Supplementary 1 – Use of Complementary and Alternative Medicine Questionnaire (CAMQ) Scoring Procedure

Introduction

The Use of Complementary and Alternative Medicine Questionnaire (CAMQ) is an instrument for assessing the usage level of Complementary and Alternative Medicine (CAM) of patients in clinical trials or clinical practices. CAM is defined as a broad set of health practices, which may include traditional medicine, that is not part of a country's conventional medicine and are not fully integrated into the dominant healthcare system (World Health Organisation, n.d.). Concomitant use of CAM and conventional medicine is common, especially for chronic conditions, but they are often not disclosed to the medical providers (Foley et al., 2019). Evidence has shown that CAM usage can affect a patient's response to subjective outcomes such as anxiety, pain, fatigue, emotional and physical functioning, and quality of life during sickness (Bystritsky et al., 2012; Calcagni et al., 2019; Correa-Velez et al., 2003). Also, it is a widespread belief that CAM can provide health benefits, even when efficacy has not been proven (Oh et al., 2010). Such a belief can become a hidden determinant to treatment outcomes (Horne, 1999). With the increasing importance of patient-reported outcome measures (PROM) in research and clinical practice, the level of utilisation and beliefs in CAM among the patients is an essential factor to consider when assessing the effectiveness of treatments or efficacies of healthcare services. Currently, there is no standardised instrument to assess and quantify the utilisation level of CAM by an individual, which makes the comparison of the impact of CAM within and across studies on difficult. CAMQ is an instrument devised to fill this gap. This manual describes the general principle and procedure of scoring for CAMQ.

Scales and global score

CAMQ is composed of four multi-item scales that measured the level of utilisation and beliefs in CAM of a respondent. The items query the respondent's frequency of CAM use over the **last three months**.

The three scales are:

A. Usage scale (US) – Utilisation of CAM services and products

B. Belief scale (BS) – Belief of perceived benefits of CAM
C. Global score (GS) – A global scale for CAM utilisation

Each of these multi-item scales includes a different set of questions/items, and no items occur in more than one scale.

To standardised scoring, all the usage and belief scales range in score from 0 to 50. A high scale score represents a higher response level. Hence, a high score in the usage scale represents a high level of utilisation in CAM services and products. Similarly, a high score in the belief scale indicates a strong belief in the perceived benefits of CAM.

From the first two scales, a global score (GS) for CAM utilisation is derived from summation: GS = US + SS. GS has a range of 0 to 100. A high GS indicates a respondent with a high level of utilisation of one or more forms of CAM and with a strong belief in their benefits.

Scoring procedure

The scoring procedure has three steps.

1. **Determine the items that contribute to each scale (n_x):**
   This step does not apply to BS as there is no optional item and all items in BS are used in the calculation.

   Due to the wide variety of CAM products, services, and self-help techniques, it is possible that the respondent may utilise certain forms of CAM that are not specified in the items. As a remedy, the last item in US scale is a 'catch-all' question which allows the respondent to specify and provide responses to a maximum of three optional items not covered within the standard set.

   The level of usage for CM is determined by frequency and variety. Nevertheless, even for heavy users of CM, they will only use a fixed set of CM regularly. As such, the calculation of the US scale is based on the top 3 most frequently used items. Pre-processing is required to determine which 3 items within each scale that are to be used in the calculation. The pre-processing will check for the following:

   a) Are there any optional items defined by the respondent? If yes, then subjective judgement from the researcher is needed to determine whether the optional items provided by the respondent can be subsumed within one or more of the standard items.
      i) Should the researcher decided to subsume, then the optional item(s) will be dropped after adjusting the value(s) of the standard items to the higher/highest value among the standard item and its subsumed optional item(s). For example, a respondent specified 'acutherapy' as an optional item in SS with a response value of 4 (regularly). At pre-processing, the researcher determines that 'acutherapy' is a form of massage, which is a standard item. Thus, the researcher will remove this optional item and adjust the response value of the standard item of massage to 4 if it has a lower value previously.
      ii) If one or more of the optional items specified cannot be subsumed in any of the standard items, then the researcher will include these optional items the sorting process.
   b) The researcher will sort the values of all the standard items and any remaining optional items and using only the top 4 items in the calculation of the raw score.

c) In this way, the number of items within each scale (n_x) will be 4; however, the contributing items can be adjusted and replaced by optional items specified by the respondent.

2. **Calculate the raw score (RS_x):**
   This step is done for each scale by averaging the items that contribute to the scale:

$$RS_x = \frac{\sum_{i=1}^{n_x} V_{x,i}}{n_x}$$

Where x = US or BS; n_x = number of items in the scale x; and $V_{x,i}$ = the response value for the top item i in scale x.

3. **Perform linear transformation:**
   This step to convert the raw score to the standard scale of 0-50.

$$S_x = \left(\frac{RS_x - 1}{range_x}\right) \times 50$$

Where x = US or BS; the *range* is the difference between the maximum and minimum values possible for the items with each scale. The *range* for US is 3 (4-1), whereas the range for BS is 6 (7-1).

References

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Supplementary 2 – Data Tables

1. Participants

This table contains the data fields for participant enrolment.

#	Item	Format	Types	Description
1	ID	Integer	Nominal	Unique participant identifier
2	Group	Text	Categorical	Either RBAC or Placebo
3	Faecal sample option	Yes/No	Categorical	Is the participant providing stool sample?
4	Additional questionnaire option	Yes/No	Categorical	Is the participant completing the optional questionnaire?
5	DOB	Date	Ordinal	Date of birth
6	Sex	Text	Categorical	Male or female
7	Primary cancer	Text	Categorical	The primary cancer site based on clinical diagnosis
8	Stage	Integer	Ordinal	The cancer staging
9	Recurrent	Yes/No	Categorical	Is this a recurrent cancer?
9	Metastatic	Yes/No	Categorical	Has the cancer spread to remote sites?
10	Treatment	Text	Categorical	Chemotherapy or immunotherapy
11	Baseline	Date	Ordinal	The date when the participant started the trial
12	Age	Numeric	Continuous	Calculated from (Baseline – DOB) and expressed in decimal year
13	Status	Text	Categorical	Completed, withdrawn or deceased
14	Sachet left	Integer	Discrete	The number of intervention sachets left at the end of the study
15	Sachet issued	Integer	Discrete	Total number of sachets issued throughout the study
16	Compliance	Numeric	Continuous	Compliance percentage = (Sachet left/ Sachet issued) * 100 %

2. QLQ-C30 Scores

This table contains the data fields for QLQ-C30 scoring data.

#	Item	Format	Types	Description
1	ID	Integer	Nominal	Unique participant identifier
2	Group	Text	Categorical	Either RBAC or Placebo
3	Visit	Integer	Ordinal	The study visit: 0 - 4
4	QL2	Numeric	Continuous	Global health status / QoL (0-100)
Functional scales				
5	PF2	Numeric	Continuous	Physical functioning (0-100)
6	RF2	Numeric	Continuous	Role functioning (0-100)
7	EF	Numeric	Continuous	Emotional functioning (0-100)
8	CF	Numeric	Continuous	Cognitive functioning (0-100)
9	SF	Numeric	Continuous	Social functioning (0-100)
Symptom scales / items				

10	FA	Numeric	Continuous	Fatigue (0-100)
11	NV	Numeric	Continuous	Nausea and vomiting (0-100)
12	PA	Numeric	Continuous	Pain (0-100)
13	DY	Numeric	Continuous	Dyspnoea (0-100)
14	SL	Numeric	Continuous	Insomnia (0-100)
15	AP	Numeric	Continuous	Appetite loss (0-100)
16	CO	Numeric	Continuous	Constipation (0-100)
17	DI	Numeric	Continuous	Diarrhoea (0-100)
18	FI	Numeric	Continuous	Financial difficulties (0-100)

3. Body Composition

This table contains the data fields for Body composition data.

#	Item	Format	Types	Description
1	ID	Integer	Nominal	Unique participant identifier
2	Group	Text	Categorical	Either RBAC or Placebo
3	Visit	Integer	Ordinal	The study visit: 0 - 4
4	Height	Numeric	Continuous	Body height in metre
5	Weight	Numeric	Continuous	Body weight in kg
6	Body fat	Numeric	Continuous	Body fat in percentage (%)
7	Muscle mass	Numeric	Continuous	Muscle mass in kg
8	BMI	Numeric	Continuous	Body mass index = Weight / Height ^{2} (kg/m^2)

4. Lab Data

This table contains the data fields for blood test data.

#	Item	Format	Types	Description
1	ID	Integer	Nominal	Unique participant identifier
2	Group	Text	Categorical	Either RBAC or Placebo
3	Visit	Integer	Ordinal	The study visit: 0 - 4
Full Blood Count				
4	RBC	Numeric	Continuous	Red blood cell count ($x10^{12}/L$)
5	Haemoglobin	Numeric	Continuous	g/L
6	Haematocrit	Numeric	Continuous	%
7	MCV	Numeric	Continuous	Mean corpuscular volume (fml)
8	MCH	Numeric	Continuous	Mean corpuscular haemoglobin (pg)
9	MCHC	Numeric	Continuous	Mean corpuscular haemoglobin concentration (g/L)
10	RDW	Numeric	Continuous	Red cell distribution width (%)
11	Platelet	Numeric	Continuous	$x10^9/L$
12	WBC	Numeric	Continuous	$x10^9/L$
13	Neutrophils	Numeric	Continuous	$x10^9/L$
14	Lymphocytes	Numeric	Continuous	$x10^9/L$
15	Monocytes	Numeric	Continuous	$x10^9/L$
16	Eosinophils	Numeric	Continuous	$x10^9/L$
17	Basophils	Numeric	Continuous	$x10^9/L$
Electrolytes, Urea & Creatine				

18	Sodium	Numeric	Continuous	mmol/L
19	Potassium	Numeric	Continuous	mmol/L
20	Chloride	Numeric	Continuous	mmol/L
21	Bicarbonate	Numeric	Continuous	mmol/L
22	Urea	Numeric	Continuous	mmol/L
23	Creatinine	Numeric	Continuous	µmol/L
Liver Function Test				
24	Bilirubin (total)	Numeric	Continuous	µmol/L
25	Protein (total)	Numeric	Continuous	g/L
26	Albumin	Numeric	Continuous	g/L
27	AST	Numeric	Continuous	Aspartate transaminase (U/L)
28	ALT	Numeric	Continuous	Alanine transaminase (U/L)
29	ALP	Numeric	Continuous	Alkaline phosphatase (U/L)
30	GGT	Numeric	Continuous	Gamma-glutamyl transferase (U/L)
Others				
31	GFR	Numeric	Continuous	Glomerular filtration rate (%)
32	CRP	Numeric	Continuous	C-reactive protein (mg/L) – high sensitive
33	Prealbumin	Numeric	Continuous	mg/L
Ratios				
34	NLR	Numeric	Continuous	Neutrophil to lymphocyte ratio
35	INI	Numeric	Continuous	Inflammatory-nutritional index (CRP / Albumin)

4. Cytokine profile

This table contains the data fields for serum cytokine profile.

#	Item	Format	Types	Description
1	ID	Integer	Nominal	Unique participant identifier
2	Group	Text	Categorical	Either RBAC or Placebo
3	Visit	Integer	Ordinal	The study visit: 0 - 4
4	GM-CSF	Numeric	Continuous	Granulocyte-macrophage colony-stimulating factor (pg/mL)
5	IFN-γ	Numeric	Continuous	Interferon-gamma (pg/mL)
6	IL-1β	Numeric	Continuous	Interleukin 1 beta (pg/mL)
7	IL-1RA	Numeric	Continuous	Interleukin 1 RA (pg/mL)
8	IL-2	Numeric	Continuous	Interleukin 2 (pg/mL)
9	IL-4	Numeric	Continuous	Interleukin 4 (pg/mL)
10	IL-5	Numeric	Continuous	Interleukin 5 (pg/mL)
11	IL-6	Numeric	Continuous	Interleukin 6 (pg/mL)
12	IL-8	Numeric	Continuous	Interleukin 8 (pg/mL)
13	IL-10	Numeric	Continuous	Interleukin 10 (pg/mL)
14	IL-12p40	Numeric	Continuous	Interleukin 12p40 (pg/mL)
15	IL-12p70	Numeric	Continuous	Interleukin 12p70 (pg/mL)
16	IL-13	Numeric	Continuous	Interleukin 13 (pg/mL)
17	MCP-1	Numeric	Continuous	Monocyte chemoattractant protein 1 (pg/mL)
18	TNF-α	Numeric	Continuous	Tumour necrosis factor-alpha (pg/mL)

4. Lifestyle factors

This table contains the data fields for the lifestyle factors of dietary score, physical activeness, and use of complementary and alternative medicine (CAM) scores calculated from the corresponding instrument of Australia Eating Survey, IPAQ, and CAMQ, respectively.

#	Item	Format	Types	Description
1	ID	Integer	Nominal	Unique participant identifier
2	Group	Text	Categorical	Either RBAC or Placebo
3	Visit	Integer	Ordinal	The study visit: 0 - 4
4	MET week	Numeric	Continuous	Metabolic equivalent of task (MET) minutes per week
5	PA level	Text	Ordinal	Physical activity level (High, Medium, Low)
6	ARFS	Numeric	Discrete	The Australian Recommended Food Score (1-73)
7	CAM Use	Numeric	Continuous	CAM usage score (0-100)
8	CAM Perc	Numeric	Continuous	CAM perception score (0-100)
9	CAM Global	Numeric	Continuous	CAM global score (0-100)