Appendix 1 (as supplied by the authors): Supplemental material

Supplemental Table S1: Guideline groups and panelists involved in item generation surveys

Guideline Organization	Number of Respondents
Kingdom of Saudi Arabia Ministry of Health Guidelines 2014	38
World Health Organization 2013	10
World Health Organization 2014	11
ATS/ERS/JRS/ALAT Clinical Practice Guideline: Treatment of Idiopathic Pulmonary Fibrosis 2014	3

Supplemental Table S2: Key informants involved in item reduction and item and response phrasing

Sampling	Number of Respondents	Previously Participated in a Guideline (%)	Field of Work*				
			Clinical (%)	Research (%)	Administrative (%)	Policymaking (%)	Teaching (%)
Item Reduction							
WHO, WAO, CCO, EHIF panelists and methodologists	22	91	68	91	23	32	59
Item and Response Phrasing							
Guideline workshops and AGA panelists and methodologists	26	72	72	56	8	2	4

* participants were able to select more than one category

Abbreviations:
AGA - American Gastroenterological Association; CCO – Cancer Care Ontario; EHIF – Estonian Health Insurance Fund; WAO – World Allergy Organization; WHO – World Health Organization

Appendix to: Wiercioch W, Akl EA, Santesso N, et al. Assessing the process and outcome of the development of practice guidelines and recommendations: PANELVIEW instrument development. *CMAJ* 2020. doi: 10.1503/cmaj.200193.

Supplemental Table S3: Guideline panels involved in field testing the PANELVIEW tool

Guideline Organization	Guideline Topic	Date	Number of Respondents	Previously Participated in a Guideline (%)	Field of Work*				
					Clinical (%)	Research (%)	Administrative (%)	Policymaking (%)	Teaching (%)
National Hemophilia Foundation (*pilot guideline group*)	Care models for haemophilia management	July 7, 2015	12	33	67	67	42	17	50
AABB (*formerly American Association of Blood Banks)*	Red blood cell transfusion	January 7, 2016	14	93	86	64	29	21	36
American Dental Association	Sealants	January 22, 2016	8	38	88	75	63	25	63
Rheumatoid Arthritis Guideline Adaptation for the Eastern Mediterranean Region	Treatment of rheumatoid arthritis	May 27, 2016	17	47	94	65	47	0	59
RARE-Bestpractices	Sickle cell disease	July 11, 2016	8	75	75	88	38	0	63
McMaster RARE-Bestpractices	Catastrophic antiphospholipid syndrome	April 26, 2017	13	77	92	69	23	0	38
World Health Organization	Policy guidance on the use of delamanid in children	May 4, 2017	13	54	85	92	46	15	77
Rheumatoid Arthritis Guideline Adaptation for the Eastern Mediterranean Region – Panel 2	Treatment of rheumatoid arthritis	July 7, 2017	12	58	100	67	50	0	83
World Health Organization	Health workers guideline	December 15, 2017	9	11	33	44	56	56	67

* participants were able to select more than one category

Supplemental Table S4: Initial list of items and domains prior to item reduction

Administration
1. Logistical support provided for organization for the panel meeting(s) (e.g. scheduling of meeting, setting agenda, booking travel, processing of expenses)
2. Planning, preparatory meetings, conference calls prior to final panel meeting(s)
3. Location and venue for panel meeting(s)
4. Adequate time given for guideline group members to complete tasks (e.g. completing surveys, providing input, etc.) throughout development of the guideline
5. Adequate duration of panel meeting(s) and time allotted for all guideline questions to be discussed and recommendations to be formulated
6. Materials being sent in advance with adequate time to review the evidence summary and other material prior to panel meeting
7. Panel meeting(s) have clearly defined objectives and agenda
8. The number of meetings held throughout the development of the guideline
Training
9. Training received about the specific methodology and frameworks to be used to develop the guideline in preparation for panel meeting(s)
10. The purpose and objectives of the entire guideline development project are clearly communicated to the guideline development group members
11. Information is provided to ensure understanding of the overall process and steps that will be used to develop the guideline
Panel Chair
12. Panel Chair's subject matter knowledge and expertise
13. Clear communication by panel Chair; easy to understand
14. Time management at the panel meeting(s) by the Chair; following agenda, staying on task and ensuring completion
15. Chair's ability to facilitate discussion, keeping discussion on topic, providing direction and support for decision-making, and maintaining fidelity of the process
16. Chair's ability to establish atmosphere of support that ensures involvement of all panel members in discussion and free expression of opinions
17. Chair's ability to manage group process and dynamics, and awareness of social, power, and knowledge influences in the group
18. Chair's ability to provide methodological guidance during panel meeting and adhere to the outlined methods and process
Conflict of Interest
19. Panel members completing Declaration of Interests (e.g. COI)
20. Management of potential conflicts of interest (financial, academic) and influence of networks that group members might mobilize during discussion
21. Management of bias in panel members' interpretation of evidence and alignment with prior beliefs
22. Independence of panel's decisions from the sponsoring guideline development organization's potential interests and influence
23. Evidence synthesis (e.g. systematic review) completed independently
Methodology & Process
24. Rigour of the evidence synthesis

25. Use of evidence in the formulation of recommendations for the guideline
26. Having specific procedures and methodology guiding the development of the guideline (e.g. as outlined in a handbook)
27. Adherence to the agreed on guideline development process and methods
28. Guideline development process and methods are transparent and communicated clearly to guideline group members
29. Involvement of panel members in evidence synthesis and contributing information
30. Involvement of and consultation with key stakeholders
Scoping the Guideline
31. Involvement of **all** guideline development group members in prioritization of questions and scoping of the guideline
32. The method used to decide on the scope of the guideline (e.g. literature search, rating exercise, stakeholder consultation)
33. Final scope of the guideline clearly communicated to the guideline development group and agreement sought
Considering the Evidence and Contributing through Expertise
34. Methods for considering the evidence were consistent and transparent, such as through the use of a framework
35. Evidence summary is made available to panel members
36. The prepared evidence summary is transparent and usable for discussion (e.g. knowing where research evidence came from)
37. The quality of the evidence that is used to support the guideline recommendations
38. How evidence is considered and balanced with panel members' input and expert experience
39. The method or process that is used for decision-making in the absence of evidence, or with insufficient evidence
40. The method or process that is used for decision-making with low quality evidence
41. Appropriate consideration is given to all relevant types of evidence
42. Panel members able to provide input and contribute through own expertise and experience
43. How patients' views, perspectives, values, preferences are considered
Formulating the Recommendations
44. The method for formulating the recommendations, such as the use of a framework
45. Transparency of judgements made and providing underlying assumptions and extent of agreement in formulating recommendations
46. Considering setting-specific healthcare factors in formulating the guideline recommendations
47. Considering individual patients' needs and goals when formulating the recommendations
48. Considering the acceptability of the recommendations by end users
49. Considering policy implications and how recommendations are formulated for politically contentious topics
50. Considering the potential of recommendations to impact system change
51. The approach used for wording the recommendation statements
52. Agreement by all panel members on the final recommendations
53. Sufficient explanation of the formulated recommendations to all panel members
54. Transparency of the process from going from the panel's recommendation to the final recommendation that appears in the guideline report
55. No changes being to the recommendations after the panel meeting or when agreement was reached

Consensus
56. The consensus method used by the panel is appropriate, allowing for consensus with diversity of views and not disguising disagreement
57. The panel's ability to reach consensus
58. There is awareness of potential compliance that may lead to spurious consensus
Group Composition
59. The structure of the guideline development group (e.g. may involve a steering committee for logistical and administrative support, patient representatives, internal and external stakeholder, etc.)
60. Diversity in membership and adequate representation of backgrounds and specialties in the panel composition
61. The levels and balance of expertise and methodological support in the panel composition
62. Having patient representatives on the panel
63. Group size is less than 20 members
Group Roles
64. Group members' roles, responsibilities, and tasks are made clear
65. The amount of workload and responsibilities for group members
66. Attendance of all members in the panel meeting(s) (e.g. essential expertise not missing due to panel members' absence)
67. Appropriate involvement of group members throughout the guideline development process
68. Group members adhering to assigned roles and rules
69. Appropriate contribution of group members based on their roles, knowledge and expertise
70. Contributions of all guideline group members are valued
Group Interaction
71. Having environment for open discussion in the panel meeting, with equal opportunity given to all members to contribute to discussion and speak freely
72. Views of all panel members paid attention to and taken into consideration in panel meeting(s)
73. Opportunity given for development of interpersonal relationships and establishment of group norms
74. Mutually respectful relationships fostered between guideline group members
75. Avoiding feeling of need to comply, or abide due to status of some group members and views of authority figure or member with most expertise or confidence
76. Individual group or panel members not dominating the discussion
77. Having opportunity for face-to-face discussion
Group Communication
78. Communication and conduct of meeting(s) is friendly and professional
79. Method of communication with the guideline development group is appropriate and communication is clear
80. Frequency of communication with the guideline development group is appropriate
Incentive
81. There are appropriate incentives for participation in the guideline project
82. Appropriate credit is given for contributions of guideline group members
83. Compensation for involvement in guideline development project
84. There is a perception that involvement in the guideline project will have an impact on health of people
Writing the Guideline
85. How the writing of the guideline is completed

86. Providing input into the draft of the guideline
87. Planning and conducting peer review of the guideline
88. Sufficient time to review the written guideline
Implementation and Dissemination Planning
89. Identification and discussion of research gaps and needs for future research
90. Planning for the dissemination of the guideline
91. Planning for the implementation of the guideline and considering barriers
92. Planning for the assessment of the impact of the guideline
93. There is discussion and agreement about the format(s) of the guideline (e.g. formats for different end users, such as clinician and patient versions, decision on inclusion of care pathways)
Follow-up and Next Steps
94. Evaluation of the guideline development process and feedback from guideline group members
95. Outline for next steps and follow-up clearly communicated to guideline group members

Supplemental Table S5: Generalizability analysis for the PANELVIEW tool

Facet	Variance (%)	Interpretation
Panel	0.013 (28)	Variance due to differences between guideline panels
Participants:Panel	0.026 (55)	Variance due to differences between panel members within a panel
Domain	0.002 (4)	Variance due to differences between questionnaire domains
Item:Domain	0.002 (4)	Variance due to differences between items within domains
Panel*Domain	0 (0)	Variance due to differences between domains for any panel
Panel*Item:Domain	0.002 (4)	Variance due to differences between items within domains for any panel
Participants:Panel*Domain	0.001 (2)	Variance due to differences between domains for panel members within panels
Participants:Panel*Item:Domain	0.001 (2)	Variance due to differences between items within domains for panel members within panels
	G	**Interpretation**
Overall generalizability coefficient:	0.35	Overall test reliability to differentiate between panel processes

The generalizability analysis was used to determine the extent to which specific variables (i.e. facets) contribute to the PANELVIEW overall scores. This is represented by the proportion of variance accounted for by each facet. Panel members within a specific panel accounted for the largest proportion of the difference in PANELVIEW scores (55%), while differences in scores between panels accounted for the second largest proportion (28%). PANELVIEW survey domains and items within the domains accounted for a small but non-negligible (4%) proportion of the difference in scores. The overall generalizability coefficient represents the extent to which the PANELVIEW scores can differentiate between panel processes (i.e. those viewed overall as appropriate and satisfactory versus those that are not).

* refers to interaction terms, : refers to nesting of facets within one another (e.g. participants within a guideline panel)

Supplemental Figure S1: Search strategies

Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily and Ovid MEDLINE(R) 1946 to Present **Search Strategy: search terms [number of results]**
1 (guideline* adj4 develop*).ti,ab. (21336)
2 (guideline* adj4 process*).ti,ab. (2472)
3 program development/ (28171)
4 guidelines as topic/ or practice guidelines as topic/ (151293)
5 4 and (1 or 2 or 3) (8570)
6 (satisf* or impression* or challenge* or perception* or barrier*).ti,ab. (1396086)
7 attitude*.mp. (407542)
8 6 or 7 (1703467)
9 (participant* or expert* or panel*).ti,ab. (1000160)
10 5 and 8 and 9 (441)
Database: Embase 1974 to Present **Search Strategy: search terms [number of results]**
1 (satisf* or impression* or challenge* or perception* or barrier*).ti,ab. (1762953)
2 attitude*.mp. (499561)
3 1 or 2 (2145587)
4 (participant* or expert* or panel*).ti,ab. (1364650)
5 exp practice guideline/ (523532)
6 (guideline* adj4 develop*).ti,ab. (30241)
7 (guideline* adj4 process*).ti,ab. (3539)
8 6 or 7 (32482)
9 3 and 4 and 5 and 8 (825)

Supplemental Box S1: Literature review methods

We included for data abstraction:

- Qualitative or quantitative studies describing evaluation of the guideline development process
- Qualitative or quantitative studies involving interviews or surveys of panelists on their guideline participation experience

Titles and abstracts and full texts of the identified studies were screened independently in duplicate (WW and TB) for inclusion for data abstraction, with disagreements resolved by a third reviewer. We also screened reference lists of included studies.

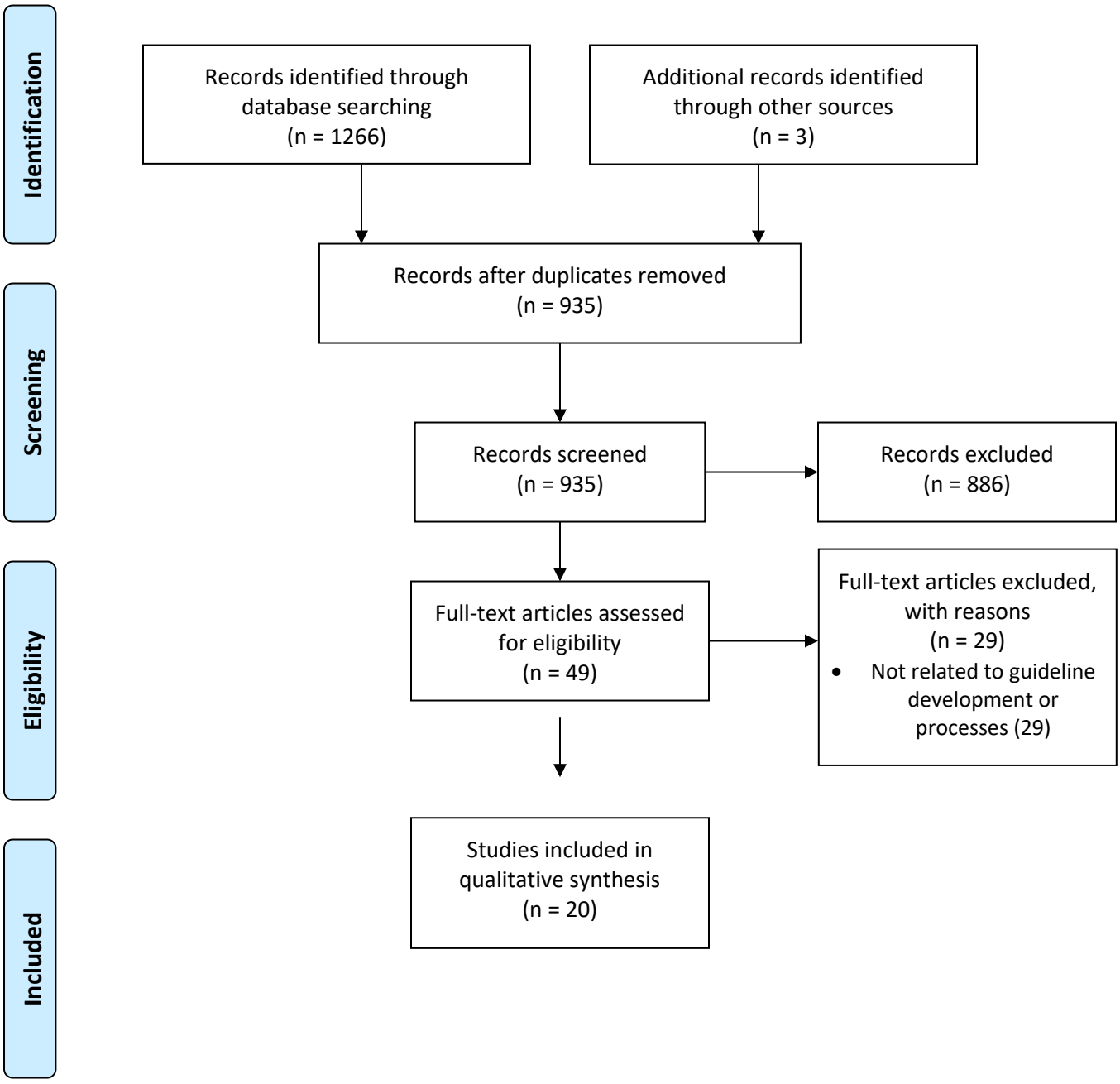
Supplemental Figure S2: Item generation survey questions

Panel members participating in guideline panel meetings were approached to provide their feedback about the process they participated in after the meetings adjourned. They were asked to evaluate the process they participated in by responding to the following questions with free-text comments:

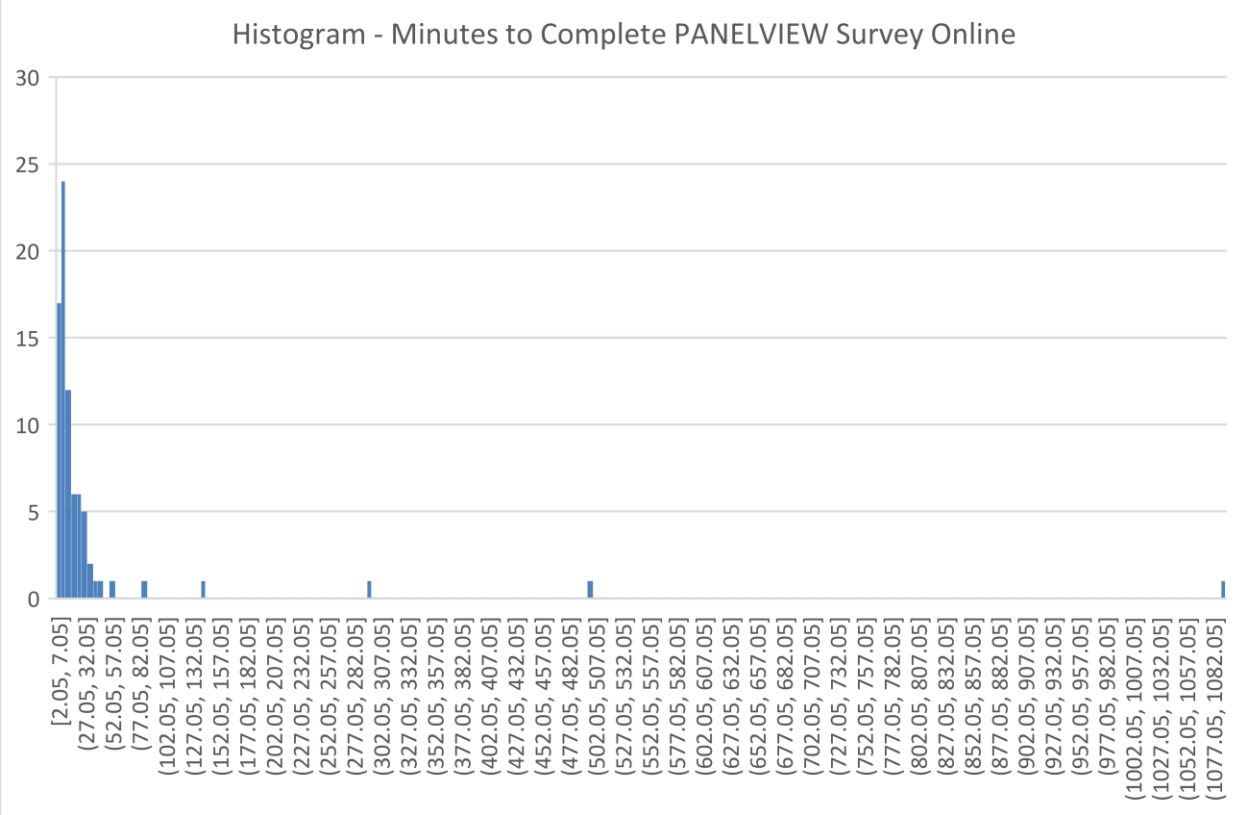
Survey Questions:

1. What were the steps taken during the meeting that helped along the way and made you satisfied with the process?
2. What were the steps taken prior to the meeting throughout the guideline development process that helped along the way and made you satisfied with the process?
3. Were there any issues that made you dissatisfied with the meeting or the overall guideline development process?
4. Please provide your overall impressions of today's meeting and the entire guideline development process. Is there anything else that was done well or wasn't done well? What do you think are the most important parts of the guideline development process that ensure guideline panel members are satisfied? Please specify.
5. Given what you have covered above, what would you identify as the most important steps of the guideline development process that ensure guideline panel members are satisfied?
6. Is there anything else specific to the guideline development process and panel members' satisfaction or any other aspects you would like to mention?

Supplemental Figure S3: PRISMA flow diagram for item generation systematic review



Supplemental Figure S4: Time to complete the PANELVIEW survey online



The median time for 80 respondents to complete the PANELVIEW survey was 12 minutes. Removing 12 outliers with a recorded completion time of 30 minutes or longer, who presumably took a break while completing the questionnaire, the median time to complete the survey was 10 minutes and the mean time was 12 minutes.

Supplemental Figure S5: Generalizability analysis model

Abbreviations: group (g), participants (p), domain (d), item (i)

ANOVA TABLE

Effect	df	T	SS	MS	VC
g	7	112.98131	112.98131	16.14019	0.01267
p:g	86	1009.17561	896.19430	10.42086	0.28621
d	14	139.78726	139.78725	9.98480	0.01869
i:d	19	249.58278	109.79553	5.77871	0.05064
gd	98	378.62434	125.85578	1.28424	0.00392
gi:d	133	618.22949	129.80962	0.97601	0.04870
pd:g	1204	2016.78894	741.97030	0.61625	0.09356
pi:gd	1634	2924.85598	668.46189	0.40910	0.40910
Mean		0.00000			
Total	3195		2924.85598		

The calculated grand mean = 6.2560
This value has been subtracted from the actual scores for the calculations.

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Facets

'g'	Differentiation
'p'	Random
'd'	Fixed
'i'	Fixed

Pattern	Var. Comp.	Levels	Signature	Rule
g	0.013	1.00	d	tau only
p:g	0.026	10.98	dr	Delta and delta
d	0.002	11.33	f	does not contribute
i:d	0.002	25.72	f	does not contribute
g|d	0.000	11.33	df	tau only
g|i:d	0.002	25.72	df	tau only
p:g|d	0.001	10.98 * 11.33	dfr	Delta and delta
p:g|i:d	0.001	10.98 * 25.72	dfr	Delta and delta

RESULTS:
s2(T) = 0.015
s2(D) = 0.028
s2(d) = 0.028
Er2 = 0.345
Phi = 0.345

$$\textit{G-coefficient} = \frac{\sigma_g^2 + \sigma_d^2 + \sigma_{i:d}^2}{\sigma_g^2 + \sigma_d^2 + \sigma_{i:d}^2 + \sigma_{p:g}^2 + \sigma_{p:g|d}^2 + \sigma_{p:g|i:d}^2}$$