# Supplementary Materials

**Appendix 1: Checklist for Reporting Of Survey Studies (CROSS)**

| Section/topic | Item | Item description | Reported on page # |
|---|---|---|---|
| **Title and abstract** | | | |
| Title and abstract | 1a | State the word "survey" along with a commonly used term in title or abstract to introduce the study's design. | Title |
| | 1b | Provide an informative summary in the abstract, covering background, objectives, methods, findings/results, interpretation/discussion, and conclusions. | Abstract |
| **Introduction** | | | |
| Background | 2 | Provide a background about the rationale of study, what has been previously done, and why this survey is needed. | 3 |
| Purpose/aim | 3 | Identify specific purposes, aims, goals, or objectives of the study. | 3 |
| **Methods** | | | |
| Study design | 4 | Specify the study design in the methods section with a commonly used term (e.g., cross-sectional or longitudinal). | 4 |
| Data collection methods | 5a | Describe the questionnaire (e.g., number of sections, number of questions, number and names of instruments used). | 4, App 2 |
| | 5b | Describe all questionnaire instruments that were used in the survey to measure particular concepts. Report target population, reported validity and reliability information, scoring/classification procedure, and reference links (if any). | 4, App 2 |
| | 5c | Provide information on pretesting of the questionnaire, if performed (in the article or in an online supplement). Report the method of pretesting, number of times questionnaire was pre-tested, number and demographics of participants used for pretesting, and the level of similarity of demographics between pre-testing participants and sample population. | 4 |
| | 5d | Questionnaire if possible, should be fully provided (in the article, or as appendices or as an online supplement). | App 2 |
| Sample characteristics | 6a | Describe the study population (i.e., background, locations, eligibility criteria for participant inclusion in survey, exclusion criteria). | 4 |
| | 6b | Describe the sampling techniques used (e.g., single stage or multistage sampling, simple random sampling, stratified sampling, cluster sampling, convenience sampling). Specify the locations of sample participants whenever clustered sampling was applied. | 4 |
| | 6c | Provide information on sample size, along with details of sample size calculation. | 5 |
| | 6d | Describe how representative the sample is of the study population (or target population if possible), particularly for population-based surveys. | 5, 6 |
| Survey | 7a | Provide information on modes of questionnaire administration, including the type and number of contacts, the location where the survey was conducted (e.g., outpatient | 4 |

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| administration | | room or by use of online tools, such as SurveyMonkey). | |
| | 7b | Provide information of survey's time frame, such as periods of recruitment, exposure, and follow-up days. | 3 |
| | 7c | Provide information on the entry process:<br>–>For non-web-based surveys, provide approaches to minimize human error in data entry.<br>–>For web-based surveys, provide approaches to prevent "multiple participation" of participants. | 4, prev pub |
| Study preparation | 8 | Describe any preparation process before conducting the survey (e.g., interviewers' training process, advertising the survey). | N/A |
| Ethical considerations | 9a | Provide information on ethical approval for the survey if obtained, including informed consent, institutional review board [IRB] approval, Helsinki declaration, and good clinical practice [GCP] declaration (as appropriate). | 4 |
| | 9b | Provide information about survey anonymity and confidentiality and describe what mechanisms were used to protect unauthorized access. | 3,4, prev pub |
| Statistical analysis | 10a | Describe statistical methods and analytical approach. Report the statistical software that was used for data analysis. | 5, 6 |
| | 10b | Report any modification of variables used in the analysis, along with reference (if available). | Throughout |
| | 10c | Report details about how missing data was handled. Include rate of missing items, missing data mechanism (i.e., missing completely at random [MCAR], missing at random [MAR] or missing not at random [MNAR]) and methods used to deal with missing data (e.g., multiple imputation). | N/A |
| | 10d | State how non-response error was addressed. | N/A |
| | 10e | For longitudinal surveys, state how loss to follow-up was addressed. | N/A |
| | 10f | Indicate whether any methods such as weighting of items or propensity scores have been used to adjust for non-representativeness of the sample. | N/A |
| | 10g | Describe any sensitivity analysis conducted. | N/A |
| **Results** | | | |
| Respondent characteristics | 11a | Report numbers of individuals at each stage of the study. Consider using a flow diagram, if possible. | 4, Fig S1 |
| | 11b | Provide reasons for non-participation at each stage, if possible. | 4, Fig S1 |
| | 11c | Report response rate, present the definition of response rate or the formula used to calculate response rate. | 4, Fig S1 |

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| | 11d | Provide information to define how unique visitors are determined. Report number of unique visitors along with relevant proportions (e.g., view proportion, participation proportion, completion proportion). | 4 |
| Descriptive results | 12 | Provide characteristics of study participants, as well as information on potential confounders and assessed outcomes. | Table 1 |
| Main findings | 13a | Give unadjusted estimates and, if applicable, confounder-adjusted estimates along with 95% confidence intervals and p-values. | Throughout |
| | 13b | For multivariable analysis, provide information on the model building process, model fit statistics, and model assumptions (as appropriate). | Throughout |
| | 13c | Provide details about any sensitivity analysis performed. If there are considerable amount of missing data, report sensitivity analyses comparing the results of complete cases with that of the imputed dataset (if possible). | N/A |
| **Discussion** | | | |
| Limitations | 14 | Discuss the limitations of the study, considering sources of potential biases and imprecisions, such as non-representativeness of sample, study design, important uncontrolled confounders. | 6 |
| Interpretations | 15 | Give a cautious overall interpretation of results, based on potential biases and imprecisions and suggest areas for future research. | 5, 6 |
| Generalizability | 16 | Discuss the external validity of the results. | 5, 6 |
| **Other sections** | | | |
| Role of funding source | 17 | State whether any funding organization has had any roles in the survey's design, implementation, and analysis. | 12 |
| Conflict of interest | 18 | Declare any potential conflict of interest. | |
| Acknowledgements | 19 | Provide names of organizations/persons that are acknowledged along with their contribution to the research. | 12 |

Participant Number: ☐☐☐

# Researcher Copy

**SECTION A:** *Demographics

1. **Age** ☐☐
2. **Gender**
   ☐ Male ☐ Female
3. **Which ethnic group/s do you belong to? – *Mark all the spaces that apply to you.***
   ☐ NZ European
   ☐ Māori
   ☐ Samoan
   ☐ Cook Island Māori
   ☐ Tongan
   ☐ Niuean
   ☐ Chinese
   ☐ Indian
   ☐ Other - *please state* ----------
4. **What is your highest secondary school qualification?**
   ☐ None
   ☐ NZ School Certificate in one or more subjects *or*
   National Certificate Level 1 *or*
   NCEA Level 1
   ☐ NZ Sixth Form Certificate in one or more subjects *or*
   National Certificate Level 2 *or*
   NZ UE before 1986 in one or more subjects *or*
   NCEA Level 2
   ☐ NZ Higher School Certificate *or*
   Higher Leaving Certificate *or*
   NZ University Bursary/Scholarship *or*
   National Certificate Level 3 *or*
   NCEA Level 3 *or*
   NZ Scholarship
   ☐ Other secondary schooling qualification gained in NZ – *please state*

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   ☐ Other secondary schooling qualification gained overseas
5. **Apart from secondary school qualifications, do you have another completed qualification?**
   ☐ Yes ☐ No
   *If yes, please state* ----------

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**6. Living status** – ***mark as many spaces as you need to show all the people living in the same household as you.***

- ☐ Husband, wife or partner
- ☐ Mother and/or father
- ☐ Son(s) and/or daughter(s)
- ☐ Brother(s) and/or sister(s)
- ☐ Flatmate/s
- ☐ Other, for example *GRANDMOTHER, MOTHER AND/OR FATHER IN LAW – please state*

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**7. Number of regular medications taken** ---

Participant Number: ☐☐☐

**SECTION B:** ***Medication Knowledge Evaluation Tool**

**1. Can you list the names of all medications you are currently taking?**

☐ Correct if participant states either generic or brand name (1)

☐ Participant does not know (0)

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**2. Can you tell me why you are taking this medication?**

☐ Participant correctly states reason for administration of medication (1)

☐ Participant does not know (0)

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**3. Do you know how to take your medicine?**

☐ Participant can correctly describe administration method for this medication (e.g. tablet; swallowing the tablet whole with plenty of water) (1)

☐ Participant does not know (0)

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**4. Do you know when to take your medicine?**

☐ Correct if participant correctly describes when to take this medication (1)

☐ Participant does not know (0)

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**5. Do you know the possible side effects of your medicine?**

☐ Correct if participant can state medication side effects, including those not experienced by patient (1)

☐ Participant does not know (0)

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**6. Do you know what to do if your medication's side effects occur?**

☐ Correct if participant states they would call their physician/pharmacist, stop taking the medication, or other self-management intervention methods when faced with side effects (1)

☐ Participant does not know (0)

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**7. Do you know what to do if you miss a dose of your medicine?**

☐ Participant says he or she never forgets a dose, he or she takes the next scheduled dose, or he or she calls physician or pharmacist (1)

☐ Incorrect if participant does not know or declares he or she doubles up on doses (0)

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**SECTION C:** *MMAS-8

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Participant Number: | | | |

**SECTION D:** ***Beliefs about Medicines Questionnaire**

*"We would like to ask you about your views about the medicines prescribed to you. I will read statements that other people have made about their medications and we would like you to tell us how much you agree or disagree with them. There are no right or wrong answers. We are just interested in your own views."*

**1**. **My health at present, depends on my medicines**. (N)

Strongly Agree Agree Neither agree nor disagree Disagree Strongly Disagree

**2**. **Having to take medicines worries me**. (C)

Strongly Agree Agree Neither agree nor disagree Disagree Strongly Disagree

**3**. **My life would be impossible without my medications.** (N)

Strongly Agree Agree Neither agree nor disagree Disagree Strongly Disagree

**4**. **Without my medicines I would be very ill/sick**. (N)

Strongly Agree Agree Neither agree nor disagree Disagree Strongly Disagree

**5.** **I sometimes worry about the long-term effects of my medicines**. (C)

Strongly Agree Agree Neither agree nor disagree Disagree Strongly Disagree

**6**. **My medicines are a mystery to me.** (C)

Strongly Agree Agree Neither agree nor disagree Disagree Strongly Disagree

**7**. **My health in the future will depend on my medicines**. (N)

Strongly Agree Agree Neither agree nor disagree Disagree Strongly Disagree

**8**. **My medicines disrupt my life**. (C)

Strongly Agree Agree Neither agree nor disagree Disagree Strongly Disagree

**9**. **I sometimes worry about becoming too dependent on my medicines**. (C)

Strongly Agree Agree Neither agree nor disagree Disagree Strongly Disagree

**10**. **My medicines protect me from becoming worse.** (N)

Strongly Agree Agree Neither agree nor disagree Disagree Strongly Disagree

**11**. **My medicines give me unpleasant side effects**. (C)

Strongly Agree Agree Neither agree nor disagree Disagree Strongly Disagree

**SECTION E:** ***Brief Illness Perception Questionnaire**

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*Reproduction of the BIPQ is prohibited by the license agreement, but is available in full form in the appendix of Broadbent E, Petrie KJ, Main J, Weinman J. The brief illness perception questionnaire. J Psychosom Res. 2006 Jun;60(6):631-7. doi: 10.1016/j.jpsychores.2005.10.020. PMID: 16731240.*

Participant Number: | | |

**SECTION F:** ***Single Item Literacy Screener**

**1. How confident are you at filling out medical forms by yourself?**

Always Quite a bit Somewhat A little bit Not at all

**SECTION G:** ***Additional Screeners**

**1. How often do you have someone (like a family member, friend, hospital/clinic worker or caregiver) help you read hospital materials?**

Always Often Sometimes Occasionally Never

**2. How often do you have problems learning about your medical condition because of difficulty understanding written information?**

Always Often Sometimes Occasionally Never

Participant Number: ☐☐☐

**SECTION H:** ***Additional Questions**

1. **What are your expectations of the health care services provided to you?** ☐ P ☐ N

   *"For example: when you go to a tyre garage, you expect them to fix your puncture and check your wheel alignment."*

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2. **Who manages your medications?** ☐ P ☐ N

   *"For example: a mother looks after her 2 year old son's medications."*

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**3. Thinking about your experience with kidney disease, what do you believe made it hard for you to manage your condition?** ☐ P ☐ N

   *"For example: growing your tomatoes can be hard because the slugs love to eat them.***"**

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4. **Thinking about your kidney disease, is there anything that you feel you would like to learn more about?** ☐ P ☐ N

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- ☐ Medications
- ☐ Medical condition/s
- ☐ How to look after yourself to stay healthy

Participant Number: ☐☐☐

**5. How would you like to learn about the things you just talked about in question 4?** ☐ P ☐ N

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- ☐ Written information, such as pamphlets
- ☐ A video or dvd
- ☐ A website with both written information and videos
- ☐ A face to face session with a pharmacist

***Thank you for your time and help***

Figure S1. Participant disposition.

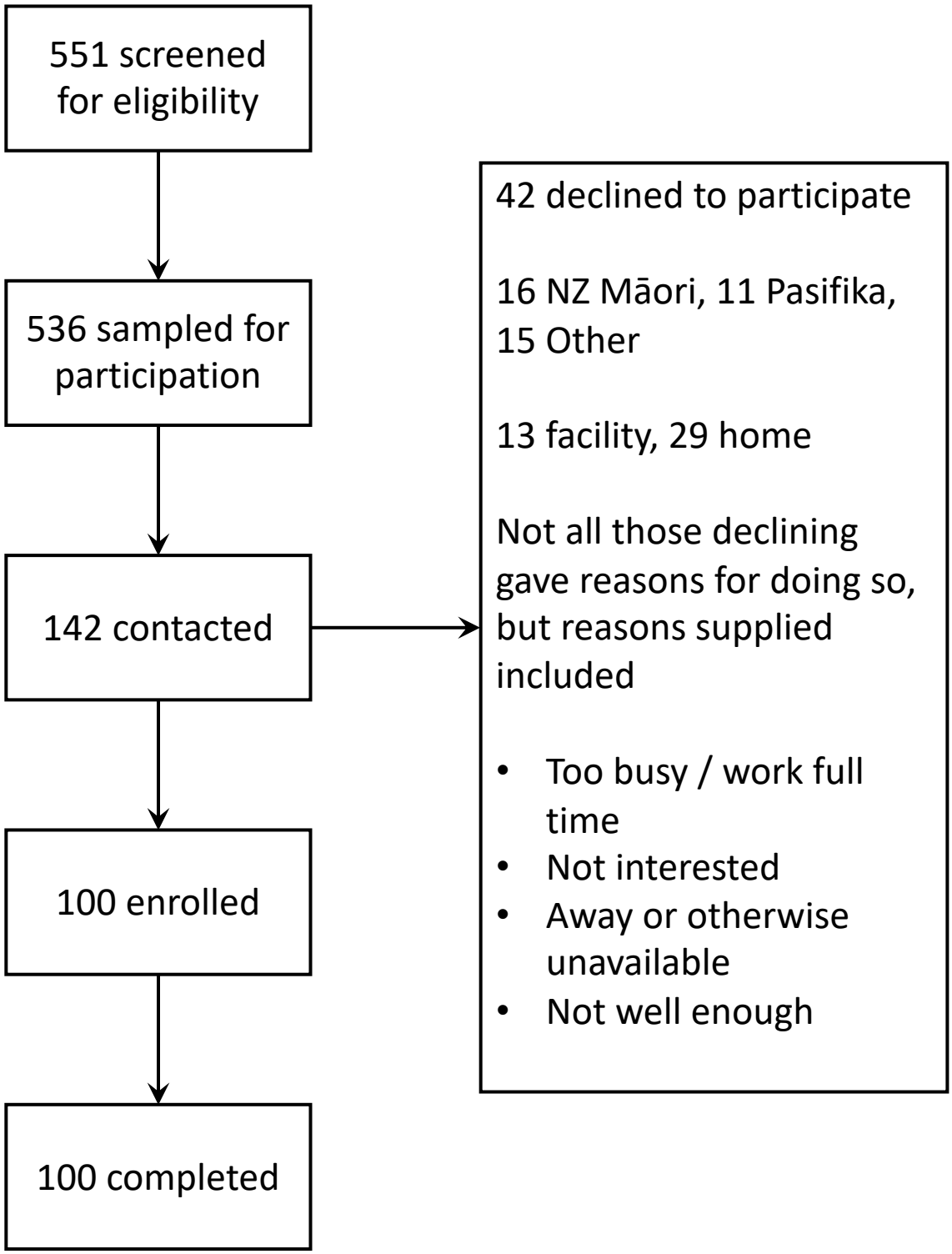

Figure S2. The mediation model specification and estimation for *Hands-On Medical Knowledge,* as determined from the Medication Knowledge Evaluation Tool. The upper diagram is direct output of Stata software for COV-SEM, the lower constructed from regression tables for VAR-SEM.

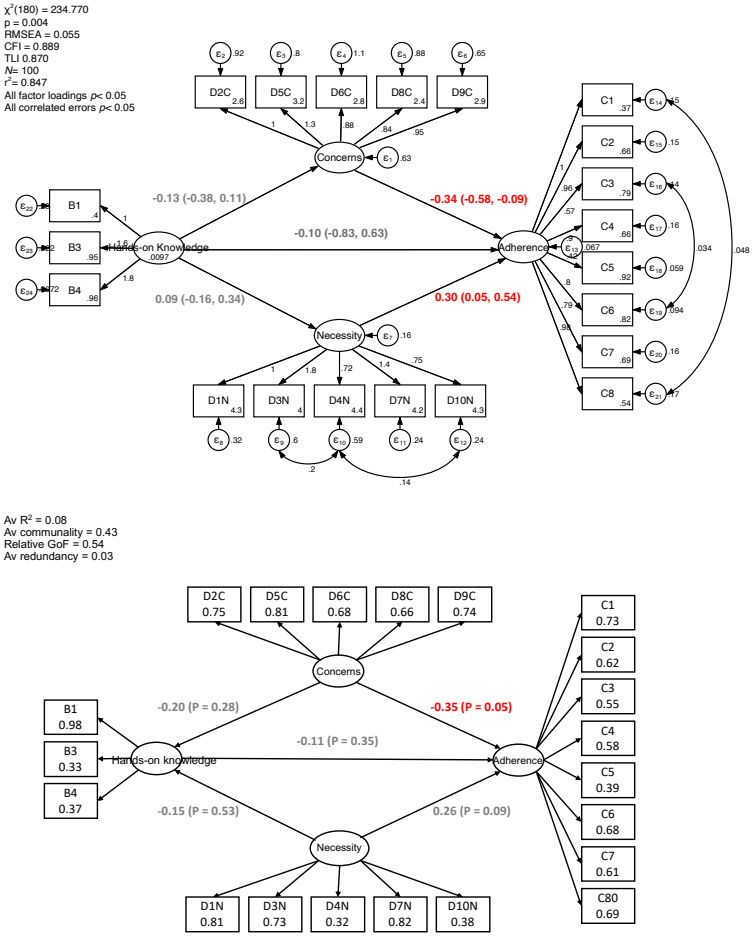

Figure S3. The mediation model specification and estimation for *Conceptual Medical Knowledge,* as determined from the Medication Knowledge Evaluation Tool. The upper diagram is direct output of Stata software for COV-SEM, the lower constructed from regression tables for VAR-SEM.

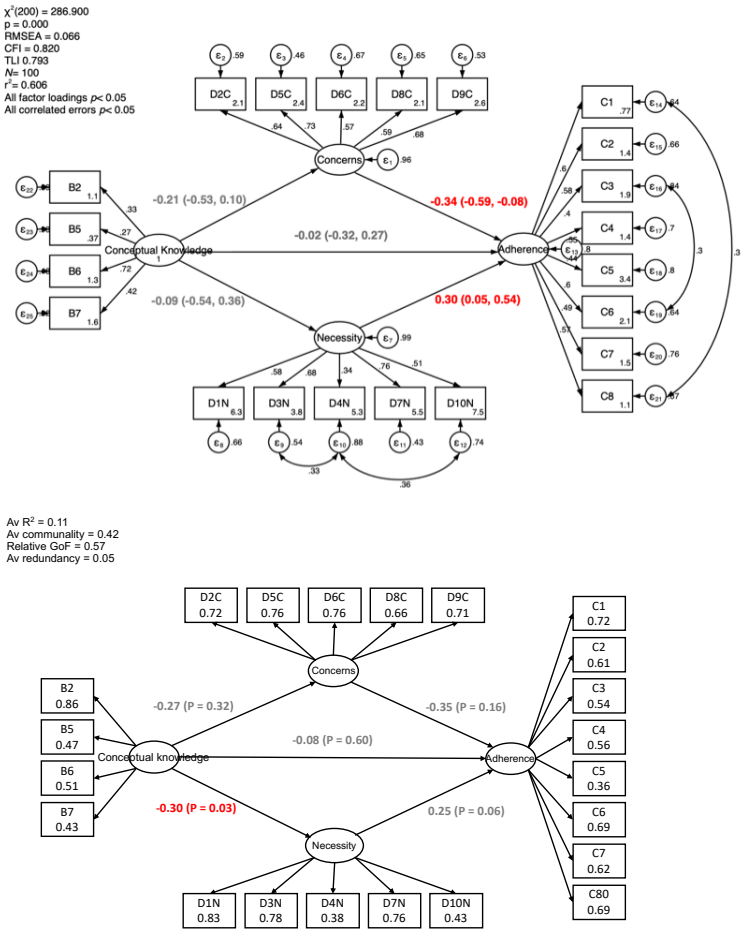

Figure S4. The mediation model specification and estimation for *Cognitive Illness Perception,* as determined from the Brief Illness Perception Questionnaire. The upper diagram is direct output of Stata software for COV-SEM, the lower constructed from regression tables for VAR-SEM.