



Health Services
Research Unit



*Questionnaire measures,
methodological studies, and the
TACT principle*

Jill Francis
j.francis@abdn.ac.uk

Agenda

- ❖ Embedding methodological studies around the TPB (as discussed at our last meeting).

Acknowledgements

- ❖ Funders:
 - European Union (to Newcastle)
 - Chief Scientist Office, Scottish Executive (to Aberdeen)
- ❖ Newcastle group (Martin Eccles; Susan Hrisos; Nick Steen)
- ❖ Aberdeen group (Marie Johnston; Moira Cruickshank)
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- ❖ Québec City (Gaston Godin)

Fishbein's TACT principle

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Fishbein's TACT principle

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Context of the behaviour (social psychology of clinical behaviour)

- ❖ Decisional context
- ❖ Relational context
- ❖ (also) Measurement context

Context of the behaviour (social psychology of clinical behaviour)

❖ **Decisional context**

- **Are there limited behavioural options?**

❖ Relational context

- Interpersonal motives
- Level of patient involvement

❖ (also) Measurement context

- **Order effects**
- Salience effects
- Format effects

1. Decisional context

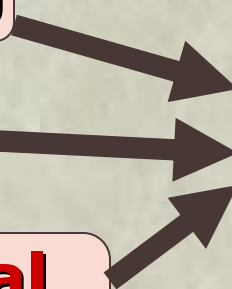
- ❖ Do clinicians sometimes effectively choose between limited behavioural options? e.g explain vs prescribe; prescribe Drug A vs Drug B.

Attitude to prescribing

**Subjective Norm
about prescribing**

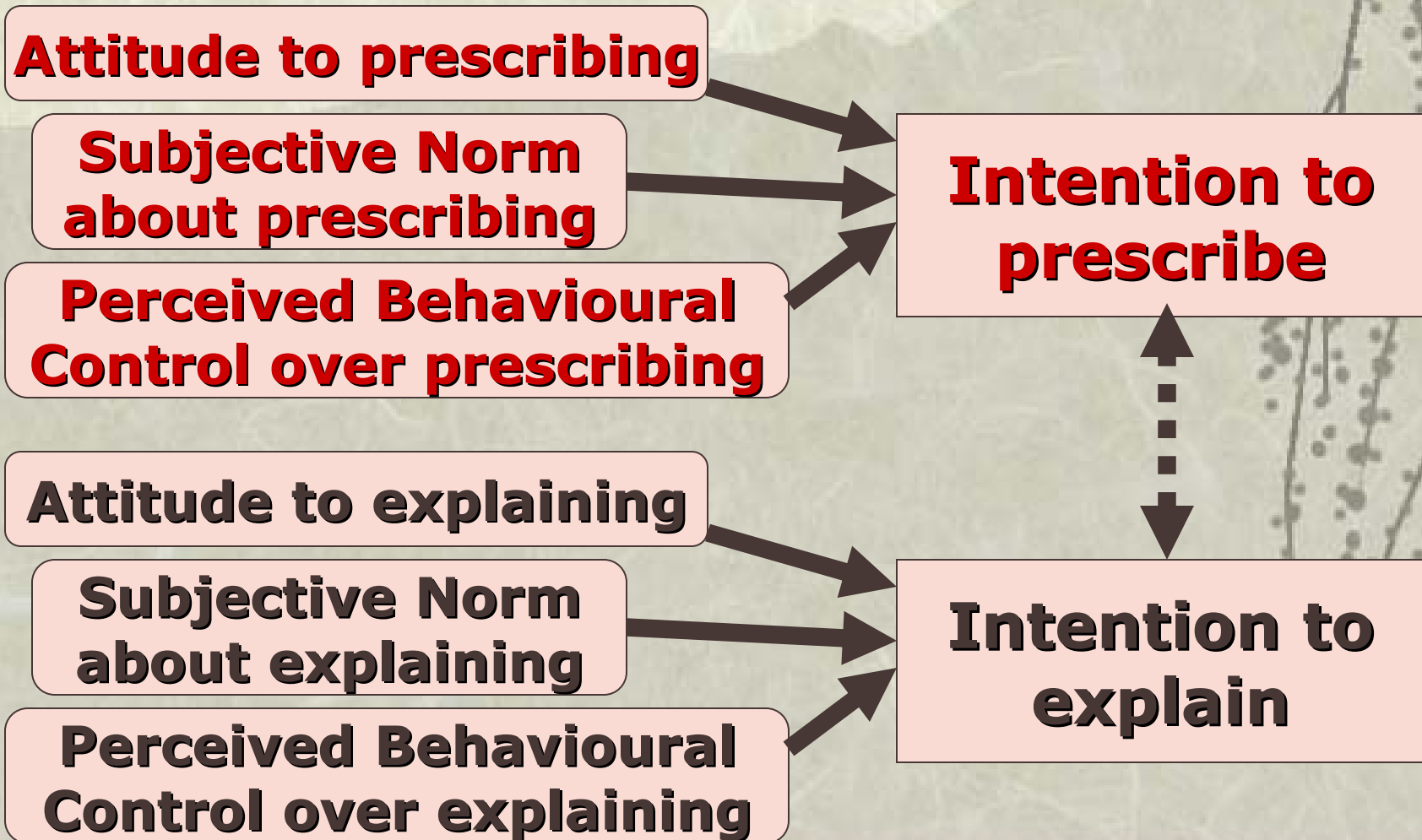
**Perceived Behavioural
Control over prescribing**

**Intention to
prescribe**



1. Decisional context

- ❖ Do clinicians sometimes effectively choose between limited behavioural options? e.g explain vs prescribe; prescribe Drug A vs Drug B.



1. Decisional context

- ❖ Limited behavioural options?
- ❖ **Difference scores** predict Choice (intentions) between behaviours (P; E)

(Attitude to prescribing)
- (minus)
(Attitude to explaining)

(Subjective Norm about P)
-
(Subjective Norm about E)

(Perceived Behl Control over P)
-
(Perceived Behl Control over E)

**Intention
(Choice) to
prescribe
or explain**

Ajzen I, Fishbein M. (1969). The prediction of behavioral intentions in a choice situation. *J.Exp.Soc.Psychol*;5:400-416

Example: study design did not take into account the decisional context

- ❖ **Lambert BL (1997)** Factors associated with antibiotic prescribing in a managed care setting: An exploratory investigation. **Soc Sci Med;45:1767-1779**
- ❖ 25 physicians specialising in internal medicine, paediatrics, family medicine
- ❖ TRA study (Attitude, Subjective Norm, Intention). 129-item questionnaire. Intention items for prescription of 7 oral antibiotics, e.g: **When amoxicillin is one of several indicated alternatives, I intend to prescribe amoxicillin** **1 2 3 4 5 6 7**
- ❖ Analysis: Multiple linear regression for each drug - direct measures of Attitude and Subjective Norm to predict Intention
- ❖ Range of β for attitude: .11 to .54; for subjective norm: .38 to .81

Question 1:

- ❖ Did intention questions adequately reflect the choice situation? **When amoxicillin is one of several indicated alternatives, I intend to prescribe amoxicillin**
- ❖ Alternative intention items:
 - (a) Of the next 10 patients for whom one of the following is indicated, for how many would you prescribe:
 - Amoxicillin _____
 - X _____
 - Y _____
 - Z _____(to a total of 10)
 - (b) When the following are indicated, which would you prescribe? (perhaps with certainty ratings of 1 – 7)

Question 2:

- ❖ Would measurement that is consistent with the choice situation lead to a smaller intention – behaviour gap?
- ❖ In Lambert study:
 - Behaviour: proportion of each antibiotic prescribed (e.g. n of amoxicillin / total prescriptions based on the 7 antibiotics)
 - i.e. Behaviour was measured in terms of which one of the options was chosen; intention was measured without regard to the decisional context
 - Intention did not predict behaviour for any of the 7 drugs

Example: study design did take into account the decisional context

- ❖ Cruickshank & Francis (in process), Predicting Intentions in a Choice Situation; 163 psychology students
- ❖ TPB study. 34-item questionnaire. Intention items, e.g. **People often find that they don't have time to engage in both social and work activities as much as they would like. If this happens to you in the next four weeks**

I intend to

engage in : _____ : _____ : _____ : _____ : _____ : _____ : _____ : engage in
work activities **can't** **social activities**
decide

- ❖ Multiple linear regression to predict behavioural intention (choice)
 1. TPB predictors separately for work activity / social activity
 2. **Difference scores** for Attitude, Subjective Norm, Perceived Behavioural Control

Intention in choice situation: Results

❖ Adjusted R^2

- for predictors relating to social activity: **0.14**
- for predictors relating to work activity: **0.17**
- for predictors (difference scores): **0.32**

Question 3:

- ❖ Is the superior prediction using difference scores simply a matter of better **correspondence** between measures?

OR...

- ❖ Does it better reflect the **decisional context**?
- ❖ Empirical study needed to answer this.

Decisional context accounted for in research design

YES

NO

**Correspondence
between predictor
items and
intention items**

GOOD

All items about
behavioural choice

All items about
one behaviour
in isolation

POOR

Predictor items about
one behaviour (DIFF)
intention items about
choice situation

Predictor items about
one behaviour
intention items about
choice situation

Decisional context in clinical practice

- ❖ In practice, how much clinical behaviour involves choice between a limited number of behavioural options?
- ❖ Would study designs based on choice result in
 - Better prediction?
 - Smaller intention-behaviour gap?
 - More effective interventions?

*Measurement context:
Order effects*

TWITtering

Trial-WithIn-Trial (TWIT): study of order effects

- ❖ Context of study: Translating clinicians' beliefs into implementation interventions (TRACII)
- ❖ Clinical context: primary care; N = 396/1225 GPs
- ❖ Target behaviour: Management of upper respiratory tract infections without prescribing antibiotics
- ❖ Questionnaire included items to measure:
 - TPB constructs (& related constructs e.g. anticipated cons)
 - Self-efficacy
 - Past behaviour; habit;
 - Action plans
- ❖ 4 versions of questionnaire to investigate order effects

Why?

- ❖ $MS = TS \pm ME$, where
 - MS is Measured Score;
 - TS is “True” score
 - ME is Measurement Error
- ❖ Measurement error may arise from temporary effects that are a function of the measurement context e.g.
 - surveillance effects;
 - **cognitions that immediately precede measurement;**
 - measurement in a simulated context;
 - responder fatigue effects

Study Rationale, Questions

- ❖ Answering lots of questions about “management of URTIs without prescribing antibiotics” is likely to have a temporary effect on responses in later stages of a questionnaire.
- ❖ If this effect artificially raises some scores or magnifies some correlations, results are less likely to be reliable
- ❖ Ajzen recommends mixing up the order of items from different constructs. This is not always done (e.g. to simplify formatting; make questions clearer; simplify analysis). **DOES THIS MATTER?**
- ❖ ALSO: Can this type of investigation uncover some of the cognitive processes that influence responses?
- ❖ ALSO: What effect does a vignette section have on later responses?

Questionnaire Versions

1	Past behaviour	Other questions	Vignettes
2	Other questions	Past behaviour	Vignettes
3	Vignettes	Past behaviour	Other questions
4	Vignettes	Other questions	Past behaviour

‘Other’ questions: Order

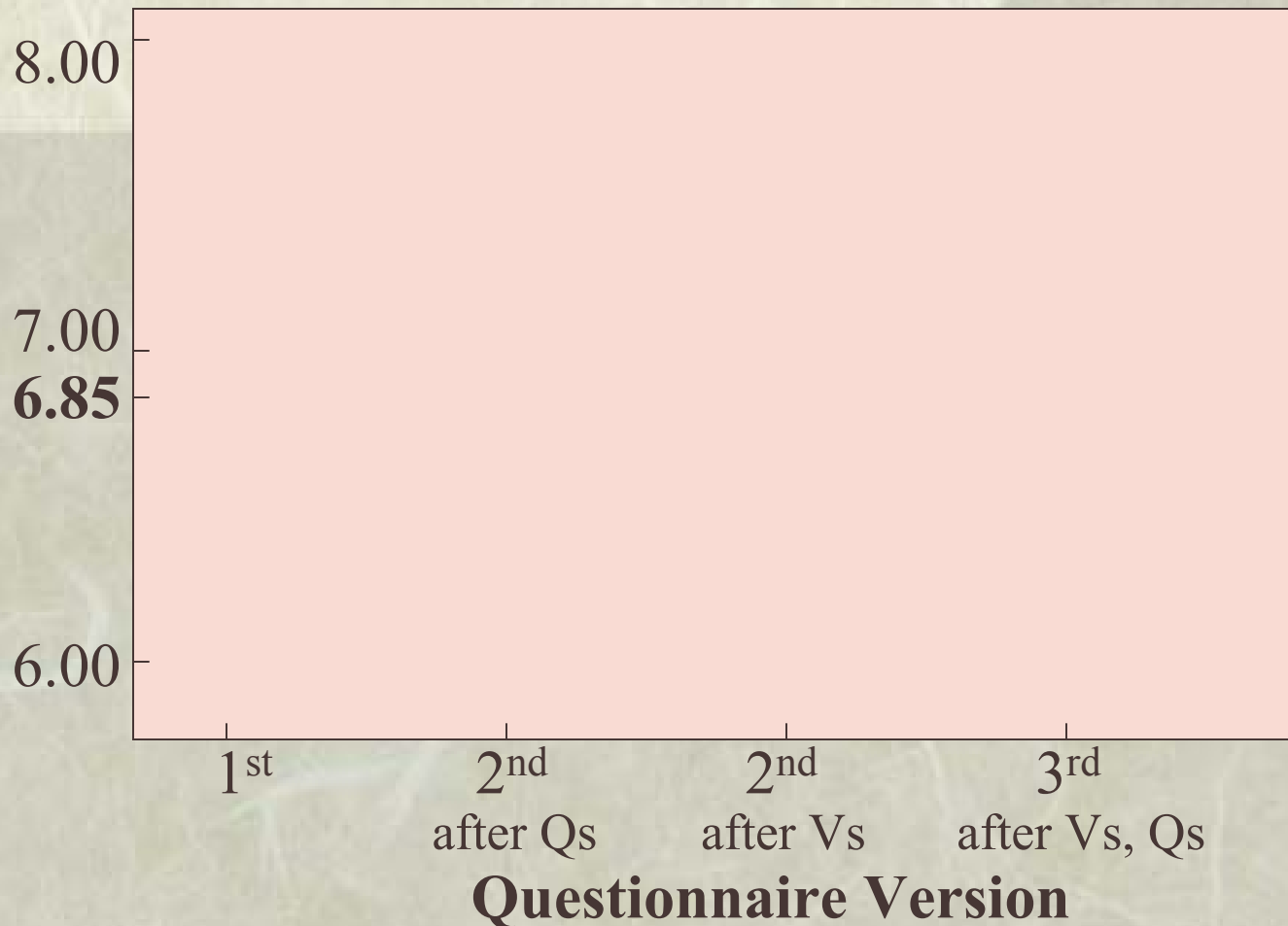
- Normative beliefs
- Outcome beliefs
- Anticipated consequences
- Self-efficacy (situational characteristics)
- Evidence of habitual behaviour
- Intention (direct estimation)
- Control beliefs
- Perceived Behavioural Control (direct)
- Attitude (direct)
- Outcome evaluations
- Motivation to comply
- Self-efficacy (patient characteristics)
- **Intention**
- **Action plan**

Assumptions (to be tested)

- ❖ Completing questionnaires where every item asks about the target behaviour will highlight the importance / desirability / reasonableness of the behaviour, which may inflate scores on later questions
- ❖ Completing vignettes depicting real clinical situations will highlight the complexities, exceptional cases and difficulties of enacting the behaviour, which may deflate scores on later questions

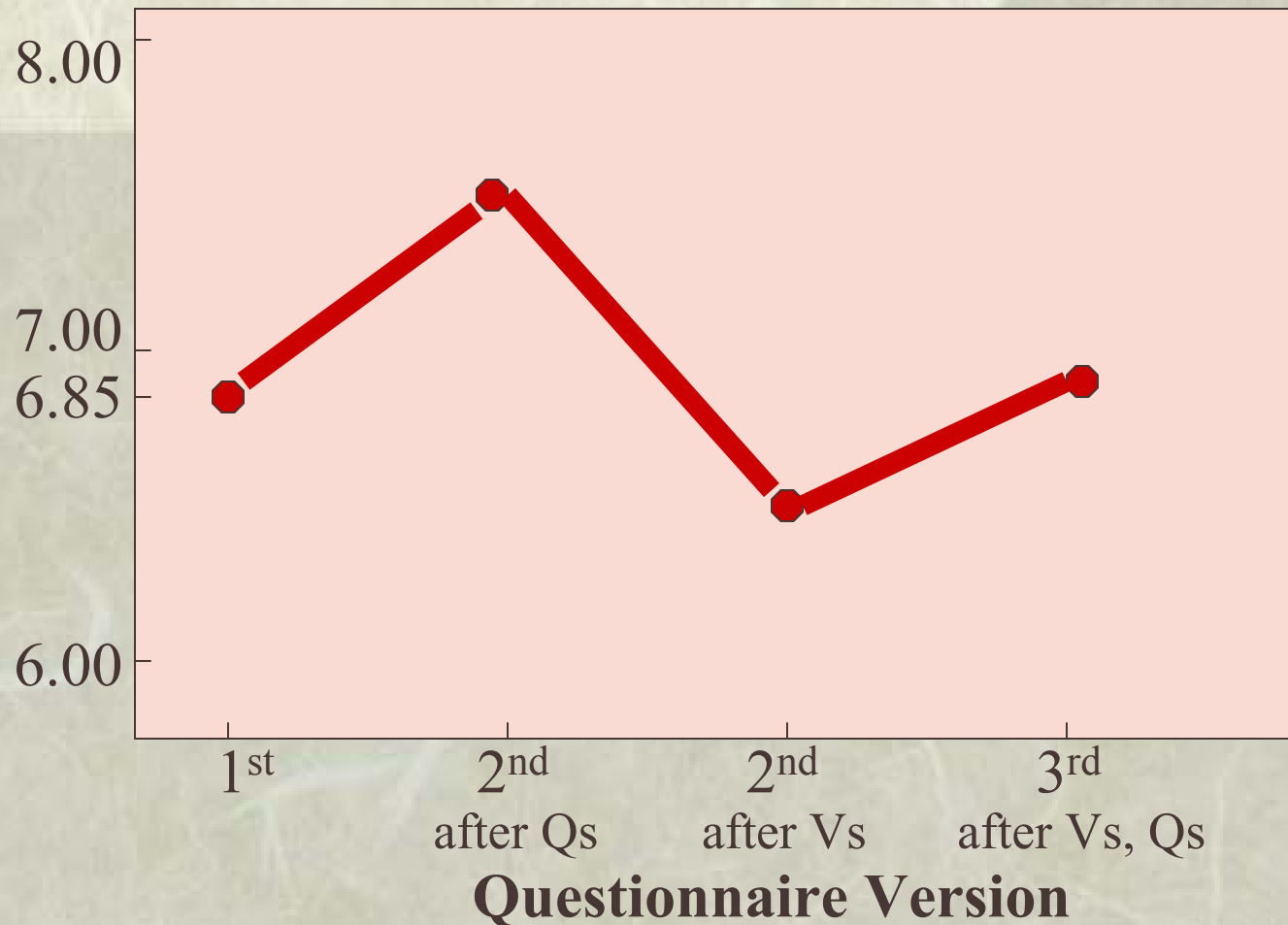
Predictions: Past behaviour

“From memory, approximately how many of the last 10 patients who presented with an URTI for the first time, did you manage *without* prescribing an antibiotic?” M=6.85

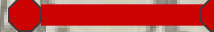


Predictions: Past behaviour

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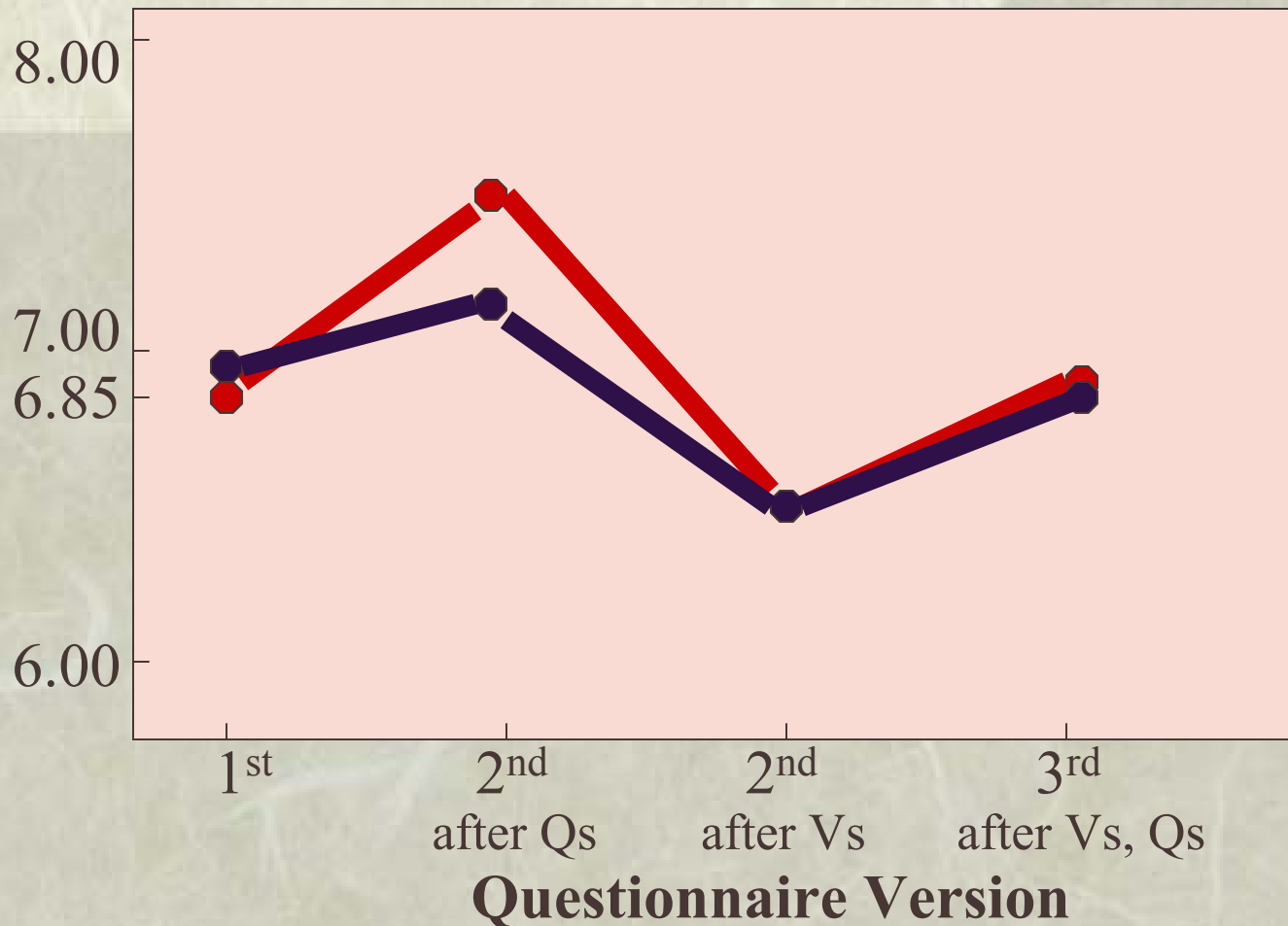


Predicted pattern



Results: Past behaviour

“From memory, approximately how many of the last 10 patients who presented with an URTI for the first time, did you manage *without* prescribing an antibiotic?” M=6.85



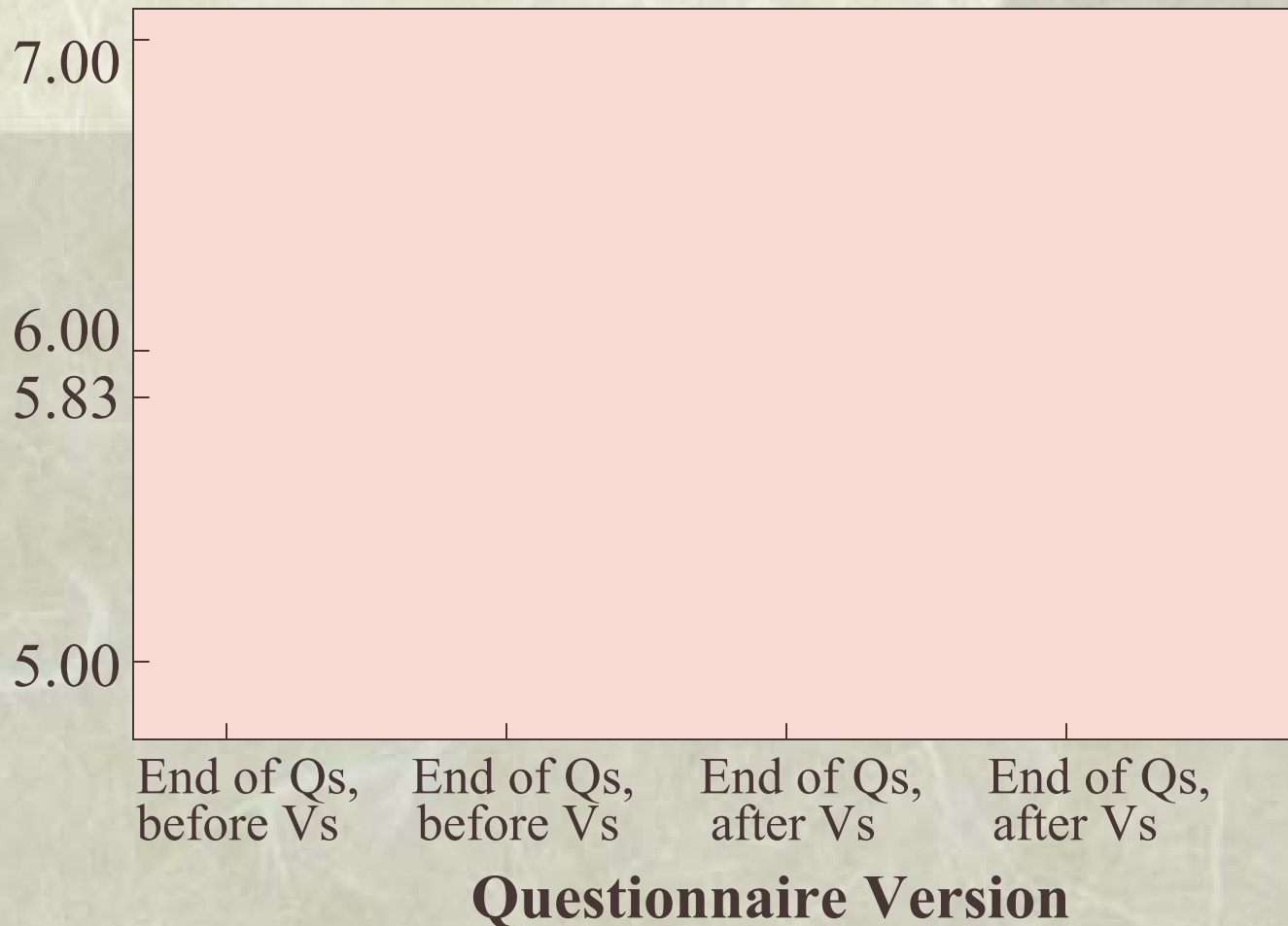
Predicted pattern

Actual pattern

($p = 0.158$)

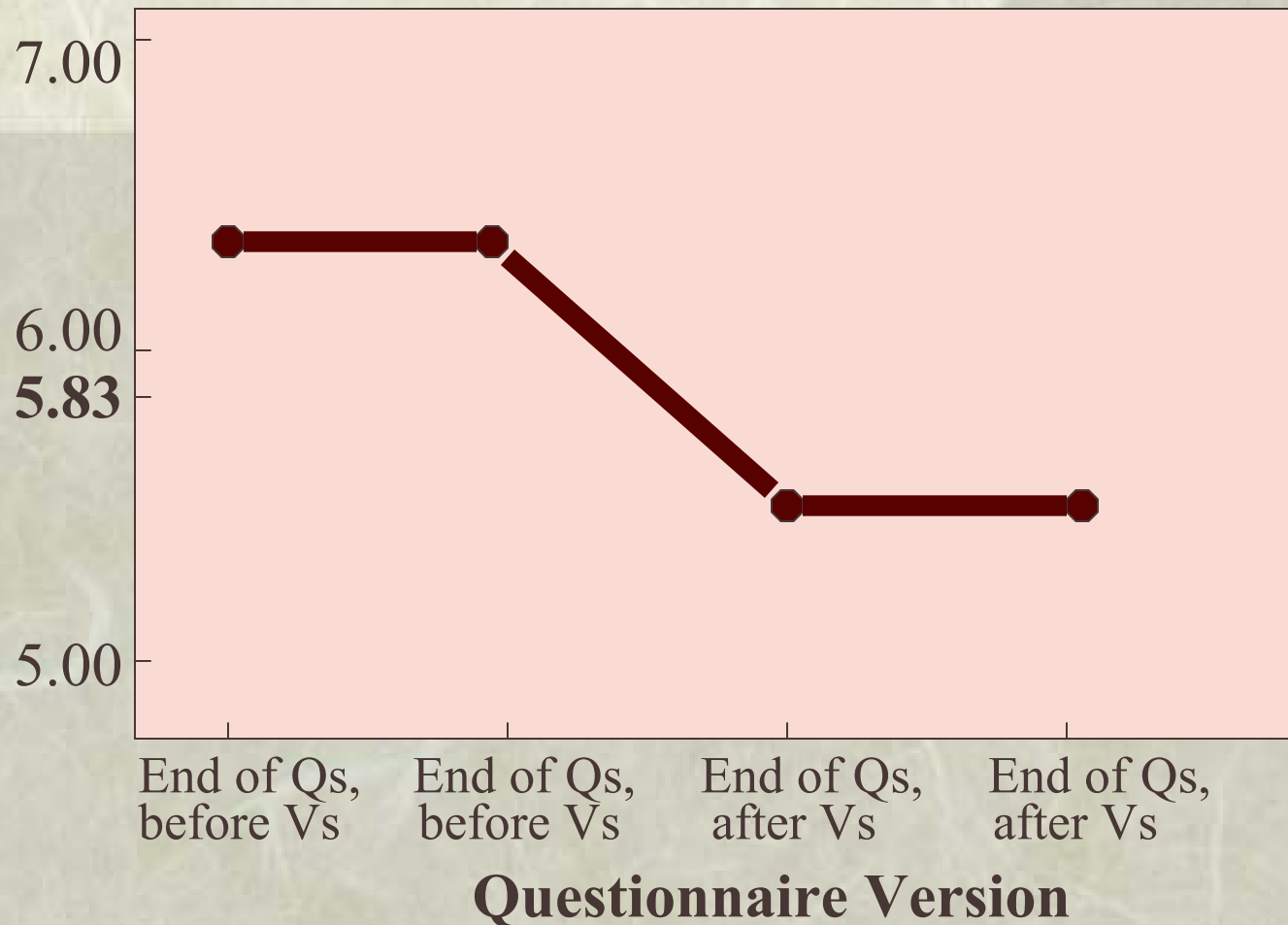
Predictions: Intention

“I intend to manage patients who present with an URTI without prescribing an antibiotic”, 1 – 7; 3 items; M = 5.83



Predictions: Intention

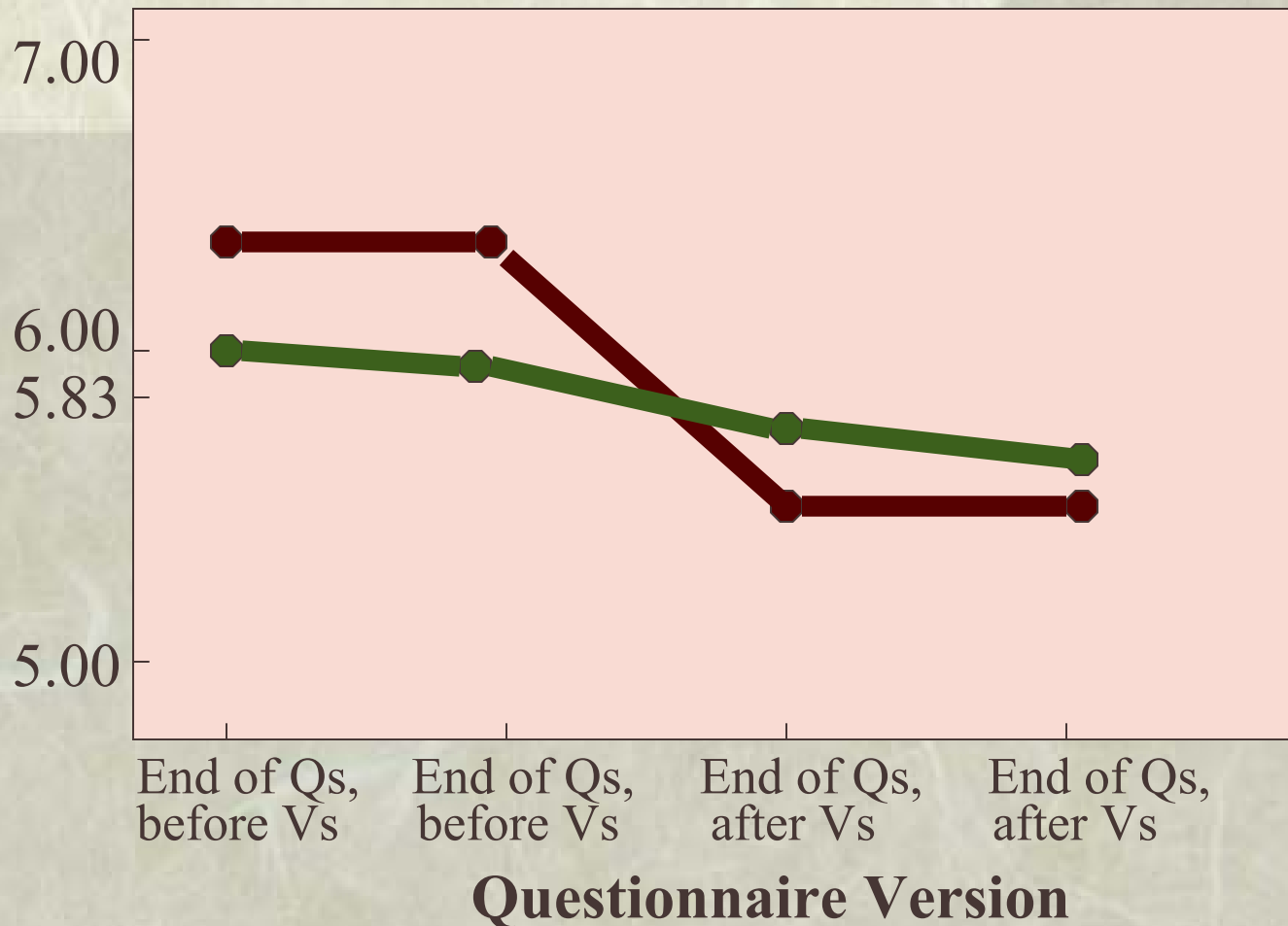
“I intend to manage patients who present with an URTI without prescribing an antibiotic”, 1 – 7; 3 items; M = 5.83



Predicted pattern

Results: Intention

“I intend to manage patients who present with an URTI without prescribing an antibiotic”, 1 – 7; 3 items; M = 5.83



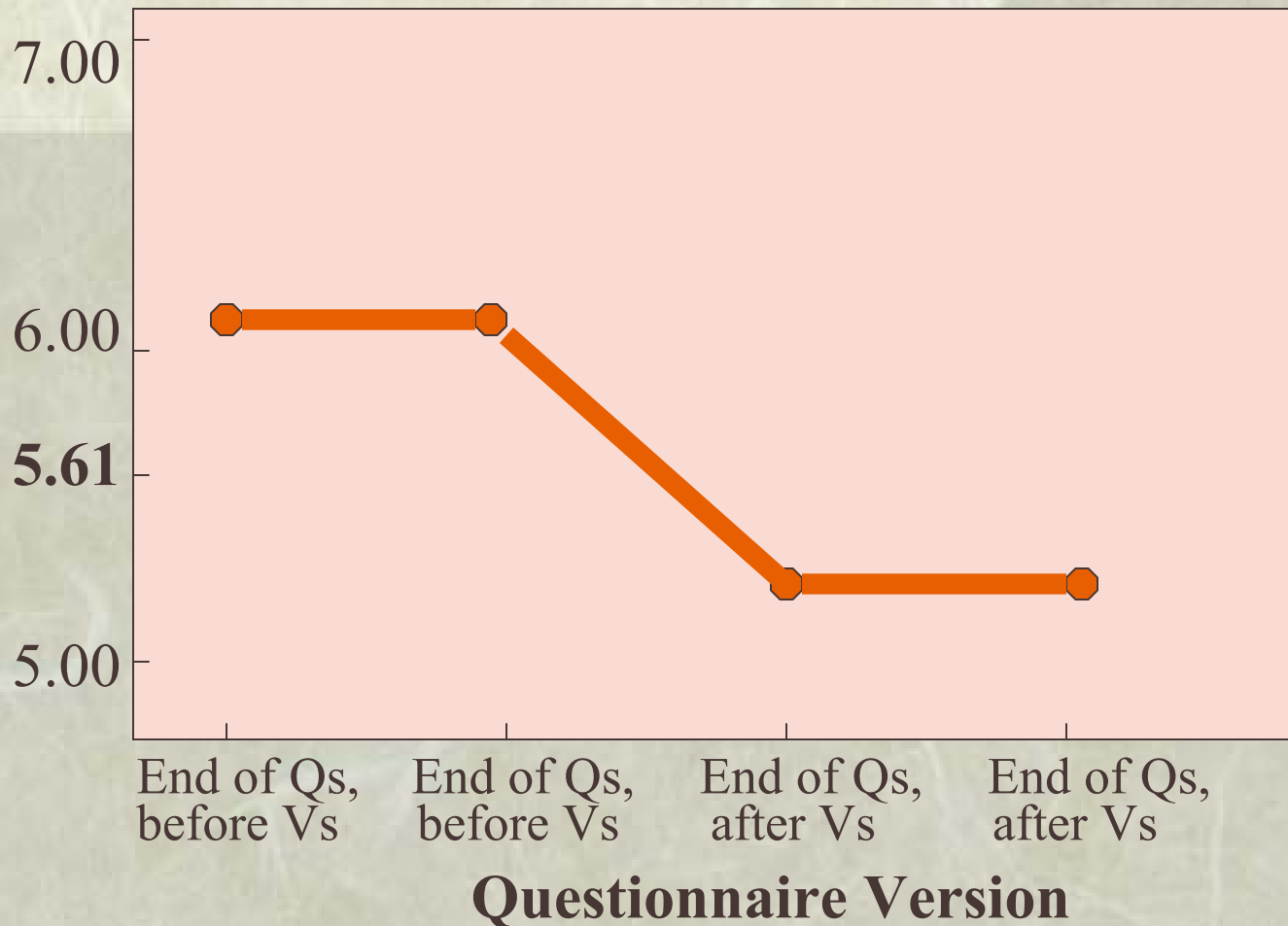
Predicted pattern

Actual pattern

($p = 0.027$)

Predictions: Action plans

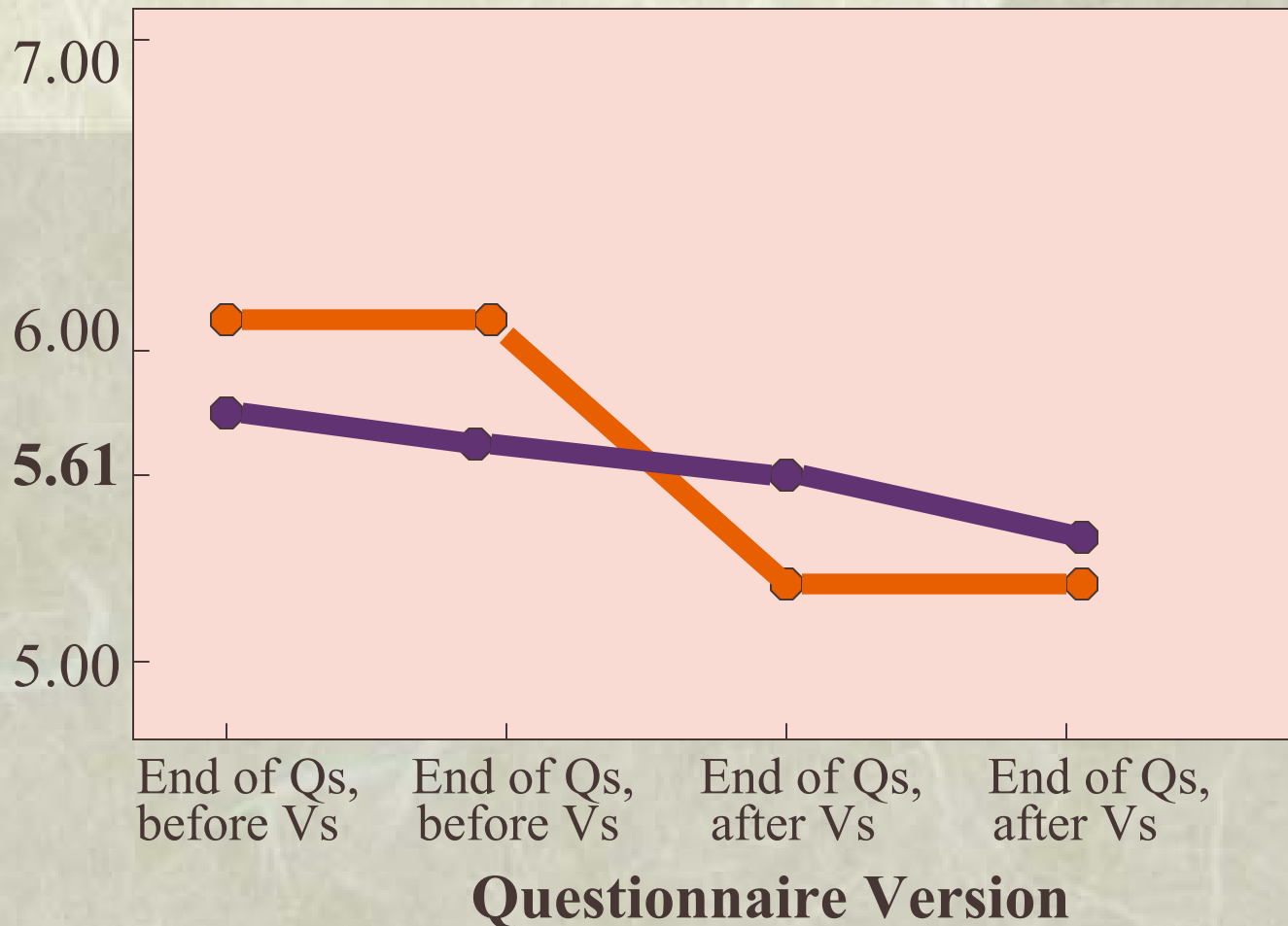
“I have a clear plan of how / when / under what circumstances I will manage patients with an URTI without prescribing an antibiotic”, 1 – 7; 3 items; M = 5.61



Predicted pattern

Results: Action plans

“I have a clear plan of how / when / under what circumstances I will manage patients with an URTI without prescribing an antibiotic”, 1 – 7; 3 items; M = 5.61



Predicted pattern

Actual pattern

($p = 0.050$)

Conclusions, further questions

- ❖ Order probably matters
- ❖ Order effects may indicate the unintended (but probably temporary) effects of completing questionnaires
- ❖ Order effects may indicate some of the mechanisms by which perceptions change. Can we use this to enhance interventions?
- ❖ Mixing up or Counterbalancing of items should probably be a routine practice in questionnaire studies
- ❖ **Question:** Do studies that report effects of past behaviour on prediction of intention consider the effects of questionnaire completion on responders' estimates of past behaviour?