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A summary to communicate evidence from systematic reviews to the public improved understanding and accessibility of information: a randomized controlled trial

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Abstract

Objectives: To evaluate a new format of a summary, which presents research from synthesized evidence to patients and the public.

Study Design and Setting: We conducted a randomized controlled trial in 143 members of the public from five countries (Canada, Norway, Spain, Argentina, and Italy). Participants received either a new summary format (a plain language summary [PLS]) or the current format used in Cochrane systematic reviews. The new PLS presents information about the condition and intervention, a narrative summary of results, and a table of results with absolute numbers for effects of the intervention and quality of the evidence using Grading of Recommendations Assessment, Development, and Evaluation.

Results: With the new PLS, more participants understood the benefits and harms and quality of evidence (53% vs. 18%, $P < 0.001$); more answered each of the five questions correctly ($P \leq 0.001$ for four questions); and they answered more questions correctly, median 3 (interquartile range [IQR]: 1−4) vs. 1 (IQR: 0−1), $P < 0.001$). Better understanding was independent of education level. More participants found information in the new PLS reliable, easy to find, easy to understand, and presented in a way that helped make decisions. Overall, participants preferred the new PLS.

Conclusion: This new PLS format for patients and the public is a promising tool to translate evidence from synthesized research.

Keywords: Patient education as topic; Information dissemination; Communication; Review literature as topic; Consumer satisfaction; Comprehension

1. Introduction

People are increasingly demanding to better understand health information to manage their health [1]. Although there is a plethora of evidence about the benefits and harms of a multitude of treatments for many conditions, this information is typically not written in a way that optimizes understanding, accessibility, and usability for patients and the public. Much research has focused on the specifics of how to communicate benefits and harms of treatments, such as whether to present the effects in relative or absolute terms or both [2], whether to present rates or proportions or "1-in-X formats" [3], and also whether data should be presented in tables [2,4,5]. The challenge is pulling together what we have learned from that research into one template or format to summarize and communicate evidence to patients and the public. In 2010, we developed a new format for a plain language summary (PLS) for patients, which summarized the results of a

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What is new?

- Members of the public preferred the new plain language summary format which presents research evidence from systematic reviews in two ways: narratively and in a table showing absolute effects and the quality of the evidence using the approach of Grading of Recommendations Assessment, Development, and Evaluation.
- The new format also improved comprehension over the format currently used in Cochrane systematic reviews and was perceived as just as easy to understand as the current format which does not include numbers or quality of evidence.
- Providing patients and the public with quantitative results from evidence in systematic reviews, along with an indication of the confidence in those results, may improve comprehension and help with patient decision making.
- These findings can be used to inform organizations who aim to provide patients and the public with information about the effects of treatments.

Cochrane systematic review about the effects of a treatment [6]. We conducted user testing in 34 patients or members of the public and explored issues around quantitative and qualitative presentations of benefits and harms, as well as confidence intervals and tables. We found that participants preferred the effects of treatments presented in words, supplemented with numbers in a table, and that they largely ignored the confidence intervals. Previous research had also indicated that the patients want to know not only how many people will improve or be harmed when receiving a treatment but also how "sure" those numbers are, that is, the quality of the evidence informing those numbers [6,7]. Therefore, we additionally experimented with how to present effects of treatments with the quality of the evidence.

This distinction between the effect of a treatment and the confidence in that effect has received more attention with the use of the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) approach in systematic reviews and guidelines. The GRADE approach to assess and present the quality of evidence for the effects of an intervention is used by over 70 organizations and is a standard component of Cochrane systematic reviews [8]. GRADE distinguishes between the magnitude of the effects and the confidence or certainty in those effects (ie, quality of evidence) when presenting information about benefits and harms. An example to illustrate this distinction is the figure used in GRADE where a meteorologist reports the weather saying "I figure there's a 40% chance of showers, and a 10% chance we know what we're talking about" [9]. The first part is about the size of the effect, the 40% chance of rain, and the second part, the 10%, is about the quality of the evidence or confidence in that effect. GRADE advocates for the use of and has developed tables to communicate this information to decision makers. Randomized controlled trials have shown that clinicians and guideline panels find these tables and the information easy to understand, accessible, and helpful when making decisions [10,11]. However, trials testing different presentations of benefits and harms with the quality of the evidence with patients and the public and their understanding of these two concepts together are limited.

We conducted this randomized controlled trial to compare a new format of a patient summary of evidence from a systematic review to the current narrative format. The new format is based on the user testing we previously conducted [6]. It consists of two key parts (Fig. 1). The first part is a narrative summary of the evidence, which is divided into three sections: an introduction to the concept of a systematic review; background information about the condition and treatment; and information using standardized qualitative statements about the magnitude of the effect and the quality of the evidence for important outcomes (eg, "Vitamin C *probably* decreases how long a cold lasts by a *few* hours"). The second part of the summary is a table that presents the same outcomes and the same qualitative statements about the effect but also the numerical results. The absolute effects and confidence intervals are presented in natural frequencies, and information about the quality of the evidence for each outcome is presented as symbols and words.

We evaluated whether the new presentation improves understanding about the benefits and harms of an intervention and the confidence in those effects, whether it improves the accessibility of the information, and whether it is preferred over other versions by patients and the public. To ensure broad representation of members of the public, we took a global approach by enlisting the help of the network of Cochrane groups across disease areas and regions to recruit participants.

2. Methods

2.1. Study design

We conducted this randomized controlled trial via the Internet in August 2009 in five countries (Canada, Norway, Spain, Argentina, and Italy). Members of the Cochrane Collaboration recruited members of the public and patients in their country to view the results of a Cochrane systematic review in one of two formats of a PLS: one using the new format or one using the current format. Formats were randomly allocated using block randomization. While reading the summary about a health care intervention and its effects, participants answered questions using an online questionnaire to assess their understanding (primary outcome), their satisfaction with the PLS, the ease of

The effect of Vitamin C on the common cold

Douglas RM, Hemilä H, Chalker E, Treacy B. Vitamin C for preventing and treating the common cold. *Cochrane Database of Systematic Reviews* *Date:* Issue 3, 2007

Plain Language Summary of a Cochrane Review

A review of the research of the effect of vitamin C on the common cold was conducted by researchers in the Cochrane Collaboration. After searching for all relevant studies, they found 30 studies. Their findings are summarised below.

What is the common cold and why take Vitamin C?

Symptoms of the common cold are well-known and can include runny nose, sore throat, fever and headache. Most adults, who are at *normal risk*, will have two to three colds a year that last about 3 to 4 days. People who are at *high risk*, for example, adults doing intense physical activity or working outside in sub-arctic conditions, have more than 3 colds a year that last about 6 days.

The common cold is caused by a virus and cannot be cured by antibiotics. Since it cannot be cured, much research has been done to find ways to prevent colds or reduce symptoms. The effect of taking more vitamin C than in a normal diet has been researched for over 60 years. Most countries recommend about 40 to 90 mg of vitamin C a day. The 30 studies in this review tested vitamin C supplements (usually pills) at 1000 to 2000 mg (1 to 2 grams) a day.

What the research says

There are two types of findings from the studies: the end results and the quality of those end results. To determine quality, they consider many factors, such as how well a study was done, who funded it, and how many people were in it. The higher the quality of the evidence, the more certain we can be about the end results and what will happen. Below we describe what will happen when taking vitamin C. When the effect is more certain (or from high quality evidence), the word *will* is used. When it's moderate quality, *probably*, is used, and *may* is used for low quality. When there is very low quality evidence or no evidence, the effect *is not known*. The word *slightly* means that there is a small effect.

Taking 1 to 2 grams of vitamin C per day for about 12 weeks regularly to prevent a cold

In people at normal risk, vitamin C

- will not decrease the chance of catching a cold
- will decrease how long a cold lasts by a few hours
- will not lead to side effects

In people at high risk, vitamin C

- may decrease the chance of catching a cold
- probably decreases how long the cold lasts by a few hours
- will not lead to side effects

Taking 1 to 2 grams of vitamin C per day as soon as a cold starts

- probably will not decrease how long the cold lasts

The effect on children and the effect of mega-doses of Vitamin C (4 to 8 grams per day), are not known.

What happens to people who take vitamin C

This table provides more detail about what happens to people who take vitamin C. These numbers are based on the results of the research, when available. The quality of the evidence is either ranked as high, moderate, low or very low. The higher the quality, the more certain we are about what will happen.

What happens	Not taking Vitamin C	Taking Vitamin C (1 to 2 g per day)	Quality of evidence
Probably will not decrease how long the cold lasts if vitamin C taken as soon as the cold starts	The cold lasts **84 hours or 3 ½ days**	The cold lasts **2 fewer hours** (9 fewer to 4 more hours) *	⊕⊕⊕◯ Moderate
Will decrease how long the cold lasts if vitamin C taken before the cold	People at normal risk		
	The cold lasts **84 hours or 3 ½ days**	The cold lasts **7 fewer hours** (3 to 11 fewer hours)	⊕⊕⊕⊕ High
Probably decreases how long the cold lasts if vitamin C taken before the cold	People at high risk		
	The cold lasts **134 hours or 6 days**	The cold lasts **19 fewer hours** (8 to 30 fewer hours)	⊕⊕⊕◯ Moderate
Will not decrease the chance of catching a cold	People at normal risk		
	50 per 100 people	**49 per 100 people** (48 to 50 per 100)	⊕⊕⊕⊕ High
May decrease the chance of catching a cold	People at high risk		
	70 per 100 people	**35 per 100 people** (27 to 46 per 100)	⊕⊕◯◯ Low
Will not lead to more side effects	**6 per 100 people**	**6 per 100 people**	⊕⊕⊕⊕ High

Quality of evidence: The quality of the evidence is either ranked as high, moderate, low or very low. The higher the quality, the more certain we are about what will happen.
*The numbers in brackets show the range where the actual effect may be.

Fig. 1. New format of plain language summary.

understanding, and the accessibility of the findings of the review. Participants then viewed the alternate format (to which they were not initially allocated, that is, the new format if they were randomized to the current format and vice versa) and were asked which of the two formats they preferred. Participants did not receive incentives to participate in the study, and consent was provided when answering the online questionnaire. Each entity obtained the necessary ethical approval from their institutions or national ethics committees.

2.2. Participants

Four Cochrane groups (the Cochrane musculoskeletal group in Canada; the Norwegian branch of the Nordic Cochrane Center in Norway; the Iberoamerican Cochrane Center in Argentina and Spain; and the Italian Cochrane Center in collaboration with the PartecipaSalute [12]) recruited patients and the public who were ≥16 years. Methods of recruitment included a message on Cochrane group Web sites and an email invitation disseminated through local consumer groups and forwarded via local patient, researcher, and health professional networks. The message requested expression of willingness to participate in the study and was confirmed by the local investigator.

2.3. Randomization

Eligible patients and members of the public who were willing to participate were centrally randomized to the new or current format of a PLS by a staff member at the Department of Clinical Epidemiology and Biostatistics at McMaster University who was unaware of participants' demographics or other characteristics. The randomization sequence was generated using block randomization with 40 permuted blocks of four generated on http://www.randomization.com. An email was sent by the local investigator to the participant with a link to the SurveyMonkey questionnaire and PLS format to which the participant had been allocated. Participants were not made aware of which PLS was the current or new format.

2.4. Intervention and comparator

The new format of the PLS is based on research and development work over the past 15 years and was finalized following semistructured interviews and user testing with 34 members of the public [6]. Important differences between the new format and the currently used format in Cochrane systematic reviews are shown in Table 1. The new format has a more structured presentation using a question and answer approach and communicates information about benefits and harms with reference to both the magnitude of effect and the quality of evidence. This information is presented separately in tables as numbers and symbols and in standardized qualitative statements [6]. Thus, readers can use the qualitative statements, the tables, or both to understand the information.

Two formats of a PLS were created for this trial. The information in the PLS was derived from a systematic review of a common topic: Vitamin C for preventing and treating the common cold [13]. One investigator created the new format based on the user testing and also revised the current PLS from the review to include similar background information and language, but maintained the current format. Both versions were then reviewed by the other investigators and revised accordingly (Figs. 1 and 2). The PLS were first written in English and then translated into Norwegian, Spanish, and Italian by the respective investigators, as our goal was to test the format as opposed to comprehension of the English. We provided each PLS and the questionnaire online (in the respective language) using SurveyMonkey (www.surveymonkey.com).

2.5. Outcomes

The primary outcome was the proportion of people who correctly understood the benefits and harms of the intervention and quality of evidence. The questions were similar to questions used in randomized controlled trials for the public, clinicians, and health care researchers to evaluate presentation of health information [4,10]. Participants answered five multiple-choice questions, each with five response options (Table 3 for the specific questions marked with the designator "a"). The proportion of people who correctly answered a question was averaged over the five questions and then compared between formats.

Secondary outcomes included the proportion of people who correctly understood each of the five questions; the overall number of correct answers for these five questions; comprehension of the purpose of the summary; usability;

Table 1. New and current format of plain language summaries of Cochrane systematic reviews

New format	Current format
Qualitative and quantitative description of text (absolute effects and natural frequencies provided)	Qualitative description of effects
Quantitative results provided in a table	
Quality of the evidence according to GRADE provided in a table	No criteria for how to describe the quality of the evidence
Headings for question and answer format	Paragraph of text
Flow of information follows principles of linguistic frameworks (eg, progressive movements from introduction to "bottom line")	No criteria for flow of information

Abbreviation: GRADE, Grading of Recommendations Assessment, Development, and Evaluation.

The effect of Vitamin C on the common cold

Douglas RM, Hemilä H, Chalker E, Treacy B. Vitamin C for preventing and treating the common cold. Cochrane Database of Systematic Reviews 2007, Issue 3.

Plain Language Summary of a Cochrane Review

Symptoms of the common cold are well-known and can include runny nose, sore throat, fever and headache. It is a major cause of visits to a doctor in Western countries and of absenteeism from work and school. The common cold is caused by a virus and cannot be cured by antibiotics. Since it cannot be cured, much research has been done to find ways to prevent colds or reduce symptoms. The effect of taking more vitamin C than in a normal diet has been researched for over 60 years. Most countries recommend about 40 to 90 mg of vitamin C a day. The 30 studies in this review tested vitamin C supplements (usually pills) at 1000 to 2000 mg (1 to 2 grams) a day.

Thirty studies involving 11,350 participants suggest that taking vitamin C regularly has no effect on catching a cold in the ordinary population. It reduced how long the cold lasted and severity of the symptoms slightly, although the effect was so small its usefulness is doubtful. Nevertheless, in six studies in people exposed to short periods of extreme physical or cold stress or both (including marathon runners and skiers) vitamin C reduced the common cold risk by half.

Studies of high doses of vitamin C (starting when the cold starts), showed no consistent effect on either the length of the cold or severity of symptoms. However, there were only a few studies testing this and their quality was variable. One large trial reported equivocal benefit from 8 g of vitamin C at the start of a cold, and two trials in which vitamin C was taken for 5 days reported benefit. More trials testing vitamin C to treat a cold are necessary to settle the question, especially in children.

Fig. 2. Current format of plain language summary.

ease of understanding; accessibility; and preference for one format over the other. Questions about purpose and producer of the summary were multiple-choice questions with three options. Usability, accessibility (ie, the extent to which the main findings are easy to find, to understand, and to use by someone making a decision), and preference outcome measures were also based on questions previously used in a randomized controlled trial in clinicians and health care researchers [10]. Usability and accessibility were framed as positive questions and were measured on a seven-point Likert scale: 1 (strongly disagree) to 7 (strongly agree). Preference was measured after the participants evaluated the format to which they had been first allocated and viewed the alternate format. Preference was measured on a seven-point scale with a strong preference for one format at each end. We also collected demographic information including age, language spoken and read, education, and frequency searching the Internet for health information. The complete questionnaire is available in Appendix at www.jclinepi.com.

2.6. Sample size calculation

We calculated the sample size based on the main outcome of the study: proportion of people who understood the benefits and harms of the intervention averaged over all five questions. We used alpha of 0.05 and 90% power to detect a difference of 40% in the average proportion of people who correctly answered the questions. We used data from two studies by Schwartz, Woloshin et al. to determine the difference of 40%, a size of effect that we also deemed important for this study [4,5]. In those studies, 80% of the people who received a summary of information in a table with event rates answered questions correctly compared with 20−40% of those who did not receive this information. We estimated that, at a minimum, 32 people in each arm needed to complete the survey in English and a total of 32 people in each arm for all other languages combined to allow analysis by language (English vs. other languages).

2.7. Analysis

Analysis was conducted by a statistician who was blinded to the PLS format tested after importing data from SurveyMonkey into SPSS Version 11. To analyze descriptive variables, we calculated proportions fix. We used the chi-square test to compare differences in proportions and the *t*-test or the Mann−Whitney *U* test for the means or medians comparison using two-sided tests and considered $P < 0.05$ as statistically significant. We also conducted a generalized linear regression model adjusting for education level, language, and Internet experience for the primary outcome.

3. Results

In total, 193 people from five countries agreed to participate. Given the two-step approach of initial invitation and second contact for randomization, 154 of 193 people began the survey and 143 (74%) completed the study: 74 exposed to the new format first and 69 to the current format first (Fig. 3 for study flow). The majority of participants were female (73%) and between the ages of 26 and 65 years (76%) with diverse levels of education, from 30% who held a high school diploma or less to 33% who held a university

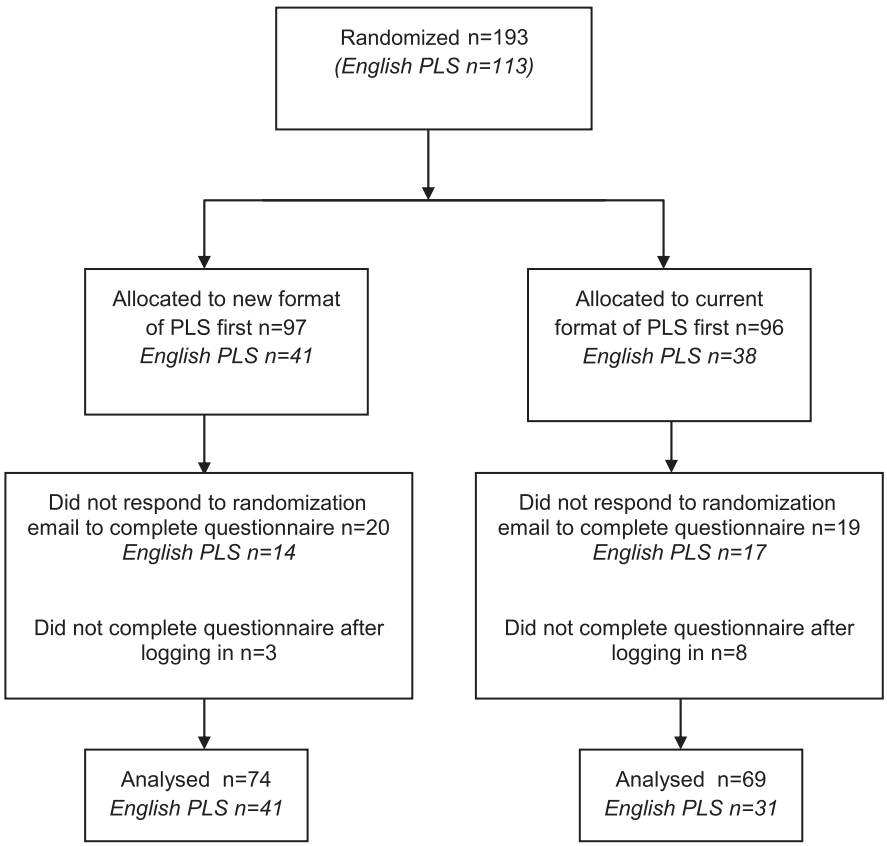

Fig. 3. Participant flow diagram. PLS, plain language summary.

degree. Participants also had a broad range of experience seeking health information on the Internet, from greater than once per week to less than a couple times a year. Overall, demographic characteristics were similar across groups (Table 2). Of the 143 respondents, 79 received the English version of the PLS. Language was not a significant variable in the linear regression, and therefore, we present results for the two groups combined.

3.1. Understanding of benefits, harms, and quality of evidence

More participants who received the new format of the PLS correctly answered the comprehension questions than those who received the current format (53% vs. 18%, $P < 0.001$). This difference was statistically significant even after adjusting for education level, language, and Internet experience ($P < 0.001$). The linear regression, however, showed that education level was a significant factor in overall understanding of both formats. The analyses for each question showed that in four of the five questions, the differences in the proportion of people who answered the questions correctly were statistically significant (Table 3). With the exception of the question about the meaning of the qualitative statements and understanding risk, the differences in the proportions with correct answers were >40%. However, the number of participants who correctly answered each comprehension question with the new format did not exceed 65%. In addition, the median number of questions answered correctly out of the five questions was significantly greater in participants who received the new PLS compared with the current PLS (3, interquartile range [IQR]: 1–4) vs. 1 [IQ: 0–1], $P < 0.001$).

3.2. Comprehension of the purpose of the summary

A larger proportion of respondents who received the current PLS understood that the summary was not about one large study, but overall this understanding was fairly low and not significantly different (45% vs. 32%, $P = 0.17$). On the contrary, most respondents understood that the new PLS was produced by the Cochrane Collaboration (89%); significantly more than with the current PLS (67%, $P < 0.001$).

3.3. Accessibility of the findings and usability

More participants exposed to the new PLS responded that the information was reliable; easy to find; easy to understand; presented in a way to help make a decision; and presented the most important effects. All comparisons were

Table 2. Characteristics of participants

Characteristic	New format (n = 74)	Current format (n = 69)
Women, %	74	72
Age (yr), %		
<25	20	23
26–35	15	16
36–45	23	25
46–55	22	22
56–65	16	13
>66	4	1
Education, %		
Some high school	15	17
High school	11	17
Some college or university	11	10
College diploma	34	19
University degree(s)	30	36
Seeks health information on Internet		
Greater than once per week	24	25
Once per week	16	17
Once per month	23	20
Couple times a year	20	19
Less than a couple times a year	16	19
Health care professional, %	18	9
English speaking, %	55	55

statistically significant except for the ease of understanding (Fig. 4).

3.4. Preference

Across both study arms, we found a greater preference for the new format over the current PLS (median 3 ["somewhat prefer"], IQR: 1–6), although participants generally preferred the format to which they were exposed first.

4. Discussion

The development and testing of the PLS over the past 15 years has provided important information and feedback about a potentially useful format to present health evidence to the public and patients. In this randomized controlled trial, we have shown that the new format of the PLS improves understanding of benefits and harms, is accessible and usable, and is preferred by most participants across several countries. Understanding not only about the effects of the interventions but also about the quality of evidence was greater when communicated in qualitative statements, as well as in numbers and symbols. Contrary to concerns about whether patients or the public would be able to understand such detailed information about effects of interventions, our findings support communication of those elements. Indeed, our results showed that far fewer participants who were provided with the narrative format answered questions correctly about the benefits and harms, the primary outcome of our study. We also found that respondents found information about benefits and harms more easily and thought the information was accessible and usable with the new format. These findings and results of previous research should encourage organizations communicating evidence from synthesized research to provide detailed information about effects and quality of

Table 3. Percentage of participants with correct answer

Concept	Question	New format	Current format	Difference, %	P-value
Overall understanding (mean, standard deviation)	All five questions mentioned below[a]	53% (31)	18% (17)	35	<0.001[b]
Understanding of quality of evidence	In people at high risk of catching a cold (such as people in extreme cold conditions), what is more certain?[a]	43%	2%	41	<0.001
Understanding of quality of evidence and risk (qualitative statements)	In an ordinary population (such as people at normal risk), will vitamin C decrease the chance of catching a cold?[a]	47%	40%	7	0.42
Ability to quantify risk (dichotomous outcome)	How many people at normal risk (such as in an ordinary population) will catch a cold if they take vitamin C?[a]	64%	17%	47	<0.001
Understanding of risk	When people take 8 g or high doses of vitamin C as soon as a cold starts, they will….benefit?[a]	45%	19%	26	0.001
Ability to quantify risk (continuous outcome)	In people at normal risk of catching a cold (or in an ordinary population), how many fewer hours will their cold last if they took vitamin C regularly before the cold even started?[a]	65%	10%	55	<0.001
Comprehension of purpose of summary	This summary is about the results of a large study. (correct answer: No)	32%	45%	−13	0.17
Ability to identify producer of review	Who produced this summary? (correct answer: Researchers of the Cochrane Collaboration)	89%	67%	22	0.001

[a] The five questions included in the primary outcome of overall understanding and understanding of benefits and harms and quality of evidence.
[b] Analysis adjusted for education level, language, and Internet experience $P < 0.001$.

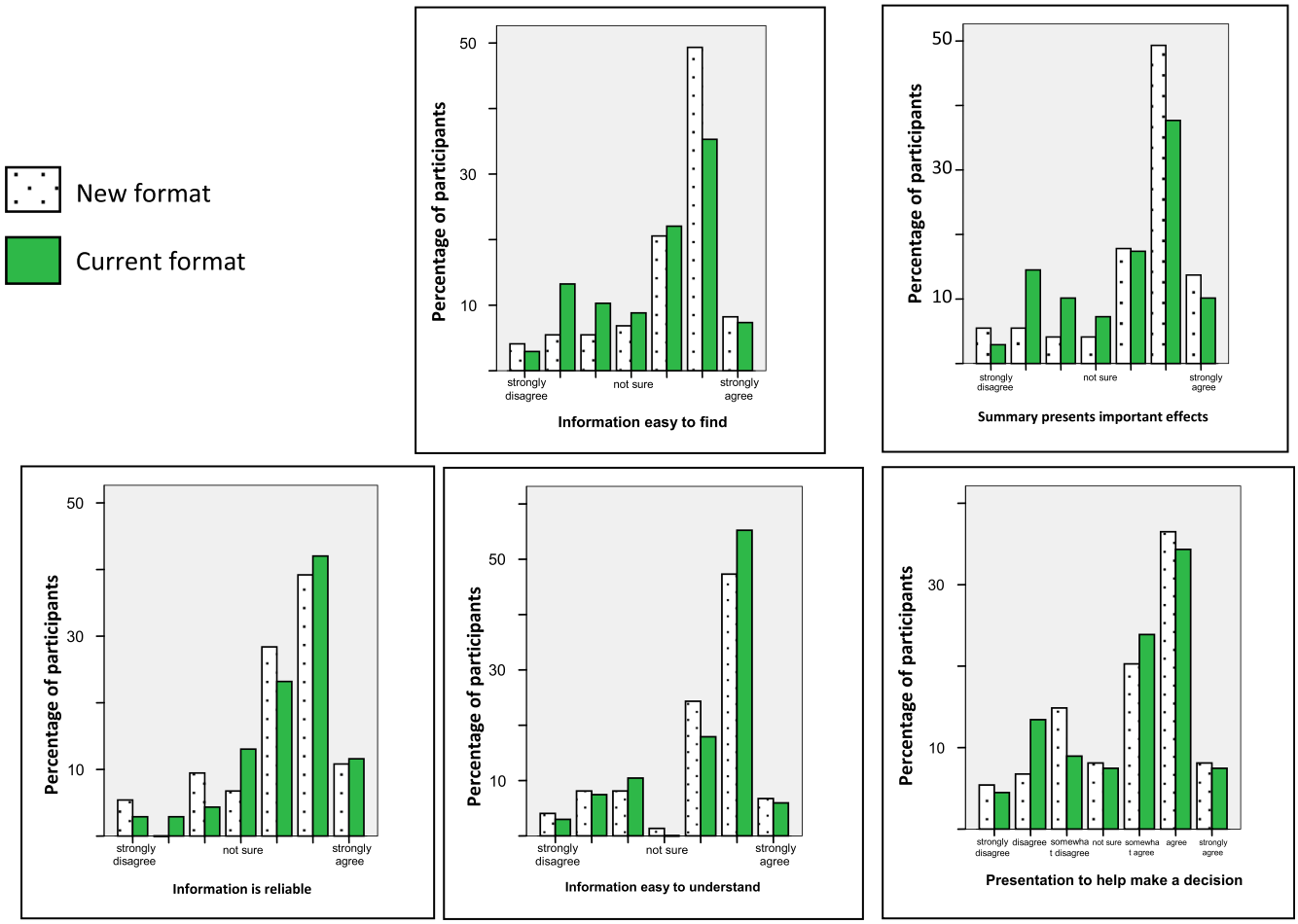

Fig. 4. Assessment of usability and accessibility by new or current format.

evidence narratively using a standardized language and in a table [4–6,14,15].

This study, albeit relatively small, found no difference in the effects of the new format across different languages, across education levels or experience using the Internet. It provides evidence that the new PLS format may be preferred by a broad range of patients and the public, including people in different countries and education levels. Results from this trial also confirm our findings from our qualitative work which found that participants liked summaries divided into headings in a question and answer format and liked the flow of information in our new format [6].

This study has several strengths including its randomized design and the careful developmental work that preceded this new format for PLS [4–6,14,15]. Conducting the trial in several languages and settings is another strength. However, our study has limitations. Of the 193 participants who initially agreed to participate in the study, 143 completed the study. However, we did not observe a large difference in completion rates in the two arms of the trial. We also did not engage respondents in real-life decisions. Instead, we chose a common topic, Vitamin C for the common cold, to ensure that respondents could relate to the health care information and we felt that many people not only understood the topic but had likely thought about the use of vitamin supplements to prevent and treat a common cold in the past or were presently thinking about it. Although we recruited participants from several countries, respondents came primarily from high-income and middle-income countries, and it is unclear how the results of this study apply to patients or the public from low-income countries. Furthermore, recruitment through consumer and personal networks at the various Cochrane groups may have led to selection of people with a special interest in health information. However, the participants had a broad range of educational backgrounds and, given their interest in health information, would indeed be representative of those seeking such information.

It may also be argued that we gave an unfair advantage to people who received the new format, as we asked respondents the specific number of people who experienced an outcome, and provided quantitative information in the

new format but not in the current format. We use the same argument put forth by Schwartz and Woloshin [5]. These authors described that decisions following narrative provision of information are based on implicit assumptions about the magnitude of the effect. Therefore, it is critical to evaluate if these assumptions are correct. In our study, in fact, we found that respondents were incorrectly estimating the size of the effect after reading the narrative summary in the current format.

Despite our careful development work and improved presentation of the PLS, only up to 65% of participants answered most comprehension questions correctly. It is unclear why this occurred, and it indicates that more work should be conducted to explore the best ways to communicate information, such as whether to present absolute effects as natural frequencies or as percentages [2,4]. We also presented quantitative information with confidence intervals, and it is not clear whether the confidence intervals were helpful or distracting. In addition, this work is one of the first studies to explore the communication of the effects of an intervention and the quality of the evidence. In another study, we found that patients preferred knowing about the underlying quality of evidence related to intervention effects [7]. In our study, understanding was improved with the new PLS, but fewer than 50% of the participants answered the questions about quality of evidence correctly. Certainly there is room for improvement and this will be explored in a project by the GRADE working group in which additional user testing and randomized controlled trials about communication of evidence and recommendations from guidelines will be conducted with patients and the public (www.decide-collaboration.eu).

In summary, we created a new format to translate synthesized evidence from a Cochrane systematic review into a PLS in multiple languages and found that the public preferred this new format over the current format, found the information more easily, and thought the information was accessible and usable. These results could encourage knowledge translation specialists, guideline developers, editors, and researchers from many organizations, such as health technology assessment agencies, and the Cochrane Collaboration to consider the use of this format to communicate results of systematic reviews to the public.

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Appendix

Supplementary data

Supplementary data related to this article can be found at http://dx.doi.org/10.1016/j.jclinepi.2014.04.009.

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