



Communicating evidence-based information on the effects of health interventions to various types of recipients – a qualitative study on the perception of formats of information among lay and professional audiences

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Abstract

Introduction and objectives. Considering the complexity of medical discourse, the enormous amount of information, including fake news, it becomes increasingly challenging to develop health literacy among the general population and to ensure efficient communication of scientific findings on the effects of health interventions to various types of recipients. We aimed to gain an in-depth understanding of how the various types of audiences perceive various formats for presenting data from Cochrane systematic reviews (SRs).

Material and methods. We conducted focus group interviews with university employees, students, pharmacists, patients, caregivers, physicians, and nurses. Participants were presented with the following information formats: plain language summary (PLS), an audio record of the PLS, summary of findings table, vlogshot, blogshot, infographic, press release, comic drawing, and scientific abstract. During a moderated discussion, participants were encouraged to share their opinions about usefulness of the formats and their strengths and weaknesses. The interviews were video recorded, transcribed, and coded. To identify the patterns of preferences, the method of constant comparison and visual display techniques were used.

Results. The analysis revealed the various preferences regarding the presentation of health information. The following characteristics of the information emerged as the most important: trustworthiness, practical application, comprehensibility, information structure, graphical means used, clarity, individual reactions and interpretations.

Conclusions. Our study revealed several key factors that are considered by recipients when evaluating the various information formats. These include the way the information is presented, the perceived quality of the underlying studies, and individual benefits.

Keywords

health education, health literacy, knowledge translation, consumer health information

1. INTRODUCTION AND OBJECTIVES

According to the concept of “knowledge society” [1], results from scientific research should be taken out of academia to inform policy, economics, as well as people’s daily life choices by providing understandable and credible information. Considering the enormous body of research in the field of health interventions providing ambiguous findings, systematic reviews (SRs) have been developed to answer a specific research question by collating evidence from existing studies. The use of high-quality SRs is promoted by Cochrane, an international organization aimed at supporting the development of evidence-based guidelines and policies to help guide institutional and individual decisions about health and social care [2].

The global health crisis of the coronavirus disease (COVID-19) pandemic has revealed the significance of effective communication between the scientific world and a lay audience [3–5]. The resultant infodemic, conceptualized as an overabundance of information causing confusion when searching for trustworthy sources and reliable guidance, has spread via digital and physical information systems like a virus itself [6]. The increased acceleration of antiscientific movements, mistrust of official information, and circulation of fake news observed in recent years have made the flow of information on health even more demanding [7]. To face those challenges, it is crucial to develop participatory attitudes in the academic community as well as to acquire competences to engage with the public [8]. In those contexts, knowledge translation, defined by Cochrane as the process of supporting the use of health evidence from trusted high-quality SRs by those who need it to make health decisions (<https://community.cochrane.org/review-production/knowledge-translation>), has been receiving more interest among scholars. As a consequence, several formats for the

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dissemination of findings from SRs have been developed [9, 10].

So far, the quality of the information formats on health interventions has been analyzed either by assessing the objectified characteristics of the information (i.e. its conclusiveness, readability) or by studying recipients' perception of the information or recipients' level of acquired knowledge. One of the study representing the former approach revealed that from over 4000 plain language summaries (PLS) published in English language between 1995 to 2019, 80% did not convey any conclusive message. Moreover, typically a recipient of the analyzed PLSs would need 15 years of general education to read the presented information with ease [11].

When applying the latter approach, investigators tended to focus on exploring the consumer audience's preferences regarding single formats, such as plain language summary (PLS) in a study by Glenton et al. [12] or summary of findings (SoF) tables in studies by Rosenbaum et al. [10] and Matas et al [13], or compared the perception a few formats, such as in the studies by Buljan et al [14]. Moreover, most of them addressed either nonspecific [12] or professional audience [10]. The most recent studies investigated the preferences of medical students and patients [15–17]. They revealed the advantages of using the studied dissemination tools, slight differences between formats [14–17], as well as several difficulties in guiding evidence-informed decisions [18].

This study aimed to describe how diverse types of audiences perceive the available formats of evidence-based information about health interventions as well as to explore their individual preferences as to which format of presenting SR findings is the most optimal.

2. MATERIAL AND METHODS

2.1. Study design

We approached the research problem guided by the interpretivist paradigm that sought to understand individual perceptions and experiences [19]. We applied focus group interviews (FGI) with different audiences to gain insight into their preferences concerning various information formats [20]. The study was conducted in two phases. In Phase 1, a pilot focus group interview with university employees was conducted to test an interview guide, adjust the number of the formats discussed, and hone the set of stimulating materials. Based on the adjusted tool (Appendix A) and materials, in Phase 2, a qualitative researcher with experience in interviewing and group moderation working in the field of medical sociology (AP-D) conducted the subsequent four interviews. During the pilot study, another researcher (JZ) observed the group discussion through one way mirrors and discussed her notes with the moderator afterwards. The interviews were held either at university venues, such as an FGI studio, or in discussion spaces proposed by informants (e.g., a conference room of a patient association). During the interviews, four to six of the following eight formats for disseminating SR findings were discussed: abstract, PLS, infographics, comic drawing, SoF table, an audio record of PLS, blogshot, and vlogshot. The combination of the formats was determined by the type of participants. Lay participants (students, patients, and caregivers) were presented with fewer formats than medical professionals (nurses, physicians, and pharmacists). Formats were distributed using a random

order (Table 1). All formats presented during the interviews were based on Cochrane SRs. Six formats were developed by Cochrane and were translated by Cochrane Poland, while two formats (i.e., the audio record of PLS and comic drawing) were originally created by the members of Cochrane Poland. Each format was based on an SR addressing a different health intervention (Appendix B, Appendix C, Appendix D).

2.2. Recruitment strategy

Except for the pilot sample, we divided participants into homogenous medical professional and nonprofessional (lay) groups to prevent potential divisions and the risk of withdrawal of nonprofessionals, who might be reluctant to participate in the same discussion with professionals due to differences in the level of knowledge [21]. The pilot sample included a mixed audience consisting of university employees with and without experience in research on health interventions. In Phase 2, we sampled lay participants from among: 1) patients and caregivers from a local association for individuals affected by a chronic illness; and 2) students in their fourth semester of a bachelor program in public health. Professional participants were sampled from among pharmacists working at pharmacies as well as nurses and medical doctors working in a clinical setting.

Study participants were divided into groups of 6 to 8 individuals. The group size was determined by the specificity of study objectives and the type of materials presented to participants. We used the snowball technique to sample individuals from among the various types of audiences. The mode of recruitment differed between participants. The invitations to university employees were delivered via university e-newsletter, and to students during an academic course. Participants from the remaining groups were recruited via designated individuals who were asked to distribute the invitation in their respective organizations (an association of pharmacists, a regional hospital, and a local association for individuals affected by a chronic illness). The two first groups had known the interviewer prior to the study from the academic context, while the latter encountered her first time during the interviews. We made efforts to ensure heterogeneity of the groups in terms of gender as well as experience in using findings from SRs on medical interventions.

2.3. Interviewing procedure

At the beginning of the interview, participants were informed about the study objectives, voluntary participation, as well as conditions of confidentiality and written informed consent. Next, the moderator presented the information formats one by one to participants. While the text formats were printed out, the visual and audio formats were played on a projector screen and via a speaker, respectively. Participants were given time to study the information on their own in silence. Before starting a group discussion on each format, participants were asked to individually assess in a short survey to what extent the information helped them understand the medical problem outlined in the material. The usefulness of the information was rated using a semantic differential 10-point scale with a bipolar adjective "useless" and "useful". This preliminary assessment was used to ensure that individual preferences were not influenced by the group effect [22]. Subsequently, the moderator encouraged participants to share and discuss their individual opinions on the advantages and disadvantages of each format. The moderator probed the participants' opinions

and discussed standpoints until reaching the point of data saturation. At the end of each interview, the moderator asked participants to individually choose the most optimal format, and these preferences were collected by open voting.

2.4. Data analysis

All the five interviews were video recorded and transcribed verbatim. The transcripts were anonymized and inductively coded. The codebook consisted of 42 codes, categorized into 8 themes during analytical work. To identify the patterns of perception and preferences for formats, we applied the method of constant comparison and verified similarities and differences between the various categories of audience and within the categories themselves. We made comparisons between formats and within each format as seen by the different types of recipients. Moreover, as recommended in the literature [23], we applied various visual techniques of data display, such as tables and matrices, to identify and understand the patterns of preferences within and across the groups of recipients. We also conducted a case-oriented analysis using the functionality of interview portraits. As each code is assigned a separate color during the coding process, an interview portrait displays the structure of the transcript. A visually represented frequency and sequence of the segments coded with the selected codes in each transcript


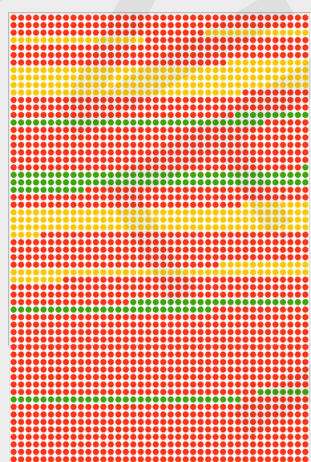
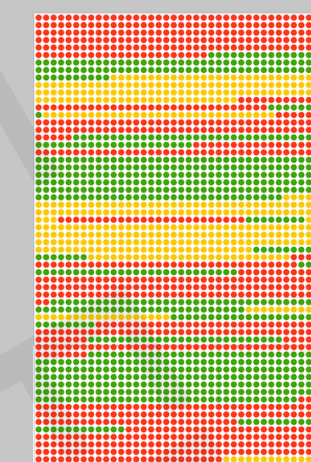
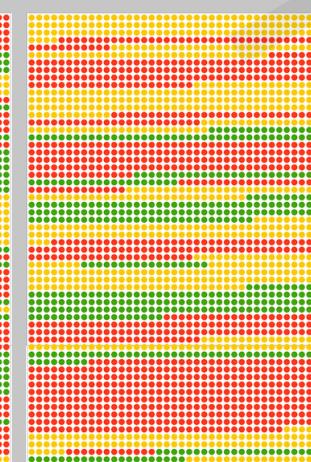
help identify the basic tone of an interview. We used this analytical tool to learn about the overall perception of the formats presented to participants in each group.

The above analytical procedures were conducted iteratively and involved several revisions of coding, category themes, and pattern description. After each phase we asked for participants' feedback to ensure accuracy of reporting. The collected material was analyzed using the MAXQDA 2018 software [24]. The results of individual assessments were averaged. The study was conducted according to the guidelines of the Declaration of Helsinki, and approved by the Bioethics Committee of Jagiellonian University (decision No. 1072.6120.72.2018). Informed consent was obtained from all study participants. The findings were the findings were reported according to the Consolidated criteria for Reporting Qualitative research [25].

3. RESULTS

We conducted five focus group interviews including 33 participants with various backgrounds (Table 2). Among the 13 participants with medical background, only two had advanced competencies in conducting SRs. All participants lived in a medium-sized or a large city in southern Poland. Of

Table 1. General and specific perception of the information formats among lay and professional recipients

Categories of information recipients			
Patients and caregivers (n=6)	Students (n=8)	Nurses and physicians (n=6)	Pharmacists (n=7)
Order of information formats presented to the study participants			
abstract SoF infographic comic book PLS	infographic recorded PLS SoF comic book	abstract comic book SoF Recorded PLS infographic blogshot	abstract infographic SoF PLS comic book
Proportional comparison of positive (green), negative (red), and ambiguous (yellow) opinions on the presented formats*			
			
The most preferred formats			
Final ranking PLS infographics SoF	Final ranking infographics SoF	Final ranking infographics vlogshot SoF	Final ranking SoF PLS infographics

*Each interview transcript was proportionally divided into 1,200 little squares (arranged in 30 rows with 40 squares each). The proportion of the interview fragments reflecting positive, negative, and ambiguous opinions on the formats was arranged in the order in which they appeared in the transcript. Abbreviations: PLS, plain language summary; SoF, summary of findings

Table 2. Characteristics of the audience categories

Study phase	Audience category
Phase 1	Mixed audience:
	4 technical employees and 2 early career researchers 5 women, 1 man 2 young adults, 4 middle-aged adults
Phase 2	Lay audience:
	1 patient with a chronic illness and 5 family caregivers of a relative with a chronic illness 4 women, 2 men 1 young adults, 5 middle-aged adults 8 students 8 women 8 young adults
Phase 2	Professional audience:
	3 nurses and 3 medical doctors 6 women 1 young adults, 5 middle-aged adults 1 person with advanced competencies in conducting SRs 7 pharmacists 4 women, 3 men 7 young adults 1 person with advanced competencies in conducting SRs

the study participants, 58% were classified as young adults, aged 20 to 35 years, while the remaining participants fell into the category of middle-aged adults, aged 36 to 59 years. The interviews lasted between 60 and 80 minutes.

The analysis helped us understand the complexity of individual perception of the various formats of information on health interventions in professional and nonprofessional groups of recipients. We present our findings by discussing the general evaluation of the formats as well as the six patterns of information perception that we identified, namely, comprehension, structure, clarity of graphical representation, applicative character, trustworthiness, and subjective reaction and interpretation. Apart from the individual opinions, which varied depending on cognitive styles and past experiences, we also established group preferences. The most preferred formats in each type of the audience are listed in Table 1.

3.1. General perception of information formats

The reception of the information presented was rather critical. We categorized all opinions about the information formats into three groups: positive, negative, and ambiguous. The first two categories of feedback covered statements outlining

Table 3. Opinions on the presented formats of information in different types of audiences

Comments	Type of audience			
	Patients and caregivers	Students	Nurses and physicians	Pharmacists
SoF				
Positive comments	<ul style="list-style-type: none"> a clear division between studies of low and high quality makes it easier to focus a clear message numeric data on the intervention effect enough information to draw conclusions on the intervention effectiveness 	<ul style="list-style-type: none"> a clear division between data regarding experimental and control groups clear presentation of detailed information (e.g., number of events, number of participants) 	<ul style="list-style-type: none"> esthetic and clear plenty of information available precise information can be found quickly 	<ul style="list-style-type: none"> comprehensive, useful covers information on the quality of the study facilitates drawing own conclusions precise information can be found quickly could be used to fight misconceptions about health
Negative comments	<ul style="list-style-type: none"> not practical enough too scientific interpretation of the data presented is demanding too detailed some abbreviations should be explained 	<ul style="list-style-type: none"> some abbreviations should be explained the amount of information hampers comprehension relevant for specialists table without vertical lines makes it difficult to read 	<ul style="list-style-type: none"> not practical for a practicing physician lacks description of conclusions lacks information on the expected effect of treatment lacks practical information that a patient would expect to get 	<ul style="list-style-type: none"> flipping a page to check the key is impractical
Infographic				
Positive comments	<ul style="list-style-type: none"> clear structure, easy to read clear outline of pros and cons of the intervention presenting the conclusion right at the beginning relevant for everybody 	<ul style="list-style-type: none"> using tables to present numeric data helps imagine the differences between groups 	<ul style="list-style-type: none"> visually inviting well-structured efficient and not tiring well-explained a good way to learn about some other medical specialties relevant for patients a starting point for a conversation with a patient 	<ul style="list-style-type: none"> encouraging repeats conclusions at the end presentation of data in text and in tables helps see the difference between groups relevant for reading in spare time
Negative comments	<ul style="list-style-type: none"> information is split between two pages the number of graphical elements is tiring and disrupting 	<ul style="list-style-type: none"> confusing organization of columns too many briefly presented issues lacks information on the intervention too many repetitions of 'NOT FOUND' 	<ul style="list-style-type: none"> not relevant for medical professionals lacks graphical representation of the quality of the study 	<ul style="list-style-type: none"> the reader's attention is disrupted by the graphical components division of text into columns is a disadvantage some unclear terms for a lay reader
Comic drawing				
Positive comments	<ul style="list-style-type: none"> short and clear conclusion 	<ul style="list-style-type: none"> a format more relevant for advertisement purposes could be hanged in the waiting room 	<ul style="list-style-type: none"> eye-catching adequate for the young or patients the key conclusion is important for the reader 	<ul style="list-style-type: none"> generally, a comic book can provide a vivid explanation of complex medical issues

Comments	Type of audience			
	Patients and caregivers	Students	Nurses and physicians	Pharmacists
Negative comments	<ul style="list-style-type: none"> little information provided the graphical character lowers the rank of the research gives the impression of manipulation, advertising one-page comic drawing does not catch attention some dialogs in the story could improve the reader's attention not adapted to people with sight impairment 	<ul style="list-style-type: none"> little content it lacks an introduction the font is difficult to read to little information about the intervention 	<ul style="list-style-type: none"> not relevant for medical professionals it could be interpreted differently depending on where it is distributed (e.g., supermarket vs medical setting) 	<ul style="list-style-type: none"> imprecise information unclear findings fiction does not help explain the problem it might give the impression of manipulation
Abstract				
Positive comments	<ul style="list-style-type: none"> well-written 		<ul style="list-style-type: none"> practical information for medical practice 	<ul style="list-style-type: none"> informative inspires further research for an educational purposes for patients
Negative comments	<ul style="list-style-type: none"> lacks some crucial information (e.g. about studied groups) 		<ul style="list-style-type: none"> lacks information about the control group lacks clear structure imprecise, lacks explanations too difficult for patients 	<ul style="list-style-type: none"> lacks a clear structure conclusions can be confusing for patients lacks explanation why the conclusions are not unequivocal
PLS				
Positive comments	<ul style="list-style-type: none"> language adjusted to lay readers clear conclusions practical information conclusion stated right at the beginning references to literature enable further search 			<ul style="list-style-type: none"> clearly presented information key information presented using the bold font or bullet points useful format to communicate with patients and educate them
Negative comments	<ul style="list-style-type: none"> lacking precise information on the methodology of the study 			<ul style="list-style-type: none"> unnecessary journalistic jargon time-consuming
Audio record of PLS				
Positive comments		<ul style="list-style-type: none"> well-organized 	<ul style="list-style-type: none"> enables multitasking possibility of replay could be applied to educate patients in waiting rooms 	
Negative comments		<ul style="list-style-type: none"> lacks graphical representation not dynamic enough 	<ul style="list-style-type: none"> following a podcast takes more time than going through a table with data demanding to follow a patient listening to it might need to discuss it with a doctor 	
Blogshot				
Positive comments			<ul style="list-style-type: none"> inspires further search 	
Negative comments			<ul style="list-style-type: none"> confusing drawing drawing takes most of space imprecise phrasing 	

The grey cells indicate the formats that were not discussed during the interviews with the specific audience

either the entirely advantageous or disadvantageous aspects of the formats. For example, one of the lay participants was completely satisfied with the manner of outlining the information presented in form of PLS:

"I like it [PLS] very much [strong tone]. First of all, I can see a conclusion in the first sentence, and therefore I know if I am interested in it or not. Very clear conclusions are drawn. It is plainly written: "it decreases". There is precise data given, how these tests were done and on whom. This article was the first time that I received specific advice on how much to take and how. So, it's all I need to know and I like it." [Patients and caregivers_6: about PLS].

On the other hand, some opinions were entirely negative, like the one on comic drawing shared by a pharmacist:

"In my opinion, this [information] is neither useful for

patients nor for pharmacists. I'm not entirely sure what is being shown in these pictures [laughs]. For example, in the introduction it says: "We've verified Oscillococcinum", but actually this doesn't mean anything useful. The introduction was too long and the conclusions of the study are not transparent to the layman and are of little help to the pharmacist, because there are no numbers: we do not know where, in what group, how long, the dosage, whether prophylactically or during illness. It tells us nothing of these [underlines the last sentence]." [Pharmacists_4: about Comic drawing].

The third category included opinions weighing both pluses and minuses. For example, one of the physicians appreciated some aspects of the abstract format but others evaluated it as hindering its optimal usability:

“This information here is for me essential, because I learn that more than half of the patients experienced a drop in blood pressure following this diet. As a doctor, I know what the basis of the Mediterranean diet is and so I’m able to tell a patient. But this very text will only be understood by medical professionals. A [lay] person who gets this text will be scared of the data given at the beginning. For me, it is important that the group of patients and the comparison group are described. [Unfortunately], I don’t have it here. It should be quantified, because they show only sick people, not the control group which would provide a comparative scale. The conclusion for me is not supported by the evidence.” [Medical professionals_6: about abstract].

The proportions of opinions in each of the four groups in the order of occurrence in the transcripts are presented in Table 1. As shown by the case-oriented visual analysis, negative comments were generally more common than positive and ambiguous feedback. While the proportions of differently valued comments were balanced in most of the interviews, more negative comments were expressed by students. Moreover, the audiences differed regarding the most preferred formats, although they all shortlisted the infographic and SoF table. In general, most negative comments referred to the comic drawing, while the most positive feedback was revealed for the infographic. The greatest ambiguity was noted for the SoF. The individual format assessment confirmed these findings. When assessing the formats on the 10-point scale, participants independently evaluated the infographic as the most helpful in understanding the information about a particular health intervention (mean, 7.94), while the comic drawing was rated as the least helpful (mean, 3.33). The detailed overview of the perceived advantages and disadvantages of each format discussed by recipients from the four types of audience is presented in Table 3.

3.2. Key aspects in the perception of information based on evidence

The perception of the various formats focused on the six aspects is presented in Figure 1. The most appreciated aspects of the formats were as follows: clear and comprehensible content, translation of SR results into a practical recommendation, as well as clear organization and graphical representation of the findings. Participants’ satisfaction with the materials decreased when the information format lacked clarity and explanation of the methodological background.

3.2.1. Comprehension

When sharing individual opinions on a specific information format, participants referred to what they learned from it and whether the message conveyed was easy to comprehend. They appreciated the fact that the information provided a new input and was relevant to their work or daily life. On the other hand, the formats that did not present unequivocal results were generally less appreciated than those describing unambiguous conclusions. For example, one of the lay participants disapproved of the abstract format because it contained inconclusive findings:

“[...] after such a cursory reading, [I can say it is] too general for me. The data is a bit fluid. I didn’t notice any statistical changes here. These ranges, which supposedly improved here, did not make any impression on me either. The text was also missing some information about the groups on which the research was conducted, whether they were young women, older ones. There is no specific information from this article that I could use.” [Patients and caregivers_6: about abstract].

Moreover, information clarity and ease of interpretation were highly valued; however, they were often identified as lacking. In this context, the nurses and doctors criticized the abstract for being formulated in a too general way and for lacking precision:

“P_1: There’s no information about this diet here, just a lot of numbers which testify to some results and [it is] also

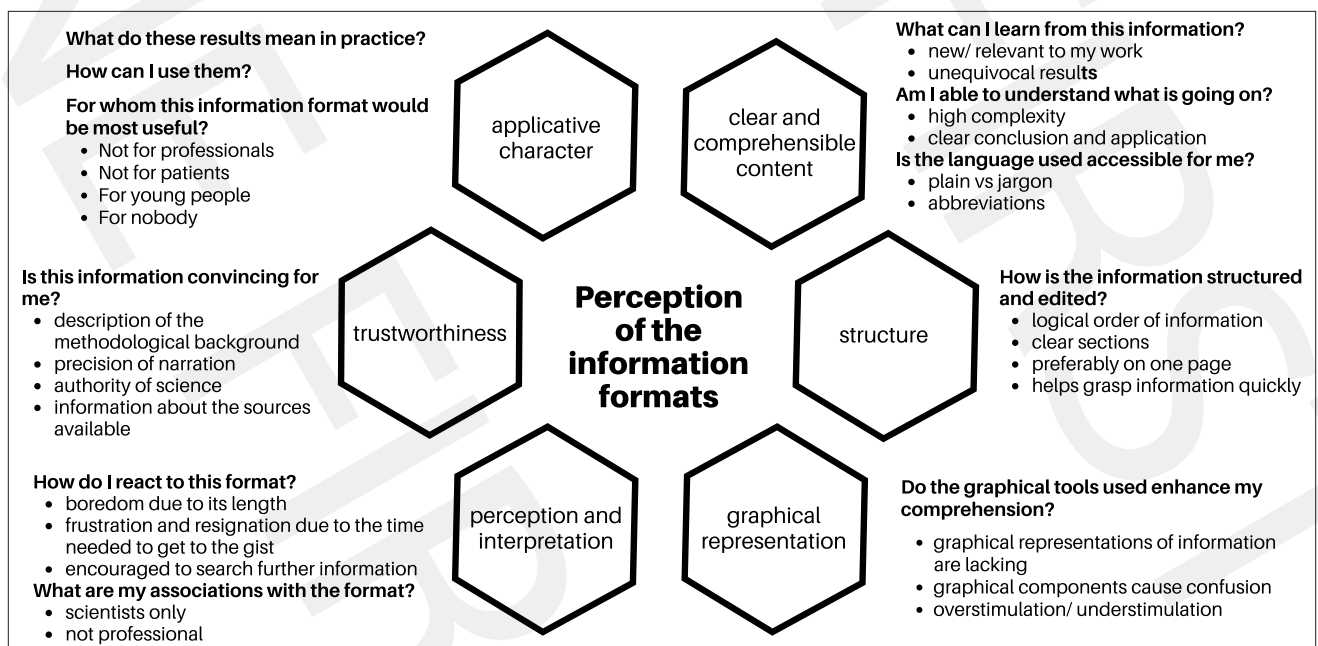


Figure 1. Key aspects of the perception of information formats

very vague and described inaccurately. P_2: For example there's no explanation of what "high ratio" or "low" or "moderate" mean. It is not precise. P_3: The abbreviations are not explained either." [Nurses and physicians_1,2,3: about abstract].

Several medical professionals criticized some formats by emphasizing their low informativeness or even pointing out that lay recipients could misinterpret the findings and draw false conclusions. One of the pharmacists stated that the take-home message from the abstract could be misleading for some lay people:

"This material doesn't reflect the core of the problem. People tend to think that if it helped me, it will help my neighbour. It should be clarified that it actually turns out to be a very strong placebo. The point is that it is like saying <<but this result may be an error of the effect>>. Therefore, any result of each test may be the result of an error [smile]. This suggests that we already think a priori that this drug does not work, because the study showed that, but the result may be an error of the effect. I learned nothing from his. A patient would read <<and yet there were studies, so this drug was tested. The results are there, but you never know>>. [So, despite the findings, this means that the lay reader may think that the drug is a good one because it was tested]." [Pharmacists_7: about abstract].

Another aspect that determined the comprehension of the materials was a linguistic dimension. The discussions here focused on the differences in preferences and expectations between lay and professional audiences. The key complaint was the use of medical jargon without providing an explanation. For example, two students commenting on their perception of the SoF format complained about the use of unclear phrases that made it more demanding to understand the presented information:

"At first glance, everything seems clear until you start to read "50% maximum pain relief". There are many confusing combinations of words so that a person has to read it twice to comprehend. A simple explanation is needed to give clear information about what exactly is going on here." [Students_5: about SoF].

"It is only for people who are familiar with RR. We know what RR is, but for people who do not know what RR is, saying "relative risk" doesn't mean anything to them. An explanation is needed, not just an indication of what it stands for." [Student_3: about SoF].

On the other hand, one of the medical doctors outlined the dissimilarities between lay and professional understanding of the same terms regarding the level of certainty, which can lead to misunderstandings:

"For a patient, the phrases "probably improves" or "may improve" are unconvincing, because a patient expects a positive effect. The patient may reject medication saying [sceptically] "but it may not happen either." The patient also does not understand the basics of EBM and does not understand that we cannot write that it works for sure, only for the patient it means actually there is no knowing. This is because the patient interprets it literally [as a colloquial language] rather than in medical terms or in EBM nomenclature." [Nurses and physicians_2: about blogshot].

Some lay participants felt that they lacked competencies to understand the SoF table and that it would be easier to comprehend only if a clear interpretation of the presented data was provided:

"P_1: For me it is practically useless. P_4: The same here. P_1: I could be interested in the given topic, but I'm a layman and the interpretation of such a table would require too much effort. And having [sigh] something like this in front of me, I would just look for something else, just an interpretation of this table, not the table itself." [Patients and caregivers_1,4: SoF].

On the positive note, some formats were praised for an accessible language. Patients and caregivers appreciated the PLS as it "does not overwhelm with a scientific jargon" (Patients and caregivers_5). On the other hand, pharmacists appreciated the fact that the infographic spares patients „scary scientific overtones" (Pharmacists_3). Some participants expected from the information format to go directly to the point, while others appreciated a journalistic style:

"Indeed, it looks like an article. I have the impression that I could read it in some popular science journal, but I think that, contrary to appearances, it is cool, because it is something different, it is readable and well-written." [Pharmacists_6: about PLS].

3.2.2. Structure

Most participants provided positive feedback if the format was well structured. If information was divided into sections, participants would perceive the format as "well-ordered". One of the lay participants commenting on the PLS provided the reasons why "it was easy to read":

"The text is broken down into facts, so it's very visible and you can quickly and easily decide if it is interesting for you or not. It gives you references to authors so if you are interested you can deepen your knowledge." [Patients and caregivers_5: about PLS].

Other formats, such as the audio record of PLS or abstract, were perceived as less clear to go through due to a less well-structured content. On the other hand, several recipients from various groups appreciated those formats in which the clue was presented already at the beginning. Some medical professionals suggested that a bullet list of the key ideas or the use of a colored marker would make reading easier:

"In general, this division into individual parts is very clear. However, for me, it would be better if there was more numerical information provided. I perceive it better and more legibly if something is in bullet points and not a solid text, which makes it easy to lose the meaning and it's harder to make comparisons. Therefore, it'd be better if the test was more visual and graphic and not text only," [Pharmacist_3: about abstract].

One of the physicians asked about her experience of going through the abstract said:

"The way of presenting it is complicated, because it is only numerical data, only lots of numbers. Well, I would need to have a highlighter and [then I could capture] the relevant data or details". [Nurses and physicians_3: abstract].

Some participants based their evaluation also on the length of the format and the time needed to go through the information. While some formats were criticized for being time consuming, those with a clear structure (e.g., the SoF as compared with the abstract or PLS) were praised for enabling readers to get to the gist quickly and “not wasting time”.

“Well, for me it is easier, faster to interpret it than the first one [abstract], i.e., the text form. And there is even more information for me here, because there is also, e.g., an assessment of the quality compared to what was in the text form, and it takes me less time. Therefore, this is like the best qualitative and quantitative information for me.” [Nurses and physicians_2: about SoF].

“I’m critical of the form because this is what you read, when you have to read texts every day, learn and study, so it just wastes my time. In the previous article there was a specific table, where there was a lot of information gathered for the patient to read. On the other hand, this unnecessarily takes time. If I am looking for such data, I want to have it quickly, for example what the dosage was, and therefore here I have to specifically look for it in the text. It is not shown immediately.” [Pharmacist_7: about SoF].

Some participants found graphical formats of information (i.e., infographic, SoF) more time efficient as compared with the audio record of the PLS or a more journalistic style of writing:

“When studying, I need to have the information written down to learn effectively and quickly. I can choose what interests me and I don’t waste time on the introduction, because I skip it. I’m looking for something that interests me, particularly in a given topic. [Nurses and physicians_6: about recorded PLS].

For example, one of female medical doctors assessed the infographic as time-efficient information format. For her, this type of presenting information on a health intervention was convenient specifically in the context of learning about findings from other medical fields than her own specialty:

“I would be very happy to get such an information. [It would be optimal] to assimilate a lot of information in a field that interests me, and not necessarily from my specialization area, in a short period of time.” [Medical professionals_3].

3.2.3. Graphical representation

When sharing opinions on the formats, recipients often commented on several graphical aspects, including fonts, colors, drawings as well as the scale and layout of the elements. The most often discussed flaws of the formats were the lack of or inadequate graphical representation of data and the lack of highlights with the most important information. When commenting on the audio record of the PLS, one of the students mentioned the lack of a graphical representation of findings even though she reported a satisfying level of comprehension of the presented information.

“I understood the content of this podcast better than from the previous article [infographic]. For me, it was better structured, but so was the presentation of it. What I missed were some pictures to represent the research results.” [Students_2: recorder PLS].

On the other hand, some illustrations used in other formats were the source of confusion for other participants. For example, when discussing their reaction to the blogshot, some of the medical professionals realized that their interpretation of the drawing was totally different:

“P_2: I would replace this drawing, which is ¼ page long, with some form of a graphic representation of it, because this drawing here takes quarter page and you don’t learn much of it. I even thought for a moment that it was a plot showing the results of meta-analysis. P_6: I rather thought that this is the concentration of individual cholesterol in the spectrophotometer fraction. I guess everyone sees what they want to see! [laughs] P_2: And it is not needed here, right. I’d prefer more of the text to be shown in bold. Because that would make it clearer, as in the previous one where the text was in colour or bold. This material seems to be short, but [in fact] it is not legible.” [Nurses and physicians_2, 6: about blogshot].

The infographic, which is characterized by extensive use of visual means, was also perceived by some recipients as unclear. The infographic presented to all categories of audiences consisted of two-page, two-column information in the form of drawings, graphs, as well as short texts (Appendix B). Some professional and nonprofessional recipients found this structure disruptive, confusing, and difficult to concentrate on.

“All the tables should be on one page. They are so scattered: a few here and there. I got a little lost. They are badly placed. What concerns children should be presented together on one page. And what concerns women – grouped together. At some point I got lost, because if I turn the page over [I can’t see] which table is for children, and which is for women. I got lost and didn’t know how to analyse any further. I have no idea what this chart here is referring to.” [Students_2: about infographic].

However, other recipients found the combination of text and graphics to be the optimal format. One of the caregivers commented on the infographic as an ideal balance between numbers, graphical elements, and text:

“I really liked the tables with the descriptions under them and the simple conclusion. The advantages are clearly listed and the disadvantages are clearly outlined. In my opinion, this article is very [emphasis on the last word] clear, the information is very well presented, and I would like to read it.” [Caregivers and patients_6: on infographic].

The SoF was particularly appreciated for the clear presentation of data. The order of information in this format was positively assessed by many recipients from different audience categories.

3.2.4. Trustworthiness

Most of the study participants valued the perceived trustworthiness of the information, understood as the clear description of methodological background of the research, including control group characteristics.

“For me, it is important to know [the characteristics of] the sample of patients and the comparison group. I don’t have it here. It should be quantified, because they showed only sick people, not the control group. And then I would have a comparative scale.” (Nurses and physicians_6: about abstract).

Some recipients negatively perceived the lack of further explanation of the findings, especially the inconclusive ones. Furthermore, participants expressed lower trust toward the information about the effects of health intervention if the information was presented in a less traditional way. For many recipients, the comic drawing was a format that undermined the credibility of the information. In all interviews, we heard opinions that comic book was not “the best way to convey scientific information” because it “slightly lowers the rank of the work of those who did it” (Patients and caregivers_5: about comic drawing).

3.2.5. *Applicative character*

For many participants, a major flaw of the formats was the lack of a conclusion on how the information could be applied in their daily life or in professional practice. This particularly concerns the SoF, which was criticized for the lack of suggestions on application in daily life and work, even though it was positively evaluated for several other aspects. Nurses and physicians, for example, emphasized that the SoF lacked tips on how to translate the presented information into practice.

“P_3: The table is aesthetic and clear. Unfortunately, the contents of this table don’t allow me to draw any practical conclusions. P_4: [laughs] Exactly. I was wondering if it was only me who didn’t understand it [laughs]. P_3: Although the abbreviations are explained and the summary is very clear, and each piece of information is also understandable, I couldn’t draw any conclusions from it.” (Nurses and physicians_3,4,5: about SoF).

“The patient expects specific information, whether it will hurt or not, when to take the drug, in what form, whether to take it on an empty stomach, at what time etc. They expect information about when the drug will start working. None of that is here.” (Nurses and physicians_6: about SoF).

Practical hints were discussed not only for medical doctors and nurses but also for lay participants. The interviewed patient commented on the SoF by saying:

“Well, I don’t suffer from cardiovascular diseases myself, no one in my family does either, so I am not personally interested in this topic. And if I were to read something like this, I’d expect some statistical data, but mainly I’d expect a more practical approach, because that’s what we are interested in on a daily basis.” (Patients and caregivers_1: about SoF).

On the other hand, pharmacists discussed a possible practical use of the SoF as a way to challenge common misconceptions about health among patients:

“P_4: Such a presentation of study results would be great for various controversial issues and myths that we often try to explain to patients. We could use the data presented here as specific arguments. In comparison to systematic reviews, such a table could be less scary for patients [participants laugh]. Seeing a systematic review, patients might comment: “okay, you printed some textbooks and now what shall I do with it?” P_3: Additionally, I would remove some of the confusing terms to make it even clearer? P_6: Yes, to simplify the content! P_3: I would cut out some complicated terms and abbreviations such as “blood pH”, or others, otherwise patients could wrongly interpret the key explaining the abbreviations. However, in

general, you need to take the patient by the hand. I think [such a format] encourages one to take a look at it simply out of curiosity. Certainly, it appeals to a reader more than a plain text.” [Pharmacists_4,3,6: about SoF].

3.2.6. *Perception and interpretation*

Finally, recipients shared their impressions about the formats. The positive affective reactions were associated with being attracted to or interested in the information. One of the doctors praised the infographics for being appealing: “[it is] visually inviting, and so [it is good] for a patient and myself. Also not tiring as I read it.” (Nurses and physicians_3). Some recipients appreciated the presented formats, especially the PLS and infographic, for the pleasure of reading:

“I’d like to read such a text in my spare time. I don’t see any problem with a pharmacist reading it and I’m quite convinced that it is easy to read, it doesn’t put one off so quickly. If I had to go through tables non-stop with dry data all day long, it would be unproductive and so [an infographic] is what [might] encourage me to [go through it] and I could read something like that in my spare time.” [Pharmacists__1: infographic].

Others perceived the information presented as a guide to further research. On the other hand, some formats evoked rather negative reactions. For example, some materials were perceived as being for scientists only (such as SoF), or on the contrary, as not being professional enough (comic drawing, infographic) and “writing about nothing” (Pharmacists_5: about PLS) or being a manipulation or a joke (about comic book). The association of the comic drawing with children’s books or advertisement brochures was off-putting for some individuals from different audiences.

4. DISCUSSION

To effectively contend with the spread of misinformation and address the complexity inherent in the development of medical research, it is crucial to develop participatory attitudes in the academic community as well as to acquire competencies to engage with the public [8]. At the same time, it is equally important to understand the preferences of the lay audience regarding various information formats.

In response to those challenges, our study involving both professional and lay audiences provides an insight into the general perception of the various information formats used to communicate SR findings on health interventions. While randomized controlled trials showed only small differences in effects on knowledge between various formats [14], by discussing several formats with different audiences, we learned what recipients with various backgrounds do pay attention to when studying summaries of SRs. Similar to the four studies included in an SR on healthcare performance information for consumer decision-making [26], we revealed that lay recipients appreciated comprehensible and plain-language presentation. Considering the findings of Banić et al. about the number of years of non-specific education needed to read PLS [11], the postulate of the medical professionals participating in our study, emphasizing the significance of a straightforward and uncomplicated language for the educational benefit of their patients, appears highly apt.

Moreover, a clearly structured format facilitating efficient reading was valued both by lay and professional readers. In line with previous publications on effective formats of presenting information on healthcare performance [26], our study revealed that well-designed graphical representations were more effective in terms of comprehending the content, as compared with plain text or numbers. This preference was also described in a mixed-methods study by Buljan et al [14]. However, while they and other authors [17] reported that the PLS and infographic were equally effective in terms of transmitting knowledge from an SR, the infographic might be perceived as more enjoyable to read than the formats not using any graphical means such as the PLS or abstract. Our findings are in line with other similar studies; however, to our knowledge, we are the first to indicate that practical application, perceived trustworthiness, and an individual interpretation of the information format are the significant factors that determine the reception of information among both lay and professional audience.

Although the aim of the study was not to formulate conclusions about causal relationships, and the methodological approach applied in this study limited the generalizability of the findings, it enabled us to gain an insight into the complex way in which lay and professional recipients perceive several types of formats used for summarizing SR results. Our study revealed the general and detailed perceptions of different information formats as well as an individual quantitative evaluation of each format's usability. To ensure a high quality of the study, we piloted and adjusted the interview guide. Next, we video recorded and transcribed the interviews. We placed an emphasis on sampling heterogeneous study participants and involving an experienced moderator in the process of data collection. For the purpose of reporting, we made efforts to transparently outline the analytical strategy and illustrate the findings with direct quotes from interviewees [25]. Moreover, the formats discussed by the four types of audience reflect the most frequently used dissemination techniques (abstract, PLS, SoF) as well as those less popular ones (audio record of the PLS, blogshot, vlogshot, comic drawing). Another strength of the study is the fact that the materials presented to participants were based on SRs covering interventions from various fields, including medicine, public health, nutrition, and alternative treatment. On the other hand, the peculiarity of some of the interventions presented in the materials might have slightly influenced the reception of the formats themselves. For example, if a participant was reluctant toward homeopathy, it might have biased their opinions on the format communicating information about its health effects.

5. CONCLUSIONS

When studying information on the effects of health interventions, participants evaluated the formats by assessing what they might have learnt from and whether they felt convinced by the presented content. Participants appreciated the clearly structured formats with graphical tools that enhanced comprehension. Recipients from all categories searched for hints on the practical use of the presented SR findings and indicated a few formats to satisfy this expectation. Interviewees also shared their personal

reactions and interpretations, which strongly impacted their final evaluation of the presented formats.

Our study revealed considerable differences in opinion between the categories of recipients as well as within the categories themselves. This shows that it is still a challenge to accommodate the diverse needs for health information. The proportion of the critical and ambiguous feedback revealed by our study reflects high demands of readers that need to be considered by authors who translate SR findings into information materials targeted at a broad audience. If the aim of Cochrane is to be fulfilled, the complexity of this challenge should not be discouraging but rather should motivate investigators to search for the best ways to reach the diverse groups of recipients in our society. Finally, to increase the accessibility of scientific findings, we must address the issues of low health literacy levels and inequalities in digital information use.

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REFERENCES

1. United Nations Educational, Scientific and Cultural Organization. Towards knowledge societies. UNESCO World Report. <http://www.unesco.org/new/en/communication-and-information/resources/publications-and-communication-materials/publications/full-list/towards-knowledge-societies-unesco-world-report/> (accessed: 2021.01.11).
2. Chandler J, Cumpston M, Thomas J, Higgins JPT, Deeks JJ, Clarke MJ. Chapter I: Introduction. In: Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA, editors. *Cochrane Handbook for Systematic Reviews of Interventions* version 6.2 (updated February 2021). Cochrane, 2021. www.training.cochrane.org/handbook (accessed: 2020.12.20).
3. Paakkari L, Okan O. COVID-19: health literacy is an underestimated problem. *Lancet Publ Health*. 2020;5:E249–50. [https://doi.org/10.1016/S2468-2667\(20\)30086-4](https://doi.org/10.1016/S2468-2667(20)30086-4)
4. Rudd R, Baur C. Health literacy and early insights during a pandemic. *J Commun in Health*. 2020;1:13–6. doi:10.1080/17538068.2020.1760622
5. Pearson H. How COVID broke the evidence pipeline. *Nature*. 2021;593:182–5. doi:10.1038/d41586-021-01246-x
6. WHO public health research agenda for managing infodemics. Geneva: World Health Organization; 2021. <https://www.who.int/publications/i/item/9789240019508> (accessed: 2021.01.11).
7. Orso D, Federici N, Copetti R, Vetrugno L, Bove T. Infodemic and the spread of fake news in the COVID-19-era. *Eur J Emerg Med*. 2020;27:327–8. doi:10.1097/MEJ.0000000000000713
8. Hotez PJ. Combating antisense: are we preparing for the 2020s?. *PLoS Biol*. 2020;18:e3000683. <https://doi.org/10.1371/journal.pbio.3000683>.
9. Langendam MW, Akl EA, Dahm P, Glasziou P, Guyatt G, Schünemann HJ. Assessing and presenting summaries of evidence in Cochrane Reviews. *Syst Rev*. 2013;2:81. <https://doi.org/10.1186/2046-4053-2-81>.
10. Rosenbaum SE, Glenton C, Oxman AD. Summary-of-findings tables in Cochrane reviews improved understanding and rapid retrieval of key information. *J Clin Epidemiol*. 2010;63:620–6. <https://doi.org/10.1016/j.jclinepi.2009.12.014>
11. Banić A, Fidahić M, Šuto J, et al. Conclusiveness, linguistic characteristics and readability of Cochrane plain language summaries of intervention reviews: a cross-sectional study. *BMC Med Res Methodol*. 2022;22(1):240. <https://doi.org/10.1186/s12874-022-01721-2>
12. Glenton C, Santesso N, Rosenbaum S, Nilsen ES, Rader T, Ciapponi A, Dilkes H. Presenting the results of Cochrane Systematic Reviews

- to a consumer audience: a qualitative study. *Med Decis Making*. 2010;30:566–77. <https://doi.org/10.1177/0272989X10375853>
13. Matas J, Tokalić R, García-Costa D, et al. Tool to assess recognition and understanding of elements in Summary of Findings Table for health evidence synthesis: a cross-sectional study. *Sci Rep*. 2023;13(1):18044. <https://doi.org/10.1038/s41598-023-45359-x>
 14. Buljan I, Malički M, Wager E, Puljak L, Hren D, Kellie F, West H, Alfirević Ž, Marušić A. No difference in knowledge obtained from infographic or plain language summary of a Cochrane systematic review: three randomized controlled trials. *J Clin Epidemiol*. 2018;97:86–94. <https://doi.org/10.1016/j.jclinepi.2017.12.003>
 15. Buljan I, Tokalić R, Roguljić, Zakarija-Grković I, Vrdoljak D, Milić P, Puljak L, Marušić A. Framing the numerical findings of Cochrane plain language summaries: two randomized controlled trials. *BMC Med Res Methodol*. 2020;20:101. <https://doi.org/10.1186/s12874-020-00990-4>
 16. Buljan I, Tokalić R, Roguljić M, Zakarija-Grković I, Vrdoljak D, Milić P, Puljak L, Marušić A. Comparison of blogshots with plain language summaries of Cochrane systematic reviews: a qualitative study and randomized trial. *Trials*. 2020;21:426. <https://doi.org/10.1186/s13063-020-04360-9>
 17. Martínez Silvagnoli L, Shepherd C, Pritchett J, Gardner J. Optimizing Readability and Format of Plain Language Summaries for Medical Research Articles: Cross-sectional Survey Study. *J Med Internet Res*. 2022;24(1):e22122. <https://doi.org/10.2196/22122>
 18. Büchter RB, Betsch C, Ehrlich M, Fechtelpeter D, Grouven U, Keller S, et al. Communicating uncertainty in written consumer health information to the public: parallel-group, web-based randomized controlled trial. *J Med Internet Res*. 2020;22:e15899. <https://doi.org/10.2196/15899>
 19. Tolley E, Ulin P, Mack N, Robinson E, Succop S. *Qualitative methods in public health. A field guide for applied research*. Wiley; 2016.
 20. Barbour R. *Doing Focus Group*. 2nd ed. Sage Publication Ltd, 2021.
 21. Flick U. *Managing quality in qualitative research*. 2nd ed. SAGE Publications Ltd, 2019.
 22. Maison D. *Jakościowe metody badań społecznych. Podejście aplikacyjne*. Wydawnictwo PWN; 2022.
 23. Miles MB, Huberman AM, Saldana J. *Qualitative Data Analysis: A Methods Sourcebook*. 4th ed. Thousand Oaks: Sage; 2019.
 24. MAXDQA. <https://www.maxqda.com/>
 25. O'Brien BC, Harris IB, Beckman TJ, Reed DA, Cook DA. Standards for reporting qualitative research: a synthesis of recommendations. *Acad Med*. 2014; 89(9): 1245–51. doi: 10.1097/ACM.0000000000000388.
 26. Kurtzman ET, Greene J. Effective presentation of health care performance information for consumer decision making: A systematic review. *Patient Educ Couns*. 2016; 99(1): 36–43. <https://doi.org/10.1016/j.pec.2015.07.030>

APPENDIX A

Interview guide

A. INTRODUCTORY PART

1. **The moderator introduces herself and welcomes study participants**
2. **The moderator informs participants about:**

a. study objectives

The aim of the study is to collect the opinions of people related to the healthcare system (i.e., patients and their caregivers, health professionals, and students) on the different types of disseminating information on health issues and medical interventions.

The study is conducted in the form of a group discussion during which participants get acquainted with short information about health and share their observations on it. The discussion is not aimed at reaching a consensus but rather at collecting information from different perspectives and learning about the preferences of different people.

Your participation in the study will allow us to better understand the reception of materials communicating findings from scientific research on the effects of interventions related to the healthcare system in various ways. Participation in the study is not only an opportunity to support research conducted at Jagiellonian University Medical College but also to learn about the current state of knowledge on the health effects of eight selected interventions assessed within the systematic reviews of Cochrane, an international nonprofit organization.

b. the course of group discussion

I will present to you X different information materials on X different health issues, one by one. These will be written, video, or audio materials. Please read, watch, or listen to each of them carefully. Next, I will ask you to use the attached sheets and individually assess to what extent each of these materials enriched your knowledge on a given issue.

Each time after you have finished with a given material, I will ask you to share your opinion on other ways of presenting information.

c. terms of participation

The interview will take approximately 1 hour. The discussion will be recorded for subsequent analysis. Participation in the study is voluntary, and the collected material will be used only for research purposes.

d. additional explanations and informed consent

Do you have any questions regarding the course of the study?

Do you agree to participate in the study?

Please read the information about your participation and the informed consent.

B. MAIN PART

1. **The moderator introduces Material 1 and distributes it together with a short questionnaire.**

In a moment, you will receive the first material on Y. Please read it and select an answer to the question attached to the material. After all of you have finished going through the material and answered the question, I will collect the sheets and invite you to a short discussion.

2. **Participants study the materials individually and evaluate the material on a 1-10 scale. When all participants are ready, the moderator starts asking participants about their opinions:**

What are your impressions after reading the material about Y?

Did this format make it possible for you to fully understand the problem presented?

Is this form of providing information convenient for you?

Would you use such a format of information on health issues that are interesting to you?

3. **The moderator collects the materials, introduces the next material, and distributes it.**

This sequence is repeated with each material presented to the participants.

C. FINAL EVALUATION OF THE COURSE OF THE STUDY AND CLOSING OF THE INTERVIEW

1. **The moderator recalls all the materials in the order of presentation and asks the participants to decide which of the materials was the most optimal for them. The moderator asks the participants to vote by raising hands.**

Which of the materials is the most optimal for you?

First.... second.... third.... fourth... fifth.... sixth.....

The moderator counts the votes.

2. **The moderator thanks participants for taking part in the study.**

D. Materials needed:

- copies of informed consents
- a set of materials with questionnaires
- stationery for participants
- refreshments

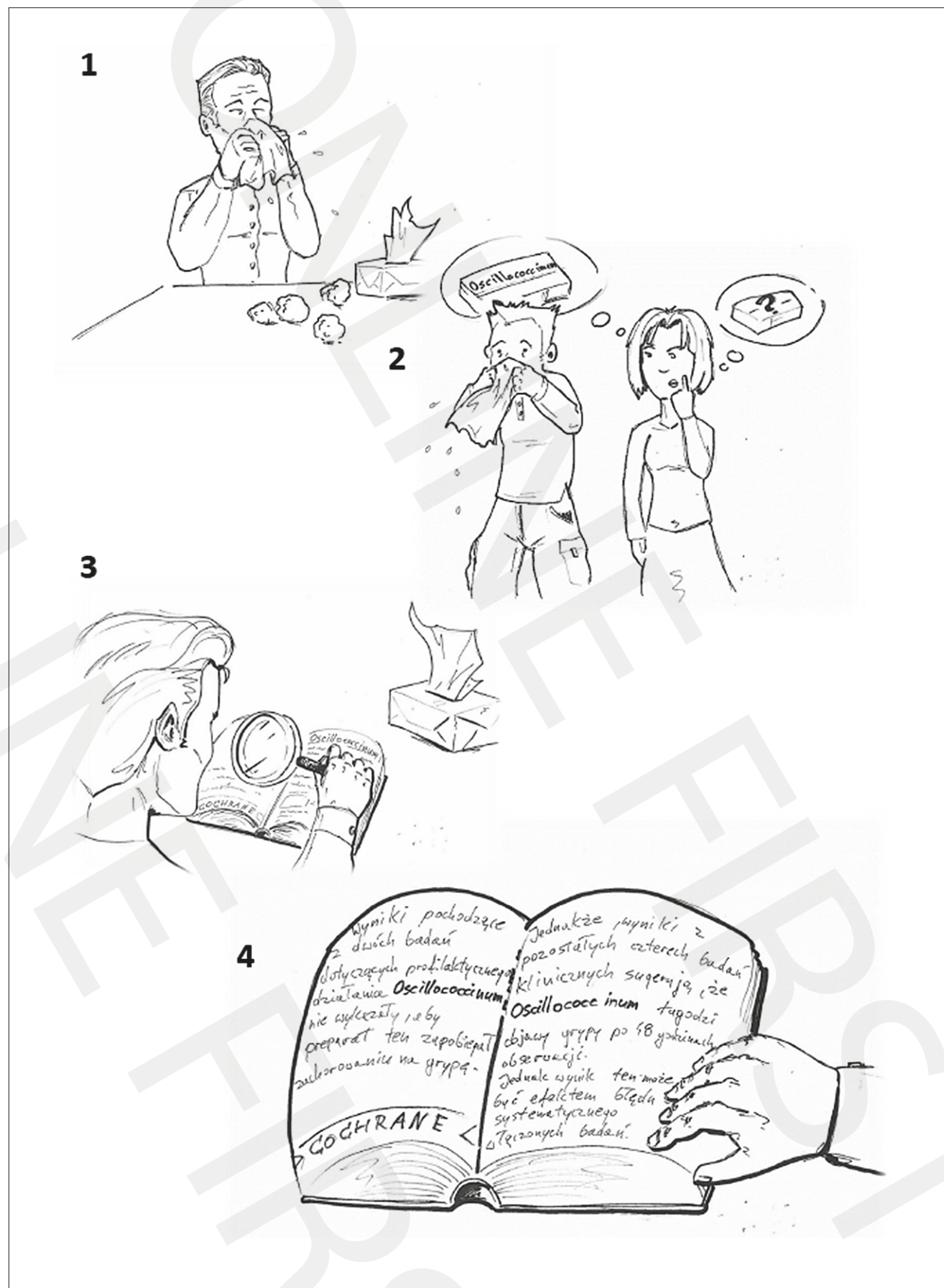
APPENDIX B

Information formats presented to study participants during the second phase of the study






Type of information format	Description of the format	Title of the health intervention described in the format	Link to the original format	Link to the SR
Abstract	This is the most basic scientific format. It was developed as an article/SR overview. Its structure corresponds with the structure of an article. It uses scientific terminology because it targets scientific audience and is not adjusted to lay audience. It contains numbers and measures of effect (e.g., odds ratio, confidence interval).	Mediterranean diet for the primary and secondary prevention of cardiovascular disease	https://www.cochrane.org/pl/CD009825/VASC_dieta-rodziennomorska-w-zapobieganiu-chorobom-sercowo-naczyniowym	https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD009825.pub2/full#CD009825-abs-0001
Blogshot	It is a form of "information in a nutshell". It should be as short as possible and cover only the key information about an intervention, study design, results, and conclusions. From a technical point of view, it is developed as ultrashort PowerPoint one-slide presentation. It is thought to be a quick read for lay audience.	Interventions to improve adherence to lipid lowering medication	https://cochraneblogshots.tumblr.com/post/154761025510/interventions-to-improve-adherence-to	https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD004371.pub4/full#CD004371-abs-0001
Comic drawing	This graphical form combines the most important information regarding the analyzed studies and conclusions. It is targeted at lay audience.	Homeopathic medicine for the prevention and treatment of influenza	Added as Appendix C, as it was designed solely for the purpose of this study. Not published on a website.	https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD001957.pub6/full#CD001957-abs-0001
Infographic	This format contains graphical elements showing the effectiveness of an intervention. It presents results in a more descriptive form than PLS but also targets lay audience like PLS. It resembles press release but contains graphic elements.	Induction of labor at or near the end of pregnancy for babies suspected of being very large (macrosomia)	https://pregnancy.cochrane.org/sites/pregnancy.cochrane.org/files/public/uploads/induction-for-macrosomia%20%28screen%29.pdf	https://www.cochrane.org/CD000938/PREG_induction-labour-or-near-end-pregnancy-babies-suspected-being-very-large-macrosomia
PLS	This format has been developed by Cochrane and is targeted at lay audience. It is based on and resembles a scientific abstract. However, efforts are made to substitute scientific terminology with words of everyday use, and numbers, with descriptive explanation of results. It is focused on patient-related outcomes.	Omega-3 fatty acid supplementation during pregnancy	https://www.cochrane.org/CD003402/PREG_omega-3-fatty-acid-addition-during-pregnancy	https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD003402.pub3/full#CD003402-abs-0001
Press release	This format was developed for press contacts. It aims at description of SR findings. It contains quotes from the main authors of an SR. Its length is comparable to that of an infographic.	Yoga as an additional treatment option for people with asthma	https://canada.cochrane.org/news/press-release-yoga-may-have-health-benefits-people-asthma	https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD010346.pub2/full?highlightAbstract=treatment%7Cadditional%7Cfor%7CYoga%7Caddit%7C asthma%7Cwith%7Cpeople%7Cpeople%7Cwith%7Cpersons%7Cas%7Cfour%7Cperson%7Coption
Recorded PLS	This format has been developed as an alternative to a podcast, which is longer and lasts 3-4 minutes. It is a PLS read by a skilled actor, purely based on the text of the original PLS.	Pneumococcal vaccination during pregnancy for preventing infant infection	Recording is not available online. Transcript: https://www.cochrane.org/CD004903/PREG_pneumococcal-vaccination-during-pregnancy-for-preventing-infant-infection	https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD004903.pub4/full#CD004903-abs-0001
SoF	This format summarizes SR findings in a tabular form. It presents numbers, relative and absolute results of an SR analysis, with a precise scientific description and an indication of the quality of evidence. It is the shortest form of presenting SR results.	Ibuprofen plus caffeine for acute postoperative pain	SoF table is a part of the original SR publication	https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD011509.pub2/full?highlightAbstract=postoperative%7Cacute%7Cpain%7Cpostoperativ%7Cin%7Cadults%7Cfor%7Cibuprofen%7Cacute%7Cplus%7Csingle%7Ccaffeine%7Cpostop%7Ccaffeine%7Cdose%7Cfour%7Csingle%7Coral%7Cadult
Vlogshot	This format has been developed as a short PowerPoint presentation. It focuses on a very short description of study population, intervention, comparisons, outcomes, and conclusions. Graphical elements are sparse.	Acupuncture for depression	Added as Appendix D, as designed for the purpose of this study only. Not published on website	https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD004046.pub4/full?highlightAbstract=acupuncture%7Cfour%7Cacupuncture%7Cfor%7Cdepress%7Cdepression

Abbreviations: PLS, plain language summary; SoF, summary of findings; SR, systematic review

APPENDIX C



APPENDIX D

 <p>Cochrane UK</p>	<p>Akupunktura w depresji</p> 
1 ☆	2 ☆
<p>Czy Akupunktura jest lepsz niż brak leczenia?</p> 	<p>Akupunktura może skutkować umiarkowaną redukcją ciężkiej depresji w porównaniu do braku leczenia/oczekiwania na leczenie/standardowych metod leczenia</p>
3 ☆	4 ☆
<p>Czy akupunktura jest lepsz niż pozorowana akupunktura?</p> 	<p>W porównaniu do kontroli (akupunktura porozowana) akupunktura może prowadzić do niewielkiej redukcji ciężkiej depresji</p>
5 ☆	6 ☆
<p>Czy akupunktura jest lepsz niż leki antydepresyjne?</p> 	<p>Efekty działania akupunktury względem działania leków są niepewne</p>
7 ☆	8 ☆

<p>Nie jest także pewne czy akupunktura w połączeniu z lekami antydepresyjnymi działa lepiej niż leki antydepresyjne samodzielnie</p>	<p>Czy akupunktura jest lepsza niż terapie psychologiczne?</p> 
9 ☆	10 ☆
<p>Efekty działania akupunktury względem terapii psychologicznych są niepewne</p>	<p>Czy akupunktura jest bezpieczniejsza niż inne rodzaje leczenia depresji?</p> 
11 ☆	12 ☆
<p>Ryzyko działań niepożądanych związanych z akupunkturą jest niejasne, gdyż większość badań ich nie raportowała</p>	<p>Kilka badań raportowało istotne wyniki, takie jak: odstępianie od udziału w interwencji, zmniejszenie użycia leków lub jakość życia</p>
13 ☆	14 ☆
<p>Potrzebnych jest więcej wysokiej jakości badań ze średnim i długim okresem obserwacji</p>	<p>Przegląd Cochrane; 64 badania; 7104 uczestników z depresją w różnych środowiskach (społeczność lokalna/pacjenci hospitalizowani/pacjenci ambulatoryjni)</p>
15 ☆	16 ☆
<p>Cochrane Database of Systematic Reviews</p> <p>Acupuncture for depression</p> <p>New search Conclusions changed Review Intervention</p> <p>Caroline A Smith, Mike Armour, Myeong Soo Lee, Li-Qiong Wang, Phillipa J Hay</p> <p>First published: 4 March 2018</p> <p>Editorial Group: Cochrane Common Mental Disorders Group</p> <p>DOI: 10.1002/14651858.CD004046.pub4 View/save citation</p>	
17 ☆	18 ☆

COREQ (Consolidated criteria for Reporting Qualitative research) Checklist

A checklist of items that should be included in reports of qualitative research. You must report the page number in your manuscript where you consider each of the items listed in this checklist. If you have not included this information, either revise your manuscript accordingly before submitting or note N/A.

Topic	Item No.	Guide Questions/Description	Reported on Page No.
Domain 1: Research team and reflexivity			
<i>Personal characteristics</i>			
Interviewer/facilitator	1	Which author/s conducted the interview or focus group?	2
Credentials	2	What were the researcher's credentials? E.g. PhD, MD	2
Occupation	3	What was their occupation at the time of the study?	2
Gender	4	Was the researcher male or female?	2
Experience and training	5	What experience or training did the researcher have?	2
<i>Relationship with participants</i>			
Relationship established	6	Was a relationship established prior to study commencement?	4
Participant knowledge of the interviewer	7	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	4
Interviewer characteristics	8	What characteristics were reported about the interviewer/facilitator? e.g. Bias, assumptions, reasons and interests in the research topic	3
Domain 2: Study design			
<i>Theoretical framework</i>			
Methodological orientation and Theory	9	What methodological orientation was stated to underpin the study? e.g. grounded theory, discourse analysis, ethnography, phenomenology, content analysis	3
<i>Participant selection</i>			
Sampling	10	How were participants selected? e.g. purposive, convenience, consecutive, snowball	2
Method of approach	11	How were participants approached? e.g. face-to-face, telephone, mail, email	3
Sample size	12	How many participants were in the study?	5
Non-participation	13	How many people refused to participate or dropped out? Reasons?	N/A
<i>Setting</i>			
Setting of data collection	14	Where was the data collected? e.g. home, clinic, workplace	2,3
Presence of non-participants	15	Was anyone else present besides the participants and researchers?	2
Description of sample	16	What are the important characteristics of the sample? e.g. demographic data, date	5
<i>Data collection</i>			
Interview guide	17	Were questions, prompts, guides provided by the authors? Was it pilot tested?	3, 16
Repeat interviews	18	Were repeat interviews carried out? If yes, how many?	N/A
Audio/visual recording	19	Did the research use audio or visual recording to collect the data?	4, 16
Field notes	20	Were field notes made during and/or after the interview or focus group?	2
Duration	21	What was the duration of the interviews or focus group?	5
Data saturation	22	Was data saturation discussed?	4
Transcripts returned	23	Were transcripts returned to participants for comment and/or	4

Topic	Item No.	Guide Questions/Description	Reported on Page No.
		correction?	
Domain 3: analysis and findings			
<i>Data analysis</i>			
Number of data coders	24	How many data coders coded the data?	4
Description of the coding tree	25	Did authors provide a description of the coding tree?	4
Derivation of themes	26	Were themes identified in advance or derived from the data?	4
Software	27	What software, if applicable, was used to manage the data?	4
Participant checking	28	Did participants provide feedback on the findings?	4
<i>Reporting</i>			
Quotations presented	29	Were participant quotations presented to illustrate the themes/findings? Was each quotation identified? e.g. participant number	5-14
Data and findings consistent	30	Was there consistency between the data presented and the findings?	5
Clarity of major themes	31	Were major themes clearly presented in the findings?	5-14
Clarity of minor themes	32	Is there a description of diverse cases or discussion of minor themes?	5-15

Developed from: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *International Journal for Quality in Health Care*. 2007. Volume 19, Number 6: pp. 349 – 357

Once you have completed this checklist, please save a copy and upload it as part of your submission. DO NOT include this checklist as part of the main manuscript document. It must be uploaded as a separate file.