Intervention studies to encourage vaccination using narrative: a systematic scoping review protocol

Tsuyoshi Okuhara, Hiroko Okada, Eiko Goto, Takahiro Kiuchi

ABSTRACT

Introduction Vaccine hesitancy is a global problem, impeding uptake of vaccines against measles, mumps, and rubella and those against human papillomavirus and COVID-19. Effective communication strategy is needed to address vaccine hesitancy. To guide the development of research in this field and the development of effective strategies for vaccine communication, this scoping review aims to analyse studies of interventions using narrative to encourage vaccination.

Methods and analysis We will search the following databases: MEDLINE, CINAHL, PsycINFO and PsycARTICLES. We will identify additional literature by searching the reference lists of eligible studies. Eligible studies will be those that quantitatively examined the persuasiveness of narrative to encourage vaccination. Two independent reviewers will screen the titles, abstracts and full texts of all studies identified. Two independent reviewers will share the responsibility for data extraction and verification. Discrepancies will be resolved through consensus. Data such as study characteristics, participant characteristics, methodology, main results and theoretical foundation will be extracted. The findings will be synthesised in a descriptive and a narrative review.

Ethics and dissemination This work does not warrant any ethical or safety concerns. This scoping review will be presented at a relevant conference and published in a peer-reviewed journal.

INTRODUCTION

Vaccines have long been lauded as one of the most important public health achievements of the past century. In the past decade, however, a growing number of individuals have begun to perceive vaccination as risky. Vaccine hesitancy, defined as ‘delay in acceptance or refusal of vaccines despite availability of vaccination service’, is a problem attracting growing attention and concern.1 Vaccine hesitancy impeding uptake of vaccines against measles, mumps, and rubella and COVID-19 vaccines is a global problem.2–5 Communication can be an effective tool, if used in a planned and integrated strategy, to counteract vaccine hesitancy and promote optimal vaccine uptake.6

Using narrative to motivate health behaviour is an emerging form of persuasion in public health communication.7–9 Narrative refers to the use of case stories or examples to support the argument offered by the communicator,8 such as ‘I suffered greatly from the COVID-19. Therefore, I recommend you receive the COVID-19 vaccine to prevent severe illness due to infection’. Especially in vaccination promotion, using narrative is proposed to counter antivaccination messages in mass media and on the internet, which propagate doubt, fear and opposition to vaccination.9 These antivaccination messages often use an emotional narrative of alleged victims of a vaccine’s side effects.10 Scholars of vaccine communication have recently directed their interest to using narrative effectively as well, such as describing people feeling secure at recognising that they and their loved ones are protected by vaccination, or describing an experience of a person whose health suffered because of a preventable disease.11,12

However, health-related narrative persuasion research is still emerging. Published studies remain relatively small in number, and few studies have measured health-behaviour outcomes in non-student participants.13 To our knowledge, no study has reviewed previous studies of interventions aimed at encouraging vaccination using narrative to

Strengths and limitations of this study

- We use the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews checklist, the most current guidance on conducting scoping reviews, in order to ensure a systematic approach to searching, screening and reporting.
- As this is a scoping review, formal quality assessment and risk of bias assessment will not be conducted.
- This review may miss important literature published in languages other than English.
determine which vaccines have been targeted, what study designs have been adopted (e.g., participant background, sample size, randomisation), and what outcomes have been measured (e.g., vaccination behaviour, behavioural intentions, attitudes). Reviewing them will be important for developing the field of study to encourage vaccination using narrative, for critically examining the results of previous studies, and for applying them to vaccine communication practice.

Recent studies on vaccine communication have shown that narrative messages that recount personal experiences with disease increase an audience’s perception of the risk of developing disease, intention to vaccinate and likelihood of changing behaviour to prevent infectious disease, compared with didactic messages. However, communication scholars have not yet reached consensus regarding the persuasiveness of narrative versus didactic messages, and the optimal usage thereof. No studies have reviewed what form of intervention (e.g., statistics) previous studies have adopted to quantify the persuasiveness of narrative to encourage vaccination, and what results those studies have shown.

Although theoretical developments in understanding the mechanisms and processes involved in narrative persuasion remain limited, several theoretical perspectives have been proposed to explain how and why narrative communication may contribute to attitudinal and behavioural changes. The earliest studies applied models of behaviour change—the most representative being social cognitive theory. Then, theories of persuasion in psychology—the most representative being the extended elaboration likelihood model and the transportation-imagery model—were proposed and evaluated. However, no studies have reviewed which theories and models formed the basis for previous intervention studies of encouraging vaccination using narrative.

The objective of this review is to create an overview of studies of interventions aimed at encouraging vaccination using narrative, and to identify the content and gaps in these studies. This scoping review will serve as a useful reference for researchers who plan future intervention studies on vaccine communication using narrative, speeding up their research and helping them to conduct better-designed intervention studies. This work will be useful in guiding the development of research in the field and the development of effective strategies for vaccine communication and addressing vaccine hesitancy. Our research questions will be as follows. These wide review objectives and questions will be best achieved and answered through a scoping review.

RQ1: What study designs have previous intervention studies adopted to examine the persuasiveness of narrative approaches in encouraging vaccination?

RQ2: What outcomes have previous intervention studies measured to examine the persuasiveness of narrative approaches in encouraging vaccination?

RQ3: What forms of intervention other than using narrative have previous intervention studies adopted to compare and combine with the persuasiveness of narrative in encouraging vaccination?

RQ4: What results have previous intervention studies shown about the persuasiveness of narrative approaches in encouraging vaccination including comparisons and combinations with other forms of intervention than using narrative?

RQ5: Which theories and models have been used in previous intervention studies to explain the persuasiveness of narrative in encouraging vaccination?

**METHODS AND ANALYSIS**

This systematic scoping review protocol is prepared according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews checklist (see online supplemental file 1). The planned start date for the study is 1 April 2022, and the planned end date is 31 March 2023.

**Literature search**

Using the EBSCOhost Search Platform, we will search the following databases: MEDLINE, Cumulative Index to Nursing and Allied Health Literature (CINAHL), PsycINFO, PsycARTICLES. We will search the abstracts using the combination of keywords: (vaccine OR vaccination OR immunization) AND (narrative OR story OR storytelling). We will search the reference lists of identified eligible studies to identify any additional potentially eligible literature.

**Eligibility criteria**

We seek to include all intervention studies in these databases that quantitatively examined the persuasiveness of narrative to encourage vaccination, both experimental (e.g., randomised controlled trials, quasi-randomised controlled trials, non-randomised trials) and quasi-experimental research (e.g., pretest–post-test design, post-test design). All comparators will be eligible (i.e., any forms of intervention other than using narrative). Studies without a comparator will also be eligible. Grey literature (information produced outside of traditional publishing and distribution channels, such as conference proceedings) will be included if it provides enough information to assess its eligibility. Qualitative studies will be excluded.

Studies assessing any outcomes such as behaviour, behavioural intention and attitude will be eligible, as will studies of any kind of vaccination. Studies on participants of any age, gender, ethnicity and countries will be eligible, and we will not filter by year. Only papers written in English will be included; studies not published in full text will be excluded.

**Study selection**

Two independent reviewers including the first author (TO) will screen the titles and abstracts of all studies initially identified, according to the eligibility criteria. Disagreements will be resolved by consensus; the opinion of a third reviewer will be sought if necessary. The full text
Data extraction and reporting the results
A customised data extraction form will be created to extract all relevant data from each study. The data extraction form will be piloted in a sample of the eligible studies to assess its reliability in extracting the targeted study data. The first author (TO) will conduct data extraction, and another author will check the extracted data against the full texts of the studies to ensure that there are no omissions or errors. Consensus will be reached through discussion, and if no consensus can be reached on any study, a third reviewer will arbitrate. The following data will be extracted: study characteristics (author, year of publication, type of paper and country), participant characteristics (student or non-student, gender, age and other demographic information), methodology (study design, sample size and outcome), comparators and combinations (forms of intervention other than using narrative), main results of the intervention including comparison and combination with other forms of intervention than using narrative, and theoretical foundation of the intervention. The findings will be summarised in a concise table and synthesised in a descriptive and narrative review. We will discuss the findings and their implications for future research and practice as we answer each of the research questions.

Patient and public involvement
Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

ETHICS AND DISSEMINATION
This work does not warrant any ethical or safety concerns. We intend to present the results of this review at a relevant conference and publish them in a peer-reviewed journal.

Acknowledgements
We thank John Daniel from Edanz (https://jp.edanz.com/ac) for editing a draft of this manuscript.

Contributors
All authors have made substantive intellectual contributions to the development of this protocol. TO was involved in conceptualising this review and in writing this protocol. HD, EG and TK commented critically on several drafts of the manuscript.

Funding
This work was supported by the Japan Society for the Promotion of Science KAKENHI (grant number 19K10615, 19K22743).

Competing interests
None declared.

Patient and public involvement
Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication
Not applicable.

Provenance and peer review
Not commissioned; externally peer reviewed.

Supplemental material
This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access
This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: http://creativecommons.org/licenses/by-nc/4.0/.

ORCID iD
Tsuoshi Okuhara http://orcid.org/0000-0002-6251-3587

REFERENCES
1. MacDonald NE, SAGE Working Group on Vaccine Hesitancy. Vaccine hesitancy: definition, scope and determinants. Vaccine 2015;33(46):161–4.
2. Sallam M. Covid-19 vaccine hesitancy worldwide: a concise systematic review of vaccine acceptance rates. Vaccines 2021;9:160–15.
3. Robinson E, Jones A, Leaser I, et al. International estimates of intended uptake and refusal of COVID-19 vaccines: a rapid systematic review and meta-analysis of large nationally representative samples. Vaccine 2021;39:2024–34.
4. Bankamp B, Hickman C, Icenogle JP, et al. Successes and challenges for preventing measles, mumps and rubella by vaccination. Curr Opin Virol 2018;34:110–6.
5. Wilder-Smith AB, Qureshi K. Resurgence of measles in Europe: a systematic review on parental attitudes and beliefs of measles vaccine. J Epidemiol Glob Health 2020;10:46–58.
6. Goldstein S, MacDonald NE, Guirgis S, et al. Health communication and vaccine hesitancy. Vaccine 2015;33:4212–4.
7. Hinyard LJ, Kreuter MW. Using narrative communication as a tool for health behavior change: a conceptual, theoretical, and empirical overview. Health Educ Behav 2007;34:777–92.
8. Braddock C, Dillard JP. Meta-analytic evidence for the persuasive effect of narratives on beliefs, attitudes, intentions, and behaviors. Commun Monogr 2016;83:446–67.
9. Shelby A, Ernst K. Story and science: how providers and parents can utilize storytelling to combat anti-vaccine misinformation. Hum Vaccin Immunother 2013;9:795–801.
10. Lesak J. Target the fence-sitters. Nature 2011;473:443–5.
11. Betsch C, Brewer NT, Brocard P, et al. Opportunities and challenges of web 2.0 for vaccination decisions. Vaccine 2012;30:3727–33.
12. Dubé E, Vivion M, MacDonald NE. Vaccine hesitancy, vaccine refusal and the anti-vaccine movement: influence, impact and implications. Expert Rev Vaccines 2015;14:99–117.
13. de Graaf A, Sanders J, Hoeken H. Characteristics of narrative interventions and health effects: a review of the content, form, and context of narratives in health-related narrative persuasion research. Rev Commun Res 2016;42:138–31.
14. Prati G, Pietrantoni L, Zani B. Influenza vaccination: the persuasiveness of messages among people aged 65 years and older. Health Commun 2012;27:143–20.
15. Winterbottom A, Bekker HL, Conner M, et al. Does narrative information bias individual’s decision making? A systematic review. Soc Sci Med 2008;67:2079–88.
16. Moyer-Gusé E. Toward a theory of entertainment persuasion: explaining the persuasive effects of entertainment-education messages. Communication Theory 2006;16:407–25.
17. Bandura A. Social cognitive theory. In: Modern Constructive Theory: A Cognitive-Viologocial Approach. Hillding, NC: 2004;31:143–64.
18. Slater MD, Rouner D. Entertainment-education and elaboration likelihood: understanding the processing of narrative persuasion. Communication Theory 2002;12:173–91.
19. Green MC, Brock TC. The role of transportation in the persuasiveness of public narratives. J Pers Soc Psychol 2000;79:701–21.
20. Tricco AC, Lillie E, Zarin W, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. Ann Intern Med 2018;169:467–73.