



International journal of interdisciplinary dentistry

ISSN: 2452-5588

ISSN: 2452-5596

Sociedad de Periodoncia de Chile Implantología
Rehabilitación Odontopediatría Ortodoncia

Bendersky, Josefina; Zapata, Sebastián; Uribe, Macarena; Pilar,
Jaime; Gonzalez, Camila; Villanueva, Julio; Souper, Rafael

Evidence gaps in orthognathic surgery, a Delphi study protocol

International journal of interdisciplinary dentistry, vol. 16, no. 2, 2023, pp. 169-173

Sociedad de Periodoncia de Chile Implantología Rehabilitación Odontopediatría Ortodoncia

DOI: <https://doi.org/10.4067/S2452-55882023000200160>

Available in: <https://www.redalyc.org/articulo.oa?id=610075679012>

- How to cite
- Complete issue
- More information about this article
- Journal's webpage in redalyc.org

redalyc.org

Scientific Information System Redalyc

Network of Scientific Journals from Latin America and the Caribbean, Spain and
Portugal

Project academic non-profit, developed under the open access initiative

PROTOCOL



Evidence gaps in orthognathic surgery, a Delphi study protocol.

Josefina Bendersky^{1,2}, Sebastián Zapata^{1,3}, Macarena Uribe¹, Jaime Pilar⁴, Camila Gonzalez⁵, Julio Villanueva^{1,6}, Rafael Souper^{1*}.

1. Department of Oral and Maxillofacial Surgery and Cochrane Associated Center at Faculty of Dentistry, University of Chile, Santiago, Chile

2. Universitat Autònoma de Barcelona, Campus de la UAB, Barcelona, Spain

3. Hospital del Salvador, Santiago, Chile

4. Faculty of Dentistry, Universidad Finis Terrae, Santiago, Chile

5. Faculty of Dentistry, Universidad Diego Portales, Santiago, Chile.

6. Department of Maxillofacial Surgery, Hospital Clínico San Borja-Arriarán. Santiago, Chile

* Correspondencia Autor: Rafael Souper | Dirección: Olivos 943, Santiago, Chile. | Teléfono: +569 6846 9475 | E-mail: rafael.souper.m@gmail.com
Trabajo recibido el 01/07/2023
Trabajo revisado 10/07/2023
Aprobado para su publicación el 19/07/2023

ORCID

Josefina Bendersky:
ORCID: 0000-0003-0996-4220

Sebastián Zapata:
ORCID: 0009-0003-9136-8176

Macarena Uribe:
ORCID: 0000-0002-0871-6148

Jaime Pilar:
ORCID: 0009-0002-3734-8310

Camila González:
ORCID: 0009-0008-6416-4393

Julio Villanueva:
ORCID: 0000-0002-5807-442X

Rafael Souper:
ORCID: 0000-0003-3095-6241

INTRODUCTION

Orthognathic surgery (OS) is frequently used to treat dentofacial deformities that affect 20% of the population, such as skeletal discrepancies, asymmetries, airway dysfunctions, speech impairments, and temporomandibular disorders^(1,2), restoring anatomic and functional relationships⁽³⁾. There has been an increase in the frequency of OS performed each year, reaching a total of 8755 OSs performed in the United States in 2007⁽⁴⁾, concomitantly leading to an increase in the production of scientific literature on the subject. However, resolved research questions and specific topics continue to produce a high flow of both primary and secondary research, meanwhile, unresolved questions are not being addressed by researchers.

A recent mapping review that identified, described, and analyzed the available evidence on co-interventions and procedures in orthognathic surgery, revealed a series of research gaps that should be addressed to improve the outcomes of blood loss, infection, and relapse^(5,6). Yet, these knowledge gaps only portray what is available in the published literature but do not consider the views of clinicians who perform this procedure on a daily matter.

The objective of this Delphi study is to assess and compare the results provided in the mapping review through their appraisal by clinical experts in the subject. Therefore, by complementing the available literature with clinical appraisal, a thorough, clinically relevant, and pertinent list of research gaps will be exposed to help guide future investigations in

ABSTRACT

Aim: To assess the research gaps identified in a recent mapping review of orthognathic surgery through their evaluation by clinical experts, leading to a clinically relevant list of research gaps. This will guide future investigations of the topic, focusing on the outcomes of blood loss, infection, and relapse. **Methods:** The Delphi technique will be used to appraise the identified research gaps. The expert panel will include maxillofacial surgeons who regularly perform orthognathic surgery. Potential participants will be identified through various methods, including contact information from articles in the mapping review, nominations from peers, and social media platforms. Two rounds of surveys will be undertaken with Likert-type and open-ended questions to assess the clinical relevance of research gaps. For the second round, participants will receive a report of the results of the first round. Questions will be modified depending on the answers obtained in the first round. A consensus of 60% will be considered valid. **Conclusions:** Through this Delphi study, in a collaborative effort between researchers and clinical experts, a comprehensive understanding of the clinical relevance of research gaps in orthognathic surgery will be achieved. The outcomes will guide future investigations, ultimately improving the outcomes and practices in this field.

KEY WORDS:

Delphi study; Orthognathic surgery; Evidence gaps; Mapping review; Research gaps; Maxillofacial surgery.

Int. J. Inter. Dent Vol. 16(2); 169-171, 2023.

orthognathic surgery.

METHODS

Justification for study design

This study will use the Delphi technique. We have chosen this design as it is the most appropriate to appraise research gaps identified in a mapping review of orthognathic surgery, consequently establishing the most essential research gaps in the literature assessed by clinicians, and guiding future investigations.

Research steering group

A research steering group will be formed to undertake this research. They will be responsible for preparing and circulating the content of the Delphi rounds. It will comprise investigators with backgrounds in general dentistry, oral surgery, maxillofacial surgery, and research methodology. The research steering group will not participate in the surveys; rather, they will supervise and monitor the process.

Selection and identification of the expert panel

Potential participants must be maxillofacial surgeons who perform orthognathic surgery in their daily practice. They will be identified by the following methods:

1. Extraction of contact information of corresponding authors of articles

included in mapping review.

2. Nomination by identified peers.

3. Social media (LinkedIn).

Participants will be excluded if they have insufficient experience in the field (less than one year of experience or more than one year of not performing orthognathic surgery), or cannot commit to being available for the entire process. There will be no age, country, or gender restrictions.

Recruitment

Individuals identified will be sent a personalized letter of invitation via email (SM1), including a user-friendly information poster (Figure 1) and the study protocol. See figure 2 for details. Figure 1. Information poster

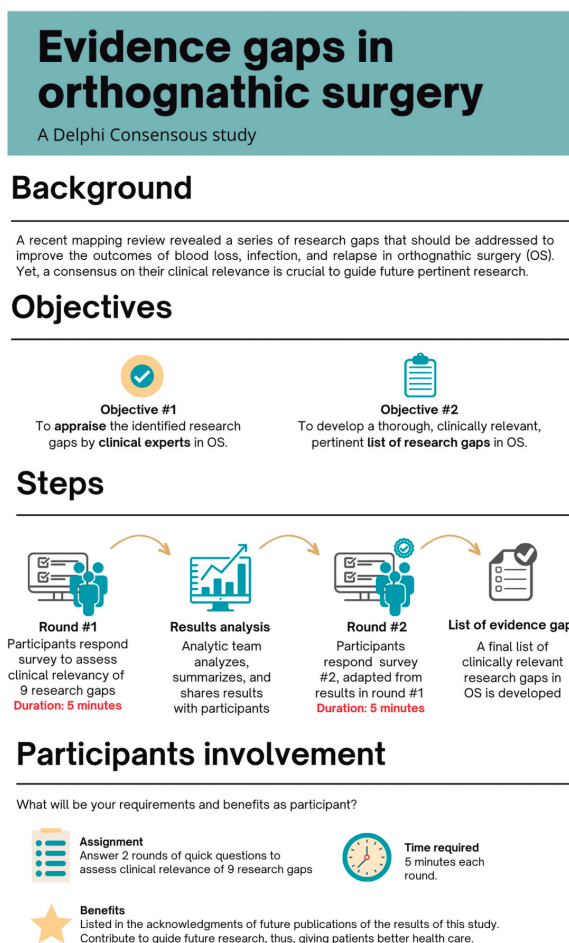


Figure 1. Information poster

Screen for eligibility

All identified experts will be invited to participate. The potential participants will receive materials to inform them of the study objectives and design, and the commitment required for participation. They will receive an invitation letter and a participant information sheet. Experts will be screened at this point for eligibility to participate and asked to nominate peers that may be interested in participating. Potential participants will be provided with a clear explanation of the anticipated process and will be asked to commit to all rounds of the Delphi technique. Figure 2. Recruitment process

Panel size and composition

Based on Akins et al. and Campbell et al., we established a minimum of 20 participants, with no upper limit, as larger panels increase the reliability of the outcomes^(7,9).

Anonymity

Following the iterative nature of the Delphi technique, this process will be performed in an anonymous manner⁽⁹⁾.

Design and content of the survey

The surveys will consist of 5-point Likert scale and open-ended

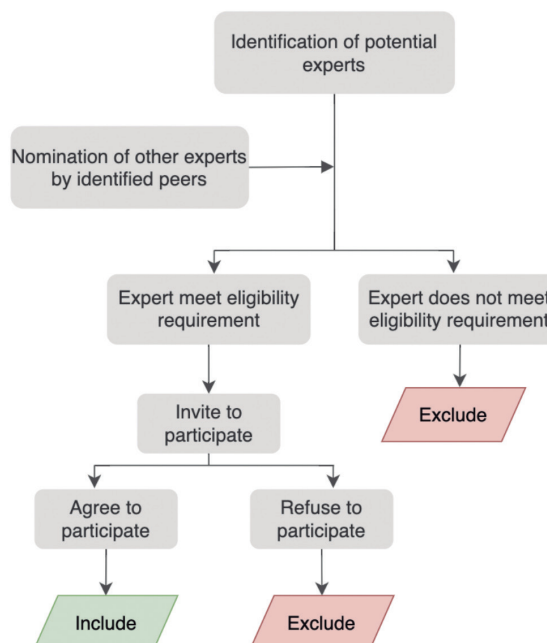


Figure 2. Recruitment process

questions regarding evidence gaps identified in a previous study. The questionnaires will be developed in Google Forms. Each round of the survey will include an introductory paragraph that states the intentions of the round. The second round will provide details and feedback concerning the results of the first round.

Survey development

Questions will be developed by the primary investigator (JB), based on the evidence gaps identified in a previous study^(5,6). Subsequently, they will be piloted with the research steering group, then adapted according to their feedback.

Definition of consensus

We will opt for a 60% consensus for our results to be valid, following the suggestion of some authors⁽¹⁰⁻¹²⁾.

Enhancing response rate

We will use several methods to enhance the response rate. Initially, participants will be invited to participate via personalized email, explaining the objectives and importance of the study. They will be presented with the survey in the same email, to decrease drop-out. Remainders will be sent via email to participants who have not answered the survey, with a frequency of 7 days. Participants will also be offered a participation certificate and their acknowledgment in future publications with Delphi results if they participate in both rounds.

Rounds

Recent evidence appears to show that the preferred number of rounds is either two or three^(11,13,14). In our study, two rounds will be undertaken, allowing participants to have feedback and revise previous responses, reducing the number of attritions. If consensus is below 60% for a specific question, results will not be considered valid.

First round

Round one questionnaire will consist of 5-point Likert scale questions, where participants must select the clinical relevance of the identified evidence gaps in orthognathic surgery. These evidence gaps will be extracted from a previous mapping review and categorized depending on the outcome in question: blood loss, infection, and relapse. Also, a final open-ended question will ask participants to point out any evidence gap not mentioned in the previous questions (SM2).

Second round

For the second round, past questions will be modified depending on the answers obtained. Questions with low clinical relevance and high agreement (above 60%) between participants will be eliminated for the second round. Questions with low agreement (below 60%), will be repeated for the second round. Evidence gaps proposed by participants

in the previous rounds which fulfill the inclusion criteria (Table 1) will be added as new questions or will allow a modification of previous questions.

Table 1. Selection criteria for evidence gaps proposed by participants

Inclusion criteria	Exclusion criteria
Evidence gap regarding co-interventions or surgical modalities used during the orthognathic surgery perioperative period in the adolescent or adult population.	Evidence gap regarding surgical planning or quality of life.
	Evidence gap regarding syndromic patients
	Evidence gap regarding economic outcomes

Feedback reports

After the first round, to enhance transparency, feedback reports will be distributed to the participants, which will include⁽¹⁾ the media and standard deviation for each item⁽²⁾, the number of responses in the previous round⁽³⁾, the current level of consensus, and⁽⁴⁾ a summary of the results from the previous round. These results will be presented in a narrated and graphical manner.

Ethical considerations

The study will be conducted in accordance with principles of the "Declaration of Helsinki", Good Clinical Practice.

Statistical analysis and synthesis of results

A descriptive statistical analysis will be performed after each round. First, mean values, standard deviation, range, and Mann-Whitney U test will be performed for the description of participants, concerning years of experience in the field, work setting (private/hospital), and country. Histograms will be developed for each question on each round, showing the category frequencies. Moreover, the media and standard deviation will

be calculated for each question using the Jamovi software, by converting the Likert scale as a continuous variable. Weighted Kappa statistics will be calculated for the level of agreement within-subject and between participants.

For a visually friendly analysis of the results, a graph separated into four quadrants comparing relevance (x-axis) and agreement (y-axis) will be developed. A post hoc Mann-Whitney U test will be performed to check for non-response bias.

Finally, questions defined as relevant, including the categories "question is likely to be relevant" and "question is highly relevant", with a consensus between participants of 60% or higher, will be listed as evidence gaps that should be addressed in future research.

CONCLUSIONS

Through this collaborative Delphi study, involving both researchers and clinical experts, we aim to gain a comprehensive understanding of the existing research gaps within the field of orthognathic surgery by assessing their clinical relevance with experts in the field. The outcomes of this study have the potential to drive positive change by informing and guiding the direction of future investigation, leading to improved surgical outcomes, enhanced surgical techniques, and more effective clinical decision-making.

CONFLICT OF INTEREST AND SOURCE OF FUNDING

This project does not receive external finance and authors declare no conflict of interest.

AUTHOR INFORMATION

Josefina Bendersky is a PhD candidate at the Methodology of Biomedical Research and Public Health programme, Universitat Autònoma de Barcelona, Spain.

References

1. Chow LK, Singh B, Chiu WK, Samman N. Prevalence of postoperative complications after orthognathic surgery: a 15-year review. *J Oral Maxillofac Surg.* 2007;65(5):984-92. doi: 10.1016/j.joms.2006.07.006.
2. American Association of Oral and Maxillofacial Surgeons. Criteria for Orthognathic Surgery. 2008.
3. Naran S, Steinbacher DM, Taylor JA. Current concepts in orthognathic surgery. *Plast Reconstr Surg.* 2018;141(6):925e-36e. doi: 10.1097/PRS.0000000000004438.
4. Sullivan SM. Orthognathic surgery dilemma: increasing access. *J Oral Maxillofac Surg.* 2011;69(3):813-6. doi: 10.1016/j.joms.2009.09.067.
5. Bendersky J, Uribe M, Bravo M, Vargas JP, Flores E, Aguero I, et al. Systematic mapping review of orthognathic surgery. *J Stomatol Oral Maxillofac Surg.* 2022;123(5):e285-e305. doi: 10.1016/j.jormas.2022.05.011.
6. Bendersky J, Uribe M, Bravo M, Vargas Jp, Villanueva J, Urrutia G, et al. Systematic mapping review of interventions to prevent blood loss, infection and relapse in orthognathic surgery. *Med Oral Patol Oral Cirugia Bucal.* 2023;e116-25. doi: 10.4317/medoral.25530.
7. Campbell SM, Cantrill JA, Roberts D. Prescribing indicators for UK general practice: Delphi consultation study. *BMJ.* 2000;321(7258):425-8. doi: 10.1136/bmj.321.7258.425.
8. Akins RB, Tolson H, Cole BR. Stability of response characteristics of a Delphi panel: application of bootstrap data expansion. *BMC Med Res Methodol.* 2005;5:37. doi: 10.1186/1471-2288-5-37.
9. Hasson F, Keeney S, McKenna H. Research guidelines for the Delphi survey technique. *J Adv Nurs.* 2000;32(4):1008-15. doi.org/10.1046/j.1365-2648.2000.t01-1-01567.x
10. Sumsion T. The Delphi Technique: an adaptive research Tool. *Br J Occup Ther.* 1998;61(4):153-6. doi.org/10.1177/03080226980610040
11. Green B, Jones M, Hughes D, Williams A. Applying the Delphi technique in a study of GPs' information requirements. *Health Soc Care Community.* 1999;7(3):198-205. doi: 10.1046/j.1365-2524.1999.00176.x.
12. Crisp J, Pelletier D, Duffield C, Adams A, Nagy S. The Delphi method? *Nurs Res.* 1997;46(2):116-8. doi: 10.1097/00006199-199703000-00010.
13. Procter S, Hunt M. Using the Delphi survey technique to develop a professional definition of nursing for analysing nursing workload. *J Adv Nurs.* 1994 May;19(5):1003-14. doi: 10.1111/j.1365-2648.1994.tb01180.x.
14. Beech B. Studying the future: a Delphi survey of how multi-disciplinary clinical staff view the likely development of two community mental health centres over the course of the next two years. *J Adv Nurs.* 1997;25(2):331-8. doi: 10.1046/j.1365-2648.1997.1997025331.x.