

Supplementary File 4

Supplementary File 4a: The number of experts and its implication on the acceptable cut-off score of CVI

Number of experts	Acceptable CVI values	Source of recommendation
Two experts	At least 0.80	(Davis 1992)
Three to five experts	Should be 1	(Polit et al. 2007; Polit & Beck 2006)
At least six experts	At least 0.83	(Polit et al. 2007; Polit & Beck 2006)
Six to eight experts	At least 0.83	(Lynn M. R. 1986)
At least nine experts	At least 0.78	(Lynn M. R. 1986)

Resource: (Yusoff 2019)

Supplementary File 4b: The definition and formula of I-CVI, S-CVI/Ave, and S-CVI/UA

CVI indices	Definition	Formula
I-CVI (item-level content validity index)	The proportion of content experts giving the item a relevance rating of 3 or 4	$I-CVI = (\text{agreed item}) / (\text{number of experts})$
S-CVI/Ave (scale-level content validity index based)	The average of the I-CVI scores for all items on the scale or the average of proportion relevance judged by all experts. The proportion relevant is the average relevance rating by individual experts.	$S-CVI/Ave = (\text{sum of I-CVI scores}) / (\text{number of item})$ $S-CVI/Ave = (\text{sum of proportion relevance rating}) / (\text{number of experts})$
S-CVI/UA (scale-level content validity index based on the universal agreement method)	The proportion of items on the scale that achieve a relevance scale of 3 or 4 by all experts. Universal agreement (UA) score is given as 1 when the item achieved 100% experts in agreement, otherwise, the UA score is given as 0.	$S-CVI/UA = (\text{sum of UA scores}) / (\text{number of item})$

Note: The definition and formula were based on the recommendations by (Davis 1992; Lynn M. R. 1986; Polit et al. 2007; Polit & Beck 2006) in Multimedia Appendix 2a.

Resource: (Yusoff 2019)

Supplementary File 4c: The relevance ratings on the item scale by two experts

Item code	Item No.	Expert 1	Expert 2	Experts in Agreement	I-CVI	UA
Gender	1.1.1	1	1	2	1	1
Age	1.1.2	1	1	2	1	1
Hospital's Name	1.1.3	1	1	2	1	1
Professional Roles	1.1.4	1	1	2	1	1
Educational Background	1.1.5	1	1	2	1	1
Tenure at MOH	1.1.6	1	1	2	1	1
Tenure at Current Hospital	1.1.7	1	1	2	1	1
Casemix Training	1.1.8	1	1	2	1	1
K1	1.2.1	1	1	2	1	1
K2	1.2.2	1	1	2	1	1
K3	1.2.3	1	1	2	1	1
K4	1.2.4	1	1	2	1	1
K5	1.2.5	1	1	2	1	1
K6	1.2.6	1	1	2	1	1
K7	1.2.7	1	1	2	1	1
K8	1.2.8	1	1	2	1	1
K9	1.2.9	1	1	2	1	1
K10	1.2.10	1	1	2	1	1
PEOU1	2.1.1	1	1	2	1	1
PEOU2	2.1.2	1	1	2	1	1
PEOU3	2.1.3	1	1	2	1	1
PEOU4	2.1.4	1	1	2	1	1
PEOU5	2.1.5	1	1	2	1	1
PU1	2.2.1	1	1	2	1	1
PU2	2.2.2	1	1	2	1	1
PU3	2.2.3	1	1	2	1	1
PU4	2.2.4	1	1	2	1	1
O1	2.3.1	1	1	2	1	1
O2	2.3.2	1	1	2	1	1
O3	2.3.3	1	1	2	1	1
O4	2.3.4	1	1	2	1	1
O5	2.3.5	1	1	2	1	1
O6	2.3.6	1	1	2	1	1
O7	2.3.7	1	1	2	1	1
O8	2.3.8	1	1	2	1	1
O9	2.3.9	1	1	2	1	1
SY1	2.4.1	1	1	2	1	1
SY2	2.4.2	1	1	2	1	1

	SY3	2.4.3	1	1	2	1	1
	SY4	2.4.4	1	1	2	1	1
	IQ1	2.5.1	1	1	2	1	1
	IQ2	2.5.2	1	1	2	1	1
	IQ3	2.5.3	1	1	2	1	1
	IQ4	2.5.4	1	1	2	1	1
	IQ5	2.5.5	1	1	2	1	1
	SQ1	2.6.1	1	1	2	1	1
	SQ2	2.6.2	1	1	2	1	1
	SQ3	2.6.3	1	1	2	1	1
	SQ4	2.6.4	1	1	2	1	1
	SQ5	2.6.5	1	1	2	1	1
	ITU1	2.7.1	1	1	2	1	1
	ITU2	2.7.2	1	1	2	1	1
	ITU3	2.7.3	1	1	2	1	1
	ITU4	2.7.4	1	1	2	1	1
	ITU5	2.7.5	1	1	2	1	1
	UA1	3.1	1	1	2	1	1
	UA2	3.2	1	1	2	1	1
	UA3	3.3	1	1	2	1	1
	UA4	3.4	1	1	2	1	1
	UA5	3.5	1	1	2	1	1
					S-CVI/Ave	1.00	
	Proportion Relevance		1	1	S-CVI/UA		1.00
	The average proportion of items judged as relevant across the two experts				1.00		