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Research Paper

Minimum content of medication counselling for outpatients in North-Western Nigeria—a modified e-Delphi study

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Abstract

Objective The main objective of this study was to conduct a modified e-Delphi study to achieve consensus on the minimum content of medication counselling required by majority of outpatients in North-Western Nigeria. A secondary objective was to collect feedback from the panel members.
Methods A two round e-Delphi study was conducted between March and May 2020 with pharmacists working in hospital, community or academic settings in North-Western Nigeria. During the first round, panel members were asked to use a five point scale to rate how important they felt it was to provide information about 17 items during medication counselling. Consensus was defined as any item that 90% or more of respondents rated as 'essential or important'. Items that did not reach this level of consensus were re-rated again during the second round, where respondents were also asked to rate their level of agreement with nine statements.
Key findings Thirty-four panel members completed the first round, while 29 completed the second round. Majority of them (76.5%) had practiced for between 5–10 years. After the first round, eight items achieved consensus, and were retained. After the second round, three of the initially equivocal items also achieved consensus. Majority of respondents believed that a minimum medication counselling standard would be useful for both dispensers and patients.
Conclusions Consensus was achieved for 11 of the 17 items rated by the panelists. Feedback received about the research process was also largely positive, with many of them agreeing that the study's proposed outcome would encourage better medication counselling.

Keywords: Delphi study; medication counselling; Nigeria; pharmacists

Introduction

Medication counselling is the provision of verbal and/written information about medicines to individual patients or their caregivers to ensure that they use medicines appropriately. It is an important activity carried out by most medical professionals to optimize rational drug use and maximize patient therapeutic outcomes.[1] However, because pharmacists are believed to be the custodians of medicines and especially skilled in the provision of drug/medicines

information; medication counselling is now regarded as an important component of pharmaceutical care, and a major service to be provided by pharmacists.[1, 2]

Despite the many benefits of medication counselling, it has been criticized as being very 'subjective and ill defined'.[3] The 'ill defined' complaint is particularly noteworthy because even though several patient counselling guides have been developed over the years,[4–6] there are no official standards or guidelines for medication counselling in many countries-especially in developing ones like Nigeria. Consequently, several observational studies from all around the world have shown that medication counselling is often suboptimal; with pharmacists omitting important information and 'lecturing' instead of engaging patients.[2, 7–11] This is worrying because patients need to have adequate knowledge of their medication, before they can use them properly and safely. Studies have shown that when patients are knowledgeable about their medications, they are more likely to have better adherence,[12, 13] experience fewer side effects[14] and have positive beliefs about their medicines[15] – all of which contribute towards good therapeutic outcomes.

The Delphi technique is a consensus method used to achieve general agreement or opinion convergence of experts around a particular topic.[16, 17] It is widely utilized in health services research aimed at problem-solving or determining priorities.[16, 17] This technique is preferred over other consensus building methods like the nominal group technique because it is more flexible, and allows for the participation of a greater number of experts in the area being studied (also known as panel members or panelists).[16, 18] It involves the use of structured questionnaires to request individual information during one or more rounds from panel members.[16, 17] Personalized feedback is provided to each expert after every round, until consensus is reached, allowing them reconsider their point of view when re-rating items that did not reach consensus during the previous round.[18]

Thus, the main objective of this study was to conduct a modified e-Delphi study to achieve consensus on the minimum content of medication counselling required by majority of outpatients in North-Western Nigeria, with the goal of using the findings to design a protocol that would help to standardize the medication counselling process within this region. The secondary objective was to collect feedback from the e-Delphi panel members about the research process and other related aspects.

Methods

Study design and panel recruitment

A modified e-Delphi study was conducted between March and May 2020 with willing pharmacists working within hospital, community or academic settings in four of the seven states located within North-Western Nigeria. Invited panelists consisted of clinical pharmacy and/pharmacy practice lecturers working in the Pharmacy faculties of Universities, and other pharmacists with at least three years of practice experience who were actively involved in medication dispensing and/counselling at the time of the study, and were working in hospital or community settings all located within the region. It is recommended that a Delphi panel consists of between 15–30 participants,[17] although some studies include a much higher number.[16] Consequently, purposive and snowball sampling techniques were used to recruit panelists. Once a pharmacist practicing in any of the required areas who fulfilled all of the entry criteria for the study was identified and invited to participate (purposive), he/she was then asked to nominate other pharmacists practicing within that setting whom he/she felt also met the study's inclusion (snowball). These pharmacists were also then invited and asked to nominate others until a maximum of 20 pharmacists from each practice setting (60 in total) were invited.

Data collection instruments and definition of consensus

Since Delphi studies usually have a minimum of two rounds,[16] two different instruments were used for the Delphi study.

The questionnaire used during the first round collected information about the demographic characteristics of study participants in its first section. The second section of the instrument contained 17 items, derived from lists of recommended items to be covered during medication counselling published by the American Society of Health-System Pharmacists[19] and the College of Pharmacists of British Columbia.[20] Respondents were asked to use a five point scale that has been used in other Delphi studies,[21] to rate how important they felt it was to provide information about each item during medication counselling. The options on this scale included 'essential', 'important', 'unsure', 'unimportant' and 'should not be included'. They were also provided space to justify their answers and provide feedback about the questionnaire if they chose to do so. Expert consensus was defined as any item that 90% or more of respondents rated as 'essential or important'. Any item that did not get up to 80% consensus was deleted. Items with moderate consensus (between 80–89%) were considered equivocal, and were presented to participants again for re-rating during the second round.

The questionnaire used during the final round also contained two sections. The first section included four of the items contained in the initial questionnaire that did not reach expert consensus after the first round. Participants were asked to re-rate these items using the same scale used during the first round. If any item still did not achieve the 90% agreement cut-off after this round, it was discarded. The second section contained nine statements that aimed at exploring participants' perceptions of the research process and other related aspects. Some of these questions were adapted from a study by Ahmed *et al.*[21] and the 5 point Likert scale was used to respond to these questions.

Data collection and analysis

Potential participants were contacted through their registered mobile phone numbers or email addresses (depending on which was available), and sent a message inviting them to participate in the study. Those who replied to these messages, and agreed to participate were then emailed soft copies of the first questionnaire, which was in the form of an editable Microsoft Word document for them to fill and return back to the researcher. They were allowed three weeks to complete the questionnaire, and the researcher sent out weekly reminders to those who were yet to return their filled questionnaires. After the three week period, responses received up until that point were collated and analysed.

During the second round, a brief personalized report was sent to each participant, with another invitation plus a link to complete an online questionnaire. The second questionnaire was designed as a google form to ease data collection, and ensure respondent anonymity because of the feedback to be obtained during this round. Respondents were allowed two weeks to fill this questionnaire, and a reminder was sent out once.

Data collected were coded and entered into a Microsoft Excel 2013 spreadsheet and analysed to generate descriptive statistics

(frequencies and percentages). For the responses to the feedback questions in the second questionnaire that were answered using a five point Likert scale, respondents who 'strongly agreed' and 'agreed' were grouped and reported together and vice versa.

Results

The ages of the Delphi panel participants ranged from 27–44 years, and slightly over half of them were women (Table 1). Majority of them had also practiced for five or more years, up to a maximum of 18 years. Hospital pharmacy (35.2%) was the most represented practice setting. Almost 70% of them had enrolled for or completed Masters' degrees in various pharmacy related fields, and 23.5% of them had enrolled for or completed PhD degrees.

Table 1 e-Delphi panel members characteristics (n = 34)

Characteristic	Variables	n (%)
Gender	Female	18 (52.9)
	Male	16 (47.1)
Age in years	Less than or equal to 30	7 (20.6)
	31–40	25 (73.5)
	Over 40	2 (5.9)
Years in practice	Less than 5	3 (8.8)
	5–10	26 (76.5)
	11–18	5 (14.7)
Practice setting	Academia	11 (32.4)
	Community pharmacy	11 (32.4)
	Hospital pharmacy	12 (35.2)
Educational qualifications	BPharm	34 (100)[1]
	PharmD	2 (5.9)
	Masters' degree	23(67.7)
	PhD	8 (23.5)

BPharm,Bachelor of Pharmacy Degree; PharmD,Doctor of Pharmacy Degree; PhD,Doctor of Philosophy Degree. [1]Values in this row sum up to more than the total because some participants had multiple degrees.

After the first round of ratings, eight items achieved the pre-specified cut-off consensus level of 90% or higher, and were selected (Table 2). Five items did not achieve the minimum level of 80% consensus and were discarded. Finally, four items were considered equivocal because their consensus levels fell between 80–89%, and these items were returned to the panel members during the second round for re-rating. Twenty-nine participants (85.3%) completed the anonymous online questionnaire for the second round. After this round, three out of four of the initially equivocal items achieved consensus levels of 90% or higher and were retained (Table 2), bringing the total number of retained items to 11.

Feedback received from the panel members after the second round about the research process, and their perceived usefulness of the research objective are reported in Table 3. Majority of them agreed that the initial questionnaire covered most of the important information to be provided during counselling (93.1%) and that they enjoyed participating in the study (100%). Most of them also believed that a minimum medication counselling standard would be useful for both dispensers and patients, and would be willing to use one if approved by relevant regulatory bodies (Table 3).

Discussion

This study aimed to achieve expert consensus on the minimum content of medication counselling required by outpatients within the study setting to use their medicines safely and effectively.

Table 2 Results after the first and second rounds of the modified e-Delphi study

Type of Information	% Consensus reached(first round) n = 34	% Consensus reached (second round) n = 29
Quantity of the medicines to take/dose	100	
How often to use the medicine(s)/dosing frequency	100	
Route of administering the medicine(s)	97.1	
How long to use the medicines for/duration of use	97.1	
Relevant additional information about the medicine(s) or dosage form e.g. take before/after food, exact timing of medication use, shake the bottle etc.	94.1	
Importance of adherence/completing the prescribed course of the medication(s) irrespective of whether the patient feels sick or not	94.1	
The name(s) of the medicines	91.2	
The indication(s) for the medicine(s)	91.2	
Whether the medicines interfere with other medicines, (drug-drug interactions)	88.2[2]	86.2[1]
Whether the medicines have any unwanted effects (side effects), and what the patient should do if these occur	85.3[2]	100
Whether the medicines interfere with some types of foods or drinks (drug-food interactions)	85.3[2]	96.6
What to do if a patient forgets to take a dose of their medicines	82.4[2]	93.2
Information about how to store the medication	79.4[1]	
Proper disposal of contaminated or discontinued medications and used administration devices.	79.4[1]	
Whether the medicines interfere with certain disease states (drug–disease interactions)	70.6[1]	
How long it will take for the medicine(s) to start to act	50[1]	
How the medicine(s) work/Mode of action	29.4[1]	

[1]Item was discarded. [2]Item was considered equivocal and was presented to participants during the second round for re-rating.

Table 3 Feedback received from the e-Delphi panel members after the second round about the research process and usefulness of the research objective ($n = 29$)

Statement	Agreed *n* (%)	Neutral *n* (%)	Disagreed *n* (%)
I think the initial questionnaire contained too many items	1 (3.4)	9 (31)	19 (65.6)
I don't think that having a minimum standard for medication counselling is going to be useful for pharmacists or other dispensers	1 (3.4)	1 (3.4)	27 (93.2)
I feel like participating in this study was a waste of my time	1 (3.4)	0 (0)	28 (96.6)
I found the language used during this entire research process too difficult to follow	0 (0)	0 (0)	29 (100)
I think the initial questionnaire covered most of the important types of information that should be provided during medication counselling	27 (93.2)	0 (0)	2 (6.8)
I feel that the instructions and/feedback provided by the researcher were clear or easy to understand	27 (93.2)	1 (3.4)	1 (3.4)
If a minimum standard for medication counselling is ever approved by appropriate authorities, I will be willing to use it/teach it/otherwise integrate it into my practice	28 (96.6)	0 (0)	1 (3.4)
I enjoyed participating in this study	29 (100)	0 (0)	0 (0)
I believe that developing a minimum standard for medication counselling will help patients better use their medicines	29 (100)	0 (0)	0 (0)

The Delphi methodology has been extensively used in pharmacy practice research in other countries to achieve expert consensus on a wide range of topics related to pharmacist activity while providing pharmaceutical care in various settings[18, 22, 23] and issues around medication safety.[24, 25] However, to the best of our knowledge, this is the first time that this type of study design was used to answer a pharmacy practice related research question within Nigeria.

This study used a modified Delphi design which meant that the medicines information items to be rated were pre-selected, and panel members were sent the questionnaires through their emails. Since the medicines information items included in our study are already widely known and accepted, with several countries already having medication counselling standards containing these items.[19, 20, 26] Thus, we felt that it was not necessary to re-identify these basic medicines information components. Similarly, sending the questionnaires through email was much more cost and time effective than sending them by regular post, and enabled us recruit a large number of panelists from several states, which might not have been possible otherwise. Our study also defined consensus as ≥90% expert agreement, which is higher than the 80% level usually accepted in similar Delphi studies.[21, 23] Again, because the aim of our study was to achieve consensus on the importance of these items that are already widely known and accepted, we felt that a higher level of agreement was justified.

As earlier mentioned, the aim of the study was to achieve consensus on the minimum content of medication counselling required by patients, so that the required items could be used to design a dispensing protocol. Dispensing protocols help to standardize the medication dispensing and/counselling process, and have been shown to be particularly important because they can increase patients' medication knowledge.[27] Similar processes to the one used in this study were followed by Abaurre *et al*.[28] and Rocha *et al*.[29] when they designed dispensing and/counselling protocols to be used by pharmacists in Spain and Brazil.

Consensus was achieved for 11 out of the 17 medicines information items rated by the experts after two rounds of the e-Delphi process. Discarded items included information about mechanism of action, how long it would take for the medication to start to act, information about storage and disposal practices as well as drug–disease interactions. Several studies have already shown that information about these items are not commonly provided to patients.[26] Reasons for this could include the fact that information about drug–disease interactions are far more likely to be useful if targeted at prescribers (who can take steps to remedy the problem), than at patients. Similarly, explaining the mechanism of a drugs' action to patients-especially in low-literacy settings like ours, could present a host of difficulties. Finally, with the exception of most antidepressants and antifungal agents, most other drugs start to act almost immediately, thus this information might not be so important.

Finally, feedback received from the panel members about the research process was largely positive, confirming that the research process was agreeable and enjoyable for most of them. Most of them also felt that the study's results would be useful to all stakeholders in encouraging the safe and rational use of medication. Similarly, favorable feedback from participants about the Delphi process and research objectives have also been reported from another study.[21]

Limitations of this study include the fact that even though we tried to select a diverse group of experienced pharmacists who were actively involved in medication counselling for our panel, the extent to which they can be considered 'experts' may be debatable. Similarly, because all of the panelists worked only within North-Western Nigeria, our findings may not be fully generalizable to other settings. Finally, we can also not totally rule out the possibility that our preselected consensus level was too high, potentially causing items that could have been retained to be deleted.

Conclusion

Consensus was achieved for 11 out of the 17 medicines information items rated by the panelists after two rounds of the e-Delphi process. Some of the selected items included medication name, indication, dose, dosing frequency, route of administration, duration and drug food interactions. Feedback received from panel members about the Delphi research process was also largely positive, with many of them reporting that they felt that the study's results would be useful for both dispensers and patients.

Author contributions

S.N.A.A., K.S.L., N.M.D. and S.M. designed the study, and S.N.A.A. and K.S.L. collected the data. S.N.A.A. conducted the data analyses and drafted

the manuscript. All authors participated in discussing the analyses and findings, critically revising the manuscript, and approving the final version to be submitted.

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Conflict of Interest

The authors declare that they have no conflicts of interest to disclose.

Data availability statement

Data collected during the study will be made available on request.

References

1. Bulloch M. Pharmacists neglecting their duty to counsel. *Pharm Times* [online] 2016; 1–2. https://www.pharmacytimes.com/contributor/marilyn-bulloch-pharmd-bcps/2016/07/pharmacists-neglecting-their-duty-to-counsel?p=1 (17 June 2020, date last accessed)
2. Boeni F, Arnet I, Hersberger KE. Adherence counseling during patient contacts in swiss community pharmacies. *Patient Prefer Adherence* 2015; 9: 597–605.
3. Pilnick A. "Patient counselling" by pharmacists: four approaches to the delivery of counselling sequences and their interactional reception. *Soc Sci Med* 2003; 56: 835–49.
4. Puumalainen I, Halonen P, Enlund H *et al*. Validation of the United States Pharmacopeia (USP) medication counselling behaviour guidelines. *Pharm Educ* 2005; 5: 87–96. doi: 10.1080/15602210500141085
5. Richard C, Lussier M. MEDICODE: an instrument to describe and evaluate exchanges on medications that occur during medical encounters. *Patient Educ Couns* 2006; 64: 197–206. doi: 10.1016/j.pec.2006.02.002
6. Lam N, Muravez SN, Boyce RW. A comparison of the Indian Health Service counseling technique with traditional, lecture-style counseling. *J Am Pharm Assoc (2003)* 2015; 55: 503–10.
7. Erah PO, Bafor EE. Assessment of Pharmacist-Patient communication in some health care facilities in Southern Nigeria. *Nigerian J Pharm Res* 2004; 3: 23–34. doi: 10.4314/njpr.v3i1.35380
8. Hussain A, Ibrahim MI. Medication counselling and dispensing practices at community pharmacies: a comparative cross sectional study from Pakistan. *Int J Clin Pharm* 2011; 33: 859–67.
9. Hussain S, Sayed Hussain AA, Hussain K *et al*. Pharmacist–patient counselling in Dubai: assessment and reflection on patient satisfaction. *Eur J Hosp Pharm* 2013; 20: 241–7. doi:10.1136/ejhpharm-2012-000263
10. Alfadl AA, Alrasheedy AA, Alhassun MS. Evaluation of medication counseling practice at community pharmacies in Qassim region, Saudi Arabia. *Saudi Pharm J* 2018; 26: 258–62.
11. Ali S, Shimels T, Bilal AI. Assessment of patient counseling on dispensing of medicines in outpatient pharmacy of Tikur-Anbessa Specialized Hospital, Ethiopia. *Ethiop J Health Sci* 2019; 29: 727–36.
12. Okuyan B, Sancar M, Izzettin FV. Assessment of medication knowledge and adherence among patients under oral chronic medication treatment in community pharmacy settings. *Pharmacoepidemiol Drug Saf* 2013; 22: 209–14. doi: 10.1002/pds.3275
13. Leguelinel-Blache G, Dubois F, Bouvet S *et al*. Improving patient's primary pedication adherence. *Medicine* 2015; 94: e1805. doi: 10.1097/md.0000000000001805
14. Schnipper JL, Kirwin JL, Cotugno MC *et al*. Role of pharmacist counseling in preventing adverse drug events after hospitalization. *Arch Intern Med* 2006; 166: 565–71.
15. Kooy MJ, Van Geffen EC, Heerdink ER *et al*. Patients' general satisfaction with telephone counseling by pharmacists and effects on satisfaction with information and beliefs about medicines: results from a cluster randomized trial. *Patient Educ Couns* 2015; 98: 797–804.
16. McMillan SS, King M, Tully MP. How to use the nominal group and Delphi techniques. *Int J Clin Pharm* 2016; 38: 655–62.
17. Keeney S, Hasson F, McKenna H. *The Delphi Technique in Nursing and Health Research*, 1st edn. West Sussex, U.K.: Wiley-Blackwell, 2011
18. Fernández-Llamazares CM, Hernández-Gago Y, Pozas M *et al*. Two-round Delphi technique for the consensual design of a paediatric pharmaceutical care model. *Pharmacol Res* 2013, 68: 31–7. doi: 10.1016/j.phrs.2012.11.001
19. American Society of Health-System Pharmacists. ASHP guidelines on pharmacist-conducted patient education and counseling. *Am J Health Syst Pharm* 1997; 54: 431–4. doi: 10.1093/ajhp/54.4.431
20. College of Pharmacists of British Columbia. *Pharmacy Matters - Reducing Errors and Increase Patient Safety by Following the Standards of Practice*. 2013. https://www.bcpharmacists.org/readlinks/pharmacy-matters-reducing-errors-and-increase-patient-safety-following-standards-practice (24 April 2020, date last accessed)
21. Ahmed R, McCaffery KJ, Aslani P. Development and validation of a question prompt list for parents of children with attention-deficit/hyperactivity disorder: a Delphi study. *Health Expect* 2016; 19: 234–52.
22. Aljamal MS, Ashcroft D, Tully MP. Development of indicators to assess the quality of medicines reconciliation at hospital admission: an e-Delphi study. *Int J Pharm Pract* 2016; 24: 209–16.
23. Karampatakis GD, Ryan K, Patel N *et al*. Capturing pharmacists' impact in general practice: an e-Delphi study to attempt to reach consensus amongst experts about what activities to record. *BMC Fam Pract* 2019; 20: 126.
24. Shawahna R, Haddad A, Khawaja B *et al*. Medication dispensing errors in Palestinian community pharmacy practice: a formal consensus using the Delphi technique. *Int J Clin Pharm* 2016; 38: 1112–23.
25. Al Juffali LA, Knapp P, Al-Aqeel S *et al*. Medication safety problems priorities in community pharmacy in Saudi Arabia: a multi-stakeholder Delphi study using the human factors framework. *BMJ Open* 2019; 9: e032419.
26. Puspitasari HP, Aslani P, Krass I. A review of counseling practices on prescription medicines in community pharmacies. *Res Social Adm Pharm* 2009; 5: 197–210.
27. Abaurre-Labrador R, Maurandi-Guillén MD, García-Delgado P *et al*. Effectiveness of a protocolized dispensing service in community pharmacy for improving patient medication knowledge. *Int J Clin Pharm* 2016; 38: 1057–62.
28. Abaurre R, García-Delgado P, Maurandi MD *et al*. Design and piloting of a structured service medication dispensing process. *Aten Primaria* 2015; 47: 7–14.
29. Rocha KSS, Cerqueira Santos S, Boaventura TC *et al*. Development and content validation of an instrument to support pharmaceutical counselling for dispensing of prescribed medicines. *J Eval Clin Pract* 2020; 26: 134–41.