

**Title:** Conclusiveness, readability and textual characteristics of plain language summaries from medical and non-medical organisations: a cross-sectional study

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**Declaration of interest:** none

Supplementary Table S1. Distribution of PLSs between groups based on the conclusiveness categories.

| Variables N(%) | Overall sample (n=8,637) | Medical (n=8,474) | Non-medical (n=163) | P*     |
|----------------|--------------------------|-------------------|---------------------|--------|
| Conclusive     | 739 (8.56)               | 710 (8.38)        | 29 (17.79)          | <0.001 |
| Inconclusive   | 2,597 (30.07)            | 2,505 (29.56)     | 92 (56.44)          | <0.001 |
| No opinion     | 5,301 (61.38)            | 5,259 (62.06)     | 42 (25.77)          | <0.001 |
| P*             | <0.001                   | <0.001            | <0.0001             |        |

Supplementary Table S2. SMOG index depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)        | Non-medical (n=163)    | P*    |
|------------------------|--------------------------|--------------------------|------------------------|-------|
| Conclusive             | 15.76 (15.58 to 15.90) ‡ | 15.78 (15.58 to 15.90) ‡ | 15.25 (14.59 to 15.57) | 0.058 |
| Inconclusive           | 15.61 (15.50 to 15.68) ‡ | 15.63 (15.53 to 15.71) ‡ | 15.16 (14.70 to 15.49) | 0.005 |
| No opinion             | 15.44 (15.38 to 15.49) ‡ | 15.44 (15.38 to 15.49) ‡ | 15.35 (14.97 to 15.70) | 0.551 |
| p†                     | <0.001                   | <0.001                   | 0.799                  |       |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

Supplementary Table S3. Word count depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637)    | Medical (n=8,474)           | Non-medical (n=163)       | P*     |
|------------------------|-----------------------------|-----------------------------|---------------------------|--------|
| Conclusive             | 164.00 (158.00 to 175.00) ‡ | 161.00 (153.00 to 168.60) ‡ | 613.00 (561.96 to 653.11) | <0.001 |
| Inconclusive           | 387.00 (379.00 to 393.00) ‡ | 380.00 (369.00 to 387.00) ‡ | 616.00 (580.25 to 629.00) | <0.001 |
| No opinion             | 362.00 (354.00 to 368.00) ‡ | 360.00 (352.00 to 367.00) ‡ | 596.50 (561.66 to 631.26) | <0.001 |
| p†                     | <0.001                      | <0.001‡                     | 0.817                     |        |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

Supplementary Table S4. Analytical tone depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)        | Non-medical (n=163)    | P*    |
|------------------------|--------------------------|--------------------------|------------------------|-------|
| Conclusive             | 93.18 (92.41 to 93.63)   | 93.23 (92.45 to 93.74)   | 91.73 (89.62 to 93.22) | 0.206 |
| Inconclusive           | 92.43 (92.22 to 92.70)   | 92.53 (92.24 to 92.75)   | 91.31 (90.22 to 92.42) | 0.244 |
| No opinion             | 91.22 (91.03 to 91.46) ‡ | 91.23 (91.03 to 91.46) ‡ | 91.18 (90.07 to 93.32) | 0.236 |
| p†                     | <0.001                   | <0.001                   | 0.798                  |       |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

Supplementary Table S5. Clout depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)        | Non-medical (n=163)    | P*           |
|------------------------|--------------------------|--------------------------|------------------------|--------------|
| Conclusive             | 31.88 (30.11 to 33.95)   | 31.52 (29.87 to 33.63)   | 39.11 (31.76 to 46.59) | <b>0.041</b> |
| Inconclusive           | 34.02 (33.35 to 34.72) ‡ | 34.03 (33.37 to 34.80) ‡ | 33.12 (28.66 to 38.53) | 0.850        |
| No opinion             | 32.01 (31.46 to 32.42)   | 32.00 (31.46 to 32.42)   | 32.79 (29.69 to 37.17) | 0.270        |
| p†                     | <b>&lt;0.001</b>         | <b>&lt;0.001</b>         | 0.436                  |              |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

Supplementary Table S6. Authenticity depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)        | Non-medical (n=163)    | P*           |
|------------------------|--------------------------|--------------------------|------------------------|--------------|
| Conclusive             | 37.49 (35.52 to 40.36) ‡ | 36.85 (35.05 to 39.59) ‡ | 49.41 (40.72 to 56.33) | <b>0.010</b> |
| Inconclusive           | 45.08 (43.95 to 45.99)   | 44.89 (43.81 to 45.96)   | 46.88 (43.68 to 53.04) | 0.316        |
| No opinion             | 44.91 (44.31 to 45.69)   | 44.91 (44.30 to 45.67)   | 46.15 (42.46 to 50.19) | 0.521        |
| p†                     | <b>&lt;0.001</b>         | <b>&lt;0.001</b>         | 0.876                  |              |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

Supplementary Table S7. Emotional tone depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)      | Non-medical (n=163)    | P*           |
|------------------------|--------------------------|------------------------|------------------------|--------------|
| Conclusive             | 31.55 (29.40 to 33.16)   | 31.09 (28.66 to 32.67) | 51.62 (38.92 to 64.32) | <b>0.002</b> |
| Inconclusive           | 29.89 (28.96 to 30.96)   | 29.67 (28.64 to 30.60) | 39.84 (33.85 to 44.28) | <b>0.008</b> |
| No opinion             | 30.85 (30.05 to 31.61)   | 30.73 (29.97 to 31.54) | 46.32 (36.26 to 57.74) | <b>0.002</b> |
| p†                     | 0.464                    | 0.350                  | 0.118                  |              |

\*Mann-Whitney test.

†Kruskal-Wallis test.

Supplementary Table S8. Anger depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)     | Non-medical (n=163) | P*           |
|------------------------|--------------------------|-----------------------|---------------------|--------------|
| Conclusive             | 2.00 (2.00 to 2.00) ‡    | 2.00 (2.00 to 2.00) ‡ | 3.00 (2.77 to 4.00) | <b>0.001</b> |
| Inconclusive           | 3.00 (3.00 to 3.00)      | 3.00 (3.00 to 3.00)   | 4.00 (3.00 to 4.00) | <b>0.042</b> |
| No opinion             | 3.00 (3.00 to 3.00)      | 3.00 (3.00 to 3.00)   | 3.00 (3.00 to 4.00) | 0.127        |
| p†                     | <b>&lt;0.001</b>         | <b>&lt;0.001</b>      | 0.764               |              |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

Supplementary Table S9. Anticipation depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)     | Non-medical (n=163) | P*     |
|------------------------|--------------------------|-----------------------|---------------------|--------|
| Conclusive             | 2.00 (2.00 to 3.00) ‡    | 2.00 (2.00 to 3.00) ‡ | 6.00 (4.00 to 7.00) | <0.001 |
| Inconclusive           | 4.00 (4.00 to 5.00) ‡    | 4.00 (4.00 to 5.00) ‡ | 7.00 (6.00 to 7.00) | <0.001 |
| No opinion             | 4.00 (4.00 to 4.00) ‡    | 4.00 (4.00 to 4.00) ‡ | 6.00 (5.00 to 7.00) | <0.001 |
| p†                     | <0.001                   | <0.001                | 0.309               |        |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

Supplementary Table S10. Disgust depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)     | Non-medical (n=163) | P*    |
|------------------------|--------------------------|-----------------------|---------------------|-------|
| Conclusive             | 2.00 (2.00 to 2.00) ‡    | 2.00 (2.00 to 2.00) ‡ | 1.00 (0.77 to 3.00) | 0.275 |
| Inconclusive           | 3.00 (3.00 to 3.00)      | 3.00 (3.00 to 3.00)   | 2.00 (2.00 to 2.00) | 0.006 |
| No opinion             | 3.00 (2.00 to 3.00)      | 3.00 (3.00 to 3.00)   | 2.00 (2.00 to 2.00) | 0.003 |
| p†                     | <0.001                   | <0.001                | 0.243               |       |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

Supplementary Table S11. Fear depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)     | Non-medical (n=163) | P*    |
|------------------------|--------------------------|-----------------------|---------------------|-------|
| Conclusive             | 4.00 (4.00 to 4.00) ‡    | 4.00 (4.00 to 4.00) ‡ | 4.00 (1.77 to 6.23) | 0.932 |
| Inconclusive           | 6.00 (6.00 to 6.00)      | 6.00 (6.00 to 6.00)   | 5.00 (4.13 to 6.00) | 0.019 |
| No opinion             | 6.00 (6.00 to 6.00)      | 6.00 (6.00 to 6.00)   | 5.00 (3.00 to 6.00) | 0.036 |
| p†                     | <0.001                   | <0.001                | 0.443               |       |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

Supplementary Table S12. Joy depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)     | Non-medical (n=163) | P*     |
|------------------------|--------------------------|-----------------------|---------------------|--------|
| Conclusive             | 2.00 (2.00 to 2.00) ‡    | 2.00 (2.00 to 2.00) ‡ | 3.00 (2.00 to 5.23) | <0.001 |
| Inconclusive           | 3.00 (3.00 to 3.00) ‡    | 3.00 (3.00 to 3.00)   | 4.00 (4.00 to 5.00) | <0.001 |
| No opinion             | 3.00 (3.00 to 3.00) ‡    | 3.00 (3.00 to 3.00)   | 4.00 (3.00 to 5.00) | <0.001 |
| p†                     | <0.001                   | <0.001                | 0.475               |        |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

Supplementary Table S13. Sadness depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)     | Non-medical (n=163) | P*           |
|------------------------|--------------------------|-----------------------|---------------------|--------------|
| Conclusive             | 3.00 (3.00 to 3.00) ‡    | 3.00 (3.00 to 3.00) ‡ | 4.00 (3.00 to 5.00) | <b>0.044</b> |
| Inconclusive           | 5.00 (5.00 to 5.00)      | 5.00 (5.00 to 5.00)   | 5.00 (4.00 to 5.88) | 0.834        |
| No opinion             | 5.00 (5.00 to 5.00)      | 5.00 (5.00 to 5.00)   | 5.00 (4.00 to 6.00) | 0.828        |
| p†                     | <b>&lt;0.001</b>         | <b>&lt;0.001</b>      | 0.234               |              |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

Supplementary Table S14. Surprise depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)     | Non-medical (n=163)   | P*           |
|------------------------|--------------------------|-----------------------|-----------------------|--------------|
| Conclusive             | 1.00 (1.00 to 1.00) ‡    | 1.00 (1.00 to 1.00) ‡ | 1.00 (0.00 to 2.00)   | 0.385        |
| Inconclusive           | 2.00 (2.00 to 2.00)      | 2.00 (2.00 to 2.00)   | 2.00 (2.00 to 2.00)   | <b>0.006</b> |
| No opinion             | 2.00 (2.00 to 2.00)      | 2.00 (2.00 to 2.00)   | 2.00 (1.00 to 3.00) ‡ | 0.170        |
| p†                     | <b>&lt;0.001</b>         | <b>&lt;0.001</b>      | <b>0.010</b>          |              |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

Supplementary Table S15. Trust depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)     | Non-medical (n=163)      | P*               |
|------------------------|--------------------------|-----------------------|--------------------------|------------------|
| Conclusive             | 3.00 (3.00 to 4.00) ‡    | 3.00 (3.00 to 4.00) ‡ | 13.00 (11.00 to 16.00) § | <b>&lt;0.001</b> |
| Inconclusive           | 6.00 (6.00 to 7.00)      | 6.00 (6.00 to 6.00)   | 10.50 (9.13 to 12.00)    | <b>&lt;0.001</b> |
| No opinion             | 6.00 (6.00 to 6.00)      | 6.00 (6.00 to 6.00)   | 11.50 (10.00 to 14.00)   | <b>&lt;0.001</b> |
| p†                     | <b>&lt;0.001</b>         | <b>&lt;0.001</b>      | 0.050                    |                  |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

§Statistically significant from inconclusive group

Supplementary Table S16. Negative attitude depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)     | Non-medical (n=163)    | P*           |
|------------------------|--------------------------|-----------------------|------------------------|--------------|
| Conclusive             | 6.00 (5.00 to 6.00) ‡    | 6.00 (5.00 to 6.00) ‡ | 7.00 (6.00 to 10.00) § | <b>0.003</b> |
| Inconclusive           | 9.00 (9.00 to 9.00)      | 9.00 (9.00 to 9.00)   | 11.00 (9.13 to 12.00)  | <b>0.001</b> |
| No opinion             | 9.00 (9.00 to 9.00)      | 9.00 (9.00 to 9.00)   | 10.00 (8.19 to 11.82)  | 0.097        |
| p†                     | <b>&lt;0.001</b>         | <b>&lt;0.001</b>      | <b>0.026</b>           |              |

\*Mann-Whitney test.

†Kruskal-Wallis test.

‡Statistically significant from other groups

§Statistically significant from inconclusive group

Supplementary Table S17. Positive attitude depending on the conclusiveness category

| Variables (Md. 95% CI) | Overall sample (n=8,637) | Medical (n=8,474)        | Non-medical (n=163)    | P*     |
|------------------------|--------------------------|--------------------------|------------------------|--------|
| Conclusive             | 7.00 (6.00 to 7.00) ‡    | 6.00 (6.00 to 7.00) ‡    | 21.00 (19.77 to 27.23) | <0.001 |
| Inconclusive           | 14.00 (13.00 to 14.00) ‡ | 14.00 (13.00 to 14.00) ‡ | 22.00 (20.00 to 23.00) | <0.001 |
| No opinion             | 13.00 (13.00 to 13.00) ‡ | 13.00 (13.00 to 13.00) ‡ | 23.00 (19.19 to 25.82) | <0.001 |
| p†                     | <0.001‡                  | <0.001‡                  | 0.581                  |        |

\*Mann-Whitney test.

†Kruskal-Wallis test.

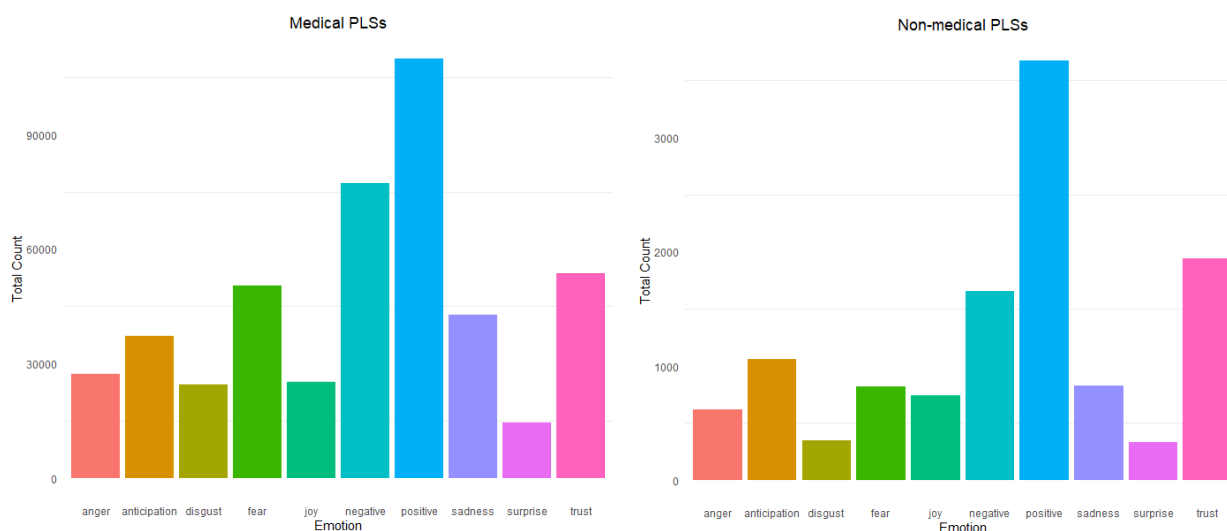
‡Statistically significant from other groups

Supplementary Table S18. Scores for both groups for all measured variables

|                  | Medical PLSs (n=8,474) Md (95% CI) | Non-Medical PLSs (n=163) Md (95% CI) | P*     |
|------------------|------------------------------------|--------------------------------------|--------|
| SMOG index       | 15.51 (15.47 to 15.58)             | 15.23 (14.94 to 15.50)               | 0.010  |
| Analytic         | 91.76 (91.57 to 91.97)             | 91.22 (90.56 to 92.24)               | 0.788  |
| Clout            | 32.62 (32.19 to 33.04)             | 33.41 (31.25 to 36.95)               | 0.042  |
| Authentic        | 44.29 (43.87 to 44.97)             | 47.81 (44.68 to 50.04)               | 0.057  |
| Emotion          | 30.46 (29.89 to 31.01)             | 43.06 (37.80 to 48.38)               | <0.001 |
| Word count       | 345 (340 to 351)                   | 603 (583.01 to 622.49)               | <0.001 |
| Anger            | 3.00 (3.00 to 3.00)                | 3.00 (3.00 to 4.00)                  | 0.001  |
| Anticipation     | 4.00 (4.00 to 4.00)                | 6.00 (6.00 to 7.00)                  | <0.001 |
| Disgust          | 3.00 (2.00 to 3.00)                | 2.00 (2.00 to 2.00)                  | <0.001 |
| Fear             | 6.00 (6.00 to 6.00)                | 5.00 (4.00 to 5.00)                  | 0.002  |
| Joy              | 3.00 (3.00 to 3.00)                | 4.00 (4.00 to 5.00)                  | <0.001 |
| Sadness          | 5.00 (5.00 to 5.00)                | 5.00 (4.00 to 5.00)                  | 0.789  |
| Surprise         | 1.50 (1.00 to 2.00)                | 2.00 (1.00 to 2.00)                  | 0.012  |
| Trust            | 6.00 (6.00 to 6.00)                | 11.00 (10.00 to 12.00)               | <0.001 |
| Positive valence | 13.00 (12.00 to 13.00)             | 22.00 (20.00 to 23.00)               | <0.001 |
| Negative valence | 9.00 (8.00 to 9.00)                | 10.00 (9.00 to 11.00)                | <0.001 |

\*Mann-Whitney test

Supplementary Figure S1. Total word count for each sentiment category for medical and non-medical PLSs.





Supplementary Table S19. STROBE Statement—Checklist of items that should be included in reports of *cross-sectional studies*

|                              | Item No | Recommendation   | Page          |
|------------------------------|---------|--|---------------|
| <b>Title and abstract</b>    | 1       | (a) Indicate the study's design with a commonly used term in the title or the abstract   | 1             |
|                              |         | (b) Provide in the abstract an informative and balanced summary of what was done and what was found  | 2             |
| <b>Introduction</b>          |         |  |               |
| Background/rationale         | 2       | Explain the scientific background and rationale for the investigation being reported   | 3-6           |
| Objectives                   | 3       | State specific objectives, including any prespecified hypotheses   | 6             |
| <b>Methods</b>               |         |  |               |
| Study design                 | 4       | Present key elements of study design early in the paper  | 13            |
| Setting                      | 5       | Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection  | 13-14         |
| Participants                 | 6       | (a) Give the eligibility criteria, and the sources and methods of selection of participants  | 13            |
| Variables                    | 7       | Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable   | 14-16         |
| Data sources/<br>measurement | 8*      | For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group                         | 14-16         |
| Bias                         | 9       | Describe any efforts to address potential sources of bias  | 11            |
| Study size                   | 10      | Explain how the study size was arrived at  | NA            |
| Quantitative variables       | 11      | Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why   | 16-17         |
| Statistical methods          | 12      | (a) Describe all statistical methods, including those used to control for confounding  | 16-17         |
|                              |         | (b) Describe any methods used to examine subgroups and interactions  | NA            |
|                              |         | (c) Explain how missing data were addressed  | NA            |
|                              |         | (d) If applicable, describe analytical methods taking account of sampling strategy   | NA            |
|                              |         | (e) Describe any sensitivity analyses  | NA            |
| <b>Results</b>               |         |  |               |
| Participants                 | 13*     | (a) Report numbers of individuals at each stage of study—eg numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed            | 6-7           |
|                              |         | (b) Give reasons for non-participation at each stage   | 6-7           |
|                              |         | (c) Consider use of a flow diagram   | 7             |
| Descriptive data             | 14*     | (a) Give characteristics of study participants (eg demographic, clinical, social) and information on exposures and potential confounders   | NA            |
|                              |         | (b) Indicate number of participants with missing data for each variable of interest  | NA            |
| Outcome data                 | 15*     | Report numbers of outcome events or summary measures   | 7-8           |
| Main results                 | 16      | (a) Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (eg, 95% confidence interval). Make clear which confounders were adjusted for and why they were included | 7-8<br>Suppl. |
|                              |         | (b) Report category boundaries when continuous variables were categorized  | NA            |



|                          |    |  |      |
|--------------------------|----|--|------|
|                          |    | (c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period   | NA   |
| Other analyses           | 17 | Report other analyses done—eg analyses of subgroups and interactions, and sensitivity analyses   | 8    |
| <b>Discussion</b>        |    |  |      |
| Key results              | 18 | Summarise key results with reference to study objectives   | 8-11 |
| Limitations              | 19 | Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias                 | 11   |
| Interpretation           | 20 | Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence | 12   |
| Generalisability         | 21 | Discuss the generalisability (external validity) of the study results  | 12   |
| <b>Other information</b> |    |  |      |
| Funding                  | 22 | Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based              | 22   |

**Note:** An Explanation and Elaboration article discusses each checklist item and gives methodological background and published examples of transparent reporting. The STROBE checklist is best used in conjunction with this article (freely available on the Web sites of PLoS Medicine at <http://www.plosmedicine.org/>, Annals of Internal Medicine at <http://www.annals.org/>, and Epidemiology at <http://www.epidem.com/>). Information on the STROBE Initiative is available at [www.strobe-statement.org](http://www.strobe-statement.org).