/ emails and conversations ^a	✓	✓	✓	✓	✓	✓	✓	✓
Secondary data								
Grey literature and online sources	✓	✓	✓	✓	✓	×	✓	✓
Governmental guidance, information and policy documents	✓	✓	✓	✓	×	✓	✓	✓
Offline and online news and media articles	✓	✓	✓	✓	✓	✓	✓	✓
Blogs, websites, campaigns, and so on	✓	✓	✓	✓	✓	✓	✓	✓

^aPreliminary analysis of empirical data incorporated into the bricolage was only done for data collected as part of projects which had received full ethical approval, in the relevant countries, from University and Governmental ethical approval panels. All other secondary source data utilised were publicly available.

checked to corroborate that they adequately represented the bricolage data. As in the review, emboldened italics indicate subthemes in the findings.

Findings from the International Bricolage

Eight themes common across the eight countries were inductively derived from the thematic analysis of the bricolage information. As a result themes were less mutually exclusively aligned with the objectives with some themes providing insights for more than one of the objectives. Nonetheless, Theme 2.1 provided insights to address Objective 1. Themes 2.2, 2.3 and 2.4 provided insights to inform Objective 2. Themes 2.2 and 2.4 also gave additional information regarding Objective 3 alongside Themes 2.5 and 2.6. Finally, Themes 2.7 and 2.8 highlighted societal level issues which informed both Objectives 3 and 4.

Theme 2.1: Inadequacy in the provision of accessible COVID-19 information online and offline

Information about COVID-19 and associated action strategies have relied on the media and ICT during social distancing. Easy to read information often seems to have been produced after alarm from NGOs that there was a **lack of accessible COVID-19 information**. Across a number of countries NGOs stepped up to produce such information, filling a gap not covered by governmental crisis management. When this material was published online, people with ID often had trouble finding it or could not access it without support. While the general public information was updated daily, easy to read material was rarely updated and often did not provide detailed necessary information (e.g. how to be tested or vaccinated).

Conversely, some people with ID experienced a surplus of easy to read information and general information that created **confusion about which sources to use or trust and information overload**. Support was needed to select and parse the easy read information. This lack of accessible information has persisted throughout the crisis. It appears in parallel to the health crisis a parallel communication and information crisis has occurred for people with ID during the pandemic.

Theme 2.2: The persistence of digital exclusion of people with ID throughout the pandemic

Despite increases in the use of technology globally, digital exclusion remained a challenge during COVID-19 for

people with ID. **People did not have the necessary devices or connection** and those providing support did not always have **sufficient knowledge and skills to support** them to use it.

Theme 2.3: Technology has alleviated loneliness but is not equivalent to offline social contact

People with ID have faced increased **isolation during the pandemic** and ICT has been a route to **maintain contact, alleviate loneliness and to maintain daily activities and occupation benefitting wellbeing**. Again this mirrors the rapid review findings.

Some community organisations were quick to transform their group activities into an online mode within weeks of lockdown beginning. Jobs were created or amended to train others and provide technical support to run these activities. **Videoconferencing was the main route to remaining connected** with some carers, supporters and service providers being surprised at how quickly service users with ID were able to learn how to use video calling applications. In some instances, the move to online video communication led to people who had previously not been involved in activities attending, in others it led to people withdrawing from previous occupation and leisure.

Despite this move online being viewed as extremely beneficial during lockdown, accounts of parental carers, professionals and people with ID indicated that **meeting online was 'not the same' as offline** with eagerness to return to in-person meetings sometimes evident.

Theme 2.4: Changes and challenges in online provision of services and supports

The bricolage mirrored the rapid review finding that there were attempts to **swiftly move to online provision by some** with varying degrees of success and commitment evident. **Some services carried on, some stopped, some adapted, some worked in a reduced way, some struggled to get online, some carried on for people without intellectual disabilities but not for people with intellectual disabilities**. For services to be successful online, they needed to make a significant and rapid effort to adapt their services with a commitment from key stakeholders. Having tech-savvy employees and support facilitated the transfer. There is evidence of **innovative strategies** with some new services and activities having emerged. There were also

examples where no attempt had been made to move online with offline services continuing, arguably putting people with ID at greater risk of getting COVID-19. For the future, there appeared an interest and appetite for a hybrid model of both online and offline provision.

Theme 2.5: Gatekeeping can exacerbate digital exclusion for people with ID

Several layers of gatekeeping issues emerged during the COVID-19 pandemic. Due to the switch to remote education during the pandemic, **parents were advised to control the time** their offspring (children and adults with ID) spent online, and **use settings to restrict access** to certain online content. Although implicit in the data **the digital risks prompting gatekeeping, monitoring and restrictive activities were seldom mentioned** in the bricolage representing a gap in the empirical and non-empirical data. Consideration of increased digital risks concurrent with increased digital participation and the supports people needed in relation to this were notable in their absence.

When residents with ID were provided with digital devices, direct **support workers in residential care also controlled access and use** of digital devices among residents, or **failed to use the devices due to their lack of competence or confidence** using ICT. Sometimes, they were **unwilling to provide services online** or associated technical support that would allow video contact between family members. Phone calls were preferred.

Theme 2.6: Prior experience facilitated digital inclusion and extensions in digital participation during COVID-19

People with **prior experience using digital tools had an advantage with the rapid online transfer**. Few people who were digitally excluded have subsequently become digitally included, despite government efforts in some countries to provide tablets and an internet connection. Digital inclusion relied on technical support from family or service providers, a finding from the rapid review corroborated in the bricolage.

Whether previous and current technical support was given depended on both **attitudes and digital competence among service providers**. These findings accord with those in the rapid review.

Theme 2.7: Awareness of digital exclusion and poverty were raised during the COVID-19 pandemic

COVID-19 has led to an **awareness raising** in areas of society that have previously ignored the issue of digital inclusion and online provision. Professionals working with people with ID have been surprised at how easily it was possible and how many barriers (notably transportation) were removed by online connections. ICT use allowed for more frequent but more time efficient appointments. There has been significant interest among professionals in raising their own skills around remote work as well as an awareness about the vital need of digital skills training for people with ID.

Despite this, many people with ID faced challenges in the rapid transfer to online support. Other than a few media representations of individual accounts, there has been a relative **silence on how many people were left behind in digital poverty** during the pandemic and how the pandemic has affected their well-being and daily lives.

Theme 2.8: Digital inclusion and participation as a human right during the COVID-19 global pandemic and the inadequacy of governmental and state response

Article 11 of the United Nations Convention on the Rights of Persons with Disabilities states that nations must look after people with disabilities in 'situations of risk and humanitarian emergencies'. During the time of unprecedented global pandemic people with ID and families/carers informational, support and associated digital needs have been an afterthought with many experiences of **inequity of access to online supports across all age groups in all areas of life**. Considerable burden both financially and to well-being has been placed on people with ID and family carers. Evident in the bricolage were **calls for Governments to increase financial support to enable better digital connectedness to critical services**, to value the lives of people with ID, carers/families to ensure equity of access and opportunities.

The **digital divide continues to disproportionately affect people with intellectual disabilities** compared with the non-disabled who are not part of other at risk groups of digital exclusion. Although the pandemic has raised awareness of this with **the best NGO organisations** (e.g. **Community groups and Advocacy Organisations**) **responding quickly to promote and enhance digital inclusion** to incorporate videoconferencing.

Whether this has reduced the digital divide for those with ID overall remains to be determined but looks unlikely.

Article 21 of the UNCRPD (2007) outlines the necessity for information to be made available in accessible formats. Bricolage findings indicate this did not happen, with people ***left without accessible information about many aspects of the global pandemic***. Linked with this is the lack of infrastructure developed to upskill those providing support to become more digitally literate so that they can better facilitate the digital inclusion of those with ID.

Consequently, the digital needs and rights of the ID community and their supporters have been unprotected. In addition, ***inadequacy of Governmental and state responses*** has compromised the human rights of people with ID and their families during COVID-19.

DISCUSSION

Key findings from the rapid review and bricolage are discussed together and presented below in relation to the objectives, followed by recommendations from the findings, gaps identified in the research and study limitations.

Objective 1: Digital inclusion and access to COVID information

Despite being at greater risk of negative outcomes from COVID-19 (Walker, 2021) the support for digital access and accessible information to keep abreast of the latest guidance and information was internationally inadequate. Accessible material on prevention of the spread of COVID-19, testing and how to get a vaccine have been produced in some countries. However, there has been little coordination, challenges accessing the accessible information online, few updates to help people keep abreast of changes and, for some, an overwhelming volume making processing the information almost impossible. Some countries provide limited or no accessible material about COVID-19 at all. The need to provide accessible information directly to people with ID with support of ICT seems to have been, thus far, largely ignored.

Objective 2: The impact of digital inclusion/exclusion on the lives and well-being of people with ID during the pandemic

This international investigation provides insights into how the rapid transfer to online communication,

activities and services during the COVID-19 pandemic has affected the lives of people with ID. The rapid online transfer has affected the lives of people with ID in various ways. Nonetheless, the pandemic has highlighted that the benefits of digital inclusion far outweigh the cost to society of providing support in ICT use for people with ID for increased inclusion, not only in digital life but also in life overall. Increased use of videoconferencing software was evident across both the rapid review and bricolage findings in many areas of people's lives.

ICT use and the impact on well-being

Positive differences digital solutions have made to the lives of people with ID during the pandemic were evident, examples have been found in both service provision, education and therapeutic services, for example, providing art therapy. Benefits to psychological well-being (i.e. emotional well-being, life satisfaction and happiness, autonomy, choice and power and confidence) was also apparent similar to prior research findings (Chadwick & Fullwood, 2018). Although technology cannot replace offline social contact, in-person social contact alone cannot replace/compensate for online social participation. Full citizenship now includes having an online presence and participation.

Negative effects on well-being were also evident due to isolation, loss of leisure and social contacts and reduction or absence of services and support, all exacerbated by a lack of access and provision of digital alternatives. This is attributable to a pre-existing digital divide and lack of digital participation for people with ID, which has been identified previously (Alfredsson Ågren et al., 2019; Chadwick et al., 2019) and found not to have been overcome during the COVID-19 pandemic despite the rapid transfer online for most parts of society.

Objective 3: Identifying the barriers and facilitators of digital inclusion among people with ID during the pandemic

Challenges to digital inclusion

The use of technology to maintain aspects of everyday life was impeded by various barriers; individual (lack of digital literacy, sensory impairments, confidence), support (lack of support and training, carer dependence and restriction of access), technological (internet connection challenges of using multiple platforms, lack of hardware linked with poorer finances) and socio-political (lack of adequate Governmental action to promote digital

inclusion) barriers. This mirrors prior research findings relating to online inclusion challenges (Chadwick et al., 2013; 2019; Alfredsson Ågren et al., 2019).

Challenges in online service provision during COVID-19

As noted, service providers, educational, health and social care professionals and caregivers, despite feeling pressure to move online, often failed to rise to the challenge of implementing digital solutions during Government sanctioned lockdowns and social distancing imperatives. Although awareness of digital exclusion was raised these stakeholder groups: underestimated people's ability to use ICT; were unwilling to provide the effort to train and support ICT use; and were often not adequately trained (digitally competent/literate) themselves. Despite awareness being raised, the extent to which this has led to action and actual change in the lives of people with ID remains unclear.

Facilitators of digital inclusion

The increase in ICT access and use in everyday life applied primarily to those with prior digital skills and Internet use experience. Additional facilitators of digital inclusion were; established relationships, adequate finances and technological resources and supports. However, it is identified that with sufficient assistance, people with ID could adjust and benefit from online service provision and social contact via videoconferencing.

Objective 4: Lessons learned and how the findings can be leveraged to improve digital inclusion in future similar global circumstances

Despite increased awareness and use of videoconferencing, there is little evidence that a significant proportion of those with ID who were digitally excluded pre pandemic were now digitally included.

A common finding to all countries in the bricolage was the role of NGO's in providing direct support for digital inclusion and COVID-19 information (rather than service providers or Governmental bodies) who took up the challenge of maintaining everyday life, services and supports for people with intellectual disabilities online. Some NGOs successfully moved to online provision of communication, activities and services. There were attempts by some Governments to provide financial support to

support digital inclusion, though without a support infrastructure alongside this it appeared unlikely this would enable many digitally excluded people to get online. The work of the NGOs in providing accessible information and supporting digital inclusion demonstrated a lack of readiness in Governmental and crisis organisations who should already have contingencies for how they would communicate important information to all groups within society.

Despite awareness being raised societally regarding digital exclusion and the work of these NGOs, there is little evidence that pandemic lockdown measures created an impetus to eliminate digital poverty or initiate digital inclusion of people with ID without prior experience of ICT use. Digital inclusion and participation are human rights. People with ID still appear to be considered implicitly within society to have lower social value. Their right to access and use digital technology has not been respected during the pandemic. They are left behind and neglected in times of need and emergency.

Recommendations from the findings of both the rapid review and bricolage are presented in Table 2.

Gaps in the current evidence base

The rapid review and bricolage also highlighted a number of omissions and absence in the evidence base currently. Few papers discussed how technology facilitated access to COVID-19 information. This may be illustrative of how embedded and 'taken for granted' the digital is among academic authors who do not face digital exclusion. Often only when digital access raised challenges was it recognised in papers where digital inclusion was not the primary focus. Although there was evidence of benefits to social inclusion, self-determination and emotional well-being, little information was evident regarding the effect on quality of life of digital exclusion, especially those people who did not gain access to digital solutions to enable them to have a continuity of services, leisure, daily activities and educational and day provision. As most data has been gathered online during COVID-19 (Doody & Keenan, 2021), it is likely that the experiences of these people with ID and carers and the impact of COVID-19 and digital exclusion on their well-being has not yet been sufficiently explored. It may be politic for future studies to use validated well-being instruments and observational methods to consolidate qualitative findings regarding the benefits of ICT use. Future studies may also wish to explore the important question of whether proxy accounts produce different findings to those directly taken from people with ID.

Despite the increase in use of digital technology by people with ID already using technology, and those supporting them, little empirical evidence considered digital risks and their management. No studies were evident focussing on whether online harms increased and how they affected people with ID and those providing them with support during COVID-19 rather security concerns

were only identified as a barrier to digital inclusion (Power et al., 2021; Rawlings et al., 2021). This is a considerable oversight considering the increasing sophistication and prevalence of cybercrime. Seldom did papers incorporate details of the hardware and software or the design of the interfaces used in relation to findings about ICT use by people with ID during COVID-19. These are

TABLE 2 Recommendations regarding the digital inclusion and participation of people with ID

Based on the findings from the rapid review, bricolage and prior research literature regarding the digital inclusion and participation of people with ID the following recommendations are made

Supporting ICT access and infrastructure

- (i) Governments need to ensure adequate infrastructure for digital connections is available for people with ID and those providing them with services. Financial support and how to access this for ICT connection, hardware and software is essential
- (ii) Governments need to provide financial support to service providers to enable them to upskill those working with people with ID to better enable them to embed opportunities for digital inclusion in the everyday lives of people with ID
- (iii) Governments need to fund respite to enable family carers to access free digital literacy training for family carers to better equip them to support the digital inclusion of their family members

Providing essential information to people with ID

- (iv) Governments need to commission NGOs to provide unified, simple, accessible information on an ongoing basis throughout any national crisis that is co-created by people with ID but also details the support needed to access information
- (v) Service providers and family carers need to provide support to people with ID based on their knowledge of their comprehension and literacy. Easy-read often does not always convey information without additional support
- (vi) People with ID need to be provided with regularly updated information about the state of the nation and information about what they should do during a pandemic/national crisis.
- (vii) People with ID need information about how to access the support they require both to access the information via ICT and the support needed to understand and enact the information and guidance provided

Service provision via ICT

- (viii) As a hybrid model of both online and offline service provision is expected, and in some quarters recommended moving into the future, Governments need to take steps to ensure that people with ID are not digitally left behind and excluded or delayed in receiving ALL services, due to a lack of offline alternative service provision.
- (ix) Service providers need to think creatively to ensure that in the move to hybrid provision people with ID are not overlooked and also need to provide a supportive environment for ICT use by people with ID and their carers incorporating guidance and support to access their services online

Increasing digital literacy and facilitating digital inclusion of people with ID

- (x) Government and service providers need to commission and develop programmes to enhance digital access, literacy and safety of people with ID and caregivers. These need to be co-created and rolled out at no charge to people with ID and those providing them with support
- (xi) Carers need to provide sufficient support to enable digital inclusion, enhancement of digital literacy and opportunity for online lives and service access by people with ID
- (xii) Where appropriate, people with ID should form networks of support for digital inclusion and participation to enable greater access to ICT supports, leisure and services where desired and required
- (xiii) Governments need to prioritise digital inclusion of people with ID during national crises as they often have more restricted social and support networks and are often at increased risk of negative outcome and digital inclusion during this crisis has benefitted emotional, social, psychological well-being and people's human rights
- (xiv) Governments to penalise and sanction providers of ICT who fail to consider the inclusion of people with ID in their design processes
- (xv) Societal attitudinal change programmes are required to raise awareness of digital inclusion as a human right and of the potential of people with ID to be digitally included and enhance digital literacy expectations and opportunities
- (xvi) Further research and practice work are needed to identify how best to facilitate the digital inclusion of those with ID who remain digitally excluded

clearly areas where greater future interdisciplinary research focus is needed.

Limitations

In some of the sources included in the rapid review and bricolage ICT was not the key focus, though salient findings regarding ICT arose. Hence, we cannot be certain we have fully captured all of the incidental findings regarding ICT use and digital participation for people with ID during the COVID-19 pandemic from those papers where it was not an identified and highlighted aspect of the study. This could again be emblematic of the 'taken for granted' nature of ICT use within everyday life.

Findings here must be viewed tentatively for the bricolage as they only incorporate perspectives of the member countries and those in the rapid review. No studies were explicitly conducted in global south countries representing a persistent and pervasive gap in the literature, not particular to digital inclusion research. Nonetheless, there is representation from an international authorship which is a strength of this article in allowing the bricolage to identify common themes across included countries adding a breadth of perspective. However, the limited number of authors from each country and pragmatic space limitations of a journal article meant this article was unable to offer exhaustive coverage or comparison of policy, activity or experience around digital inclusion and exclusion of people with ID during the COVID pandemic.

CONCLUSION

There has been a rapid transfer to online life and reliance on ICT use during the COVID-19 pandemic. Nonetheless barriers to digital inclusion and participation persist and digital access to COVID-19 information appears lacking. Findings show that with proper support and motivation to engage with digital solutions, they can offer a positive adjunct to offline information and supports provided to people with ID. This may lead to increased digital inclusion for people with ID so they can experience full participation and inclusion in both the offline and online world. Recommendations (Table 2) to enable this to happen both globally and in future international crises are provided.

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CONFLICT OF INTEREST

The author declares that there is no conflict of interest.

ETHIC STATEMENT

The work conducted for this paper received ethical approval from the University of Wolverhampton Psychology Ethics Panel.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

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