Implications for Rehabilitation

- The emergent policy move towards self-directed health care for people with disability requires that the health care perspectives of people with disability are considered.

- Effective consultation and discussion techniques are essential to gain the health care perspectives of people with cognitive disability.

- After undertaking methodological considerations, the Nominal Group Technique (NGT) can be an effective approach towards gaining the health care perspectives of people with cognitive disability.
Nominal group technique for individuals with cognitive disability: A systematic review

Abstract

Rationale: Considering the perspectives of individuals with cognitive disability is important for their participation in their self-directed health care. The Nominal Group Technique (NGT) has been identified as a method to gather opinions of people with cognitive disability, however a synthesis of NGT methodological considerations to undertake when employing the approach among people with cognitive disability is non-existent. Method: A systematic review guided by the PRISMA approach was undertaken. Five databases (CINAHL, ISI Web of Science, ProQuest Social Science Journals, Scopus, and MEDLINE) were searched for peer-reviewed literature published at any date. Methodological considerations pertaining to the four stages of the NGT – generating ideas, recording ideas, clarification, and ranking – were extracted from each study. Results: Nine publications contributing to eight studies were included. Methodological considerations focused on (i) the number of participants within discussion groups, (ii) research question introduction, (iii) support individuals and accessible methods, (iv) ranking, and (v) researcher training and counselling services. Conclusion: The use of the NGT approach for gaining the health care perspectives of adults with cognitive disability is promising. Conducting NGTs informed by the methodological considerations identified within this review can work towards ensuring that the health care perspectives of people with cognitive disability are considered.
Introduction

The United Nations Convention on the Rights of Persons with Disabilities (hereafter the Convention) [1] is a seminal declaration enacted to protect and affirm the human rights of individuals with disability. The Convention prioritises that people ‘…with disabilities should have the opportunity to be actively involved in the decision-making processes about policies and programmes, including those directly concerning them’ (p. 2). Despite the importance of consulting those with disability to ascertain their opinions and perspectives about issues that are important to them (e.g. [2]), accessible methodologies to gather their opinions, particularly for those with disability impacting their cognitive capacity, have yet to be formally established through evidence-based research. [3]

Across the developed world, there is a policy move towards self-directed health support for individuals with disability (see the National Disability Insurance Scheme Act [4] (2013) in Australia, the Social Care (Self-directed Support) (Scotland) Act [5] 2013, and the National Health Service (Direct Payments) Regulations [6] 2013 in the United Kingdom). These polices aim to ensure that people with disability have greater choice and control over the health supports that they receive. Consequently, currently there is a strong emphasis on incorporating the perspectives of people with disability concerning the provision of their health care.

Cognitive disability is defined as ‘significant limitation in thought processing, like conceptualizing, planning, and sequencing thoughts and actions, remembering, interpreting subtle social cues, and understanding numbers and symbols’ [7, p. 49], and may be developmental in nature (e.g., reflects intellectual disability [ID]) or acquired (e.g., acquired brain injury, dementia, stroke). [7,8] Generally, research methods that are used to gain the opinions and perspectives of individuals with a disability concerning their health care and
rehabilitation are rarely developed for the capacities of the groups participating. [9, 10, 11] As a result, in many instances, family members and non-family carers often provide responses on behalf of an individual. [9, 11, 12] These responses are valuable as both groups often know the individual concerned best and have their best interests in mind. However, the views of those with disability at times differ from that of their parents, carers, or individuals speaking on their behalf. [12, 13] Thus, it is important to continually work towards the development, implementation, and refinement of tools which are appropriate for those with cognitive impairment and capture their perspective.

The nominal group technique (NGT) is a focus group research method used to elicit participants’ views and priorities. The NGT process involves four core stages, namely: (a) generating ideas, (b) recording ideas, (c) clarification, and (d) ranking [14, 15, 16]. Initially, during stage one, an explanation of the research question is provided to participants and time is provided for them to brainstorm their responses. During stage two, participants present their ideas and these ideas are recorded and displayed by the researchers. During stage three researchers collate the ideas into rough themes. Finally, during the fourth stage, participants individually rank the presented ideas from most to least important. The advantages of the approach include the equal participation of individuals and the minimisation of dominant participant voices. [17] This method is somewhat flexible however, and alterations are often made to accommodate either the research question or the participants.

While limited evidence-based methods exist to ascertain the health care perspectives of individuals with disability, particularly cognitive disability [10], the NGT approach is being increasingly employed. For example, NGT has been employed as a tool to understand the views of adults on end-of-life care provision [18], and to determine what adults feel contributes toward
a successful working relationship with paid carers. [19] Despite the potential for NGT to be an effective approach to elicit the opinions of individuals with cognitive disability, key methodological considerations required to appropriately administer NGT have yet to be identified and synthesised. It is important that methodological considerations are made when employing NGTs amongst individuals with cognitive disability. [14, 15] Such research is timely considering the current importance around ascertaining the perspectives of persons with disability in terms of their health care. Consequently, the authors conducted a systematic review to identify and synthesise the key methodological considerations for administering a NGT amongst people with cognitive disability.

Method

The systematic review method and findings are reported below according to the PRISMA reporting guidelines. [20]

Search Strategy

The initial search of the literature was conducted on the 1st of September, 2015. Five electronic databases (CINAHL, ISI WebofScience, ProQuest Social Science Journals, Scopus, and MEDLINE) were searched for literature published at any date using the following search string: "disab*" AND ("Nominal Group Technique*" OR "NGT*" OR "Nominal Group Discussion*"). An updated search of the literature was undertaken on the 6th of September 2016 to capture recently published articles that met the eligibility criteria. The information reported below represents the cumulative (2015 and 2016) method and review findings. Table 1 outlines the fields searched in each database and the number of articles subsequently identified.
**Eligibility Criteria**

Articles were included in this review if they: (a) focused on the use of the NGT to gain the perspective of people with cognitive disability; (b) were published in a peer-review journal; and (c) were written in the English language. Articles were excluded if they did not describe the NGT process used in the study in detail, or the methodological considerations needed for the participating group. In addition, studies that included a mixed sample (i.e., people with cognitive disability alongside a variety of stakeholders) and did not address NGT methodological considerations for the participants with disability were excluded from the analysis.

**Screening and Study Selection**

The cumulative search of the literature identified a number of articles that employed the NGT method amongst people with cognitive disability. Articles were screened to remove duplicate studies using the software-based reference management system Endnote©. [21] Following the removal of duplicates, the title and abstract of the remaining studies were evaluated for eligibility. Full-text articles were retrieved when eligibility could not be determined from the abstract alone.

**Data Extraction and Synthesis**

Data extraction was independently undertaken by two researchers to limit selection bias. Differences in opinion were reconciled by consensus with the three remaining researchers on the team. Data extracted from each article included citation and country of study, study aim, and study sample. Methodological considerations employed by each study for participants with cognitive disability that pertained to the four stages of the NGT – generating ideas, recording ideas, clarification, and ranking – were also extracted. Additional methodological information
described by the study authors that did not align with the four core NGT stages were also noted. A narrative synthesis was used to describe the information obtained from the included studies.

**Quality Appraisal**

Two researchers independently assessed the methodological rigor of all included studies using the Mixed-Methods Appraisal Tool (MMAT). [22, 23] The MMAT is useful when appraising qualitative, quantitative, and/or mixed-method studies, as it allows for comparisons across different study designs. When appraising each study using the MMAT, relevant criteria (based on the study design) are graded as 1 or 0, where 1 indicates that the criteria has been met and 0 indicates that the criteria has not been met (or the assessor was unable to determine from the information provided whether the criteria had been met). The assessed studies were given an overall quality score (expressed as a percentage) by each reviewer. An interrater reliability score was calculated using the percentage agreement method. [24] The percent agreement between authors DW and JB was 93.75%. Disagreements were resolved through discussion with lead author AL until 100% agreement was achieved. The final MMAT rating can be seen in Table 2.

**Results**

Figure 1 provides a summary of the review process according to the PRISMA 2009 Flow Diagram guidelines. [20] Nine publications contributing to eight studies were identified. The reference lists of these nine publications were then hand searched for additional articles that met the inclusion criteria. No additional publications were identified on this basis, resulting in the final inclusion of eight studies in this review. Data from the nine publications were extracted for synthesis.
Quality Assessment

The quality assessment scores for each included study are reported in Table 2. Six (75%) of the eight included studies satisfied all MMAT criteria for methodological quality. Given that the two remaining studies detailed a clear research question, and the data obtained addressed the research question, no eligible studies were excluded from this review based on methodological quality.

Characteristics of Included Studies

Of the eight included studies, the majority (n = 6; 75%) were published in the previous two years (2014-2016), indicating a recent emergence of the NGT method amongst people with cognitive disability. The included studies also demonstrated that the NGT method has informed international research, with single-site studies being undertaken in the USA (n = 2), Canada (n = 2), the Netherlands (n = 2), and the United Kingdom (n = 1), and one multi-site study conducted across seven nations (Australia, Canada, Hong Kong, Denmark, South Africa, the United Kingdom, and the USA). The total reported sample size was 187 people with cognitive disability. Individual study sample sizes ranged from 10 to 39 participants (m = 23; SD=11.15 participants). The reporting of gender, age range, and mean age was inconsistent across the studies, so could not be accurately calculated. Of the eight included studies, the participants in five (63%) studies had been diagnosed with ID. The participants in the three (37%) remaining studies had a diagnosis of aphasia.

The purpose of each NGT varied across the included studies. For studies including people with ID, the research questions focused on sexual self-advocacy [28, 29], relationships with carers [19], end of life care [18, 25], and participants’ evaluation of healthcare tools available to them. [30] For studies including people with aphasia, the research questions centred on
participants’ impressions of the future of research in aphasia [27], perceptions of barriers to work reintegration [26], and what healthcare domains (e.g., communication; participation) were important to them. [31] These research topics reflect an overall theme of empowerment, which recognises the right of people with disability to make decisions concerning their own lives. Table 3 presents an overview of the included studies.

**Key Methodological Considerations**

Key methodological considerations important for implementing NGT focus groups amongst people with cognitive disability were identified from the literature. These methodological elements related to: (a) the number of participants in each NGT focus group; (b) the introduction of the research question; (c) support individuals and accessible methods/materials; (d) ranking; and (e) researcher training and counselling services. These five considerations are described below.

**Number of participants in each group**

The suggested number of participants needed to conduct NGT focus groups within the general population vary, with some studies suggesting that 5-9 participants [32] or 6-12 participants [33] are appropriate. For those with impaired cognitive capacity however, the included studies suggested that NGT focus groups should be conducted with smaller participant numbers. For example, 3-6 participants [14, 18, 19, 25, 26, 31], 7-8 participants [25, 27], as many as 10 participants [30] and as few as two participants [26] comprised the NGT focus groups in the included studies. Interestingly, Tuffrey-Wijne and colleagues [18] suggest that “…inviting eight participants to each [focus] group is ideal; it is possible to accommodate eight people in a group, whilst non-attendance should not reduce the size of the group too much” (p. 86). The number of participants in an NGT is therefore a key methodological consideration for implementing the
method with people with impaired cognitive capacity. Including a maximum of eight participants in each focus group likely ensures that those who may require additional assistance from a support person (advocate) are accommodated for. Groups of this size may also facilitate adequate depth of discussion and ensure all opinions are given appropriate consideration.

**Introducing the research question**

The included studies clarified that for persons with impaired cognitive capacity, the introduction of the research question to requires consideration. Five creative approaches to this task were demonstrated by the eligible studies, namely: (a) providing participants the research question in writing prior to the NGT focus group [31]; (b) using a summary document to describe the existing research in the area under investigation [27]; (c) employing practice sessions before the actual data collection so that participants were familiarised with the NGT methodology and research context [26, 30]; (d) providing a fictional story [18, 19, 25]; and (e) personalising the research question for each person participating in the NGT focus group. [26] These techniques were described by the respective included studies as providing an effective approach to initially engage people with impaired cognitive capacity in the NGT process.

**Support individuals and accessible methods / materials**

The participation of individuals with impaired cognitive capacity in the NGT focus groups of each eligible study was facilitated by the inclusion of support individuals and accessible methods and materials. For example, individuals with a long history of working with the person with disability [19], support group leaders [27], speech pathologists and social workers [26], and researchers [18] in the respective studies facilitated the participation of people with disability. The degree of involvement of these support individuals varied but their role generally related to activities that: (a) aided participants’ delivery of information to the facilitator and group, and
were characterised as ‘…a supportive conversational partner’ [26, p. 275]; and/or (b) assisted the
facilitator to ascertain the person’s perspective and responses by ‘interviewing’ the person (on a
one-to-one basis) throughout the NGT process. [18, 19, 31]

The incorporation of accessible methods and materials in the NGT process of each
included study also facilitated the active participation of people with impaired cognitive
capacity. The methods and materials included pictures to represent ideas or thoughts [18, 19, 28]
on a projector to project information and ideas in larger sized font [19], practice sessions to
ensure participants understood the session objective [30], and the use of simplified language and
multimodal communication methods. [18, 27] For example, Owen and colleagues [28] provided
participants with the opportunity to write out or draw their initial ideas on a large piece of paper
to then share with the group, if they preferred. Support individuals and accessible methods /
materials therefore represents a key methodological consideration for implementing the NGT
approach amongst people with cognitive disability.

**Ranking**

Ranking also requires consideration when conducting NGT focus groups amongst people with
cognitive disability. The number of items participants were asked to rank, the ranking process
itself, and the materials used during this stage differed across the included studies. For example,
participants were asked to identify and numerically rank their top three [31], five [18], or six to
seven [26] items. Alternatively, participants in the Bekkema et al. [25] study were asked to sort
index cards displaying each item identified during the recording ideas stage into ‘best’ and
‘other’ piles. Interestingly, index cards were also used in the studies conducted by Garcia et al.
[26], Roeden et al. [19], and Tuffrey-Wijne et al. [18] Conversely, Owen et al. [28] and Spassiani
et al. [30] used a colour-coded sticker system.
The included studies highlight the potential for biases given the subjective nature inherent with ranking and also the issues that are faced by participants with disability. Ranking may either be conducted at random as highlighted by Owen et al. [28], misunderstood, or influenced by features of the items used to rank (e.g., pictures on index cards; [18]). As such, consideration for appropriate and effective ranking methods given the population are important in the preparatory stage of an NGT to ensure valid and reliable outcomes.

**Researcher training and counselling services**

The included studies revealed that the inclusion of researcher training and counselling services in the NGT methodological protocol can improve the quality of information gathered from participants with cognitive disability, as well as provide a supportive environment post data collection. For example, an effective questioning and interview strategy taught to the research team prior to the NGT taking place was implemented by Tuffrey-Wijne et al. [18], Hinckley et al. [27], and Owen et al. [28] The purpose of this researcher training was to ensure depth of discussion during the focus groups. In addition, discussions in two included studies [18, 28] were inherently emotive. As such, informal debriefing [18] and formal counselling sessions from a qualified mental health professional [28] were offered to participants following the NGT focus group. Evidently, researcher training and counselling services are therefore important methodological considerations for conducting NGT focus group with people with cognitive disability to ensure the richness of information gathered and participant wellbeing.

**Discussion**

This review aimed to identify and synthesise the key methodological considerations for administering NGT amongst people with cognitive disability so that their voices may be heard in research. The evidence from this review was sourced from nine publications contributing to
eight eligible studies. Most (n = 5; 63%) studies included participants with ID, with the three (37%) remaining studies conducted with adults with aphasia. The key methodological considerations identified related to the number of participants in each NGT focus group, the introduction of the research question, support individuals and accessible methods/materials, ranking/voting, and researcher training and counselling services. This suggests that not only are the four core NGT stages (i.e., generating ideas; recording ideas; clarification; ranking) important to consider for people with cognitive disability; the overarching process (i.e., from introducing the research question, training researchers in accessible techniques and adapting materials, through to providing informal/formal debriefing at the end of the session, where appropriate) must also be informed.

**Additional considerations for communicating with individuals with cognitive disability**

Effective communication with people with disability is important to ensure their voices are heard. [3] However, many people with severe cognitive disability have at least some difficulty communicating. [34, 35] A commonly cited reason among health care staff for difficulties in communication is the mismatch between communication abilities of the service provider and client. [36, 37] This mismatch may adversely impact the effectiveness of health programs delivered to people with a cognitive disability. Additionally, this mismatch may have particular relevance when health professionals and researchers attempt to gain insight into the perceptions of people with cognitive disability. A number of considerations around communication between people with cognitive disability and their care staff have been identified within literature around consultation between those with cognitive disability who communicate non-verbally. These include knowledge of the participant, the ability to reference shared experiences, communication through multiple senses, and observations.
Knowledge of the participant

Having a strong understanding of the life history, as well as pivotal events experienced by individuals with cognitive disability, have supported nurse staff in maintaining and developing client conversation and interactions. [37, 38, 39, 40] Such experience is one develops over extended years. [38, 40] For example, Martin et al. [40] conducted in-depth interviews with Registered Nurses Intellectual Disability (RNID) that specialise in providing health support to individuals with intellectual disability. Findings included that nurses’ knowledge of the participant had a considerable impact on effective communication. Particularly, successful communication was reliant on understanding the service user’s communication methods in addition to ‘…their background, family situation, physical health, psychological and every aspect of the service-user’s life’. (p.68)

Shared experience

Shared experience is an integral characteristic supporting communication between persons with cognitive disability and professionals that work with them. [38, 40] Consequently, shared experience is a characteristic which can contribute towards ensuring that the perspectives of individuals with cognitive disability are heard. Specifically, being able to reference previous experiences and aspects integral to an individual’s life is conducive to discussion. [38] This shared knowledge enables health staff communication with individuals with cognitive disability as the former develop an understanding of an individual’s communication technique and style, and are able to inference individual responses and perspectives. [38, 40] This understanding becomes important as it may enable communication partners to identify issues which have caused duress or anxiety for those who are unable to verbalise such. [38, 40]

Communication through multiple senses
Addressing all of the senses available and relevant to those being communicated with can be important when communicating among those with cognitive disability and limited verbal capacity. For example, utilising images and pictures, and physical actions to articulate an issue become useful. [41] Additionally, verbal, facial and body language of the person conveying the message become important towards communication. [41] Specifically, verbal communication can become augmented and supported through the use of altered tone, or including body language or gestures. Furthermore, clear information and instruction, as well as guidance, have supported successful interactions as well as worked towards empowering individuals with cognitive disability to make decisions for themselves and share their message with health professionals or those working with them. [38] This has also involved physically completing actions as a form of instruction for those with cognitive and learning disabilities.

Observation

Observing the communication strategy of those with cognitive disability impacting their verbal capacity can positively support the communication process. Martin et al. [41] investigated the experiences of nurses specially trained to work with individuals with intellectual disability who communicated non-verbally. Findings included that observing the interactions of those who were being supported, as well as their facial expressions and gestures, supported nurses’ ability to communicate effectively with service users. Facial expressions, including expressions made with the eyes were referenced the most often as being important towards to understanding an individual’s concern. While eye contact was highlighted as important, it was also important to be aware that at times eye contact can be considered intimidating to individuals with disability. Observing body movements, and gestures, as well as performance of routine activities provides a marker for communication while potentially providing information about issues that an
individual is experiencing. [41] For example, nurses participating in Martin et al.’s [41] indicated that when a service user waved their hands, it was at times indicative of them not wanting something. Each gesture may be unique to an individual and thus it is important to have a strong understanding of the lives of those who have communication difficulties. [41]

**Limitations and future research directions**

This review highlights the limited use of the NGT for people with disability. To date, NGTs have only been employed for people with IDD and aphasia—a fraction of the spectrum of disabilities. As such, there is a degree of heterogeneity between participants, and conclusions drawn are somewhat limited to the populations studied. More research is required to develop a greater understanding of additional NGT method considerations for other disabilities. Nonetheless, the findings are still able to inform NGT preparation for all disabilities. Furthermore, no comparison was made between the NGT and alternative methods (e.g. Delphi technique) and the authors note it is still unclear whether this method is the most appropriate.

Additionally, the studies included in this review focused on gathering participants’ perspectives of a particular issue and not participants’ perspectives of the NGT process. As a result, this review could only present aspects that must be considered in an NGT from the perspective of a researcher—not the perspective of people with a disability. It is not clear how participants with cognitive disability perceive the NGT process. Thus, future NGTs ought to consider participants’ perceptions to further improve NGT methodology.

**Conclusion**

There is a growing need to ascertain the perspectives of persons with disability particularly around their health and social care. Whilst limited evidence-based approaches to gain the perspectives of persons with disability, particularly cognitive disability exists. This review
synthesised research around the use of NGT to gain the perspectives of those with cognitive
disability, and provided methodological considerations to consider. A number of NGT
methodological considerations to undertake when employing the approach across people with
cognitive disability became clear through this review. Establishing an effective questioning
technique and support services for participants are paramount. Also it is important to consider
group sizes, with most studies recognising that groups of between 5-9 participants were best
suited to this methodology. Research question prompts (i.e. pictures) and support workers were
noted as effective to facilitate discussion. Finally, a structured, simplistic voting system was also
an important consideration for the population.

The NGT approach is rapidly becoming more widely used to gain the perspectives of
people with cognitive disability, and evidently there is merit for its use. For example, the review
provided nine publications contributing to eight studies, and four of the sources were from 2016,
and two from 2014. It is important to expand this evidence-base and specifically consider how
employing the methodological considerations identified within this review can impact the ability
of participants to have their opinions and perspectives around their health care heard. Such
research will further add to knowledge around the value of the approach while potentially
ensuring the rights of persons with disability, particularly cognitive disability, are upheld.

References


[2] Author’s own


[21] ENDNOTE


[30] Spassiani NA, Sawyer AR, Abou Chacra MS, et al. "Teaches people that I'm more than a
disability": Using Nominal Group Technique in patient-oriented research for people with
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[31] Wallace SJ, Worrall L, Rose T, et al. Which outcomes are most important to people with
aphasia and their families? An international Nominal Group Technique study framed within the
ICF. Disability and Rehabilitation. 2016:1-16


Consensus development methods, and their use in clinical guideline development. Health

[34] Tuffrey-Wijne, I., & McEnhill, L. Communication difficulties and intellectual disability in

[35] Cameron L, Murphy J. Obtaining consent to participate in research: the issues involved in
including people with a range of learning and communication disabilities. British Journal of
Learning Disabilities. 2007;35:113-120.

[36] Finlay WML, Antaki C, Walton C et al. The dilemma for staff in 'playing a game' with a
person with profound intellectual disabilities: Empowerment, inclusion and competence in

[37] Martin AM, O'Connor-Fenelon M, Lyons R. Non-verbal communication between nurses
and people with an intellectual disability: a review of the literature. Journal of Intellectual


doi:10.1177/1744629512442033
Table 1

Database search information

<table>
<thead>
<tr>
<th>Database</th>
<th>Fields Searched</th>
<th>Articles Identified</th>
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<tbody>
<tr>
<td>CINAHL</td>
<td>Title and Abstract</td>
<td>20</td>
</tr>
<tr>
<td>ISI Web of Science</td>
<td>Topic</td>
<td>68</td>
</tr>
<tr>
<td>ProQuest Social Science Journals</td>
<td>Anywhere</td>
<td>58</td>
</tr>
<tr>
<td>Scopus</td>
<td>Title, Abstract, and Keywords</td>
<td>57</td>
</tr>
<tr>
<td>MEDLINE</td>
<td>All Txt</td>
<td>49</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>252</strong></td>
</tr>
</tbody>
</table>
Fig. 1. Article selection process

Step 1: Identification
Articles identified through searching 5 electronic databases
(n=252)

Excluded duplicates
(n=106)

Step 2: Screening
Articles screened for relevance (title & abstract)
(n=146)

Excluded articles (title & abstract)
(n=127)

Step 3: Eligibility
Full-text articles assessed for eligibility
(n=19)

10 Full-text articles excluded, for the following reasons:
- Participants without cognitive disability (n=4)
- Methodological considerations not described for people with cognitive disability (n=5)
- Not original article (abstract only) (n=1)

Additional eligible articles identified by the reference lists of 9 included articles
(n=0)

Step 4: Included
Articles included in the descriptive synthesis
(n=9)
### Table 2

Outcome of qualitative assessment according to the Mixed Methods Appraisal Tool (MMAT)

<table>
<thead>
<tr>
<th>#</th>
<th>Study</th>
<th>Clear research question / objective</th>
<th>Research question &amp; data fit</th>
<th>Appropriateness of sources</th>
<th>Appropriateness of data collection &amp; analysis</th>
<th>Context considered</th>
<th>Consideration of researcher influence</th>
<th>Total score and %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bekkema et al. [25]</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4/6 (66.7%)</td>
</tr>
<tr>
<td>2</td>
<td>Garcia et al. [26]</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6/6 (100.0%)</td>
</tr>
<tr>
<td>3</td>
<td>Hinckley et al. [27]</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6/6 (100.0%)</td>
</tr>
<tr>
<td>4</td>
<td>Owen et al. [28] &amp; Friedman et al. [29]*</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>5/6 (83.3%)</td>
</tr>
<tr>
<td>5</td>
<td>Roeden et al. [19]</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6/6 (100.0%)</td>
</tr>
<tr>
<td>6</td>
<td>Spassiani et al. [30]</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6/6 (100.0%)</td>
</tr>
<tr>
<td>7</td>
<td>Tuffrey-Wijne et al. [18]</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>5/6 (83.3%)</td>
</tr>
<tr>
<td>8</td>
<td>Wallace et al. [31]</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6/6 (100.0%)</td>
</tr>
<tr>
<td></td>
<td><strong>Total sum</strong></td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>7</td>
<td><strong>8 out of 8</strong></td>
</tr>
</tbody>
</table>

*Given that the Owen et al. [28] article and the Friedman et al. [29] article analysed the same data, the studies were reviewed as a single source.

**Note:** For each criterion: 1 = criterion met; 0 = criterion not met or unclear if met or not met.
## Table 3

Summary table for the eight studies included in the systematic review

<table>
<thead>
<tr>
<th>#</th>
<th>Citation &amp; Country of Study</th>
<th>Study Aim</th>
<th>Study Sample</th>
<th>NGT Method (Qualitative: Focus Groups)</th>
<th>Additional NGT Method Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bekkema et al. [25] [The Netherlands]</td>
<td>To explore relevant dimensions of the care relationships in end-of-life care from the perspectives of people with mild ID in the Netherlands.</td>
<td>N=33 adults with mild ID (n=20 male; age range: 21-84 years; m=58 years) Focus groups included 3 (n=1), 4 (n=2), 5 (n=3), and 7 (n=1) participants</td>
<td>Participants asked to independently think of ideas.</td>
<td>Participants asked if they remembered the initial ideas from 2-3 weeks earlier. Participants received the index cards and divided into 'best' and 'other' ideas. Participants voted; greater points given to more highly preferred ideas. Some assistance was given when participants ordered their cards. A short picture story was told to assist understanding of the concept. Independent ranking occurred 2-3 weeks after initial focus group.</td>
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<tr>
<td>2</td>
<td>Garcia et al. [26] [Canada]</td>
<td>To describe the barriers to work</td>
<td>N=14 adults with aphasia (n=10 male; age range: 21-84 years; m=58 years)</td>
<td>Participants invited to share their ideas with the group. Ideas were written down.</td>
<td>Barriers were verbally summarised by</td>
</tr>
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</table>
reintegration of people with aphasia.

age range: 31-70 years; half of respondents were in the 51-60 year range; time post-onset ranged from 1-10 years).

Four focus groups were conducted (participant numbers ranged from 2-6 adults with aphasia).

Additional focus groups were conducted with speech-language pathologists (n=13) and human resource personnel (n=22), but data were not included in this paper.

perceptions of barriers to the group (group discussion). Participants with aphasia were encouraged to think about their present jobs or jobs they had previously occupied.

Two practical examples/stories were given to re-invigorate the discussion. Participants with aphasia were asked to imagine themselves in the situation.

visible.

the researcher.

consultation. Participants with aphasia used index cards to order their perception of the 6-7 most important remaining barriers.

gathering stage to develop strategies to combat the greatest barriers.
<p>| 3 | Hinckley et al. [27] [USA] | To obtain views from persons with aphasia concerning research topics they feel important. | N=25 adults with aphasia (gender, age range, and mean age not reported. Time post-onset ranged from 1-16 years). Three focus groups were conducted with 7-8 participants each. | Question presented and deliberated at initial focus group discussion. | During a second meeting (2 hours in duration), participants were provided the opportunity to share ideas within small groups. In terms of consolidating information from the 'round-robin', researchers grouped 22 questions generated into 5 content categories / themes. | A co-leader repeated ideas mentioned during small group discussions to make sure that they were interpreted by all participants correctly. A similar process was undertaken when three separate NGT groups came together to share responses. | At a final meeting, following a validation of original findings, participants decided that questions pertaining to treatment were the ‘most important’; however all areas were very important. | This NGT took place over a series of discussions. Two co-leaders of the aphasia group (non-researchers) co-facilitated the multiple discussions. Prior to the generating ideas stage, facilitators provided a list of ‘current research topics’ to participants as a mechanism to generate ideas. Participants were not comfortable being recorded and as a result, the co-leaders took notes. |</p>
<table>
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<tr>
<th>Page</th>
<th>Authors [Reference]</th>
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<th>Sample Size and Characteristics</th>
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<td>4</td>
<td>Owen et al. [28] [USA]</td>
<td>To explore what sexual self-advocacy meant to people with intellectual and developmental disabilities (Owen et al., 2016).</td>
<td>N=35 people with ID (gender, age range, and mean age not reported). Number of focus groups and participants in each focus group not described.</td>
<td>During the individual brainstorming period (approx. 7 mins), participants wrote down or drew their responses with assistance from support people if necessary. Support people given specific instructions not to influence participant responses. Participants each shared one idea at a time. Participants given the option of saying their idea out loud or having a support person say it on their behalf. Open-ended questions to assist (prompt) participants to elaborate on their ideas. Two researchers grouped the ideas by themes so themes could be prioritised. Group consensus that themes were complete and valid.</td>
<td>Participants ranked top 3 themes. Participants were given three sticker dots to use in voting and they could vote multiple times on one theme or spread their votes among the themes. As two themes were tied for third, the participants voted to select the third theme. NGT focus groups completed during an all-day community research forum in Chicago. A mental health professional was available for any participant who wanted counselling.</td>
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<td>5</td>
<td>Roeden et al. [19] [The Netherlands]</td>
<td>To obtain the views of individuals with mild ID about their working</td>
<td>N=17 adults with ID (gender not reported; age range: 25-56 years; m=41)</td>
<td>Interviewers worked alongside participants (on a one-to-one basis) and participants themselves read, or an interviewer read responses. Responses</td>
<td>An interviewer read out each item from the flip-chart and requested that a participant or index cards were used for each item. Participants were asked to rank the 7 most facilitators were well trained in interview techniques for individuals with ID.</td>
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<td></td>
<td>relationship with their caregivers.</td>
<td>years) Three focus groups were conducted with 6 participants each.</td>
<td>recorded their ideas.</td>
<td>were recorded on a flip-chart.</td>
<td>interviewer describe the meaning. Participants were provided the opportunity to add to, and clarify responses.</td>
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<td>6</td>
<td>Spassiani et al.[30] [Canada]</td>
<td>To investigate whether NGT is a feasible participatory action research methodology for evaluating patient-oriented healthcare tools developed by, and for, people with IDD.</td>
<td>N=10 adults with ID (n=5 male; age range and mean age not reported). One focus groups with 10 participants.</td>
<td>Brainstorming (open discussion) of positive and negative aspects of 3 separate healthcare tools. Ideas broken into 2 lists (what participants liked / did not like about each tool)</td>
<td>A researcher recorded summarised points of discussion by the group under the appropriate heading. Group consensus that finalised list was satisfactory.</td>
</tr>
<tr>
<td>7</td>
<td>Tuffrey-Wijne et al. [18] [United]</td>
<td>To investigate the use of NGT to obtain the views of N=14 adults with mild or moderate ID (age range: 25-60 years). Researchers worked with participants on a one-to-one basis. Participants read, or had someone read when required, each item was read out by the group leader and</td>
<td>Whilst participants had a short break, the researchers</td>
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8 Wallace et al. [31] [Multi-site study across]

| Kingdom | individuals with ID concerning their end of life care. | 45 years; gender and mean age not reported | Focus groups included 4 (n=2) and 6 (n=1) participants to record participant ideas (verbatim on sheets of paper). There was no limit on the number of ideas provided by participants. | an idea each. These ideas were recorded on a flip-chart. New ideas were also recorded. No discussions or questions were permitted during this stage. | clarification sought when required. | combined the group’s ideas and simplified the language. Revised ideas were printed onto index cards for each participant. Participants were asked to individually select the 5 most important ideas and then rank them by placing the index cards into voting boxes of decreasing size, labelled 5 to 1 (visual & numerical prompts). Researchers provided support where necessary. | was used to introduce the research question to participants. The introductory story was pilot-tested with 2 researchers with ID. Training was provided to all research team members. Participants provided their feedback regarding what it was like for them to participate in the study (informal debriefing). |

<p>| 8 | Wallace et al. [31] [Multi-site study across] | To identify important healthcare outcome | N=39 adults with aphasia (n=27 male; age range: 42-45 years; gender and mean age not reported) | Quiet reflection of nominal question, followed by participants invited to share one idea with the group | Clarification and consolidation of responses, if necessary. | Individual ranking of top 3 outcomes in order of importance. | The nominal question was first piloted with aphasia |</p>
<table>
<thead>
<tr>
<th>7 countries: Australia, Canada, Hong Kong, Denmark, South Africa, UK, USA</th>
<th>domains for people with aphasia and their family members</th>
<th>86 years; ( m = 64 ) years; time post-onset ranged from 4-204 months.</th>
<th>supported individual response generation.</th>
<th>(supported round robin). This continued until saturation of ideas reached.</th>
<th>necessary. Similar responses were grouped together and duplicates combined or deleted.</th>
<th>importance. Support individuals present.</th>
<th>clinicians and researchers. The revised nominal question was piloted with Australians with aphasia and their families (question targeted to each group). All participants received the finalised nominal question in writing before attending their focus group. The nominal question was presented using multiple modalities (e.g., drawings; gestures; keywords) and supported conversation techniques.</th>
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<td>Nine focus groups were conducted (participant numbers ranged from 3-6 adults with aphasia). Focus group size was capped at a maximum 6 people.</td>
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<td>Four additional focus groups were conducted with family members (N=29), but data were not included in this review.</td>
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A detailed procedural manual was developed to ensure consistency across sites.

Note. N=9 original studies. Two articles that analysed the same data were combined [study #4].

# = Study identification number; ID = intellectual disability; MMAT = Mixed Methods Appraisal Tool [22, 23].
Nominal group technique for individuals with cognitive disability: A systematic review

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<tr>
<td>Keywords:</td>
<td>Nominal Group Technique, Decision-making, Cognitive Disability, Health Care, Systematic Review</td>
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