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Establishing expert consensus in OH: challenges in OH: using a pilot nominal group technique to identify expert views for managing clinical practice

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ESTABLISHING EXPERT CONSENSUS IN OH

Challenges in occupational health: using a pilot nominal group technique to identify expert views for managing clinical practice

CAMERON BLACK, SIVARAMKUMAR SHANMUGAM, HEATHER GRAY

NOMINAL GROUP TECHNIQUE

[STANDFIRST]

Cameron Black, Heather Gray and Sivaramkumar Shanmugam explain how a 'nominal group technique' was used to evaluate current challenges faced by OH departments when working with an external private stakeholder, and how to elicit expert consensus on potential solutions.

[END STANDFIRST]

In occupational health (OH) practice, the implementation of OH contracts for provider and commissioner usually involves several stakeholders with diverging and potentially conflicting interests. A good infrastructure is needed for the consultation – and for the discussion between the stakeholders – to avoid conflict during the implementation of OH services. This is especially true as policy, information and communication technology become increasingly complex. In this article, we suggest that the use of consensus techniques – especially 'nominal group technique' (NGT) – can safeguard interests and provide a practical methodology with collective participation and expert judgements.

NEED FOR CONSENSUS

A large majority of OH contracts are outsourced to private-sector providers, which inevitably involves a partner relationship. Building a successful relationship with service

providers is crucial to ensure that it realises all the benefits promised by the arrangements. A successful relationship is only possible if there is consensus on key issues.

Individual employers – as customers – will consider the tangible economic and financial value, as well as the legal, financial and moral reasons to invest in OH services. Their decisions may also take on board modern drivers for businesses: ie reputational risk, corporate social responsibility and staff productivity.

OH providers tend to be concerned with the value proposition – setting out the reasons why a customer should do business with them – and their effectiveness in delivering results. They will highlight capability, impact and health and wellbeing evidence from previous contracts. In addition, OH providers must ensure that their employees meet clinical governance standards and are experts in their field.

Economically, OH providers and commissioners do not have limitless resources, so deciding how and where to employ the available capital and maximise resources is essential for both parties. Service relationships inevitably encounter cultural and practical issues; obstacles and challenges as well as opportunities. There is a need to smooth out these differences and direct resources to where they are most needed, especially if the options are controversial. And in a rapidly changing business environment – for example, as firms try to adapt to the COVID-19 pandemic – there is a need for flexibility and a willingness to change services to meet employee needs.

Relationships in OH should at least be non-contradictory as OH providers fulfil contracts based on pre-arranged, objective and agreed service targets. This defines and creates the common ground necessary for consensus.

Lastly, and epistemologically, if we consider OH stakeholders as collective groups with a shared aim (ensuring healthy workplaces) but divergent individual goals (their respective business objectives), a successful relationship requires these groups to possess coherency in their beliefs and therefore some process of consensus.

Overall, consensus is achieved when divergent models are compared and synthesised and used as evidence to formulate practical recommendations, and when expert opinion, based on judgment and reflection, is used as evidence to formulate that consensus.

Many OH professionals will be familiar with the challenges inherent when setting up contracts with external providers and will appreciate the importance of developing consensus to establish good working relationships and successful partnerships. This article describes a pilot study using a process known as nominal group technique to evaluate current challenges faced by OH departments when working with an external private-sector stakeholder and to establish consensus-based solutions to those challenges.

NOMINAL GROUP TECHNIQUE

NGT is an established research method[1] described as a structured, face-to-face meeting used to synthesise information and collate contradictory expert opinion, with the main aim of measuring and summarising expert-based consensus[2]. It is a technique that both develops and gains expert-based consensus[3]. NGT often consists of three key stages: silent generation of ideas, clarification and ranking[1].

NGT was developed by André Delbecq and Andre Van De Ven of the University of Wisconsin, Madison, US, from their social-psychological studies of decision conferences and programme planning[4]. It has become an established method for generating ideas, problem solving and reaching a consensus within a group, and is used by a variety of disciplines, including health, economics, social research and education.

Within the OH field, NGT can be particularly useful when there is a gap in primary research or practice, and using a small-group method can rapidly elicit best practice or consensus. The confidential process involves participants identifying and contributing ideas towards a topic that can be discussed and clarified, prioritised, and then ranked or scored. NGT results in participants generating a larger number and higher quality of ideas when compared to other qualitative methods, such as focus groups[5]. This is important when there is scant information on a topic[1].

A disadvantage of NGT, however, is that it is suited to addressing only one or two questions at a time, thereby limiting the ability to explore new ideas that experts deem important. Additionally, the structured format requires considerable planning and preparation for an in-house meeting, and the recruitment process and in-person nature may be burdensome for some and lead to non-attendance (though the NGT can also be undertaken online). Lastly, some authors have argued that while NGT is effective in generating consensus among experts, it may not always produce the best answer to the research question, ie consensus may not always equate to agreement across the group[6].

In practice, NGT combines silent idea generation with discussion, enabling a broad-based generation of ideas that reduces direct criticism and allows for clarification and definition of potentially contentious ideas. However, NGT is dependent on the skill of the facilitator who effectively moderates and steers the group discussion. The facilitator role is key, as the tactful framing of questions will impact the breadth, quality and depth of items produced.

The structure of the group ensures a balance of influence, allowing an equal participation of each expert. It prevents dominant or outspoken participants controlling the discussion – a disadvantage that has been found in other methodologies, such as focus groups. In addition, the experts in our pilot research (below) reported that they were more comfortable participating in an in-person meeting with peers rather than in a complex multi-round online survey, such as a Delphi study.

NGT meetings can be included in scheduled events – for example at a breakout during a conference or annual general meeting. This ensures rapid access to experts on a topic in-person.

STUDY AIMS AND METHOD

The primary aim of this pilot study was to use NGT with an expert group of OH clinicians to identify, discuss and rank the challenges faced when working with an external partner and fulfilling a private sector OH contract. It also aimed to establish potential solutions to those

challenges. The study was approved by Glasgow Caledonian University's School of Health and Life Sciences Research Ethics Committee.

The box on page XX shows the resources required to run the NGT. The four stages involved in the meeting are outlined below.

Stage 0 – welcome statement, introduction, main aim and roles and responsibilities of the group clearly stated from the facilitator

Stage 1 – ideas generation and recording

- facilitator reads out first question to group, which is also placed on table in written form for viewing by participants throughout
- facilitator provides verbal prompts as needed
- facilitator reminds everyone that:
    - they will be writing silently and independently
    - responses are all anonymous and no one needs to identify what they wrote at any time
    - each response is written on a separate card/piece of paper
    - no discussion is to take place until everyone has finished writing
- participants **silently** write their responses to the question, taking a new piece of card/paper for each response; ie there is no discussion or conferring at this stage
- participants place responses in the middle of table for collection by the facilitator
- the facilitator writes up all the responses on a flipchart
- each response is numbered – this is essential for subsequent ranking
- similar responses are amalgamated by the facilitator (to avoid repetition)
- participants are encouraged to view others' responses on the flipcharts – this can prompt new ideas
- this continues for about 10–15 minutes until no one has any more ideas.

The NGT facilitator should resist non-process clarifications and answering the questions, have the question in written form, model good group behaviour by writing in silence, and sanction individuals who disrupt the silent independent activity. The facilitator remains independent throughout.

Stage 2 – discussion and clarification stage

- when the ideas have dried up, everyone reviews the flipchart items
- clarification is sought on the ideas written on the flipcharts – everyone must have a shared understanding of the items
- if it looks like some items are similar they should be amalgamated so that the flipcharts have lists of original rather than repeat items
- if any new items come up at this stage, they are numbered and added to the list on the flipcharts
- note: when deleting/striking out any redundant items, other items are not renumbered but left as they are.

The facilitator provides a verbal statement: the objective is to map the group's thinking. Ideas will be presented in brief words or phrases, all ideas will be taken serially, duplicate items will be omitted, and variation on themes is desirable.

Stage 3 – ranking stage

- each participant is given two scoring sheets, one for each question with their identification number inserted on it
- the facilitator asks each participant to write down on the scoring sheet the top five items that they feel are the most important, including the number of that item on the flipchart
- once they have written down five items, they are asked to rank them from one (most important) to five (least important)
- equal ranks are possible, eg 1, 2, 2, 4, 5
- once the ranking is complete participants hand their score sheets to the facilitator who checks that they have been completed and ranked correctly – if not, they are handed back to the participant for accurate completion
- the score sheets are stored securely.

This process is repeated for the second question.

Stage 4 – closing the group

- the facilitator thanks everyone for their contribution
- the facilitator may wish to summarise from the score sheets if there are any obvious or top-ranked items.
- the outcome is reinforced with particular attention paid to the overall group judgement; this provides closure and ensures that the group accomplishment is documented.
- the facilitator advises that involvement in the nominal group feeds into evidence-based practice, continuing professional development and improving quality of service delivery
- the facilitator outlines what happens next with the work that was done in the group.

Facilitators should retain all the raw data from the flipcharts, demographics and score sheets. The facilitator needs to: photograph all flipchart sheets; type up the data from flipcharts and score sheets into a spreadsheet; and store the consent forms and score sheets securely.

[BOX]

Practicalities and resources for NGT meeting

Practicalities	Recruit 8–12 people per group and a facilitator; allow 1.5–2 hours for each group session if addressing two questions
Materials sent before meeting	Information sheets, consent forms and demographics questionnaire
Facilities at meeting	Printed research questions – participants should only see the question they are currently working on. Flipchart, pens and white-tack adhesive, score sheets (one for each question). Table and chairs, name cards, notepaper, refreshments.

[END BOX]

Participants and key questions

A one-day NGT meeting was convened to discuss the challenges involved in working within an OH contract for a private sector, multinational company. It aimed to answer two key questions:

1. *What are the challenges involved when working with an external stakeholder and fulfilling an OH contract?*
2. *What are the potential solutions to the challenges identified when working with an external stakeholder and fulfilling an OH contract?*

Participants were identified, based on their OH experience and expertise, professional capacity (ie still conducting OH practice), and their accessibility in terms of time and location. Consent forms were provided and participants were able to ask questions about the study and NGT format in advance of the meeting. Before the meeting, participants completed a brief questionnaire via email, which included their age, employment status, years working within the sector and specialty.

Five experts consented to participate, all attending the meeting in person. All worked full time for an external OH provider and on average had spent 29.5 years (range 15 years) working in OH. Two worked in manufacturing, two in logistics and one in the healthcare sector. Three of the participants were OH nurses.

The two-hour NGT meeting was held in September 2019 at a manufacturing company in Oxford. The group was moderated by the principal investigator (the first author of this article). The meeting was structured according to published guidance, as discussed above[1,6] .

Data analysis

The items generated in the NGT meeting were ranked (1 = most important, 5 = least important) and the sum of ranks was tallied. Participants could choose not to rank any items that they did not consider relevant to the question. A median score and the number of times participants scored a specific item (frequency) were also recorded. The frequency was used to calculate the percentage of experts who ranked an item. The level of consensus (as a percentage) was defined a priori as 70% expert agreement level, in keeping with a previously published criterion[6].

An importance score was ascertained for each item from its mean reciprocal rank (MRR). The MRR is 1 divided by the ranking by each participant – 1 for the item ranked in first place, 1/2 for second pace, 1/3 for third place, and so on. For example, if *communication* was ranked first by one participant and fourth by another, the reciprocal rankings would be 1 and 1/4, respectively. If an item was not ranked, it was assigned a zero.

The importance given to an outcome was thus measured both by its ranking and by the consistency of it being nominated by the participants. For example, if all five individuals in our pilot study group ranked a specific item 1, 1, 1, 1, 1 respectively, this would mean 100% consensus and an importance score of 1. In other words, the group not only fully agreed on the item's inclusion in the final consensus, but also ranked it as the most important item.

RESULTS

A final list of 18 items was generated for the first question, which reflected the challenges involved in working with an external stakeholder (table 2). These challenges included both internal (their own organisation) and external (the stakeholder's organisation). Four items ultimately gained the required 70% consensus level: 'administration support' (internal), 'clinical support' (internal), 'OH understanding of stakeholder' (external) and 'stakeholder agenda/priorities' (external).

For the second question, 13 items were generated for the solution to the above challenges with three reaching the required consensus level: 'joined up and in-house working

(centralisation)’, ‘investment in OH services overall’ and ‘own organisation should commit to a culture of health, continuous development and transformational management’ (table3).

Table 2: expert-defined items that reached consensus for question 1

What are the challenges faced within OH when fulfilling an external stakeholder’s contract?

Items for question 1	**Importance score** (mean reciprocal rank)	**Overall rank**	**Consensus of group**
Administrative support	0.9	1st	100%
Clinical support	0.5	2nd	80%
OH understanding by stakeholder	0.4	3rd	100%
Stakeholder agenda/priorities	0.2	4th	80%

Note: 14 other items were generated by the group but did not reach consensus. These were: absence management challenges; ethical considerations; IT system for documentation; limited ongoing training in OH; limited professional development in OH; poor leadership and management; personal phone use limiting ability to communicate with employees or partners; workload – unreasonable or ebbs; communication between partners; relationship – seen as outsider; technology – eg wifi speed and resources; divergent outcomes for partners; inadequate or short-term staffing; and staff turnover in post.

Table 3: expert defined items that reached consensus for question 2

What are the solutions to the challenges faced by OH practitioners when fulfilling an external stakeholder’s contract?

Items for question 2	**Importance score (**mean reciprocal rank**)**	**Overall rank**	**Consensus of group (percentage)**
Joined-up and in-house working (centralisation)	0.6	1st	80%
Investment in OH services overall	0.5	2nd	80%
Own organisation should commit to a culture of health, continuous development and transformational management	0.5	3rd	80%

Note: 10 other items were generated by the group but did not reach consensus. These were: marketing for OH services to provide meaningful differences and business performance; switch to result, outcome and cost-effectiveness base rather than legislative and partner agenda; consider closer relationships with legal experts and health and safety; greater focus on working environments and corporate social responsibilities; adequate skill mix in professionals; continuity through long-term staffing and talent-retention policy; mixed remote access and in-person caseload; increase instinctiveness and decision-making with partner through trust (competency and knowledge of OH professionals); improve ownership of tasks to include multi-stakeholder, including understanding of both sets of policy, procedures and systems; and reduce transactional nature of relationship that minimises joined-up working.

DISCUSSION

In this pilot study, NGT was used to identify challenges and solutions faced by OH experts when dealing with an external stakeholder. The NGT meeting was effective for developing items for the main topic discussions and allowed OH experts to share their perspectives directly.

To our knowledge, this is the first study to gather information on the challenges and solutions involved for OH organisations and experts working with external stakeholders. The

study should help inform future work on the relationship between OH providers and external stakeholders that seek OH coverage in their workplaces. It also suggests that the challenges involved in this relationship are evenly split between internal and external factors, and the solutions may involve investment, commitment and joined-up working between both organisations.

There are limitations to consider when interpreting the results of this study. The sample included five participants, which is below the generally accepted number for NGT meetings of between eight and 12 participants. This may have reduced the depth and richness of the data and the number of items that reached consensus. The technique uses closed questions and limits more exploratory discussion. The results also relate quite specifically to the group studied and is subjective by its nature.

NGT offers practitioners involved in policy, practice or research the opportunity to consider diverse, complex and challenging issues within OH. It is an adaptable technique that can also be applied online to address the challenges inherent to in-person groups, especially during the current COVID-19 pandemic. Hard-to-reach experts in OH can be readily recruited and it may be more appropriate and elicit greater participation than focus groups for sensitive OH topics, such as workplace issues or contract negotiations, or complex topics such as employee health, workforce productivity and performance. Experts invited to participate can complete the exercise in a relatively short timeframe with minimal preparation, although the facilitator needs considerable prior preparation.

NGT utilises a silent idea generation followed by discussion, enabling a mix of ideas while reducing direct criticism and allowing for clarification and definition of these ideas. The structure of the NGT ensures equal participation of an expert panel and prevents the problem of dominant or outspoken members that can affect other group techniques.

It is anticipated that this research will influence working relationships in this area and may provide preliminary evidence to start a debate that could enhance OH services in the future. We encourage stakeholders involved in OH policy, practice or research to consider using NGT to generate and gain consensus on topics related to the field.

This study is the first of its kind to consider this OH topic and we hope that it can contribute to addressing some of the challenges that may exist between OH provider and commissioner within the private sector.

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[CONCLUSIONS BOX]

CONCLUSIONS

- **Nominal** group technique (NGT) is a valid and inexpensive research method that can be used to develop and gain consensus in a range of settings for those involved in policy, practice and research
- **NGT** is a structured, face-to-face meeting used to synthesise information and collate contradictory expert opinion, with the main aim of measuring and summarising expert-based consensus

- **NGT** often consists of three key stages: silent generation of ideas; clarification; and ranking
- **The technique** overcomes some of the problems inherent in other group methods – such as focus groups – by ensuring that all voices are heard equally
- **Its** key advantage is that it generates a greater number and quality of ideas than other methods, such as focus groups
- **A pilot study** investigated the relationship between the OH provider and those who commission OH services in the private sector – seen from the provider's position
- **By using** the NGT, experts involved in the pilot gained consensus on four challenges from an OH viewpoint and three solutions to these challenges
- **This study** may influence future working relationships in this area and may provide an enhanced level of participation between partners

[CONCLUSIONS BOX]

Notes

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