Supplementary material 2. Regression of expert consensus on links from systematic review for individual MoAs.

This supplement shows the individual data points and regressions lines from the multilevel models regressing expert consensus on links established from the sytematic literature review. The regression lines are from the analyses excluding the cases where a BCT was detected but no link to a MoA was proposed in the paper (i.e., when p=1 for the link). Figures 1a-25a show the results for occasions when the experts indicated whether they thought there was a link (YES responses) and Figures 1b-25b when they thought there was no link (NO responses). Twenty five of the 26 possible MoAs were found in the literature review. The data points show the identifier for each BCT. The BCTs with p=1 in the literature review are shown, but as stated, were not included in the analyses. It should be recalled that the regression lines are derived from a multilevel analysis and when there are very few data points (e.g., Figures 19 (Needs) and 24 (General attitudes)) the regression lines will be pulled towards the overall regression line because of residual shrinkage. Regression lines based solely on the data for the specific MoA are unlikely to be accurate when numbers are so low.

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Table 1. Behaviour Change Technique Taxonomy v1 (BCTTv1) Identifier Codes

BCTTv1 CODE	BCT NAME
1.1	Goal setting (behaviour)
1.2	Problem solving
1.3	Goal setting (outcome)
1.4	Action planning
1.5	Review behaviour goals
1.6	Discrepancy between current behaviour and goal
1.7	Review outcome goals
1.8	Behavioural contract
1.9	Commitment
2.1	Monitoring of behaviour by others without feedback
2.2	Feedback on behaviour
2.3	Self-monitoring of behaviour
2.4	Self-monitoring of outcomes of behaviour
2.5	Monitoring of outcomes of behaviour without feedback
2.6	Biofeedback
2.7	Feedback on outcomes of behaviour
3.1	Social support (unspecified)
3.2	Social support (practical)
3.3	Social support (emotional)
4.1	Instruction on how to perform the behaviour
4.2	Information about Antecedents
4.3	Re-attribution
4.4	Behavioural experiments
5.1	Information about health consequences
5.2	Salience of consequences
5.3	Information about social and environmental consequences

5.4	Monitoring of emotional consequences	
5.5	Anticipated regret	
5.6	Information about emotional consequences	
6.1	Demonstration of the behaviour	
6.2	Social comparison	
6.3	Information about other's approval	
7.1	Prompts/cues	
7.2	Cue signalling reward	
7.3	Reduce prompts/cues	
7.4	Remove access to the reward	
7.5	Remove aversive stimulus	
7.6	Satiation	
7.7	Exposure	
7.8	Associative learning	
8.1	Behavioural practice/rehearsal	
8.2	Behaviour substitution	
8.3	Habit formation	
8.4	Habit reversal	
8.5	Overcorrection	
8.6	Generalisation of the target behaviour	
8.7	Graded tasks	
9.1	Credible source	
9.2	Pros and cons	
9.3	Comparative imagining of future outcomes	
10.1	Material incentive (behaviour)	
10.2	Material reward (behaviour)	
10.3	Non-specific reward	
10.4	Social reward	
10.5	Social incentive	
10.6	Non-specific incentive	

10.7	Self-incentive
10.8	Incentive (outcome)
10.9	Self-reward
10.10	Reward (outcome)
10.11	Future punishment
11.1	Pharmacological support
11.2	Reduce negative emotions
11.3	Conserving mental resources
11.4	Paradoxical instructions
12.1	Restructuring the physical environment
12.2	Restructuring the social environment
12.3	Avoidance/reducing exposure to cues for the behaviour
12.4	Distraction
12.5	Adding objects to the environment
12.6	Body changes
13.1	Identification of self as role model
13.2	Framing/reframing
13.3	Incompatible beliefs
13.4	Valued self-identity
13.5	Identity associated with changed behaviour
14.1	Behaviour cost
14.2	Punishment
14.3	Remove reward
14.4	Reward approximation
14.5	Rewarding completion
14.6	Situation-specific reward
14.7	Reward incompatible behaviour
14.8	Reward alternative behaviour
14.9	Reduce reward frequency
14.10	Remove punishment

| 15.1	Verbal persuasion about capability
15.2	Mental rehearsal of successful performance
15.3	Focus on past success
15.4	Self-talk
16.1	Imaginary punishment
16.2	Imaginary reward
16.3	Vicarious consequences
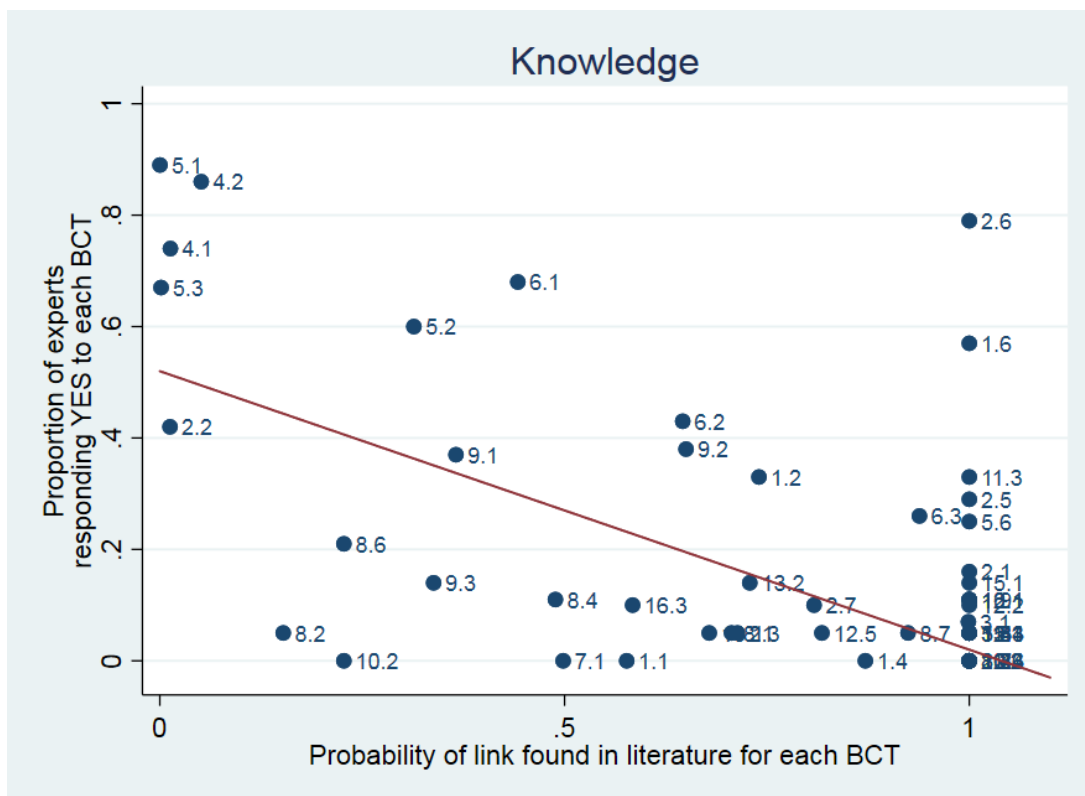
Figure 1a. Relation between literature and expert consensus when links between BCTs and MoA "Knowledge" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
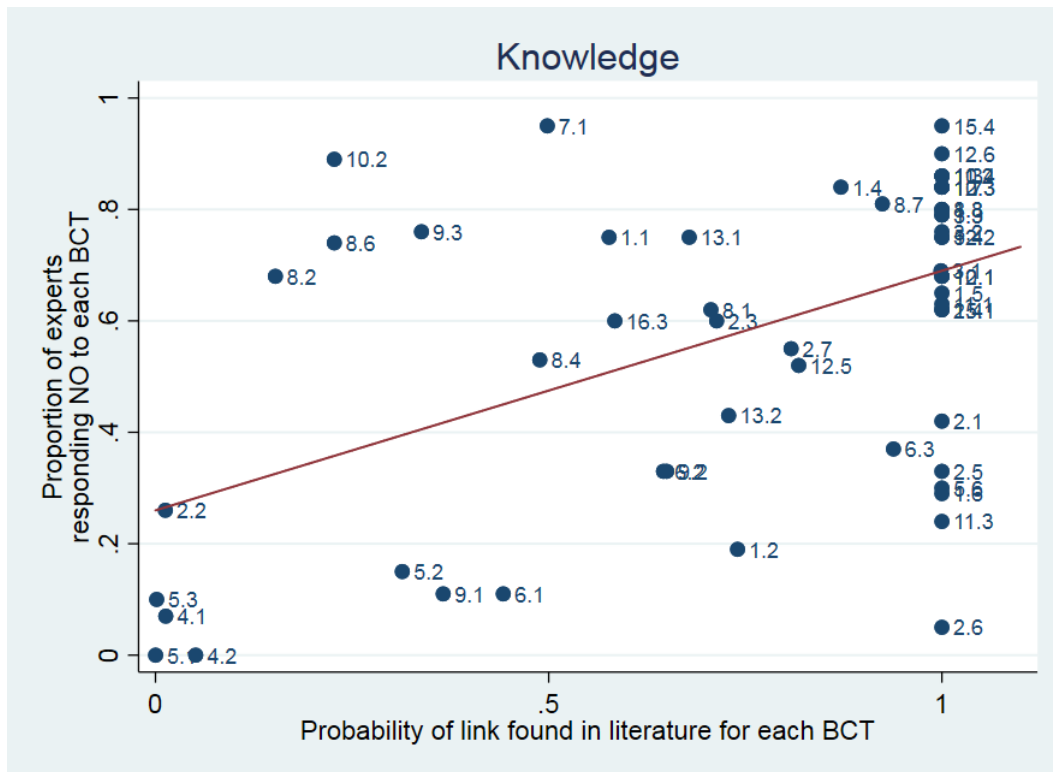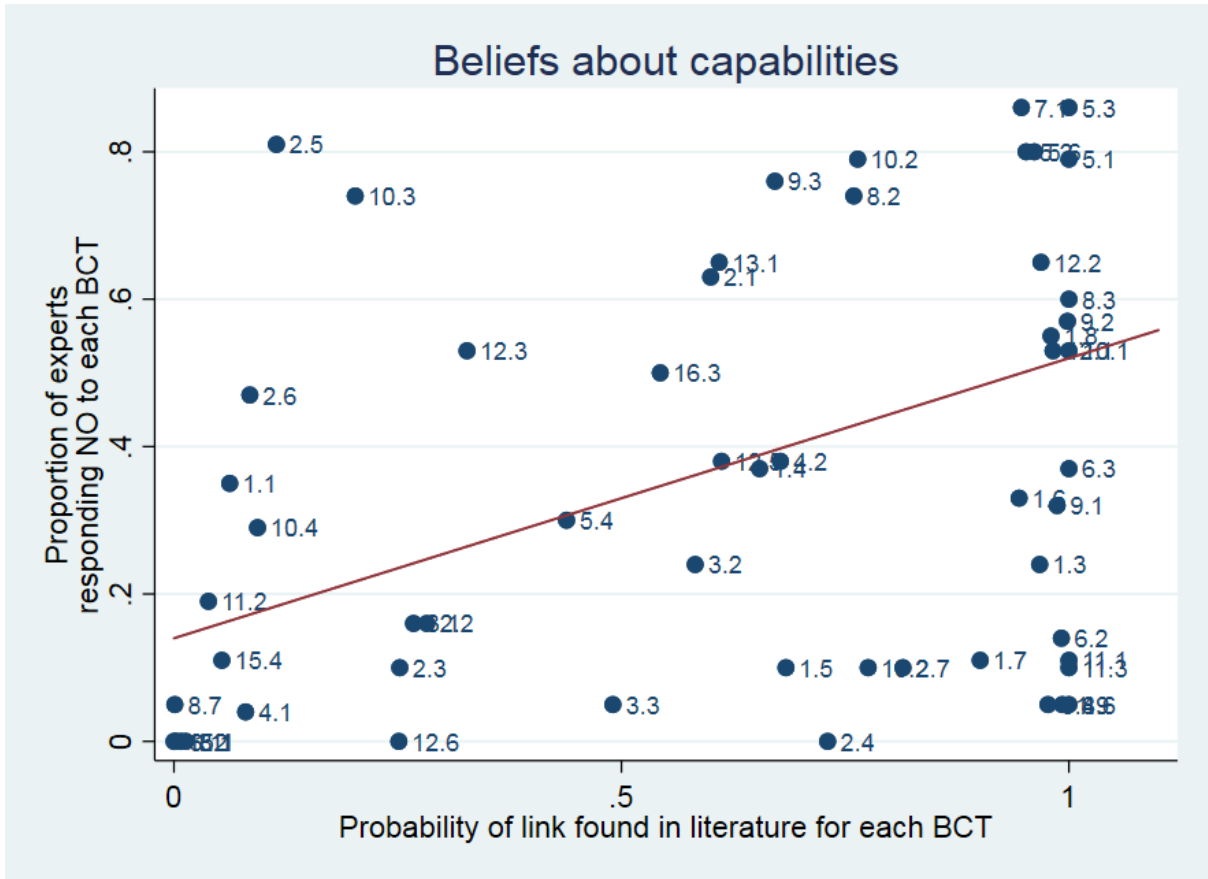
Figure 1b. Relation between literature and expert consensus when no links between BCTs and MoA "Knowledge" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
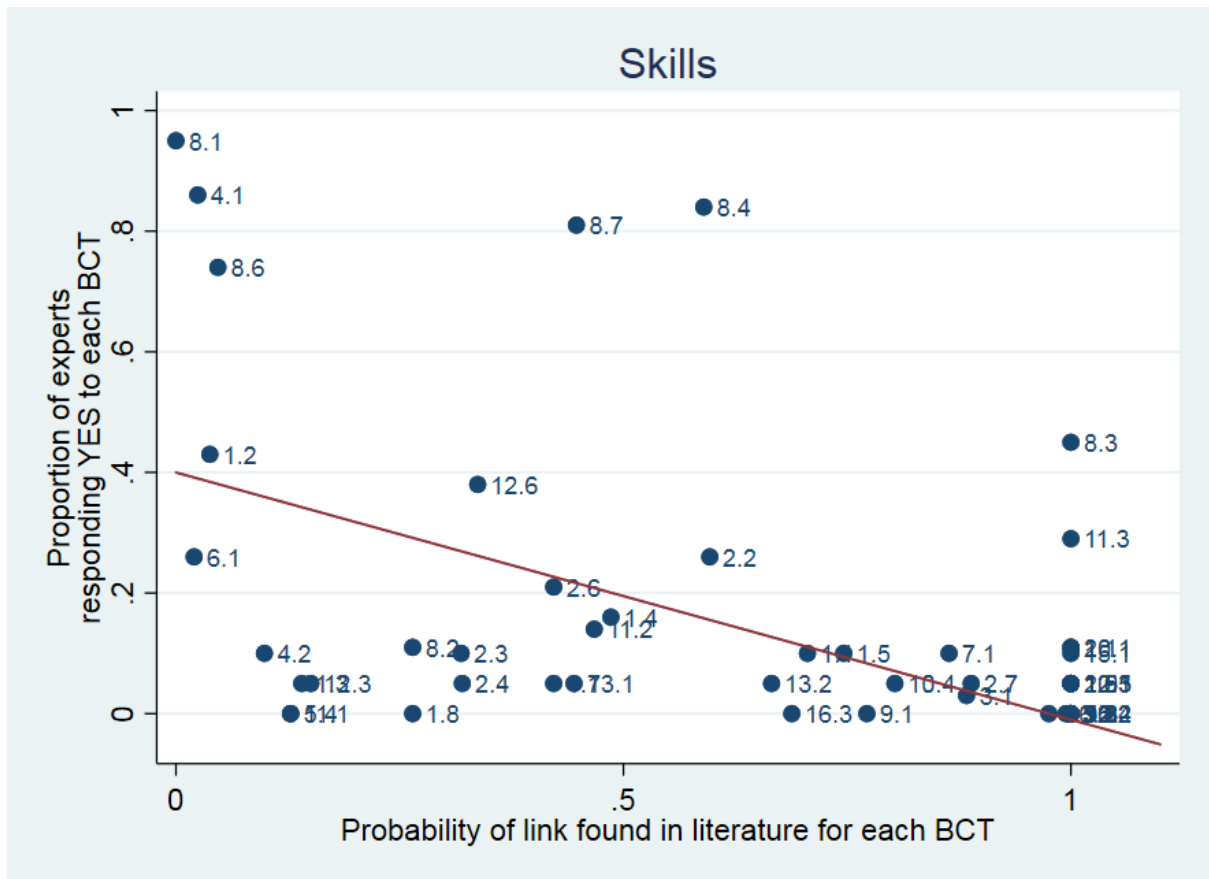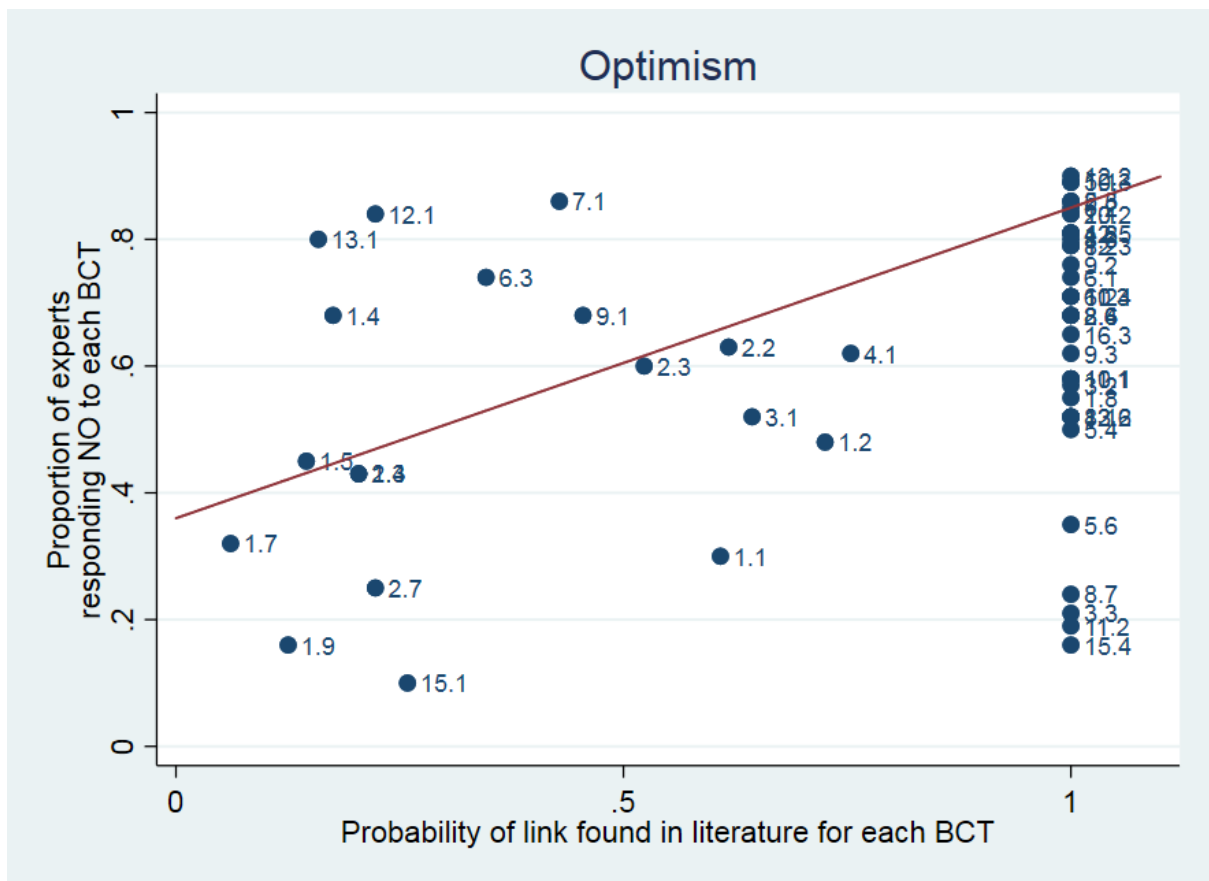
Figure 2a. Relation between literature and expert consensus when links between BCTs and MoA "Skills" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
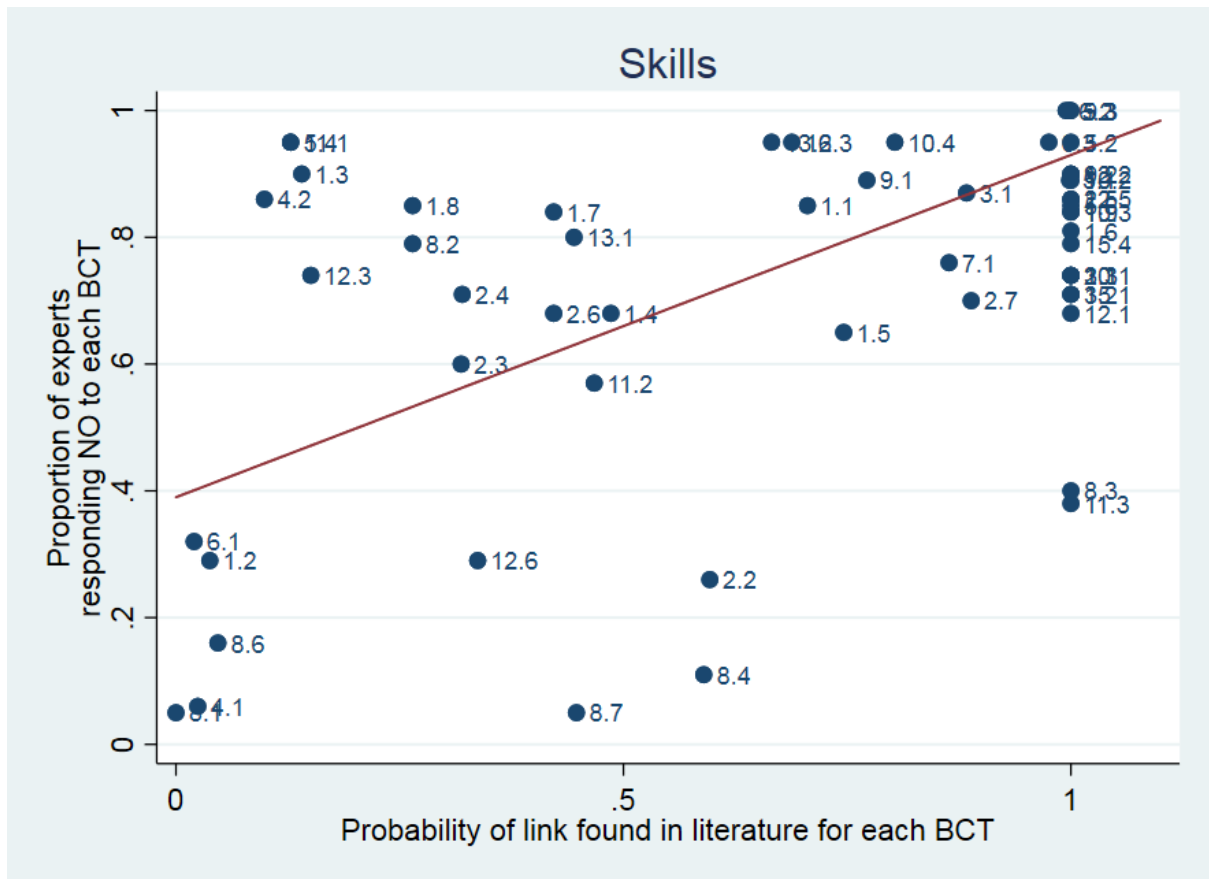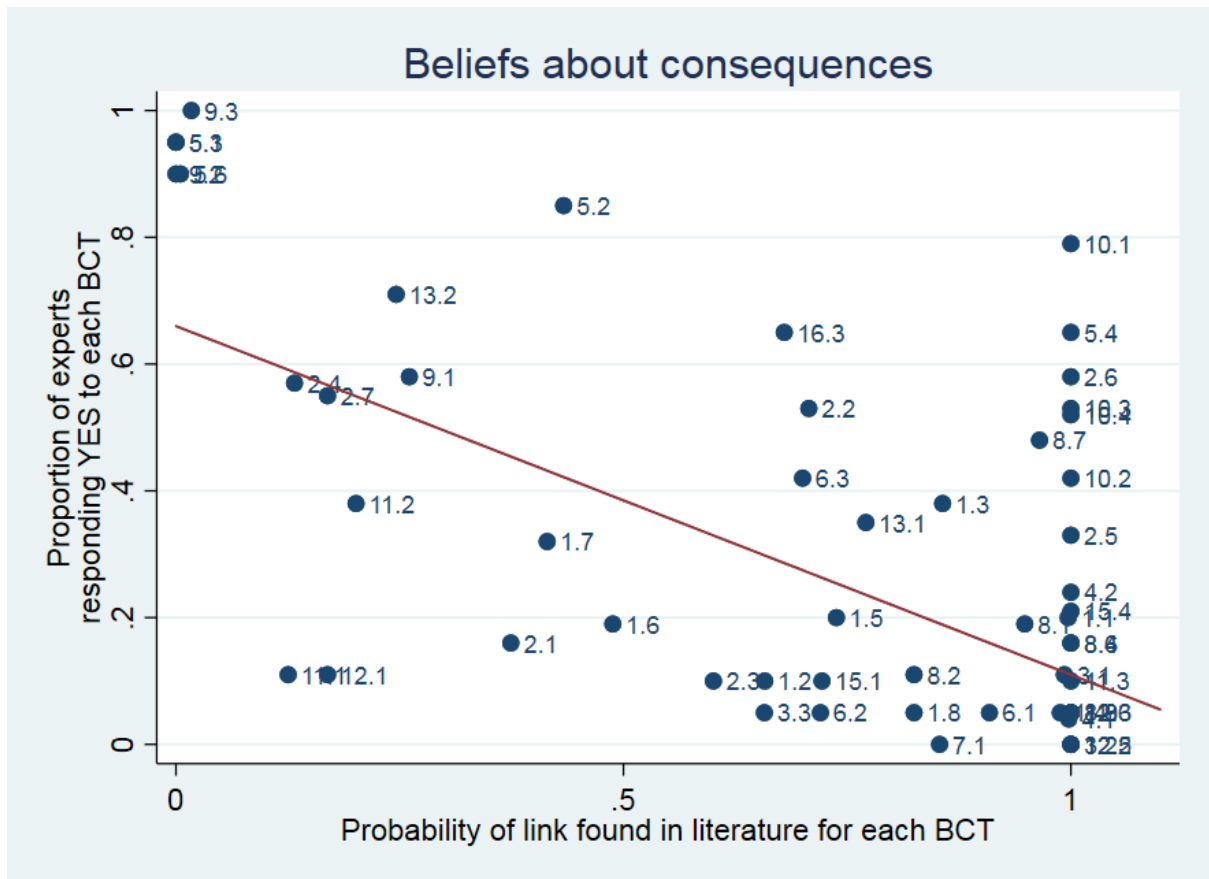
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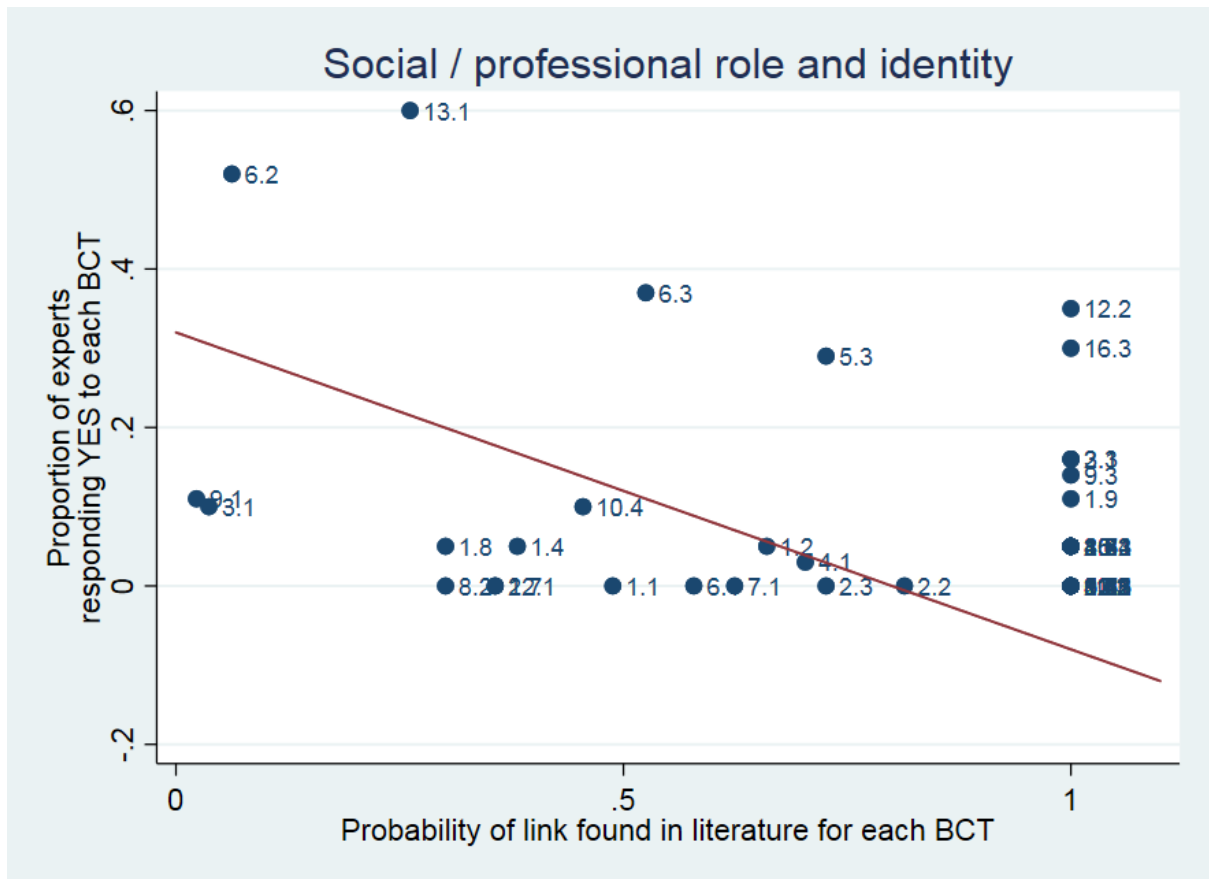
Figure 3a. Relation between literature and expert consensus when links between BCTs and MoA "Social/professional role and identity" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
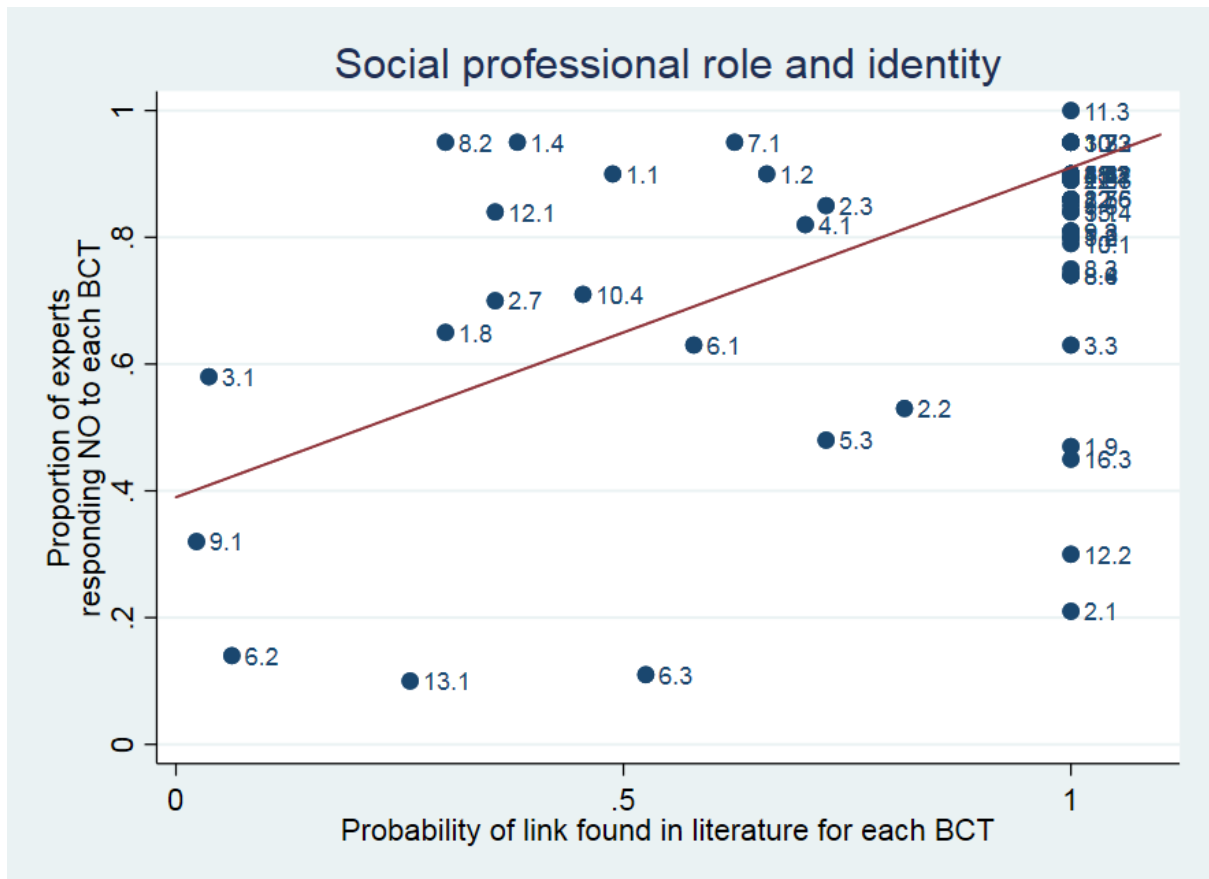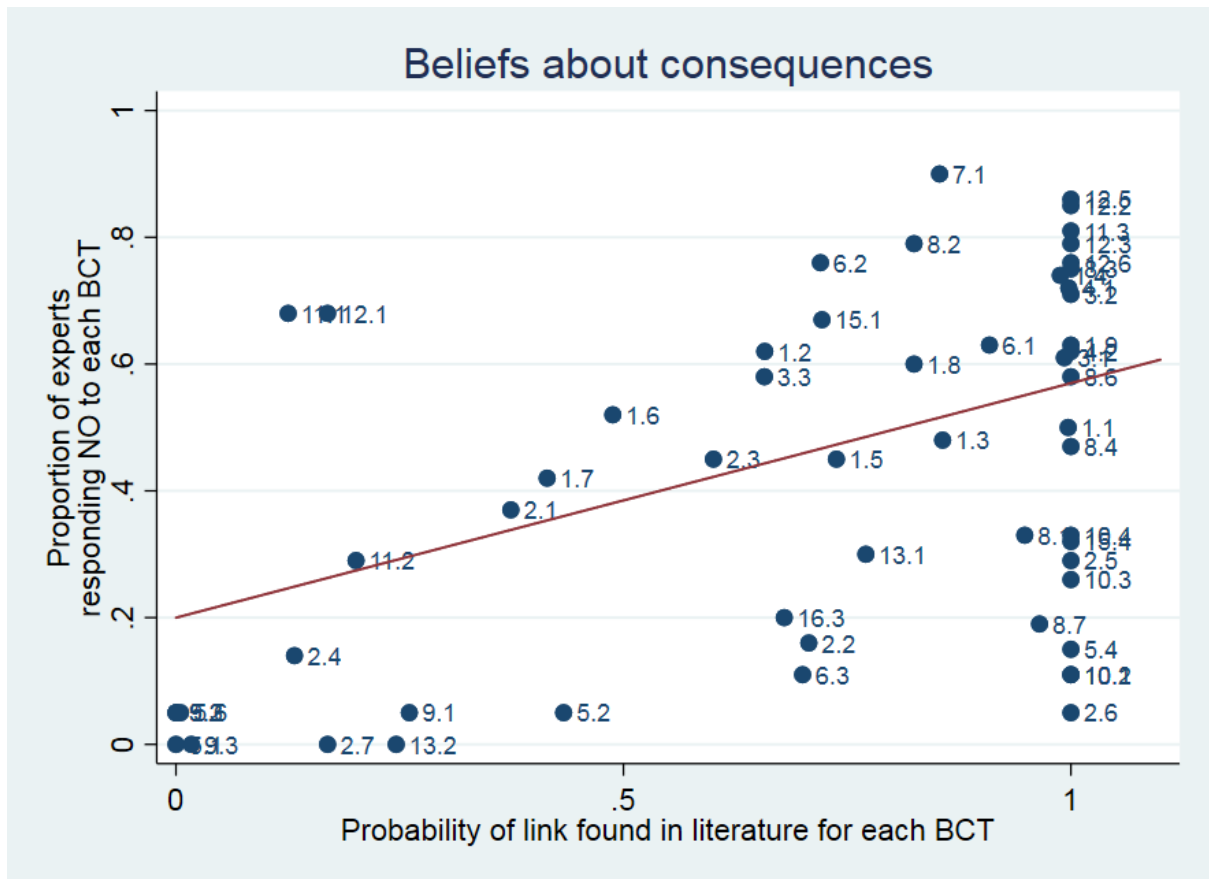
Figure 3b. Relation between literature and expert consensus when no links between BCTs and MoA "Social/professional role and identity" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
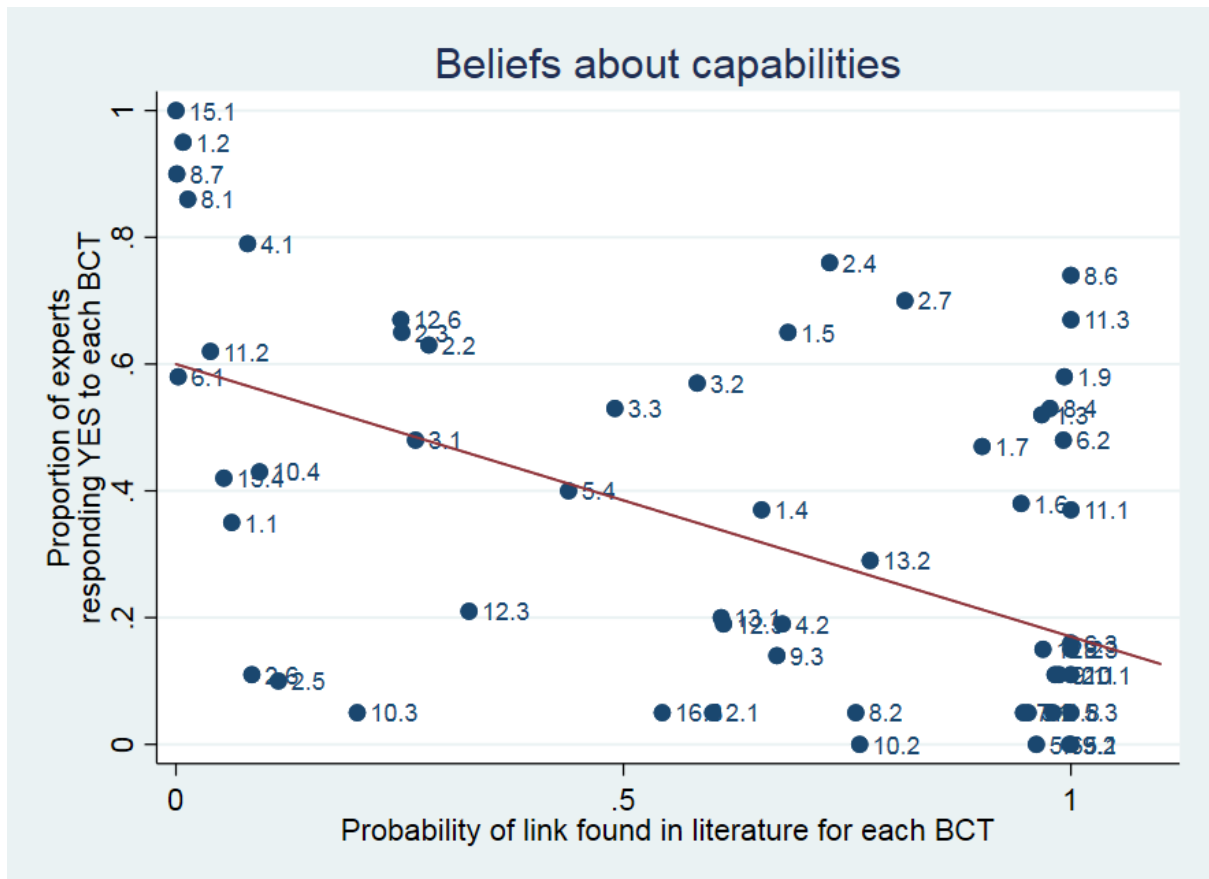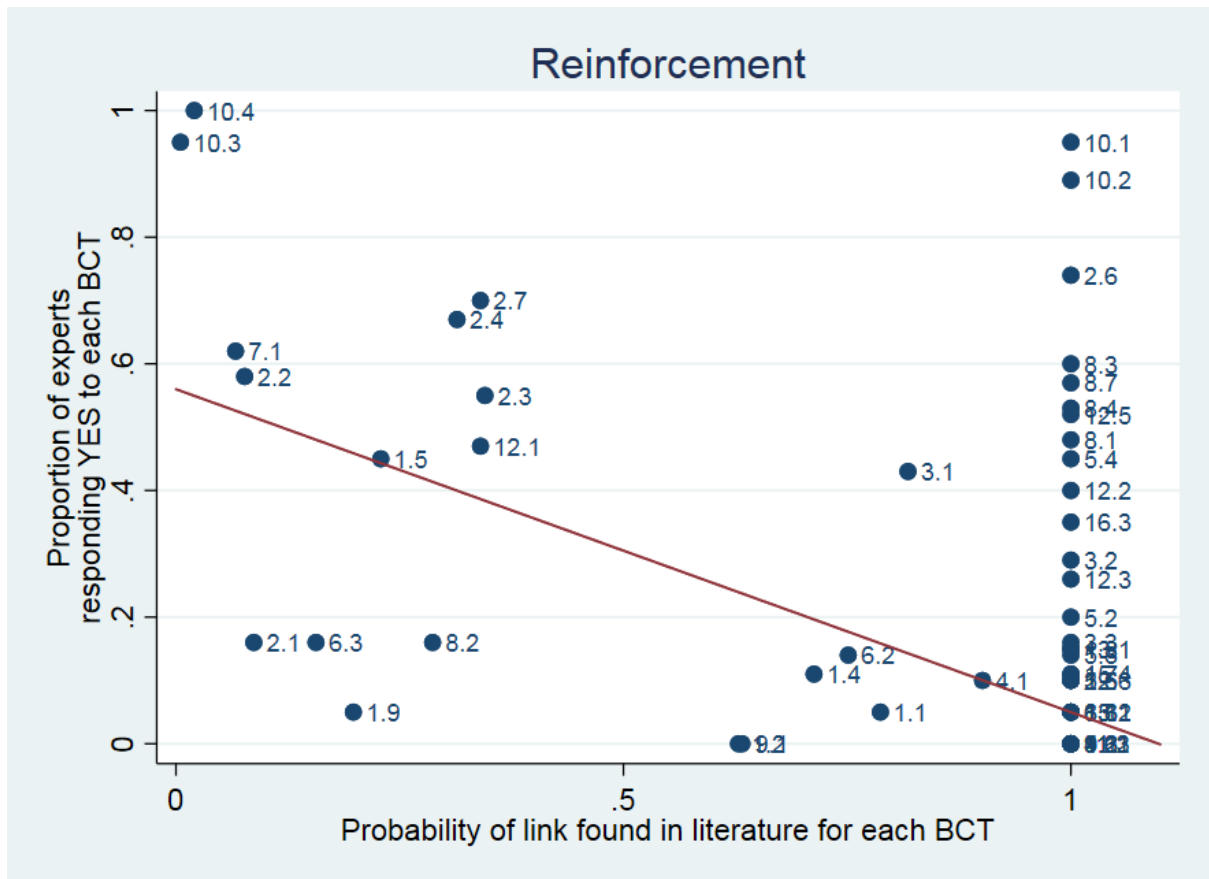
Figure 4a. Relation between literature and expert consensus when links between BCTs and MoA "Beliefs about Capabilities" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
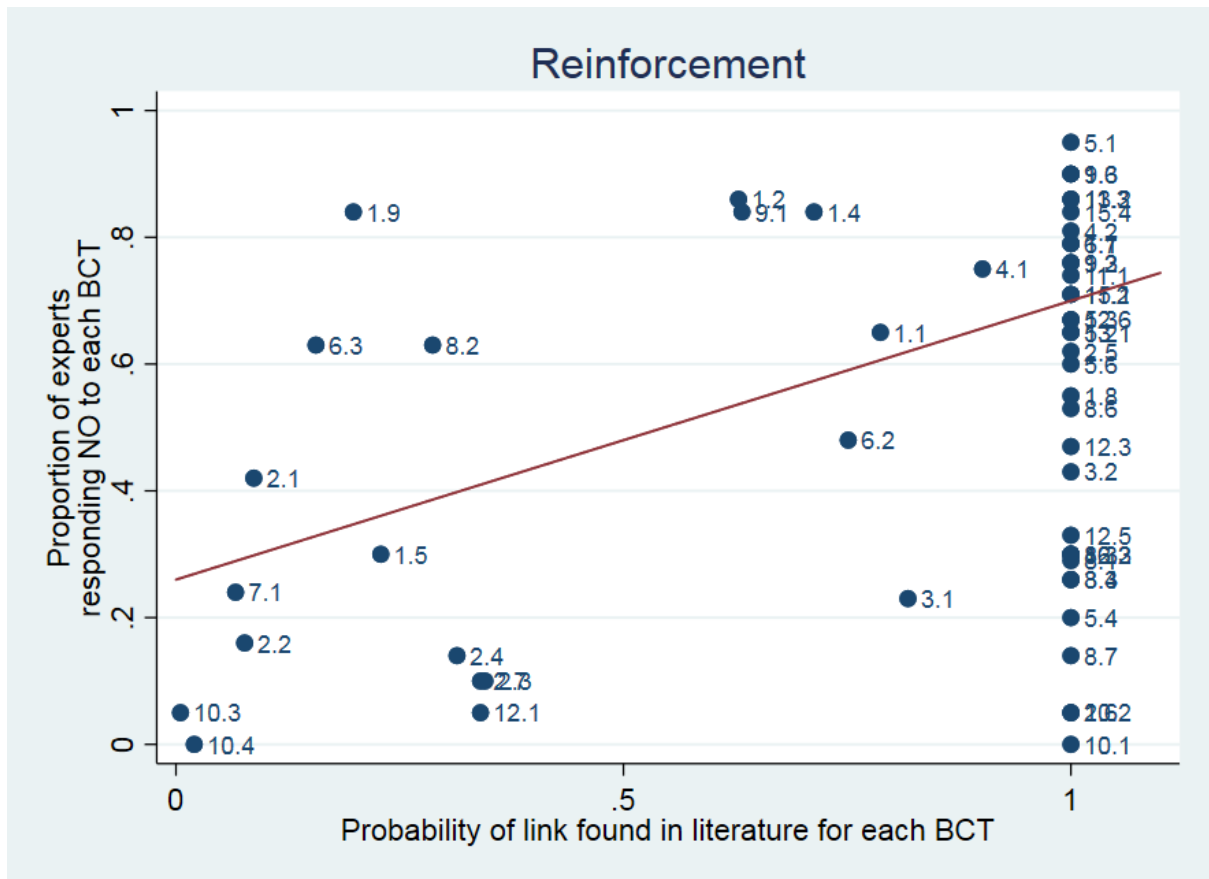
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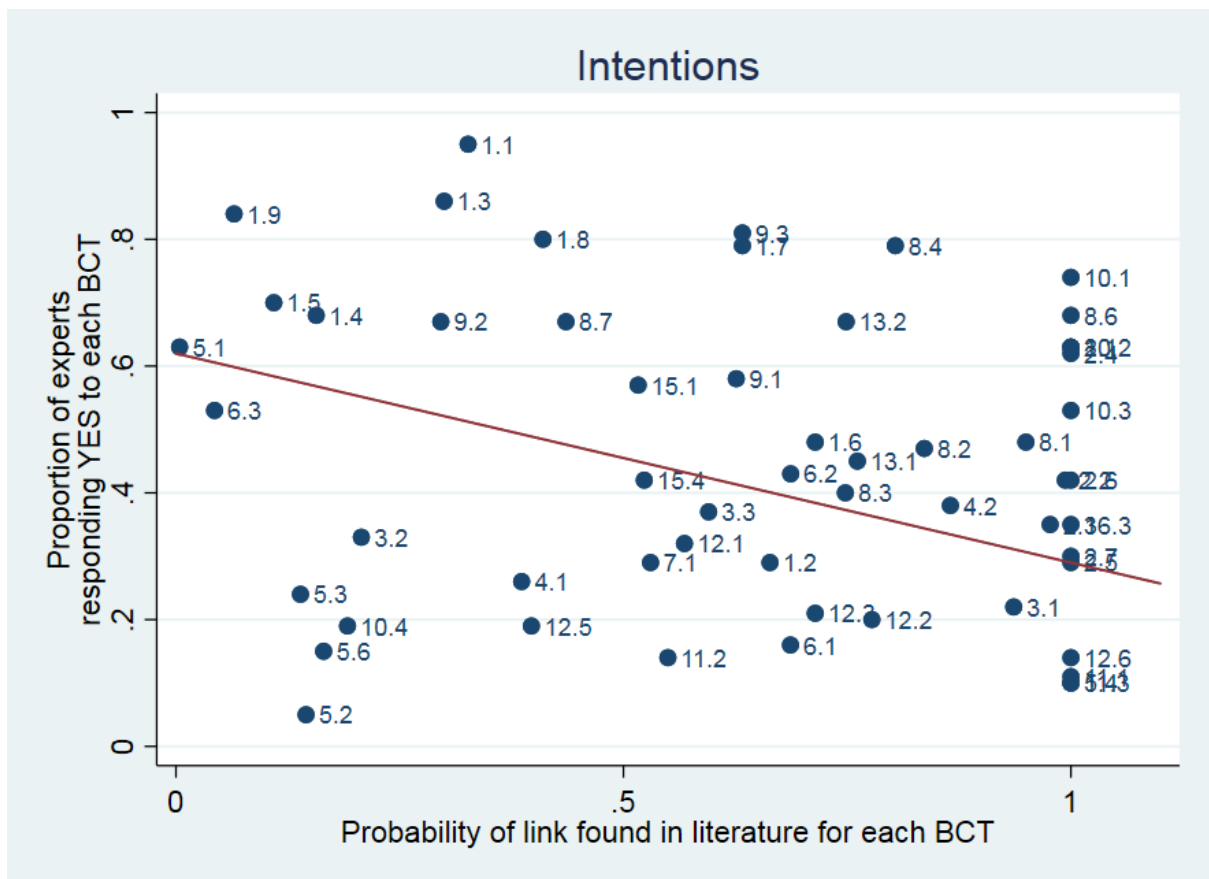
Figure 5a. Relation between literature and expert consensus when links between BCTs and MoA "Optimism" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
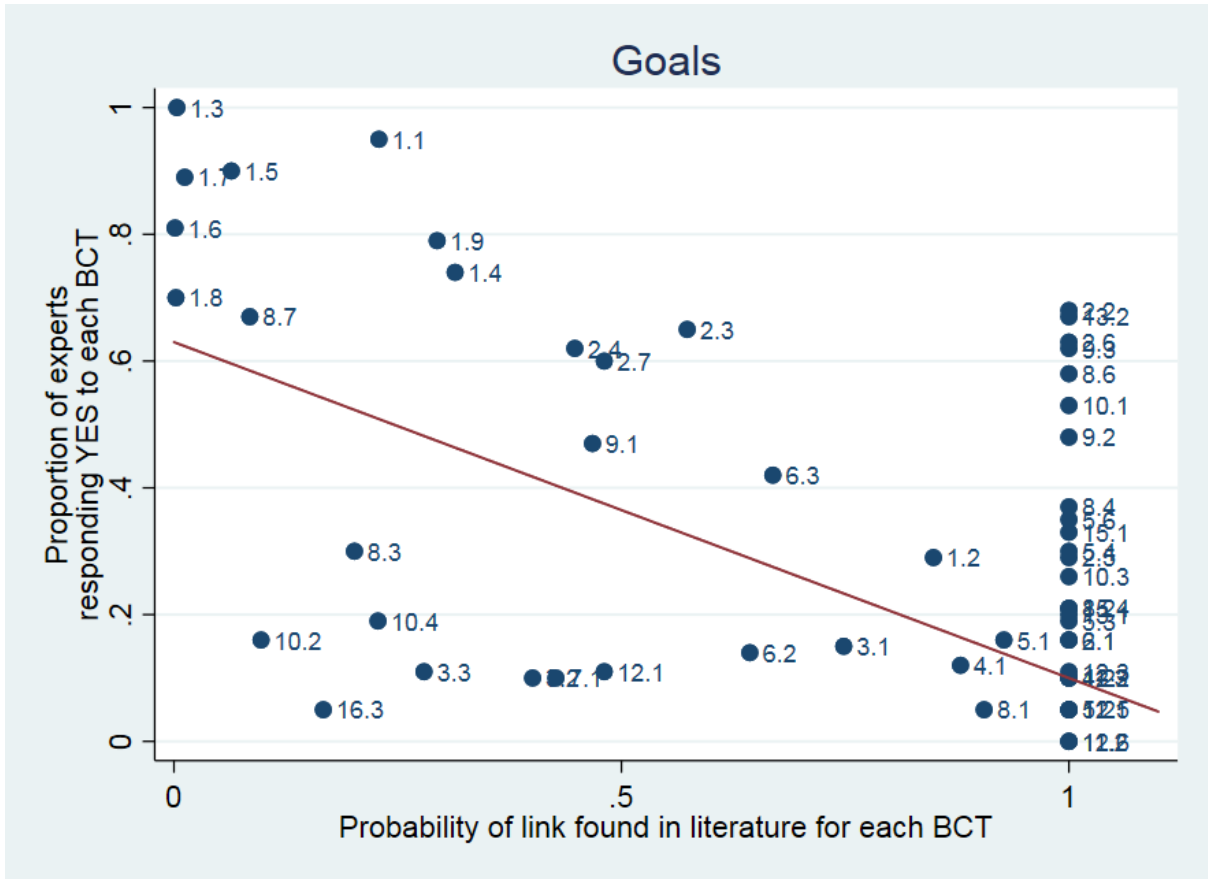
Figure 5b. Relation between literature and expert consensus when no links between BCTs and MoA "Optimism" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).

Figure 6a. Relation between literature and expert consensus when links between BCTs and MoA "Beliefs about consequences" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
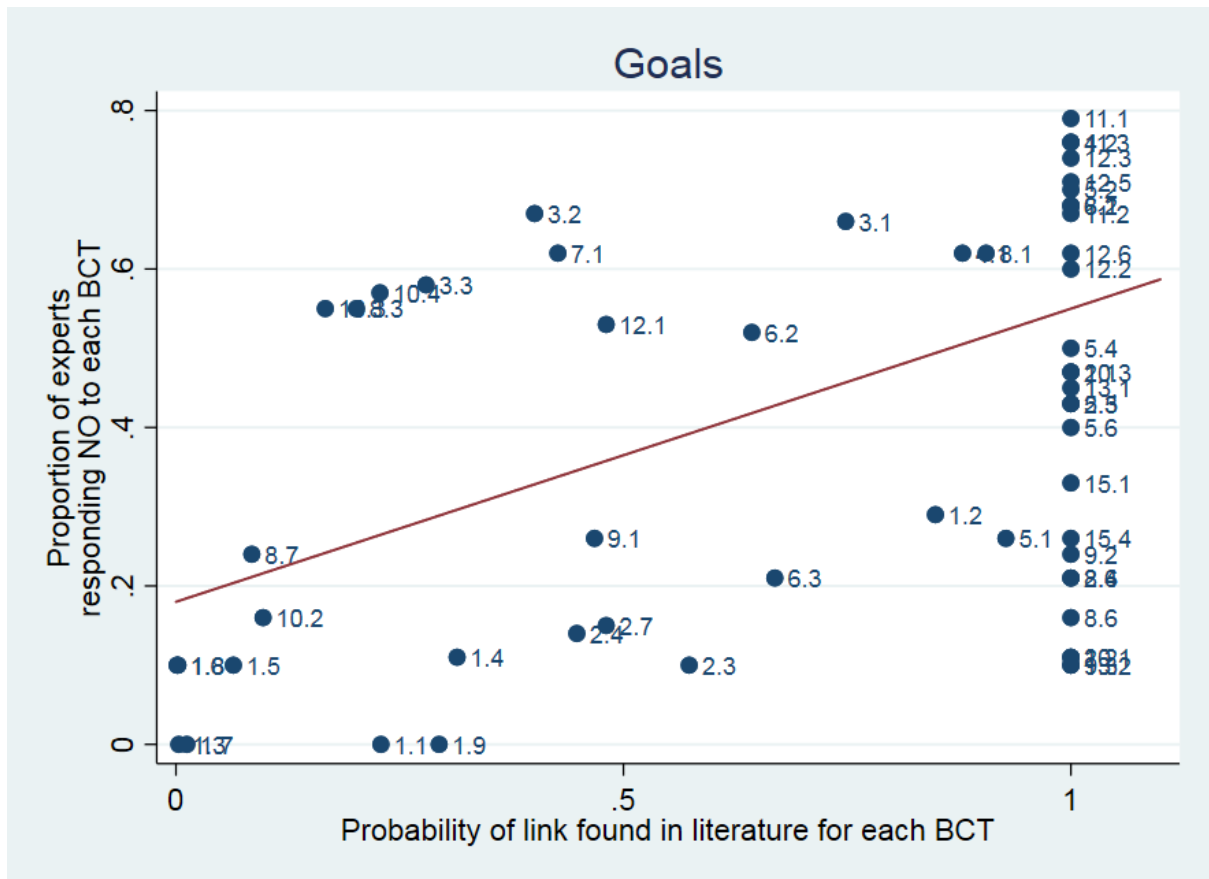
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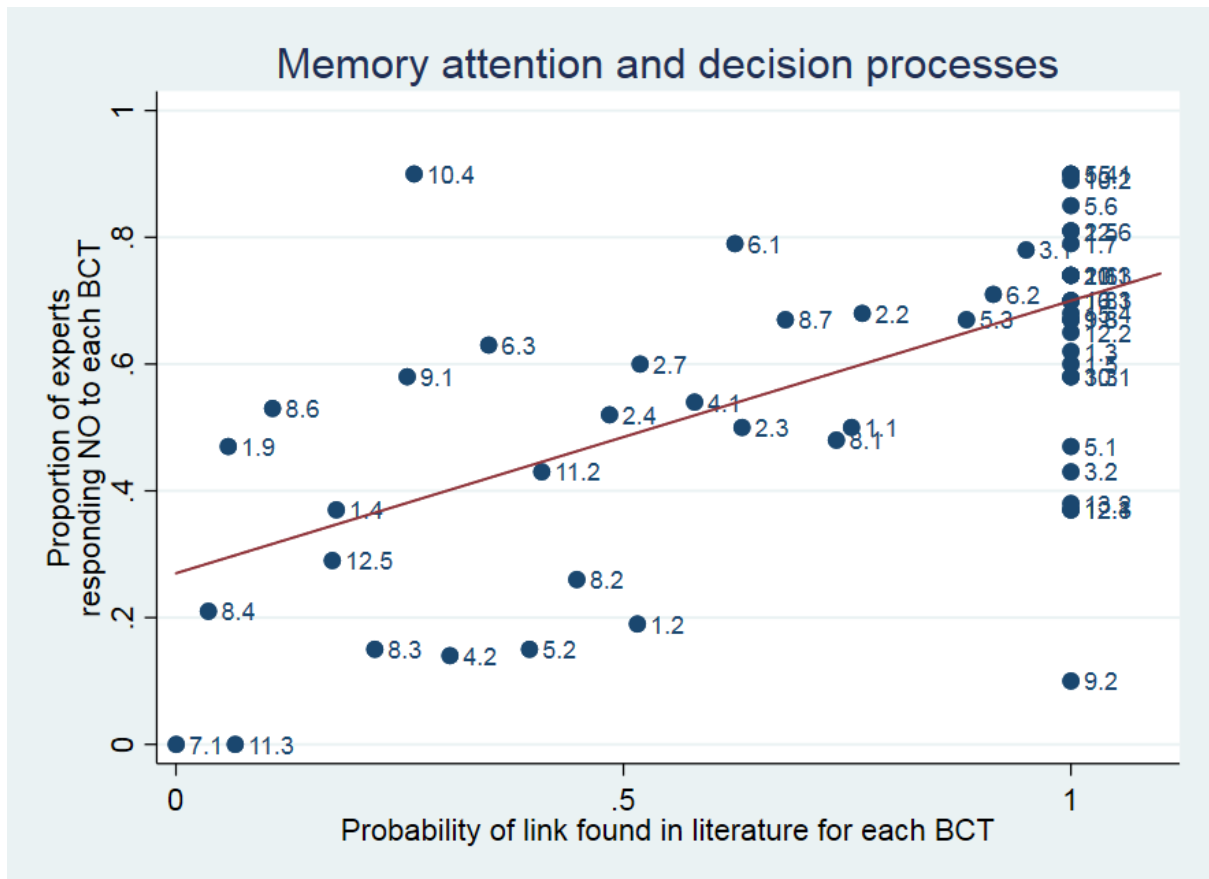
Figure 7a. Relation between literature and expert consensus when links between BCTs and MoA "Reinforcement" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
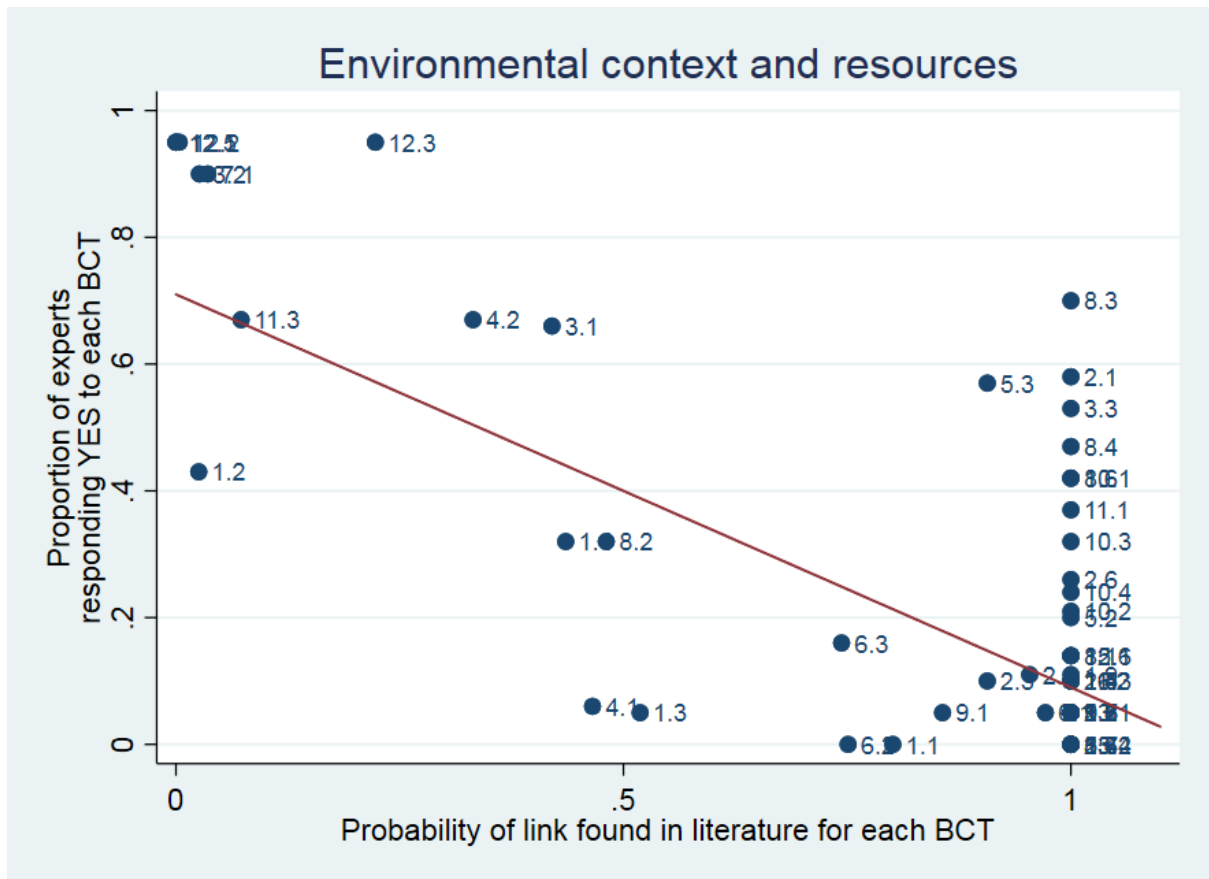
Figure 7b. Relation between literature and expert consensus when no links between BCTs and MoA "Reinforcement" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
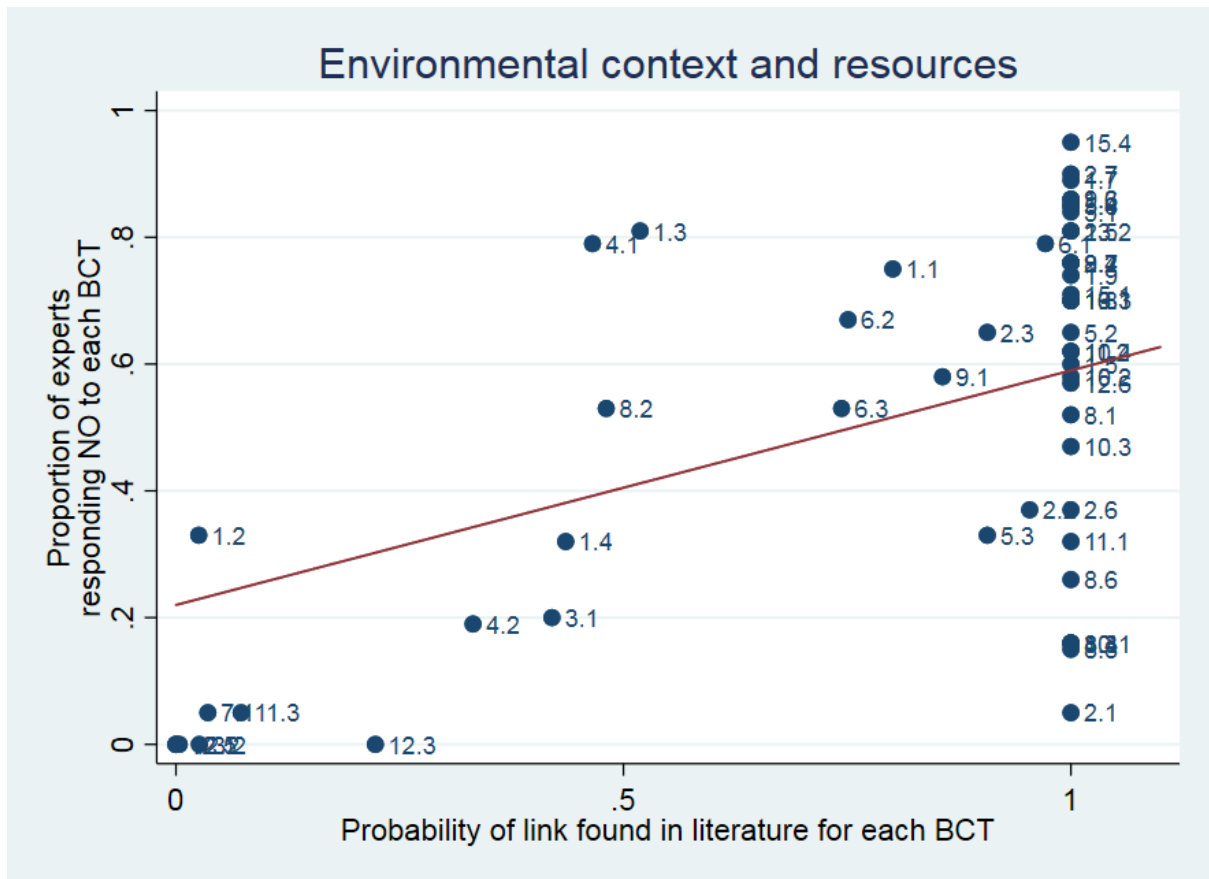
Figure 8a. Relation between literature and expert consensus when links between BCTs and MoA "Intentions" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).

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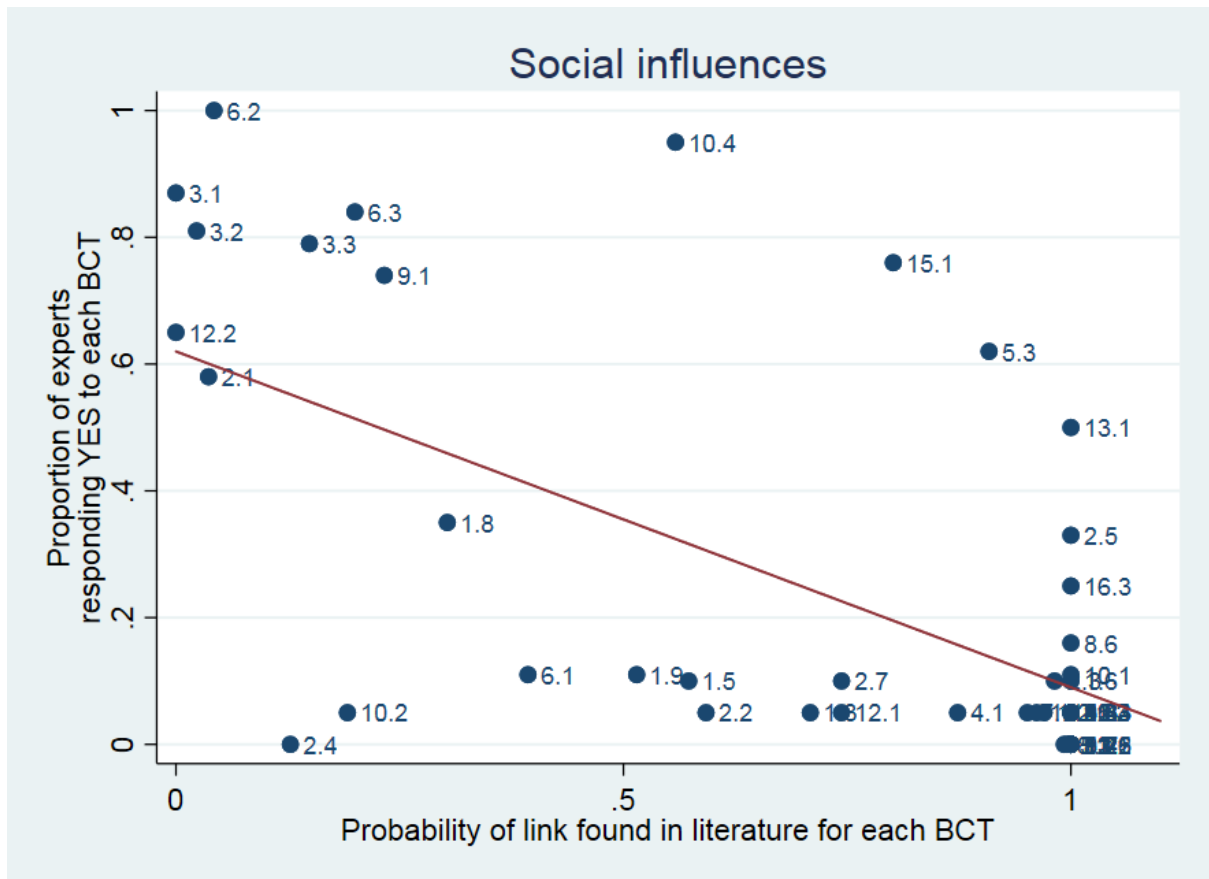
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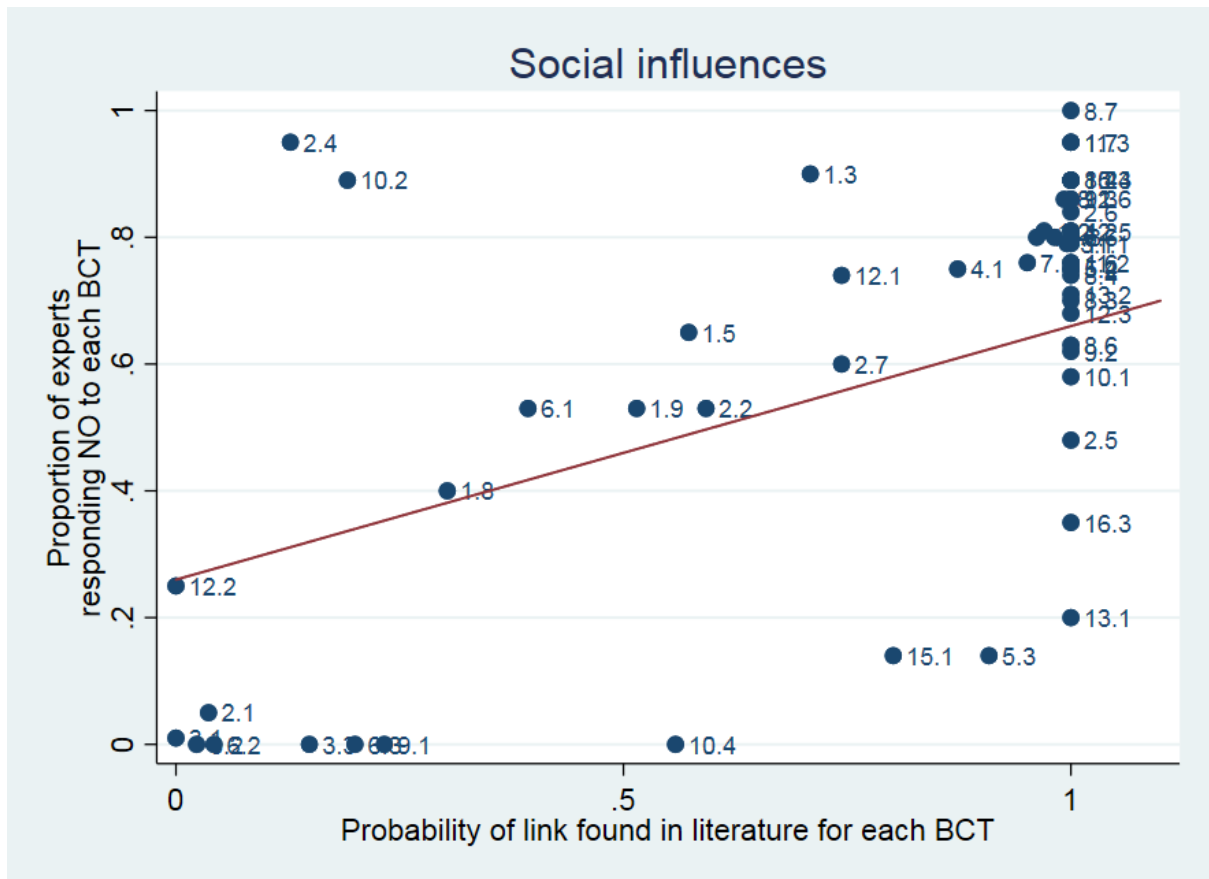
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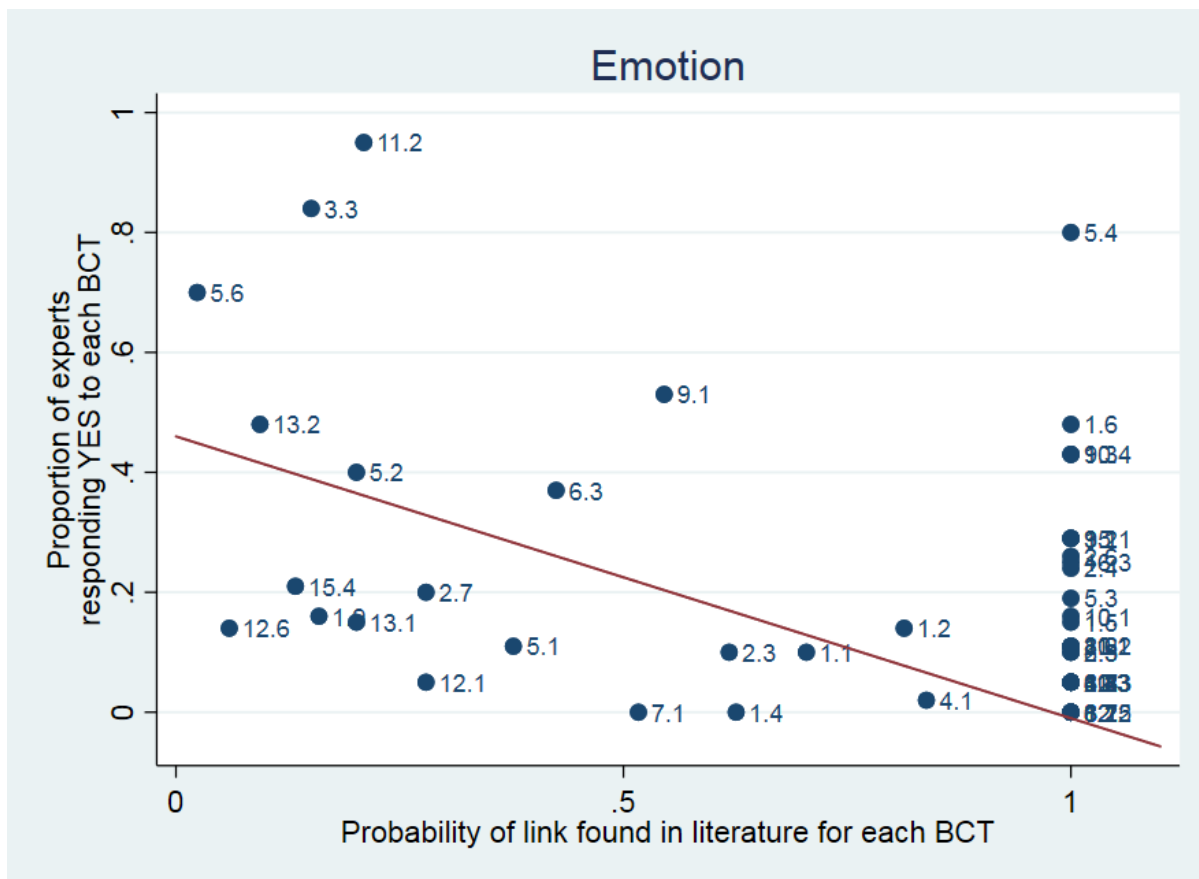
Figure 10a. Relation between literature and expert consensus when links between BCTs and MoA "Memory, attention and decision processes" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).

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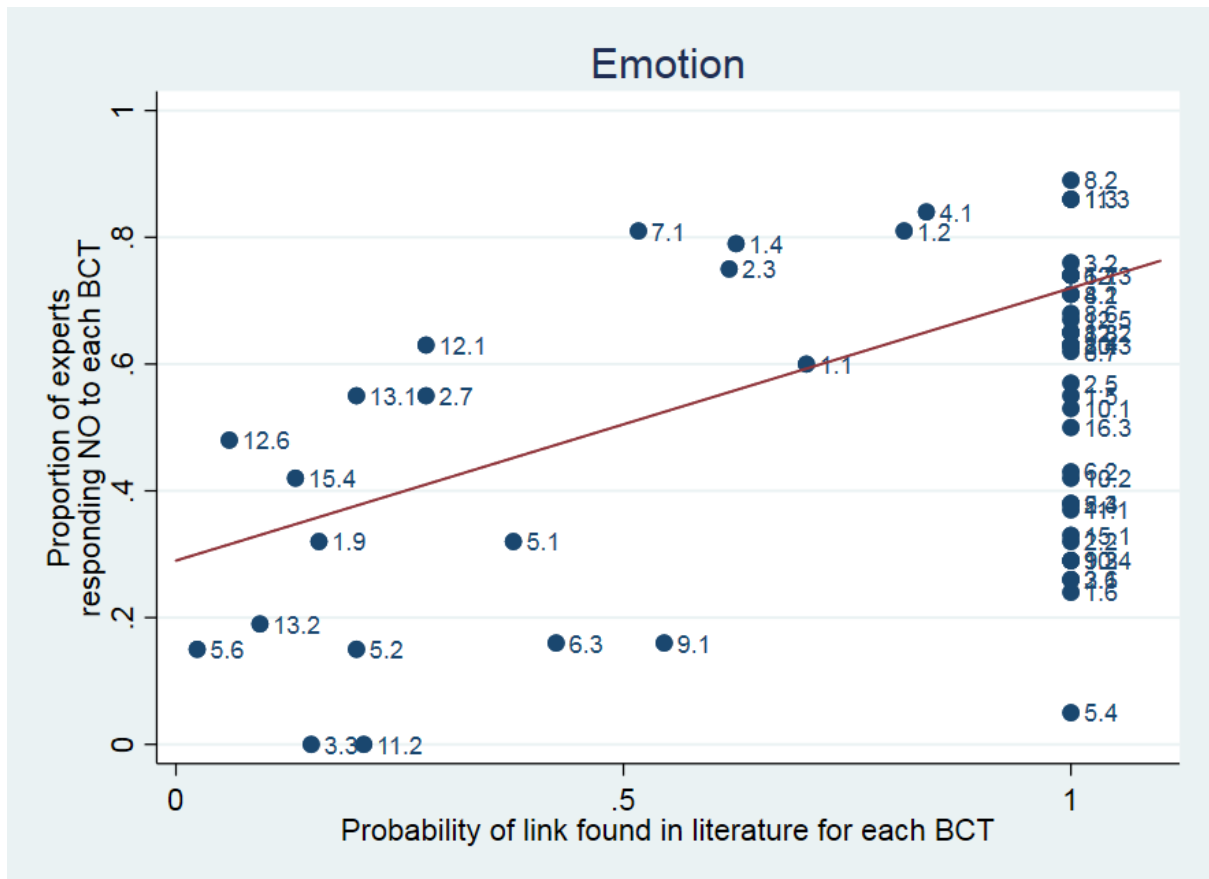
Figure 11a. Relation between literature and expert consensus when links between BCTs and MoA "Environmental context and resources" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
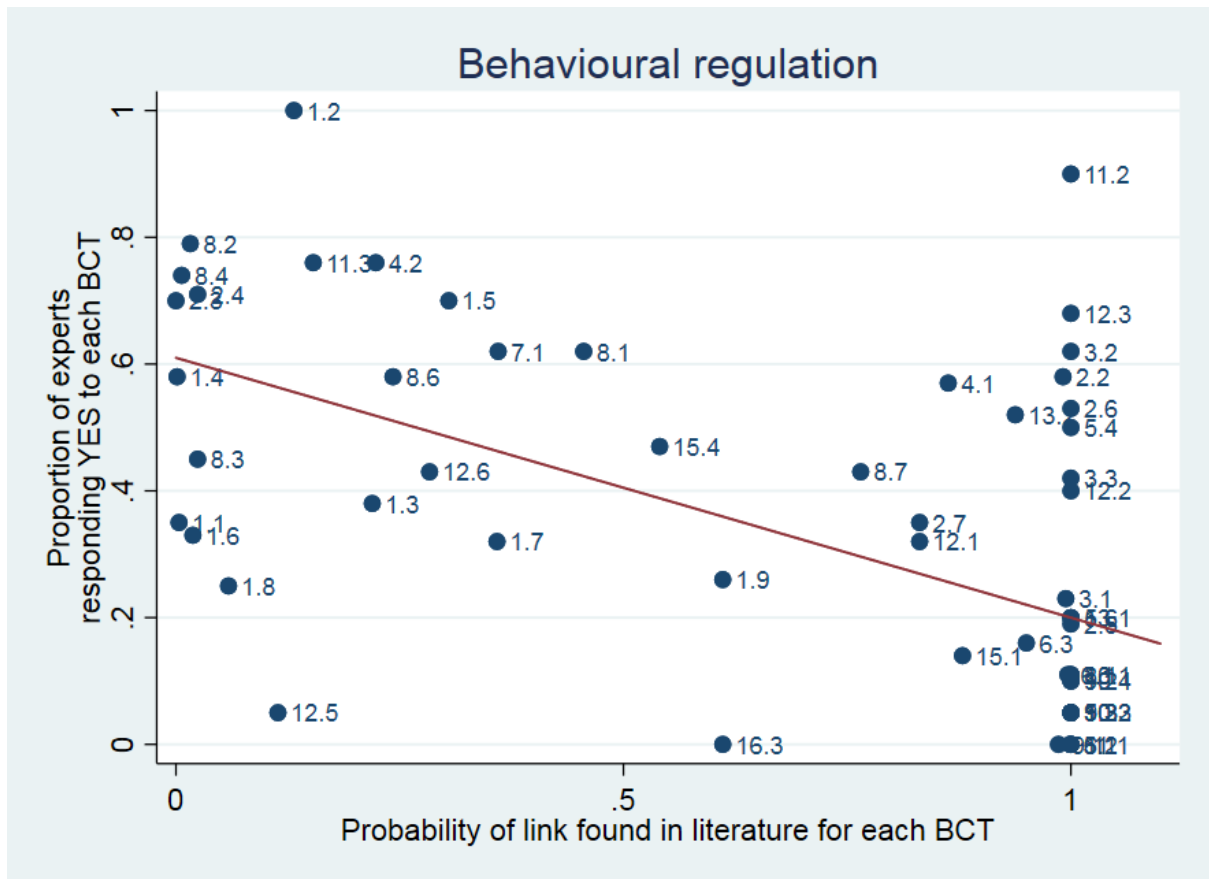
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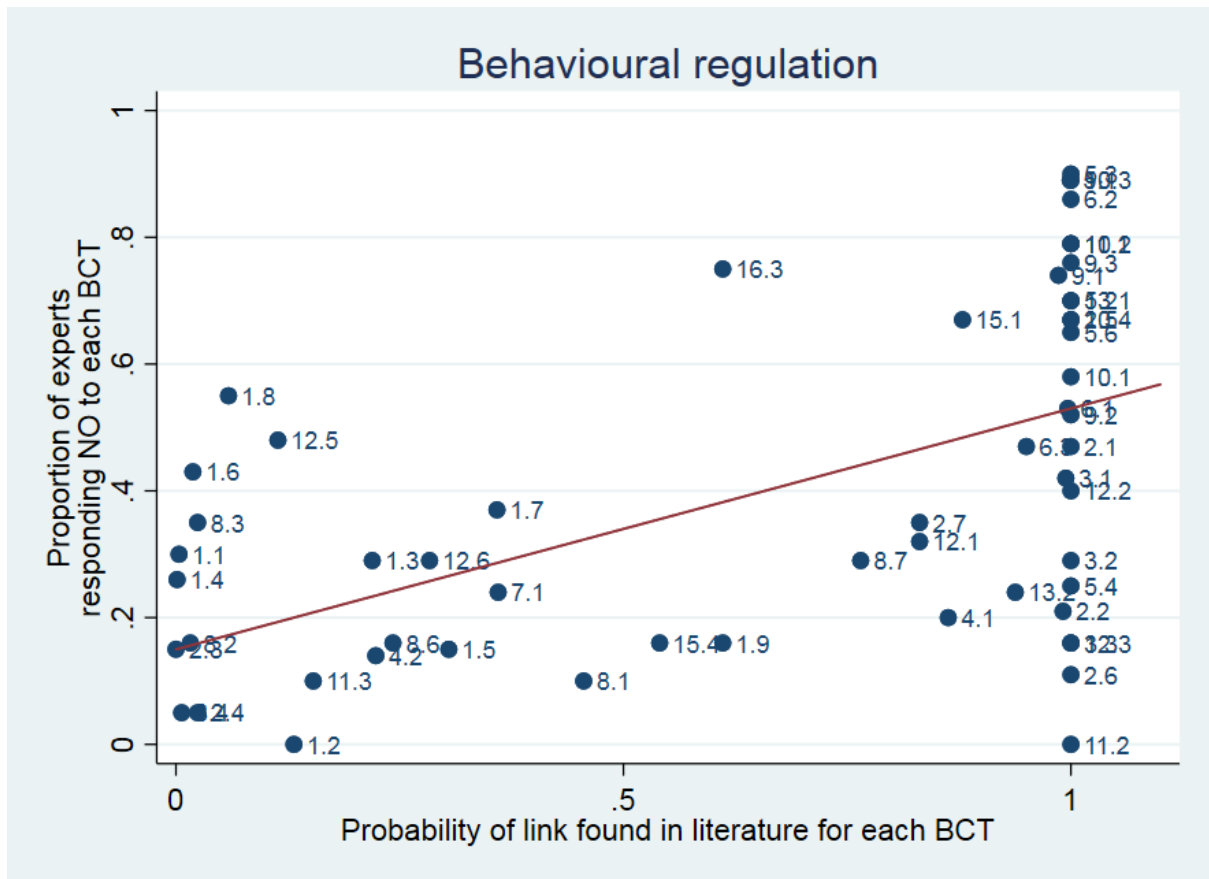
Figure 12a. Relation between literature and expert consensus when links between BCTs and MoA "Social influence" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
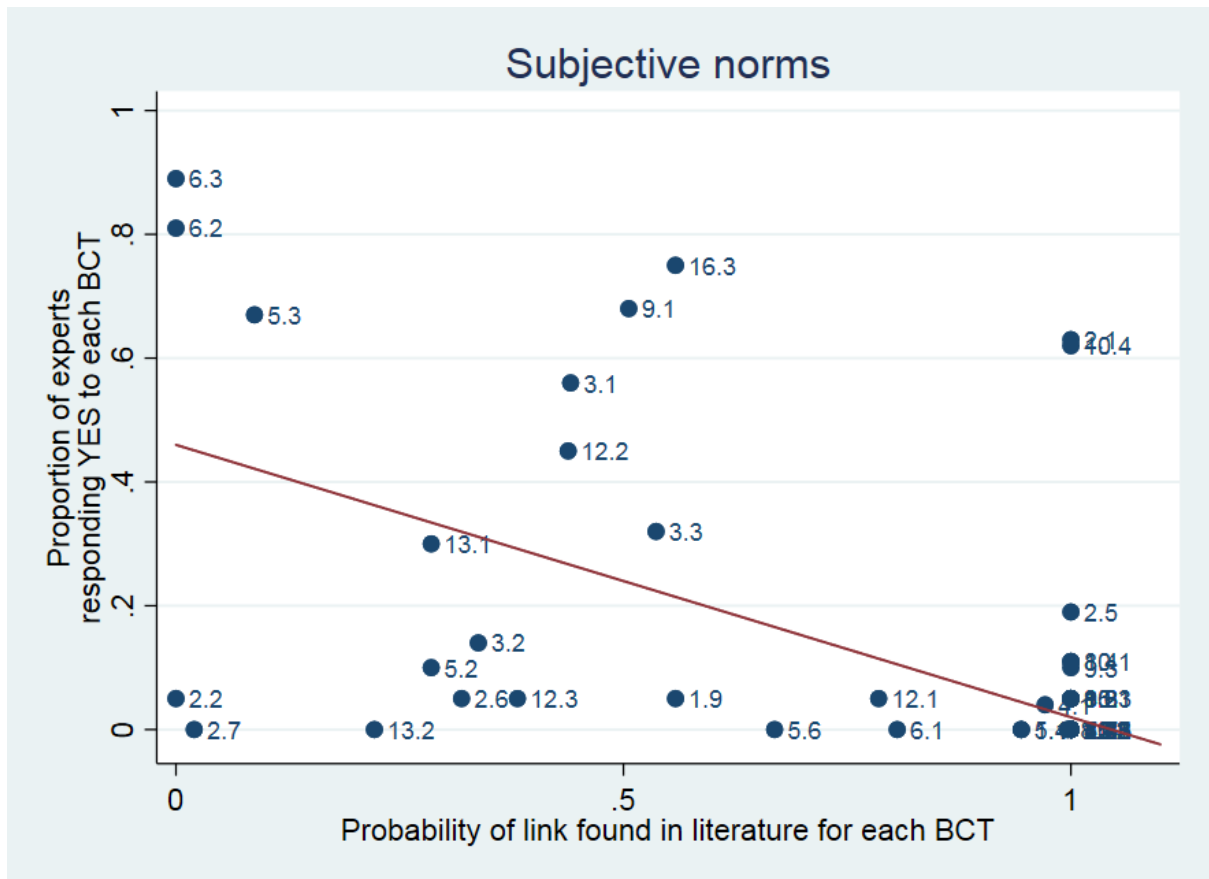
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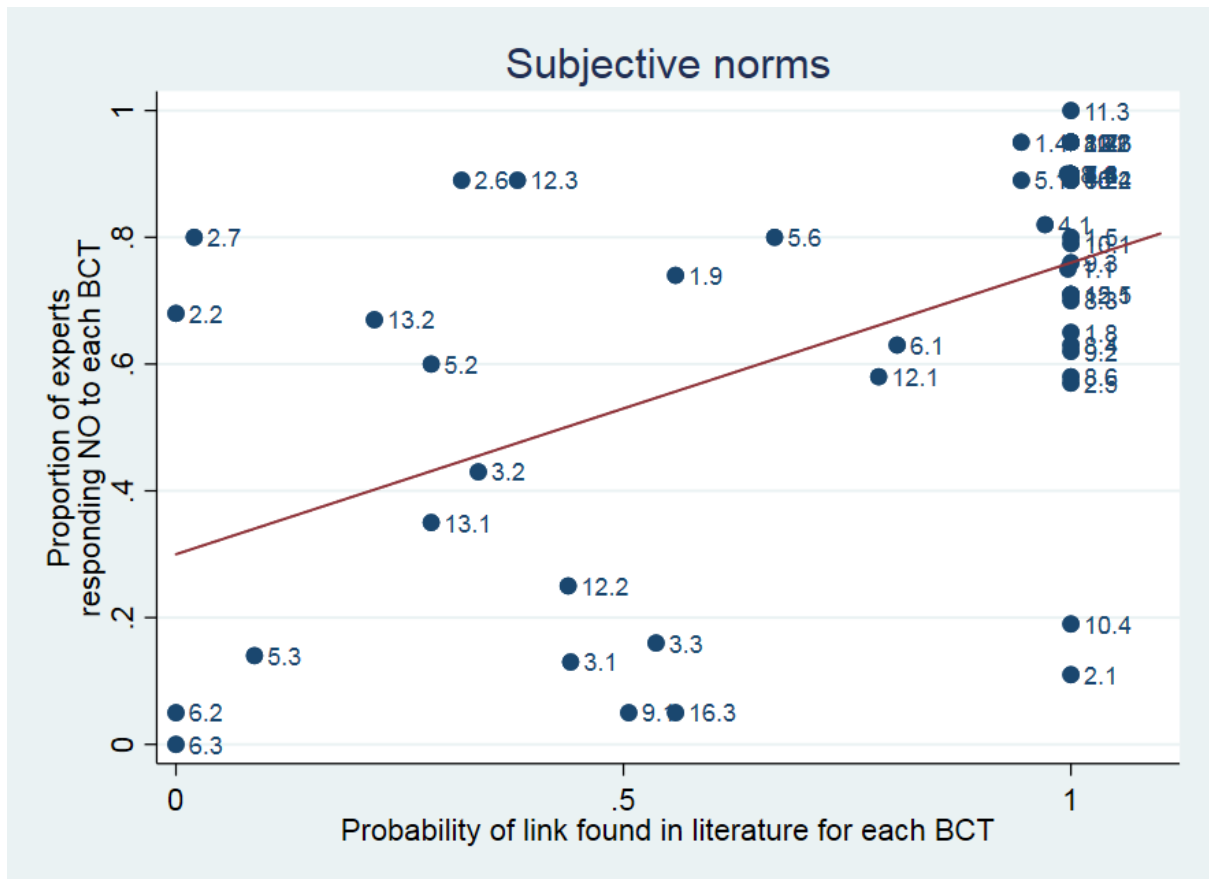
Figure 13a. Relation between literature and expert consensus when links between BCTs and MoA "Emotion" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).

Figure 13b. Relation between literature and expert consensus when no links between BCTs and MoA "Emotion" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
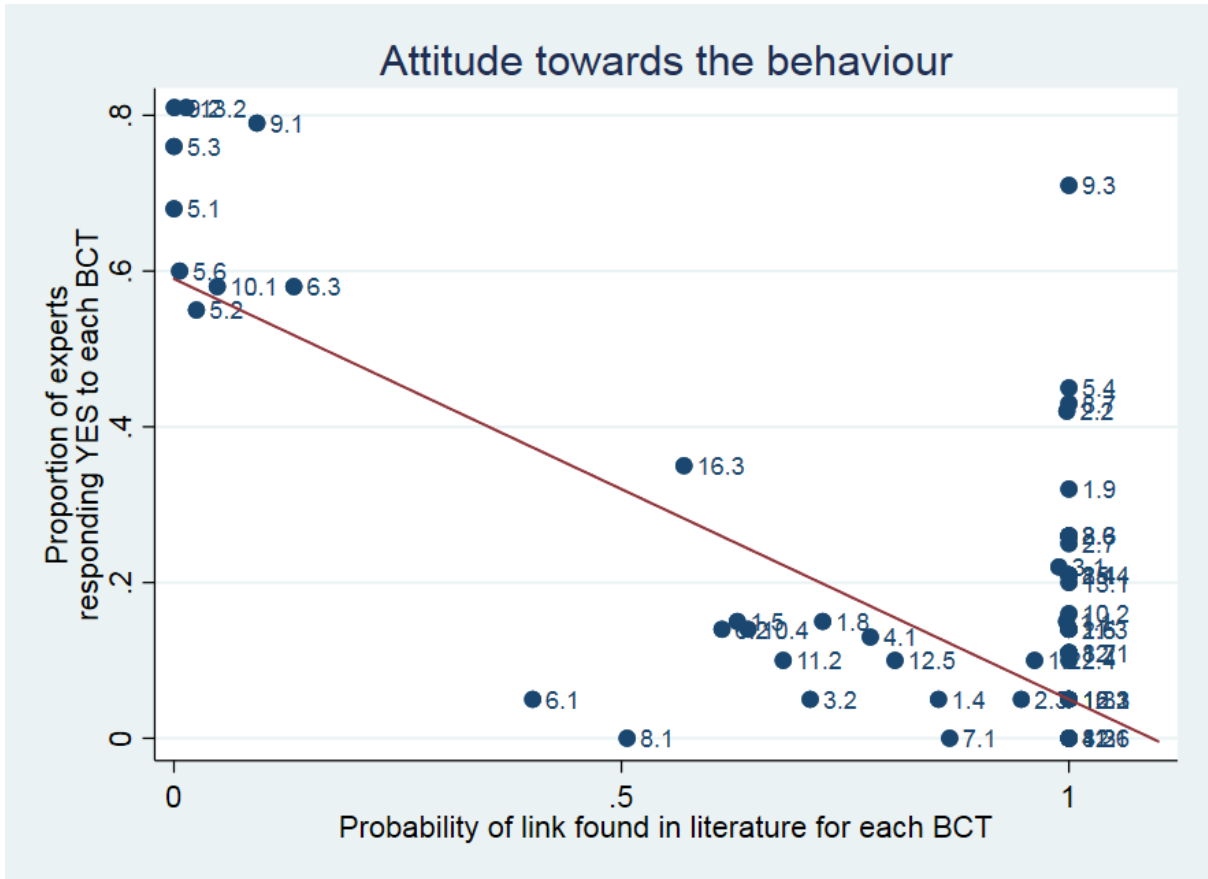
Figure 14a. Relation between literature and expert consensus when links between BCTs and MoA "Behavioural regulation" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
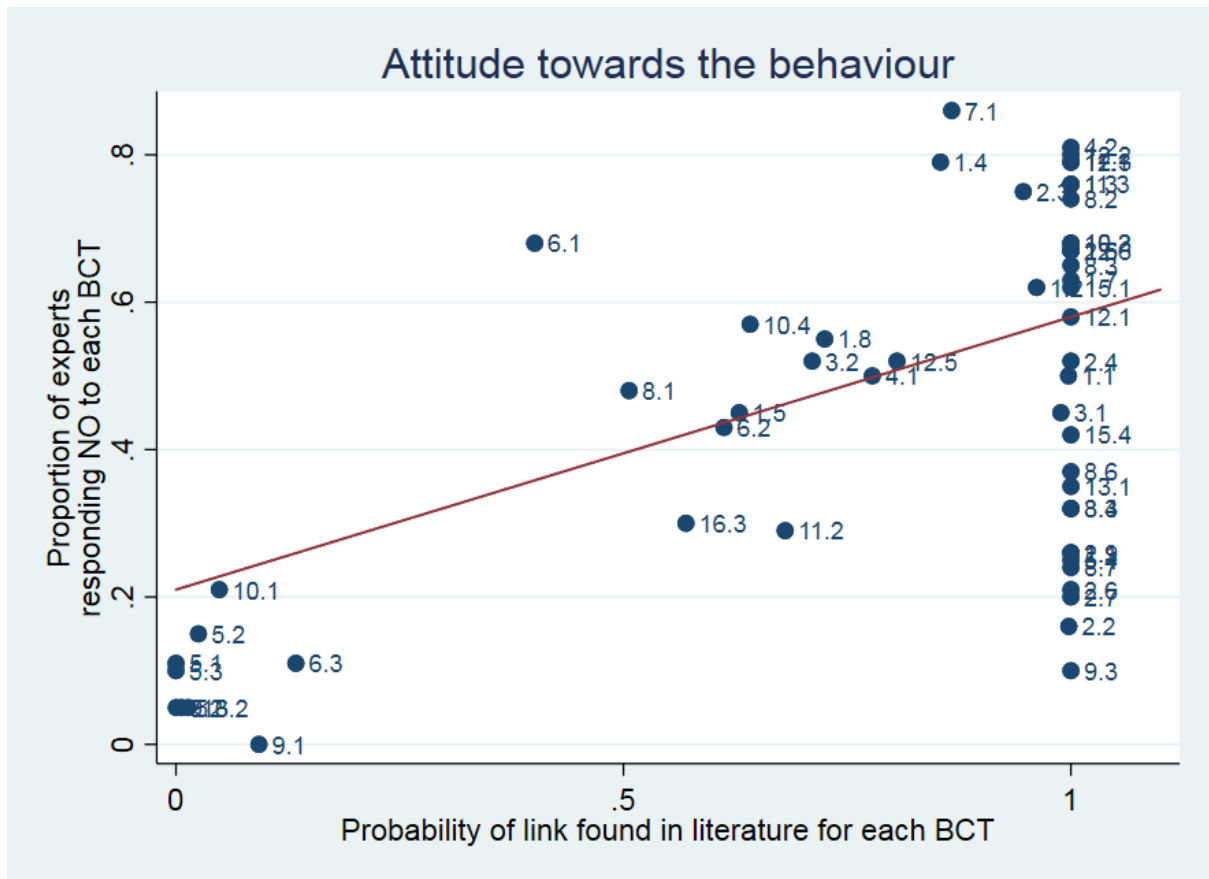
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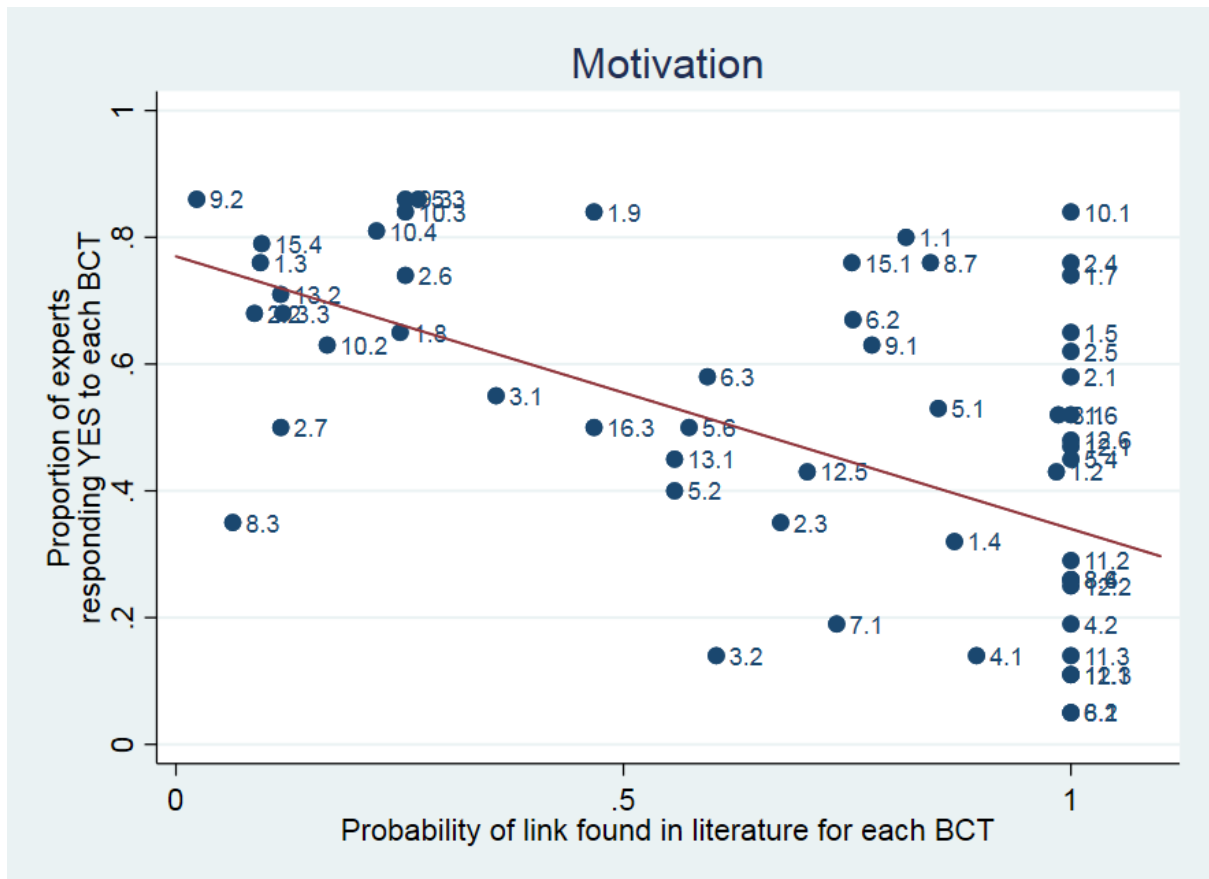
Figure 15a. Relation between literature and expert consensus when links between BCTs and MoA "Subjective knowledge" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
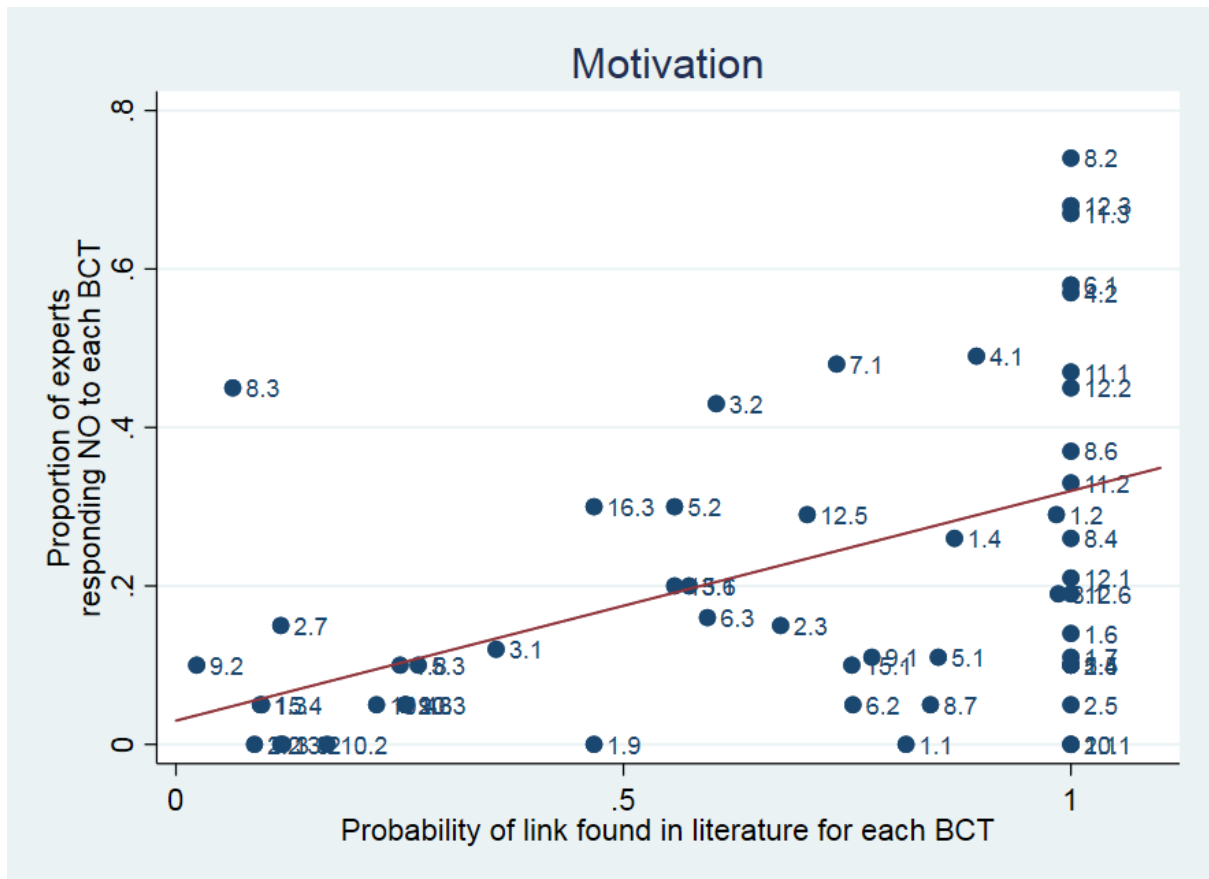
Figure 15b. Relation between literature and expert consensus when no links between BCTs and MoA "Subjective knowledge" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).

Figure 16a. Relation between literature and expert consensus when links between BCTs and MoA "Attitude towards the behaviour" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
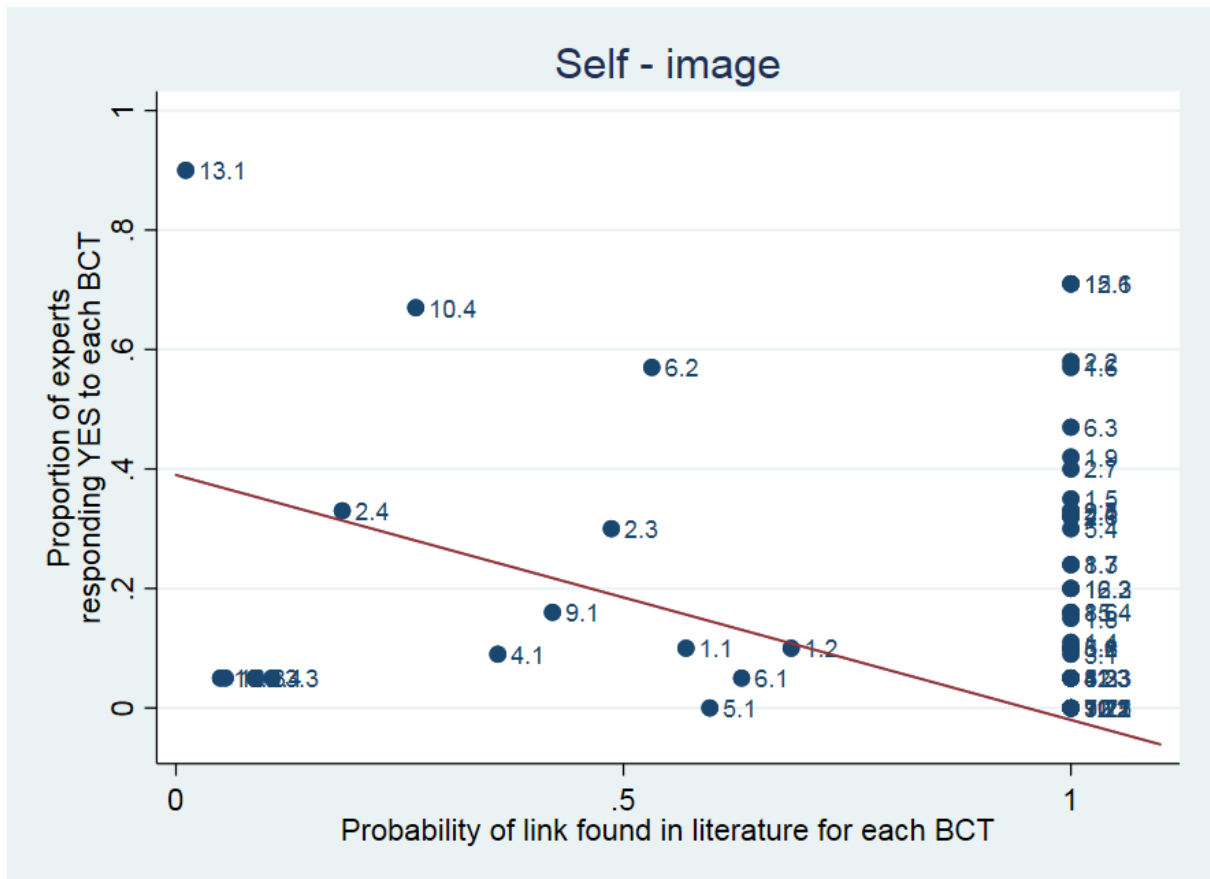
Figure 16b. Relation between literature and expert consensus when no links between BCTs and MoA "Attitude towards the behaviour" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
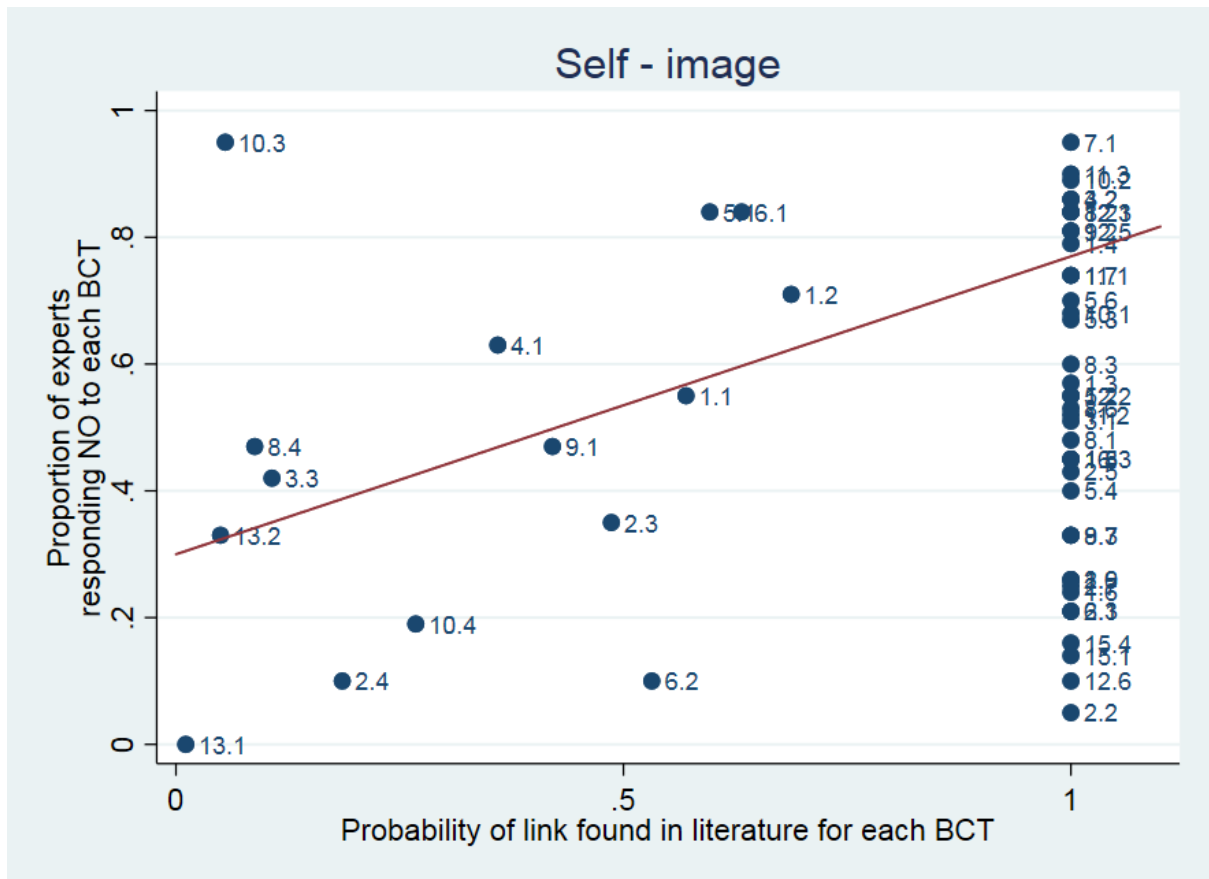
Figure 17a. Relation between literature and expert consensus when links between BCTs and MoA "Motivation" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
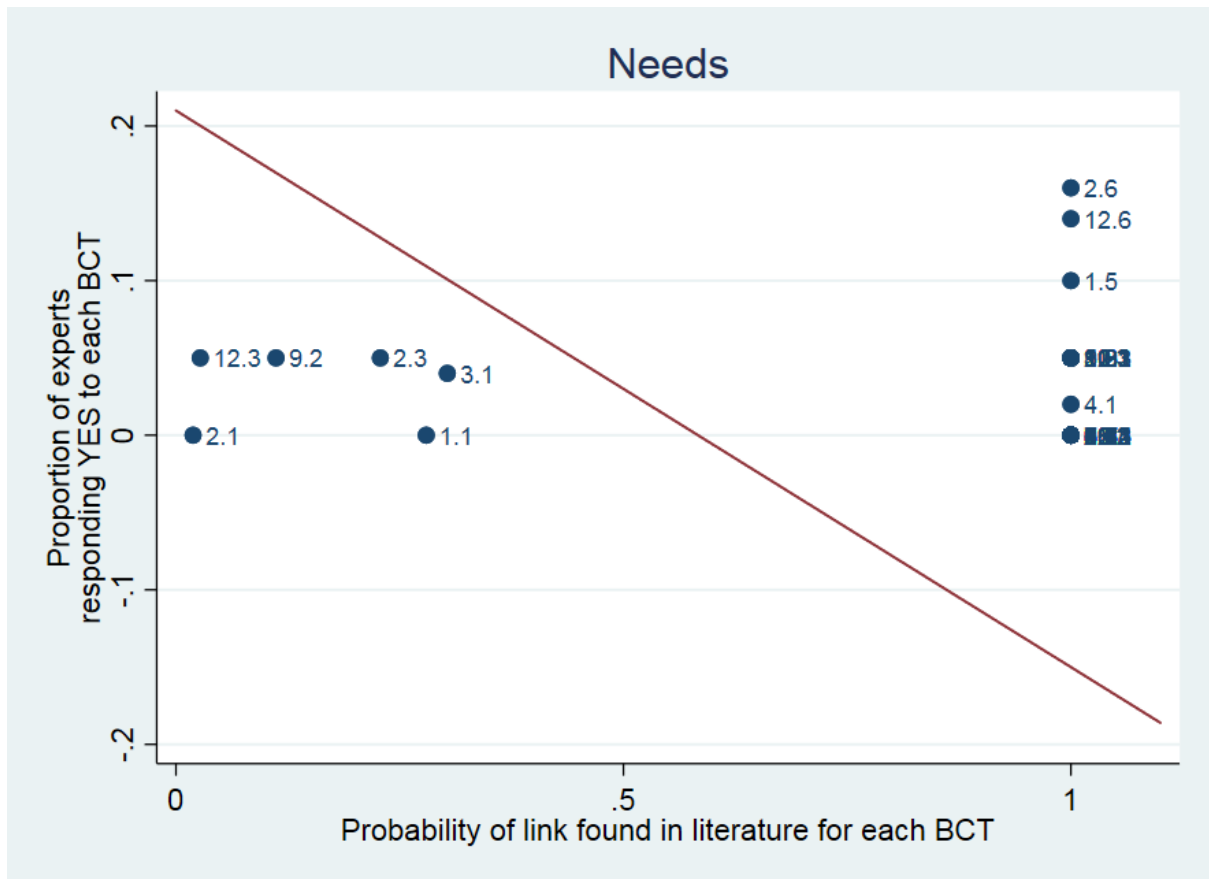
Figure 17b. Relation between literature and expert consensus when no links between BCTs and MoA "Motivation" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
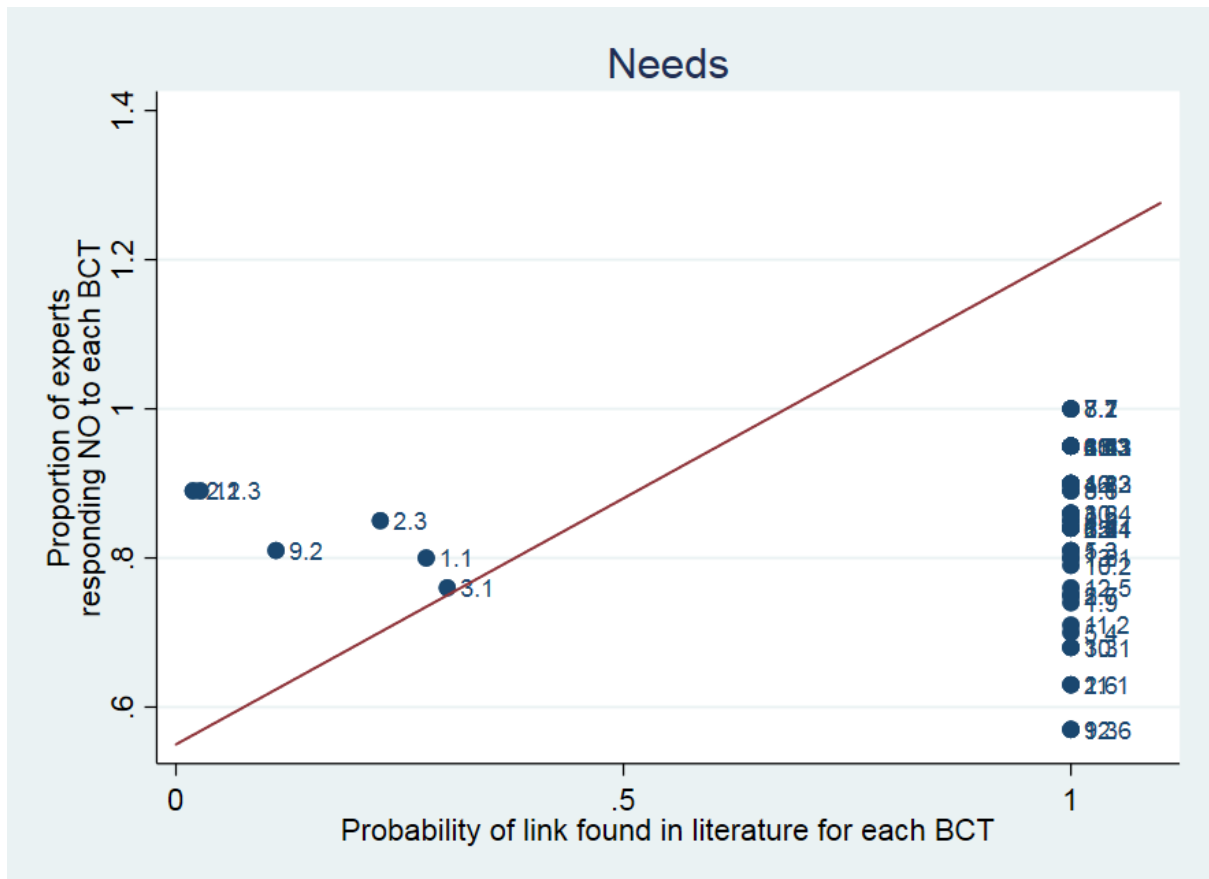
Figure 18a. Relation between literature and expert consensus when links between BCTs and MoA "Self-image" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).

Figure 18b. Relation between literature and expert consensus when no links between BCTs and MoA "Self-image" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown
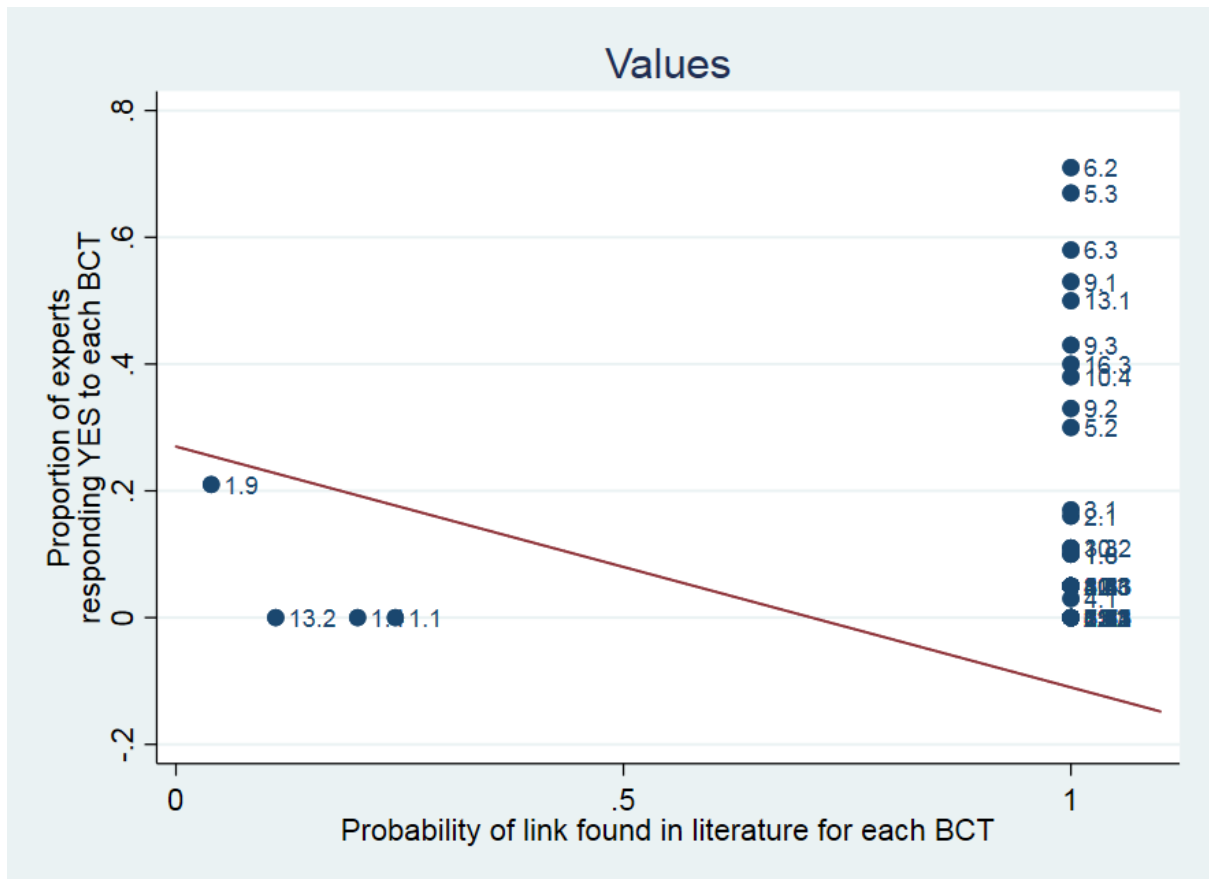
Figure 19a. Relation between literature and expert consensus when links between BCTs and MoA "Needs" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
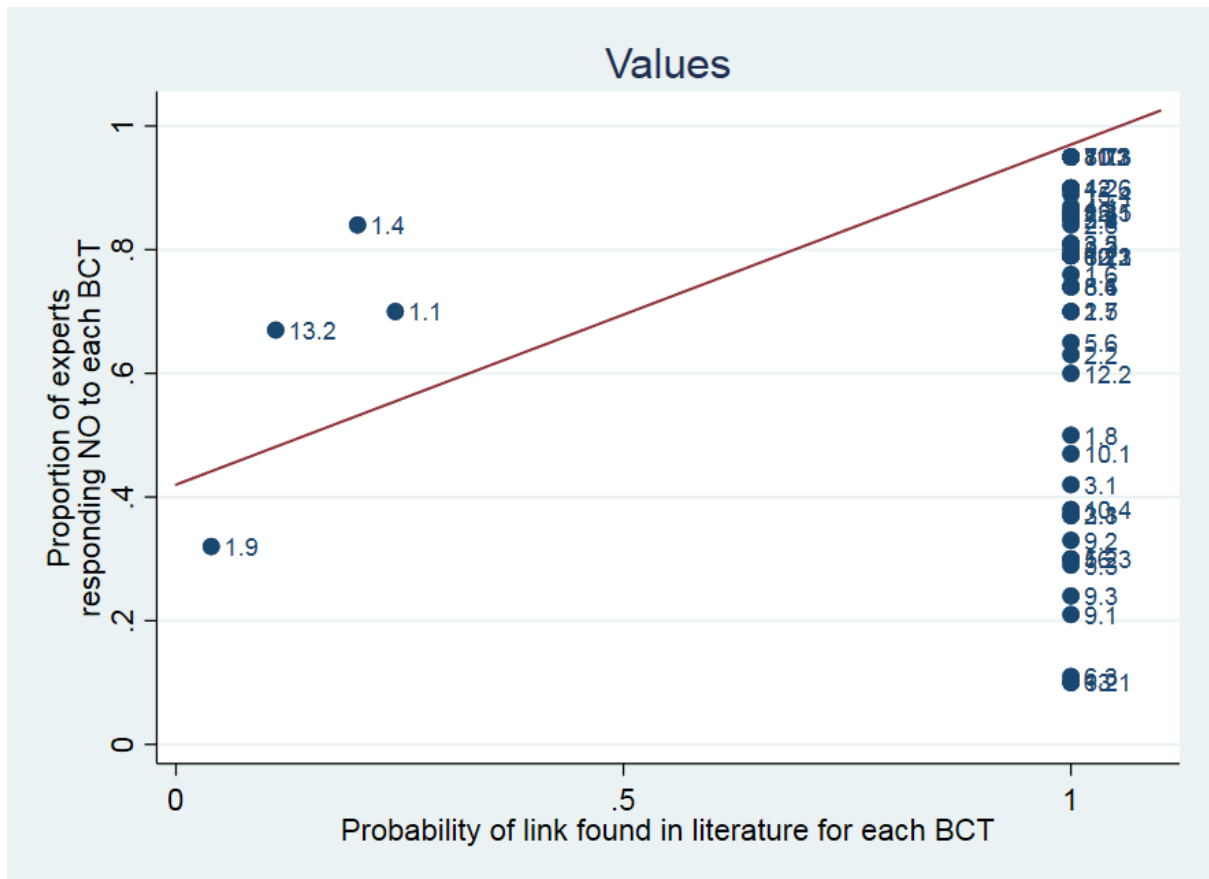
Figure 19b. Relation between literature and expert consensus when no links between BCTs and MoA "Needs" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
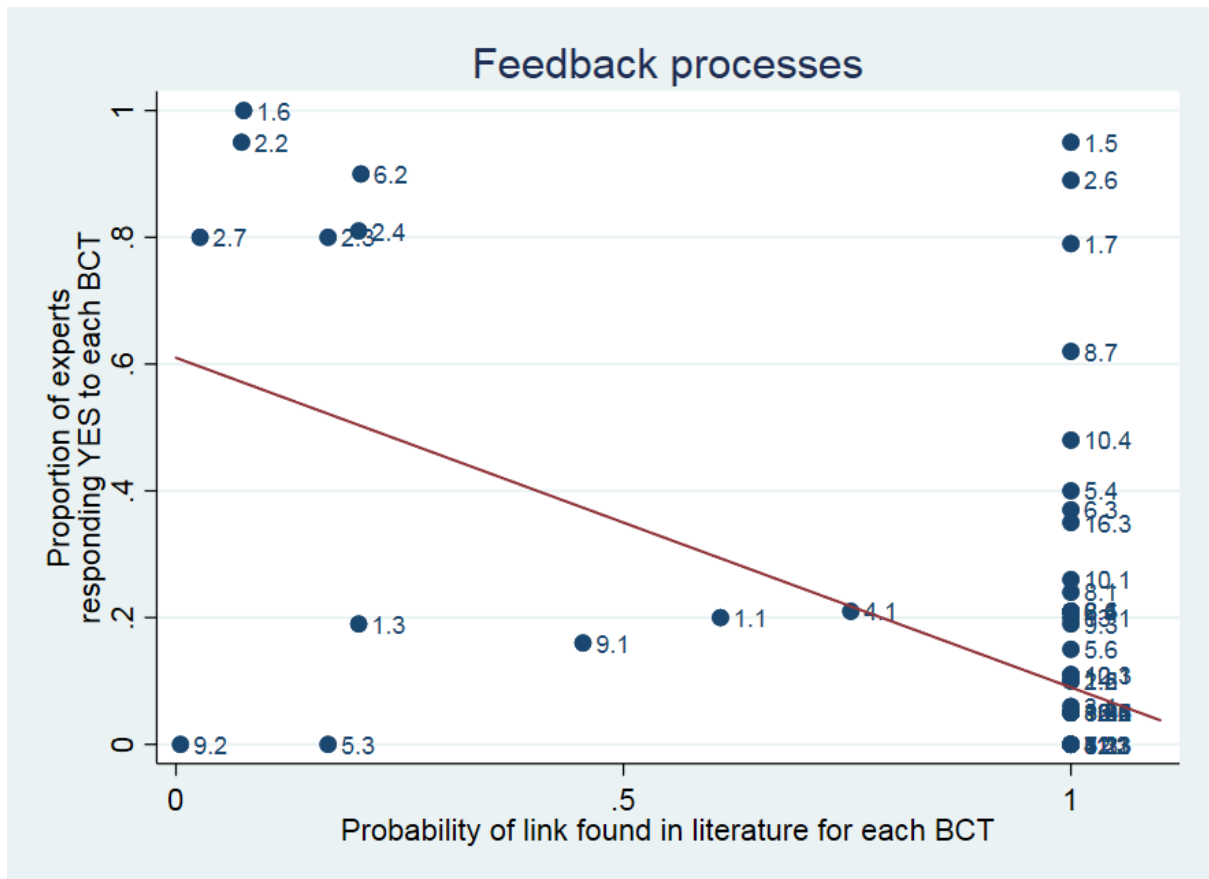
Figure 20a. Relation between literature and expert consensus when links between BCTs and MoA "Values" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
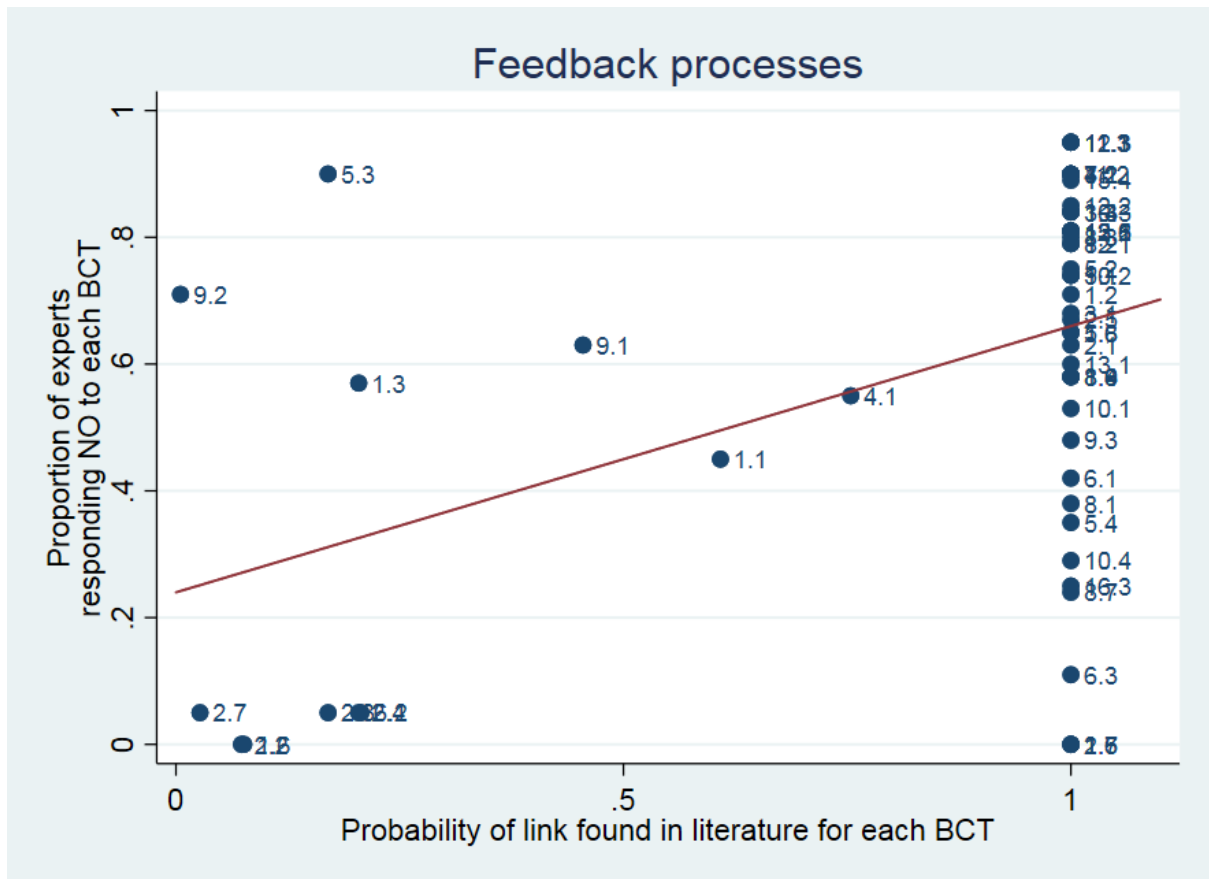
Figure 20b. Relation between literature and expert consensus when no links between BCTs and MoA "Values" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).

Figure 21a. Relation between literature and expert consensus when links between BCTs and MoA "Feedback processes" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
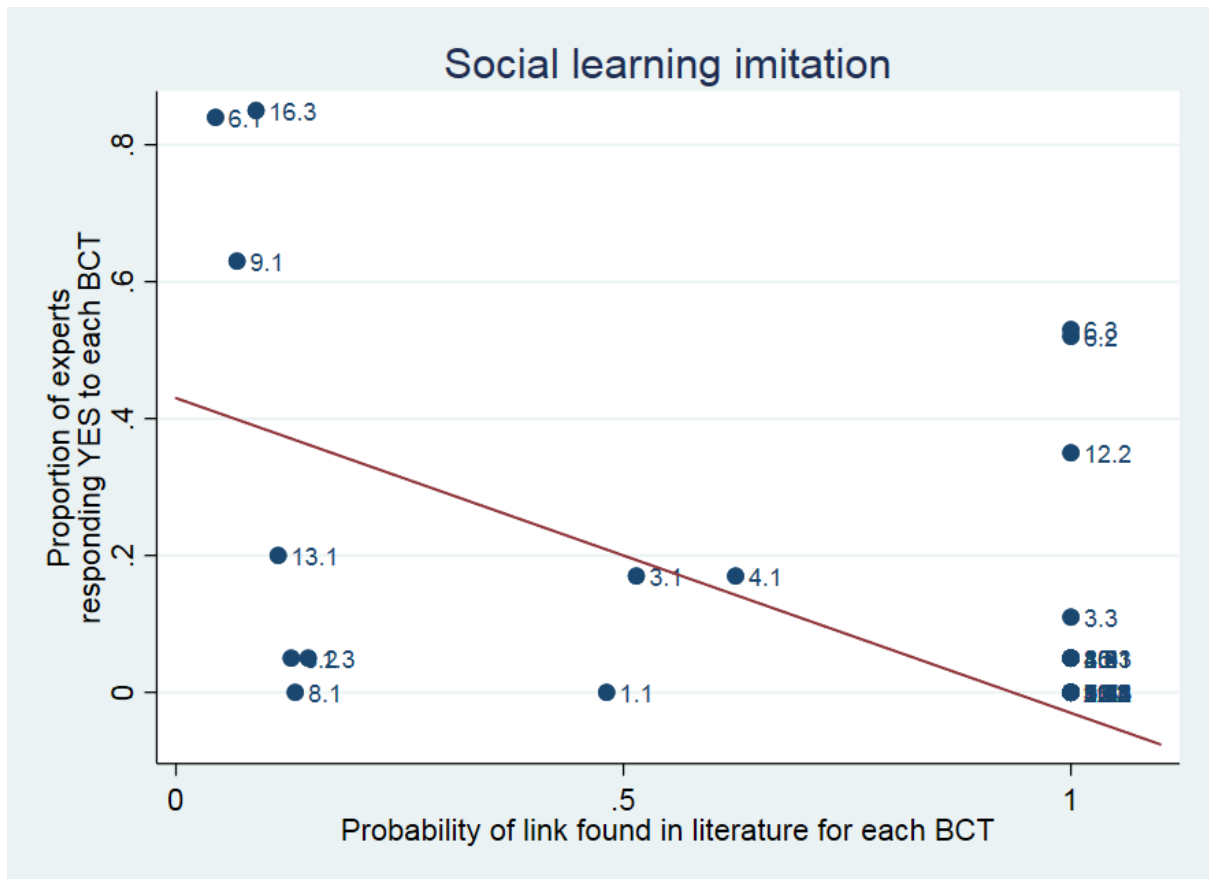
Figure 21ab. Relation between literature and expert consensus when no links between BCTs and MoA "Feedback processes" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
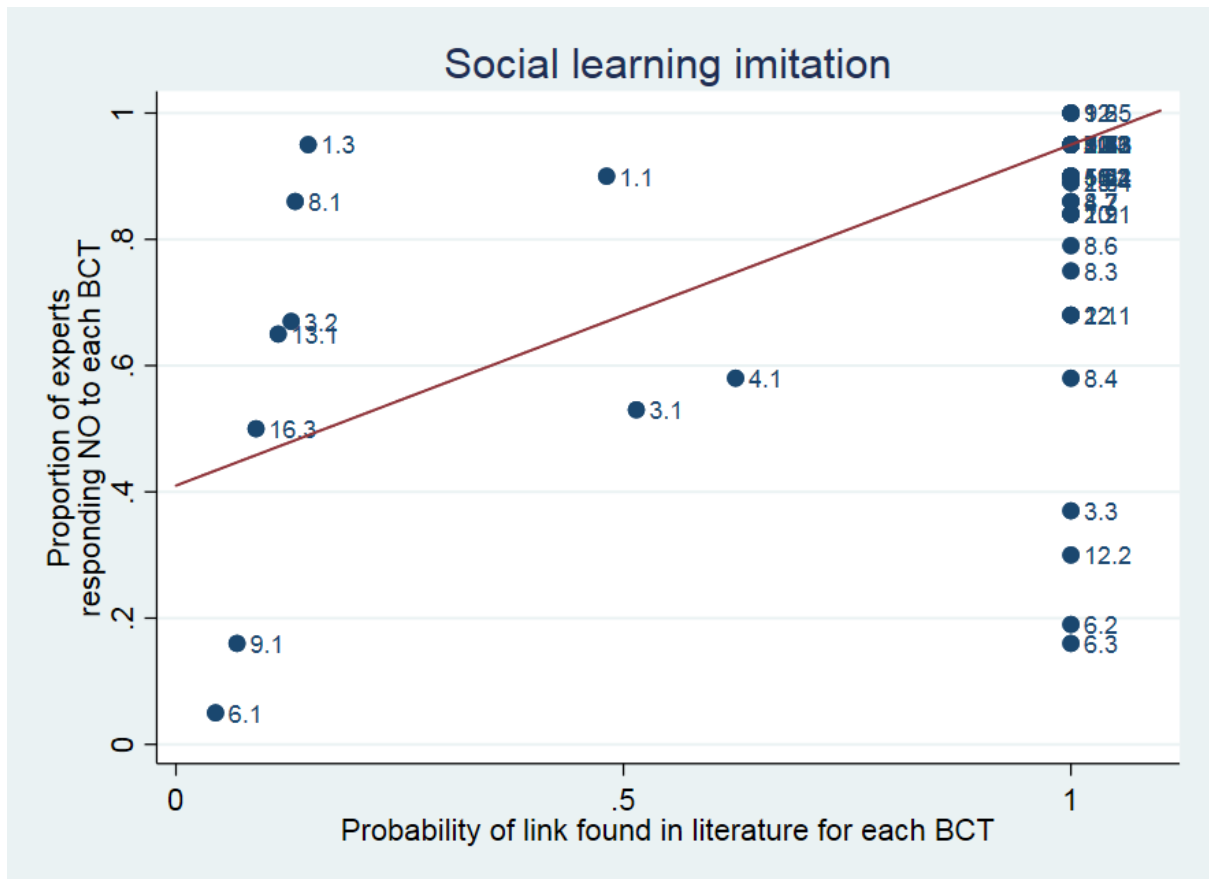
Figure 22a. Relation between literature and expert consensus when links between BCTs and MoA "Social learning/imitation" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
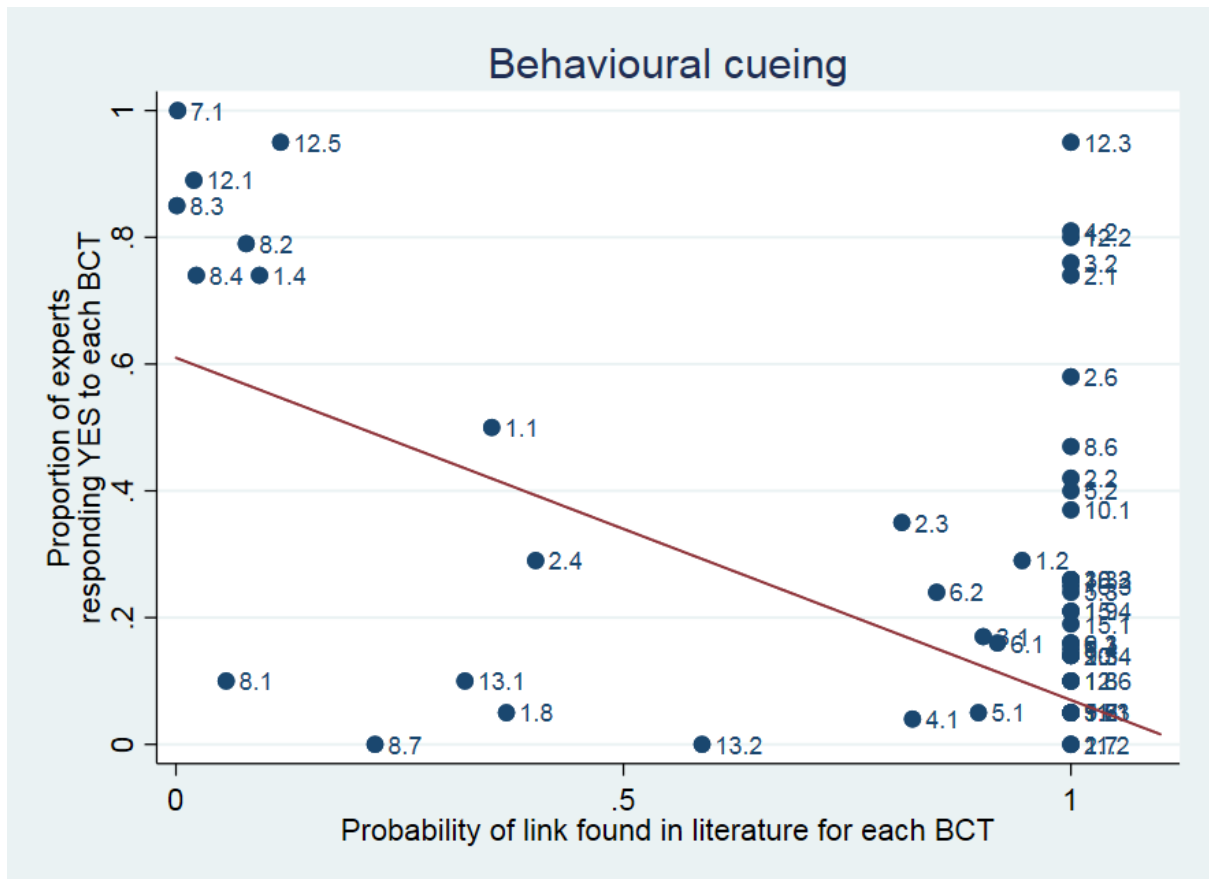
Figure 22b. Relation between literature and expert consensus when no links between BCTs and MoA "Social learning/imitation" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
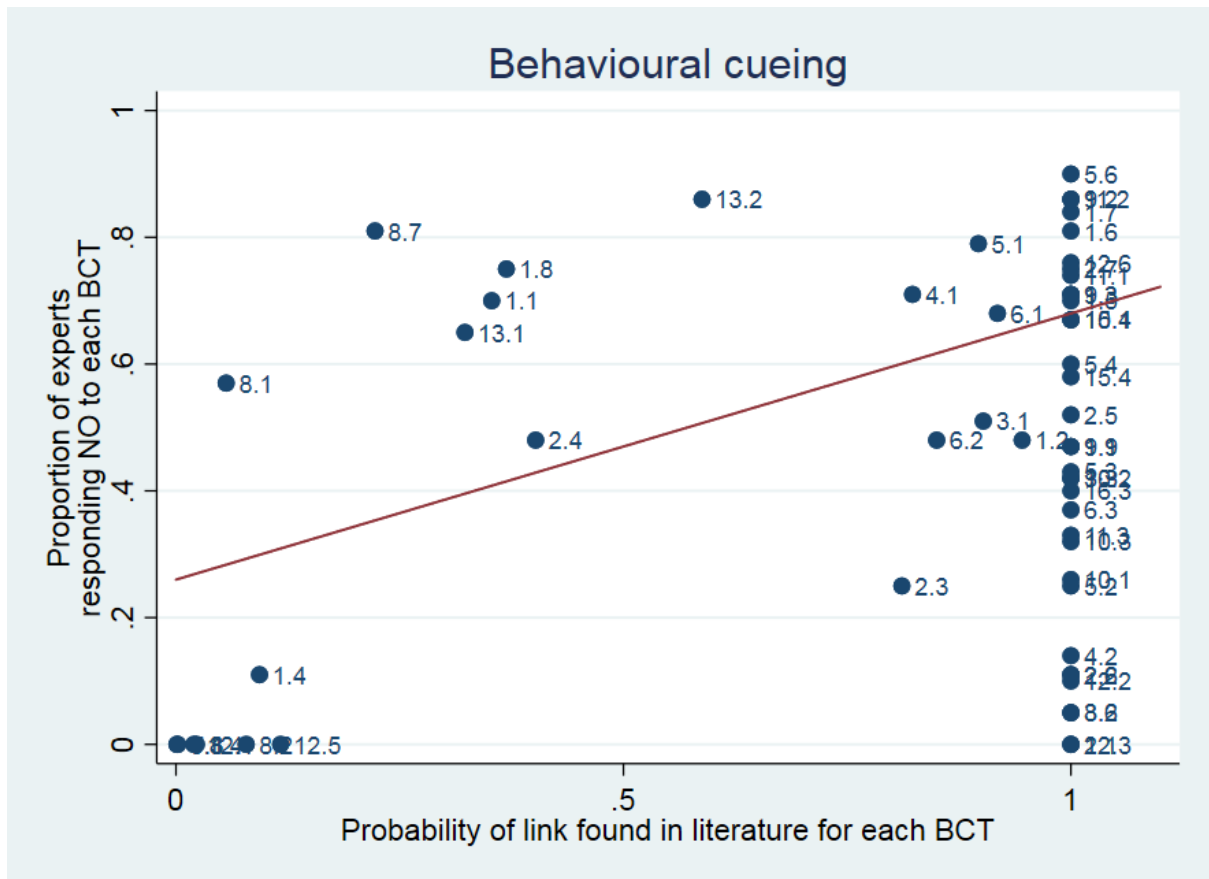
Figure 23a. Relation between literature and expert consensus when links between BCTs and MoA "Behavioral cueing" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).

Figure 23b. Relation between literature and expert consensus when no links between BCTs and MoA "Behavioral cueing" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown
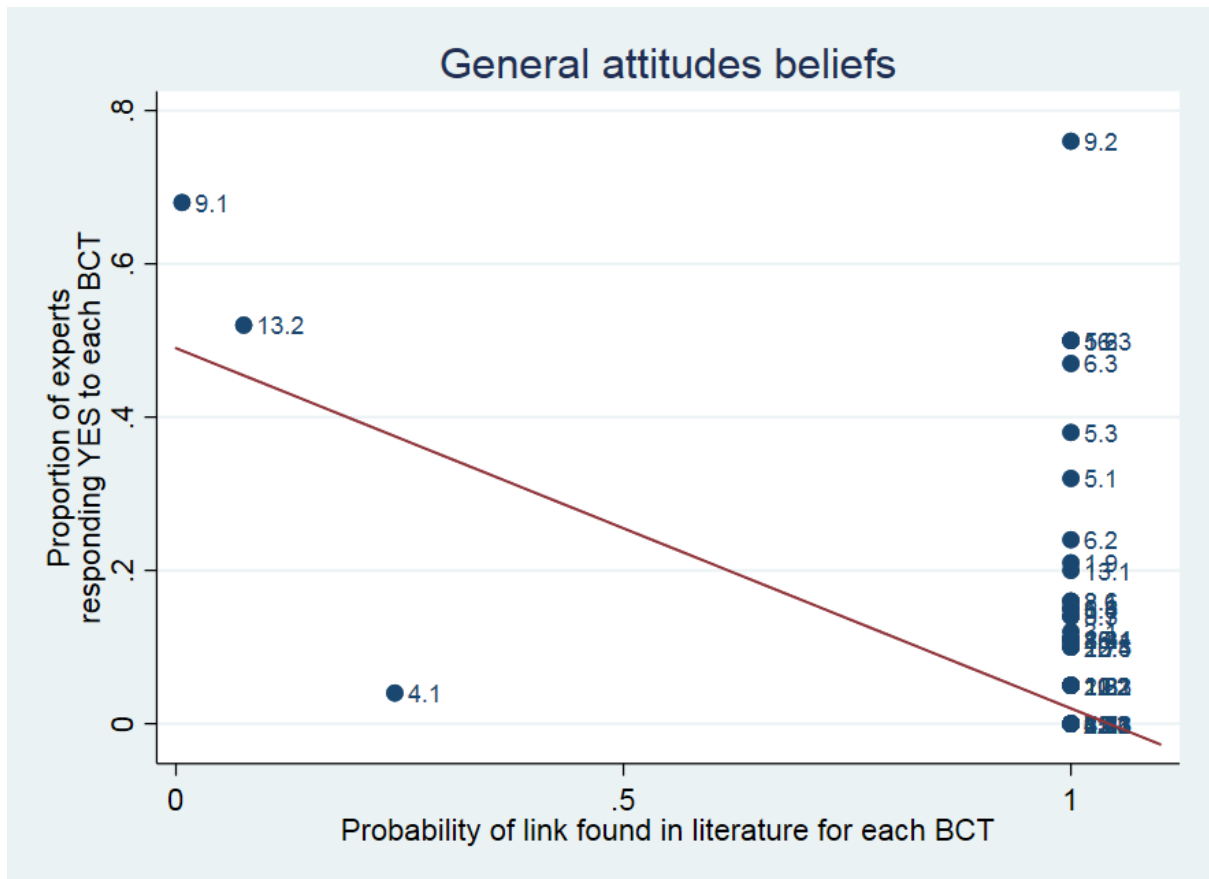
Figure 24a. Relation between literature and expert consensus when links between BCTs and MoA "General attitudes/beliefs" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
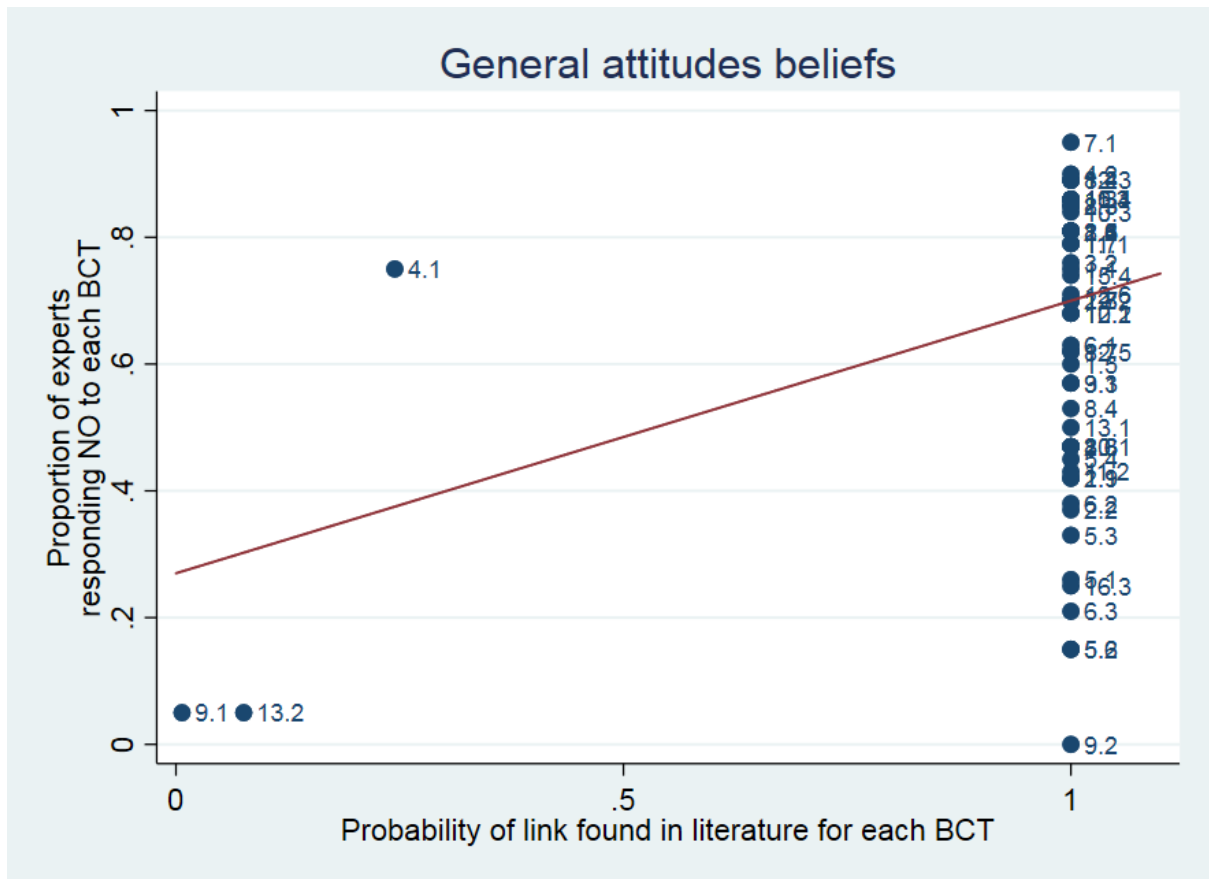
Figure 24b. Relation between literature and expert consensus when no links between BCTs and MoA "General attitudes/beliefs" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
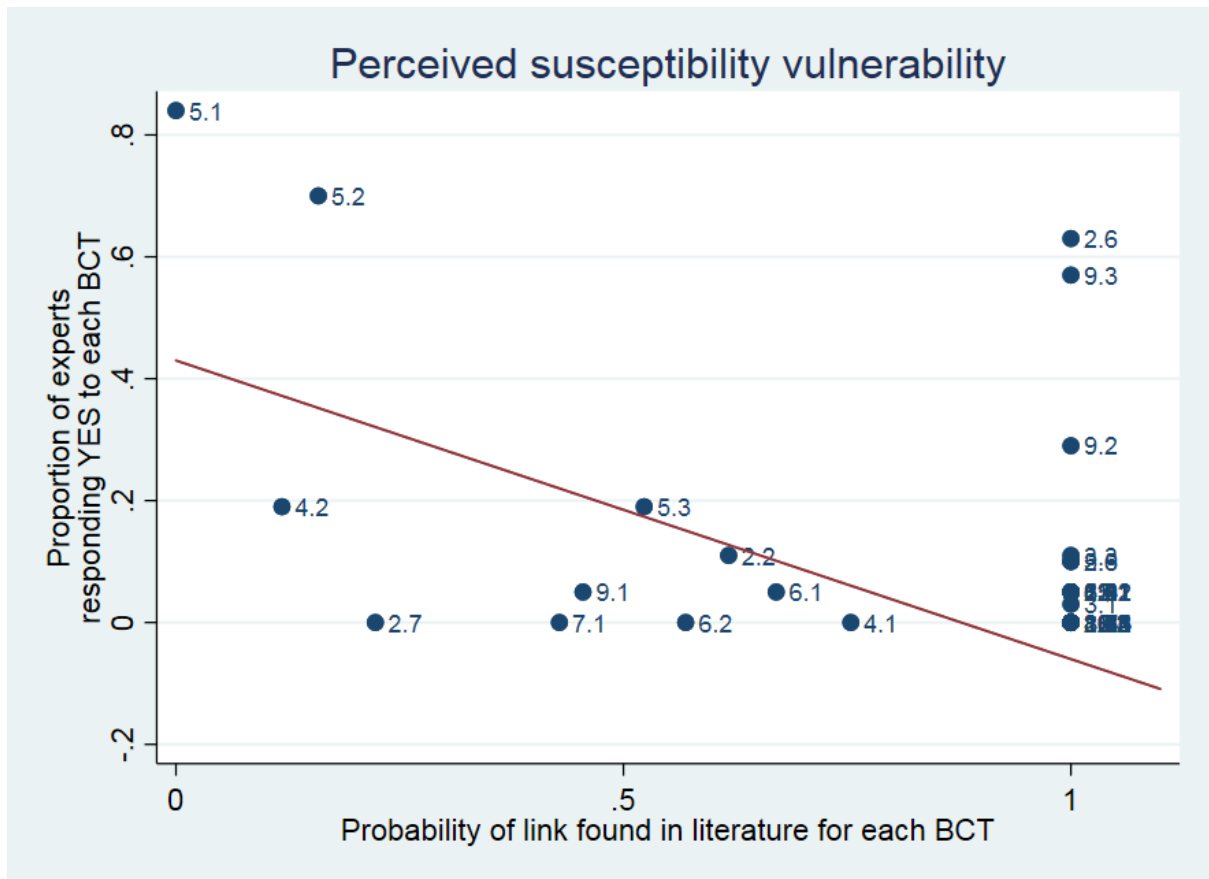
Figure 25a. Relation between literature and expert consensus when links between BCTs and MoA "Perceived susceptibility/vulnerability" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM <u>omitting</u> BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).
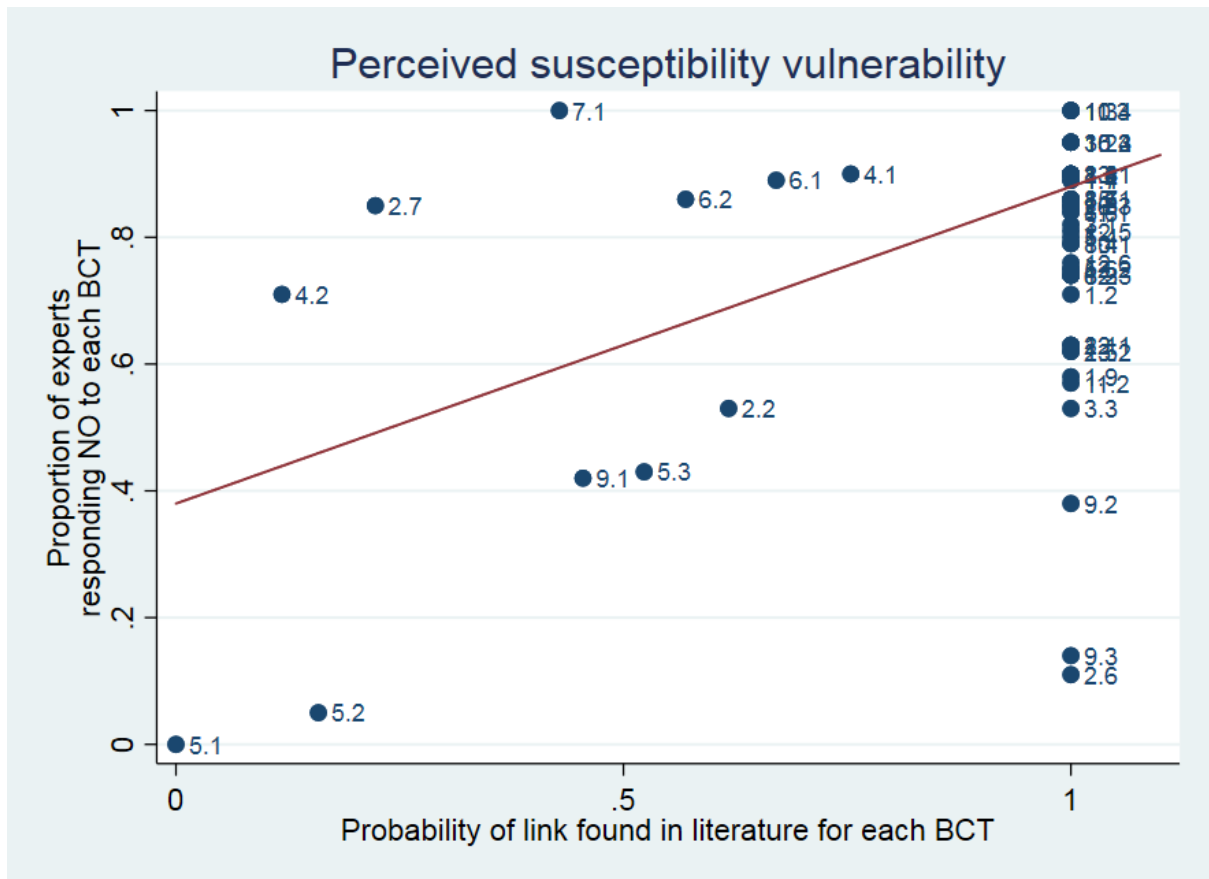
Figure 25b. Relation between literature and expert consensus when no links between BCTs and MoA "Perceived susceptibility/vulnerability" have been proposed. Each dot represents one BCT (with BCTTv1 label). The line represents the prediction from the MLM omitting BCTs for which p=1 in the literature study (but the expert consensus values for such BCTs are shown).