

Conceptualization and Measuring Health in Chinese Medicine: What ChQOL can offer?



ZHAO Li PhD

**School of Chinese Medicine, The Chinese University of
Hong Kong**

zhaoli@cuhk.edu.hk

2006.5.19



The Chinese Quality of Life Instrument (ChQOL)

中华生存质量量表

【填表说明】

我们想利用这份问卷了解您的生存质量。生存质量是指您对生活各方面的评价和感受，包括您的健康状况、身体功能和情绪等。我们关注的是您在过去两星期内的感受。请按照您自己的标准和个人愿望来回答。如果您对某个问题不能做出肯定的回答，请选择最接近您自己真实感受的那个答案。请回答所有问题。

这份问卷以被访者亲自填写的方式进行，每个问题下面都列有五个选项，由“最不好”到“最好”，请选出一个最能反映您真实感受的选项。

例题：

1. 您胃口怎么样？

很差
1

差
2

不好也不差
3

好
4

很好
5

请您根据最近两星期的情况在最适合的数字处画一个圈○。

2. 您生活快乐吗？

根本不快乐
1

有点快乐
2

一般
3

比较快乐
4

极快乐
5

快乐属于个人感受，每个人对快乐的定义都有可能不同，你只需根据自己对快乐的理解和标准做出回答。以上五个选项，你觉得哪一个最能代表你最近两星期的感受？请在那个数字处画一个圈○。

中华生存质量量表研制组成员：

中国内地

广州中医药大学：刘凤斌

中山大学：方积乾

此项目部分经费由国家自然科学基金及香港浸会大学研究基金支持

香港特别行政区

香港浸会大学：梁国辉，赵利，陈金泉

ChQOL (HK)

中華生存質量量表（香港版）

【指示】

我們想利用這份問卷瞭解你的生活質素。生活質素是指你對生活各方面的評價和感受，包括你的健康狀況、身體功能和情緒等。我們想知的是你最近兩星期的感受。請按照你自己的標準和個人期望來回答。如果你對某個問題沒有肯定的答案，請選擇一個最接近的答案。請回答所有問題。

這份問卷以被訪者親自填寫的方式進行，每個問題下面列有五個選項，由“最不好”到“最好”排列，你要在五個選項中選出最能反映你真實感受的一個，然後在格內劃上「✓」號。

例題：

1. 你胃口好？

很差 差 不差也不好 好 很好

請你根據最近兩星期的情況在最適合的方格內劃上「✓」號。

2. 你生活快樂嗎？

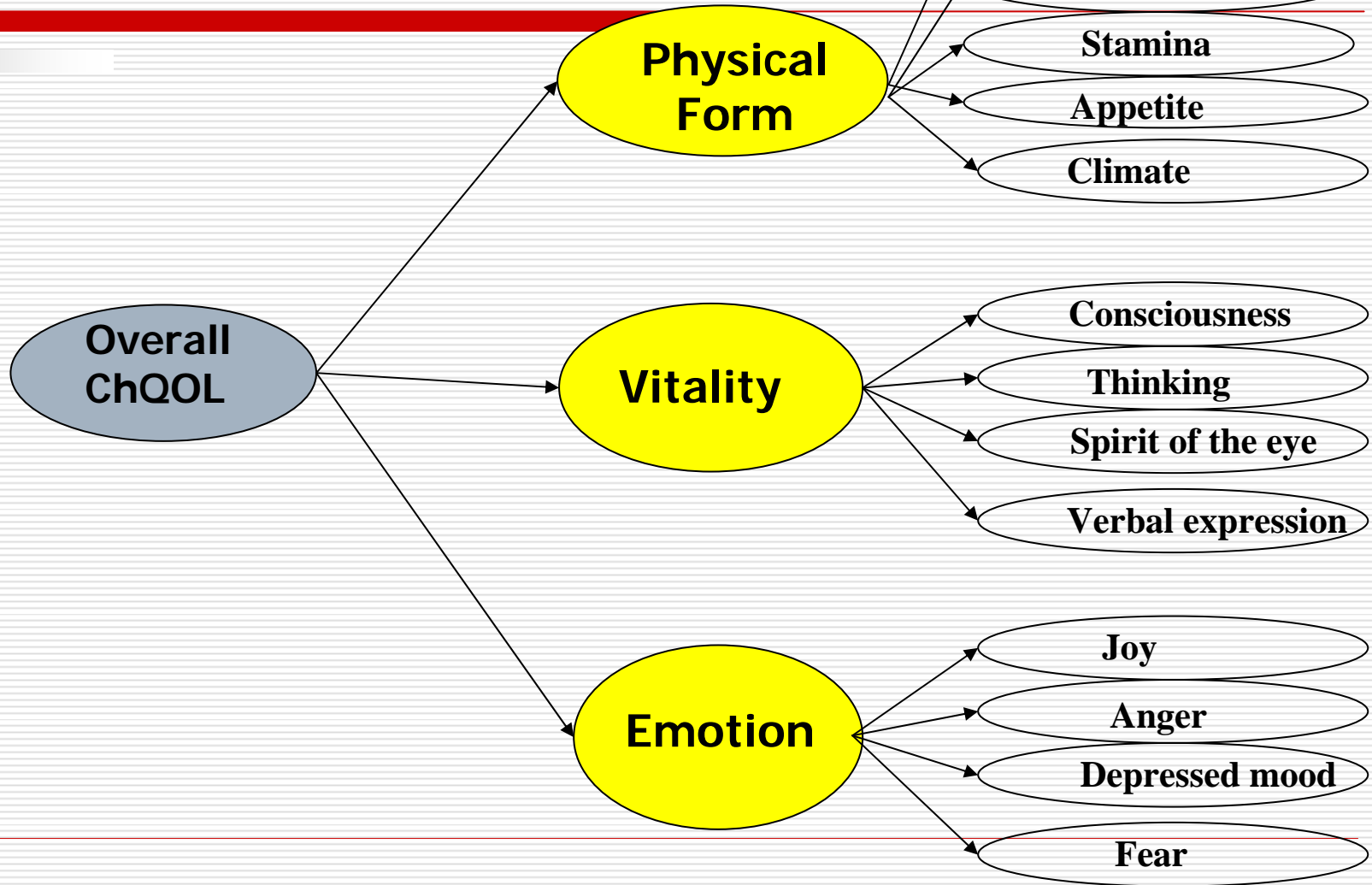
不快樂 有點快樂 某程度快樂 很大程度快樂 極快樂

快樂屬於個人感受，每個人對快樂的定義可能不同，你只需根據自己對快樂的理解和標準作答。以上五個選項中，你覺得哪一個最能代表你在最近兩星期的感受？請在適當的方格內劃上「✓」號。

ChQOL

3 Domains

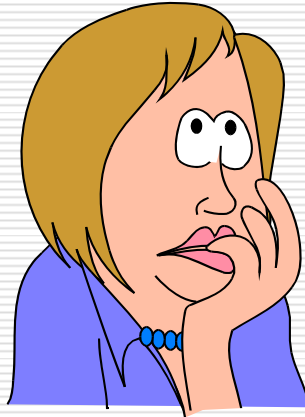
13 Facets



ChQOL

What did we want to do ?

???



Mission

Concept of health
in Chinese medicine

+

Western method of
HRQOL scale development

- ❑ A generic instrument more sensitive to detect the efficacy of Chinese medicine
 - ❑ Supplement existing generic HRQOL instruments
-

3 Approaches in scale development

	Concept & definitions	Scale structure	Items
Client driven	Clients	Statistics	Clients
Professional driven	Professionals	Professionals	Professionals
Theory driven	Theory	Theory + statistics	Theory + professionals

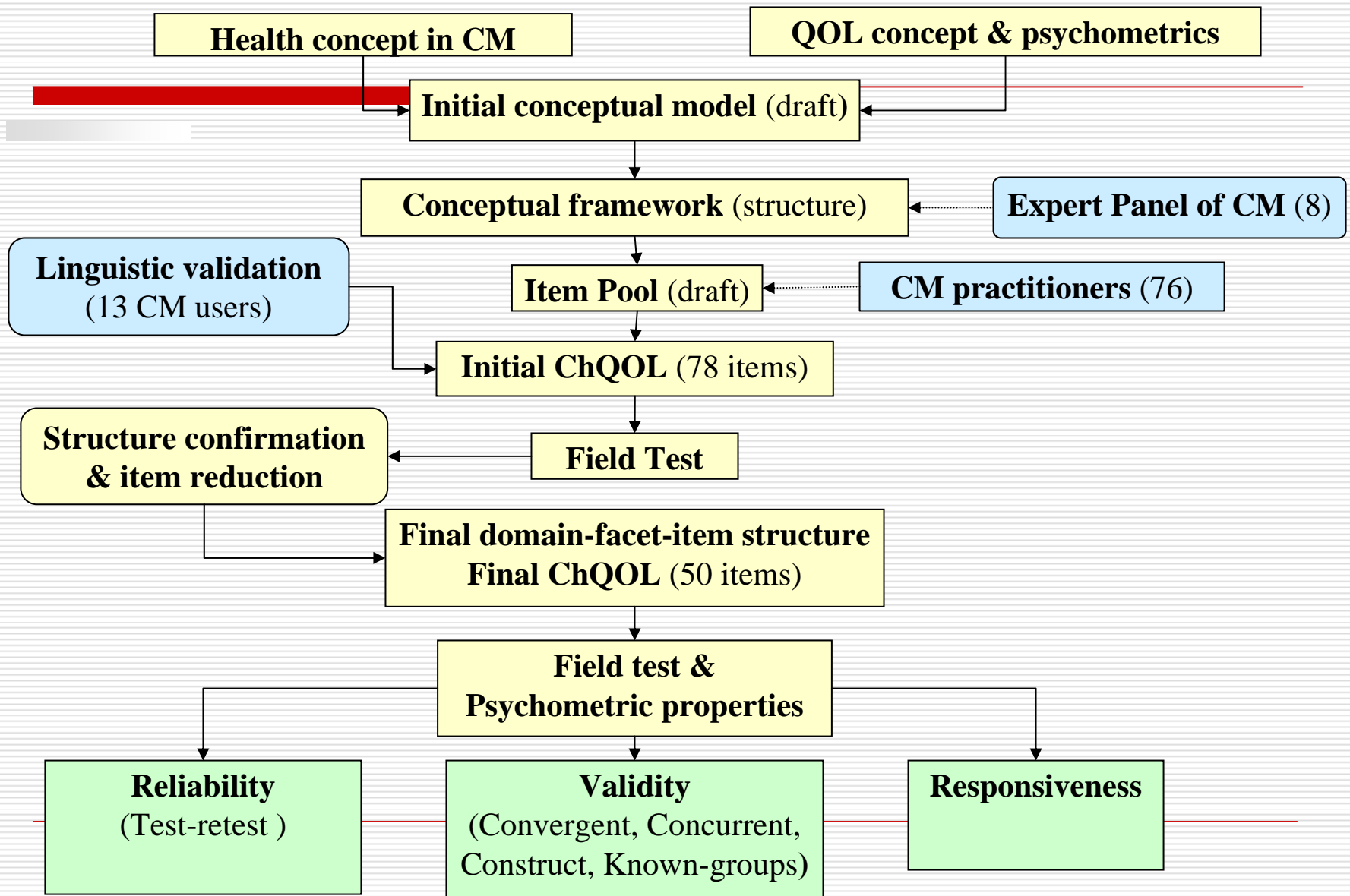
Attributes and Review Criteria

- Conceptual and measurement model
- Reliability
- Validity
- Responsiveness
- Interpretability
- Respondent and administrative burden
- Alternative forms
- Cultural and language adaptations (translations)

Method

- ❑ Reviewed ancient and modern CM literature on concept of QOL and health
 - ❑ Propose an initial domain & facet model of ChQoL
 - ❑ Consulted an expert panel of CM scholars from different fields of practice
 - ❑ Consulted 76 CM practitioners throughout China
 - ❑ Established an tentative domain and facet structure to guide drafting of items.
 - ❑ Developed an item pool of 78 items
 - ❑ Conducted field test on 300 subjects - construct validity & basic psychometric properties
-

Steps for Developing and Validating the ChQOL



Health Concept in CM

- It is said in Chapter 62 of *Su Wen*--The Yin and Yang can be balanced and permeating the body so as the pulse conditions of the nine parts may be identical and normal. These are the conditions of a healthy man.
 - “阴阳匀平，以充其形，九候若一，命曰平人” 《素问·调经论》
-

Health Continuum

Perfect Health

Concepts of HEALTH

- Harmonization of physical function and spirit
- Harmonization of man and society
- Harmonization of man and nature

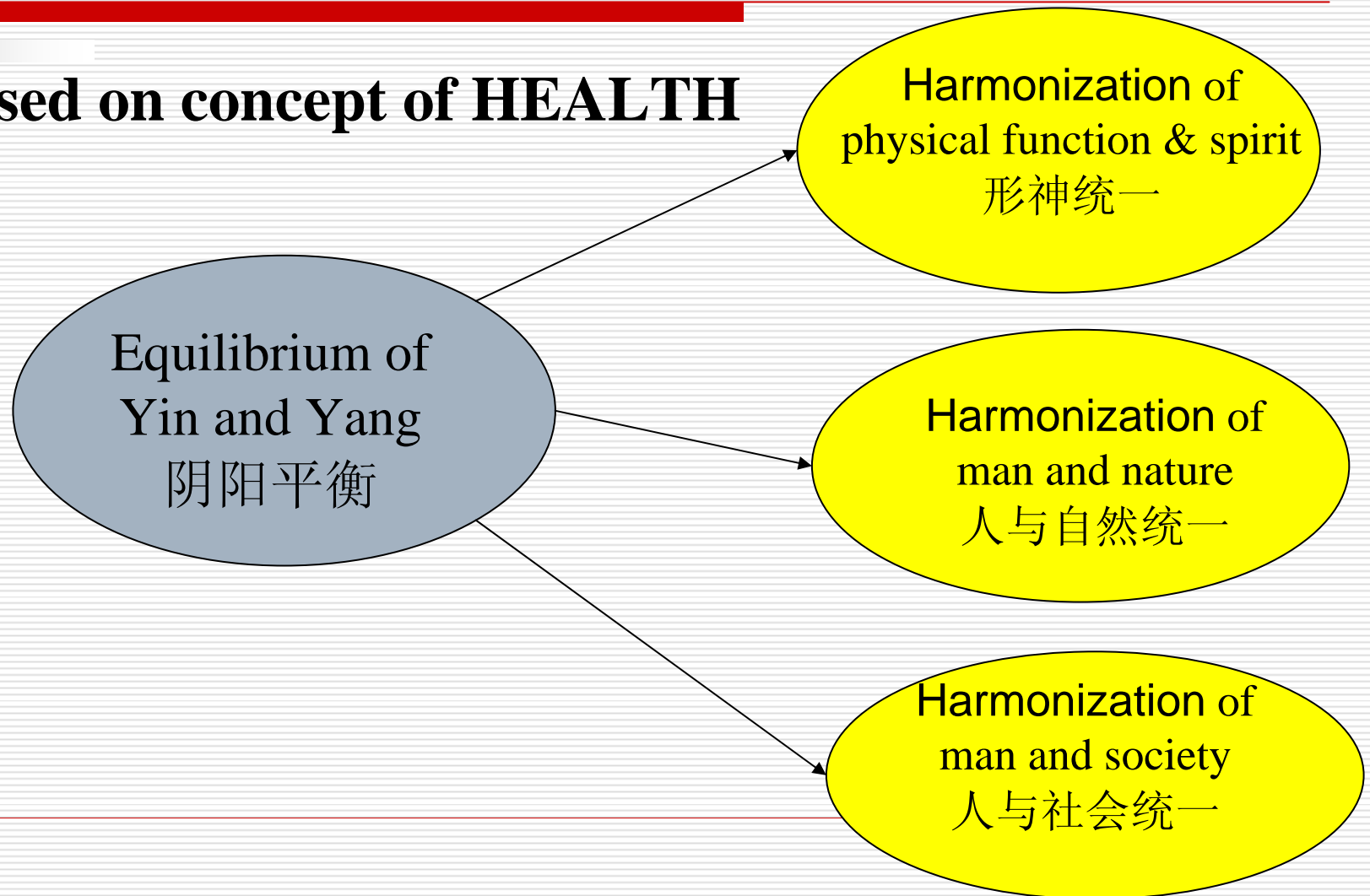
Death

Concepts of Diseases

- Breakdown in the equilibrium of Yin and Yang
 - Excessive / Deficiency of Yin / Yang
-

The Basic Structure of ChQOL

Based on concept of HEALTH

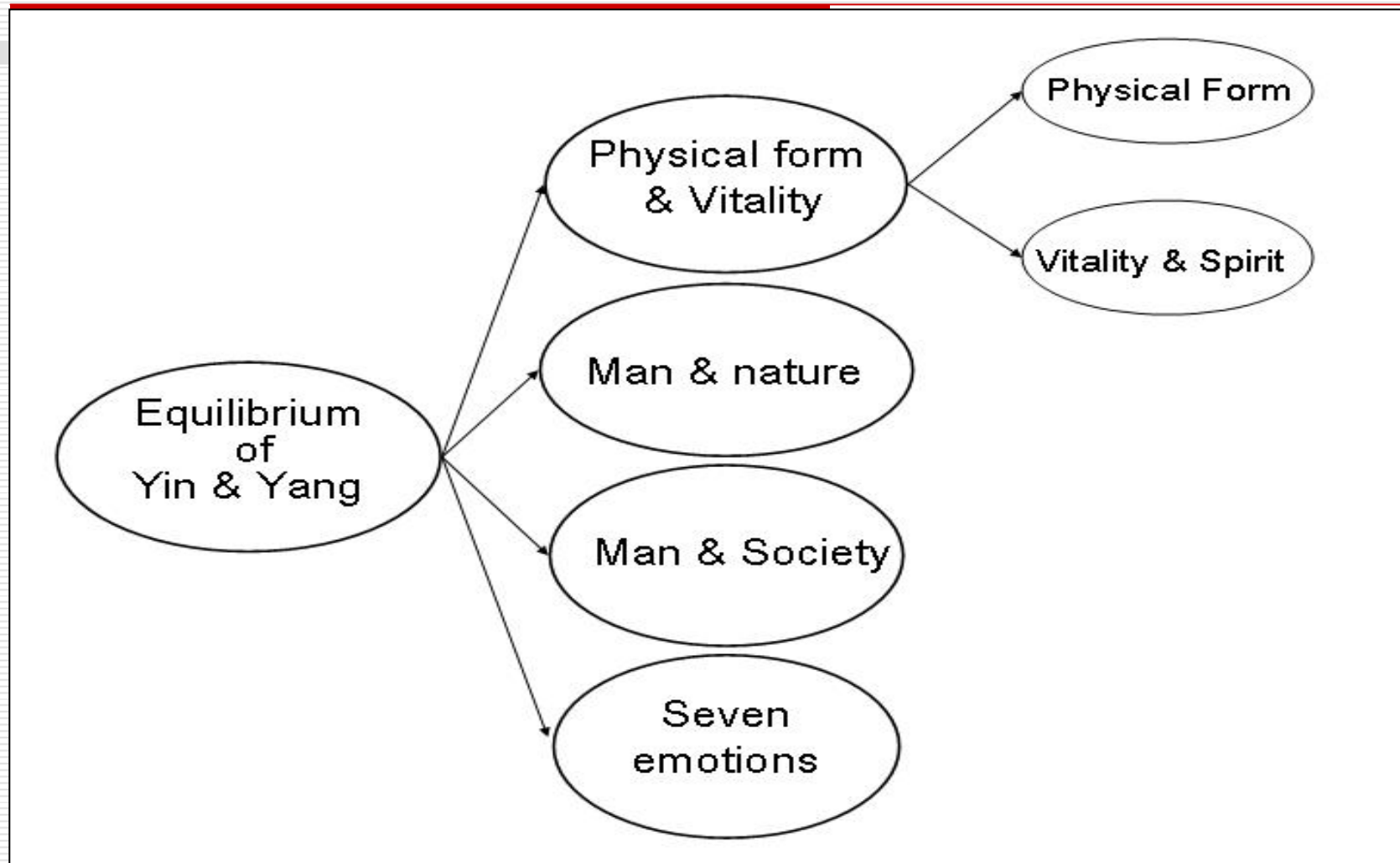


Seven Emotions

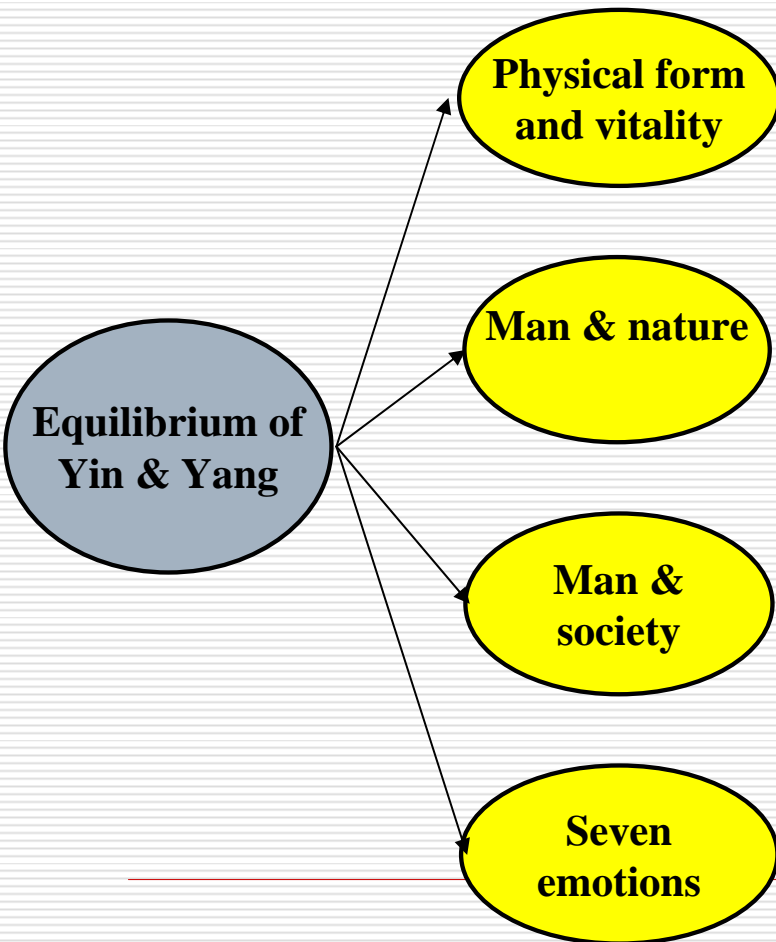
- Joy (喜)
- Anger (怒)
- Worry (忧)
- Pensiveness (思)
- Grief (悲)
- Fear (恐)
- Anxiety (惊)

The 7 emotions can be a manifestation of health or determinants of health or both

Initial structure model of the ChQOL for the purpose of drafting of items



Item Generation

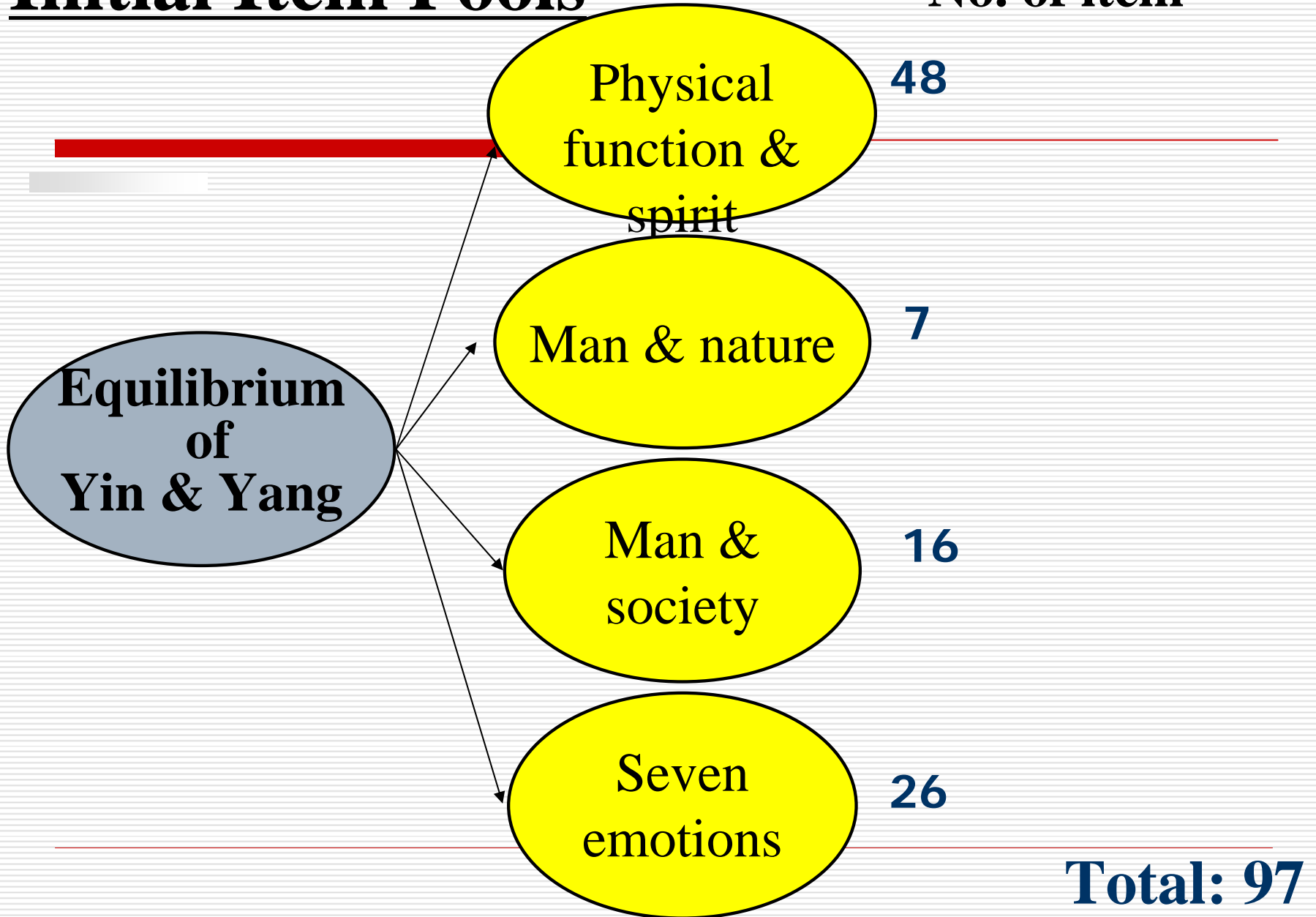


- Questions (indicators) to reflect equilibrium of Yin and Yang
- Basing on usual way a CM practitioner communicate with patient
- Intensity, satisfaction, frequency, capacity questions
- Five-point response scale

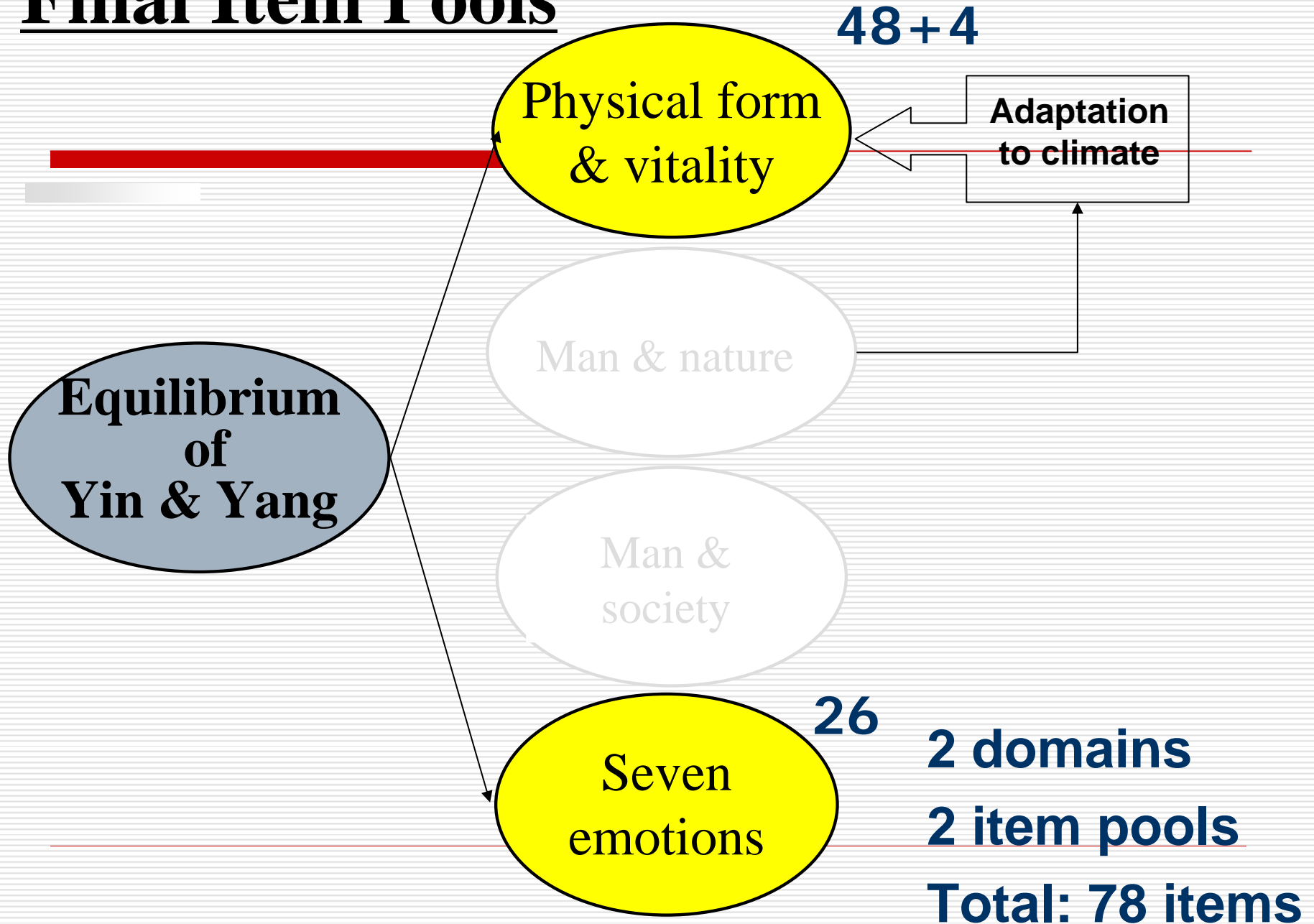
69 items drafted

Initial Item Pools

No. of item



Final Item Pools



Field Test

- Target sample: 300
 - 100 healthy, 100 CM outpatients, 100 CM in-patients
 - Sampling:
 - Guangdong Province (Southern China)
 - Ningxia Province (Northern China)
 - Instrument:
 - pilot ChQOL;
 - WHOQOL-100;
 - SF-36
 - Demographic
-

Results – Demographic Data

No (%)	Healthy	Patients		All
	Subjects (N= 80)	Clinic (N= 91)	Hospital (N= 102)	Subjects (N= 273)
Sampling:				
Ningxia (N. China)	33 (41.25%)	34 (37.4%)	34 (33.3%)	101 (37.0%)
Guangdong (S. China)	47 (58.75%)	57 (62.6%)	68 (66.7%)	172 (63.0%)
Gender:				
Male	40 (50.0%)	46 (50.5%)	51 (50.0%)	137 (50.2%)
Female	40 (50.0%)	45 (49.5%)	51 (50.0%)	136 (49.8%)
Age (y):				
Mean	38.84	39.10	40.55	39.57

Physical Function and Spirit

Exploratory factor analysis on the first item pool (52 items)

	Component	
	1	2
Q1112	.417	.512^a
Q1113	.265	.530^a
Q1114	.378	.481
Q1115	.520^a	.384
Q1116	.493^a	.395
Q1121	.362	.521
Q1122	.412	.541
Q1123	.365	.546
Q1124	.495	.490^b
Q1131	-8.202E-02	.587
Q1133	.104	.434
Q1134	.167	.556
Q1141	.335	.522
Q1142	.290	.566
Q1143	.473	.633
Q1144	.311	.568
Q1151	.243	.566
Q1152	-5.079E-02	.641
Q1153	.164	.599
Q1154	.178	.666
Q1161	.290	.528
Q3013	.189	.532
Q3014	.238	.551
Q3012	.364	.394^c
Q1211	.760	.176
Q1212	.710	.148
Q1213	.689	.272
Q1214	.513	.542^a
Q1221	.683	.136
Q1222	.813	.173
Q1223	.793	.128
Q1224	.765	.207
Q1225	.780	.119
Q1231	.657	.287
Q1232	.521^a	.178
Q1233	.712	.249
Q1241	.722	.168
Q1242	.585^a	.333
Q1243	.656	8.192E-02
Q1244	.251	.407^a
Q3011	.264	.211
Q1182	.349	.380

Physical form
(20 items)

Vitality
(12 items)

2 factors resulted
38% variance explained
20 items reduced
32 items remained

Physical Function

Exploratory factor analysis on 20 items in Physical form

	Component				
	1	2	3	4	5
Q1114	.666				
Q1141	.652				
Q1142	.835				
Q1143	.663				
Q1144	.728				
Q1161	.600				
Q1121		.792			
Q1122		.782			
Q1123		.759			
Q1124		.745			
Q1151			.697		
Q1152			.624		
Q1153			.834		
Q1154			.775		
Q1131				.798	
Q1133				.696	
Q1134				.774	
Q3012					.692
Q3013					.782
Q3014					.756

Stamina

Complexion

Appetite & digestion

Sleep

Adaptation to climate

Spirit

Exploratory factor analysis on 12 items in Vitality

	Component			
	1	2	3	4
Q1221	.736			
Q1222	.734			
Q1223	.563			
Q1224	.526			
Q1225	.749			
Q1211		.559		
Q1212		.758		
Q1213		.708		
Q1241			.640	
Q1243			.830	
Q1231				.774
Q1233				.783

Thinking

Consciousness

Verbal expression

Spirit of the eye

Emotion

Exploratory factor analysis on 26 items in Seven Emotions

	Component		
	1	2	3
Q2011	.830		
Q2012	.851		
Q2013	.689		
Q2016	.692		
Q2021		.519	
Q2022		.763	
Q2023		.750	
Q2024		.655	
Q2025		.547	
Q2032			.308 ^a
Q2034			.514 ^b
Q2035			.475 ^b
Q2041			.535
Q2042			.550
Q2044			.710
Q2051			.713
Q2052			.728
Q2053			.550
Q2014			
Q2015	.482 ^a		
Q2031	.416 ^a		
Q2033			
Q2043			.538 ^a
Q2045			.561 ^a
Q2054		.552 ^a	
Q2055	.422 ^a		

Joy

Anger

Depressed mood

Fear & anxiety

8 items reduced

18 items remained

Number of items under each facet in various stage of development

Domains and facets	Number of items			
	Initial draft by the research team	After review by 76 TCM practitioners	After cognitive debriefing	After factor analysis
Physical Form Domain			36	20
Body build	7	7	7	0
Complexion	3	5	5	4
Sleep	4	4	4	3
Stamina	3	4	4	6
Appetite & digestion	6	7	7	4
Breathing	1	2	1	0
Sex	1	2	2	0
Bowel & urine	4	2	2	0
Adaptation to climate	4	4	4	3
Spirit Domain			16	12
Consciousness	3	5	4	3
Thinking	5	4	5	5
Spirit of the eye	2	3	3	2
Verbal expression	3	4	4	2
Emotion Domain			26	18
Joy	4	5	6	4
Anger	4	5	5	5
Worry & Pensiveness	7	5	5	0
Grief	4	5	5	0
Fear & Anxiety	4	5	5	3
Depressed mood	0	0	0	6
Total:	69	78	78	50

Item-Facet Fitness

Confirmatory factor analysis

Physical function (20 items)

	CFI
Complexion (气色) (4)	0.928
Sleep (睡眠) (3)	0.946
Stamina (精力) (6)	0.994
Appetite (饮食) (4)	0.985
Adaptation to Climate (气候适应性) (3)	0.820

Spirit (12 items)

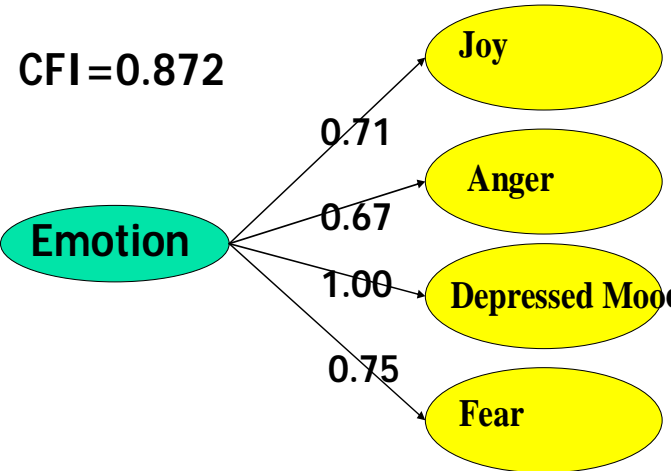
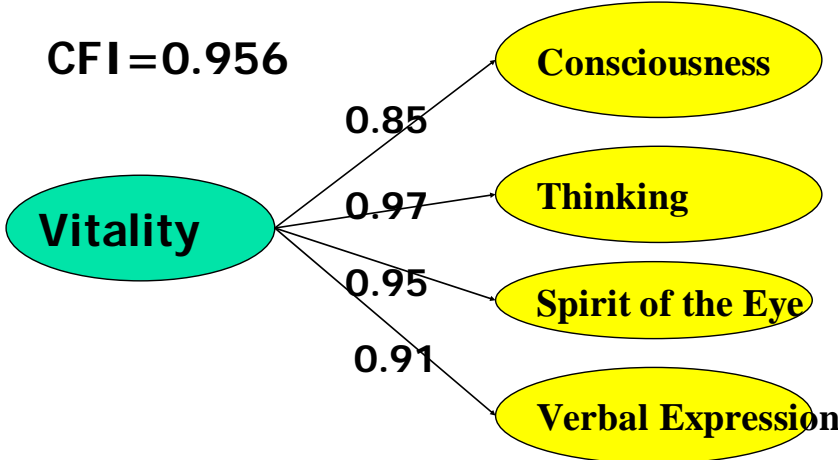
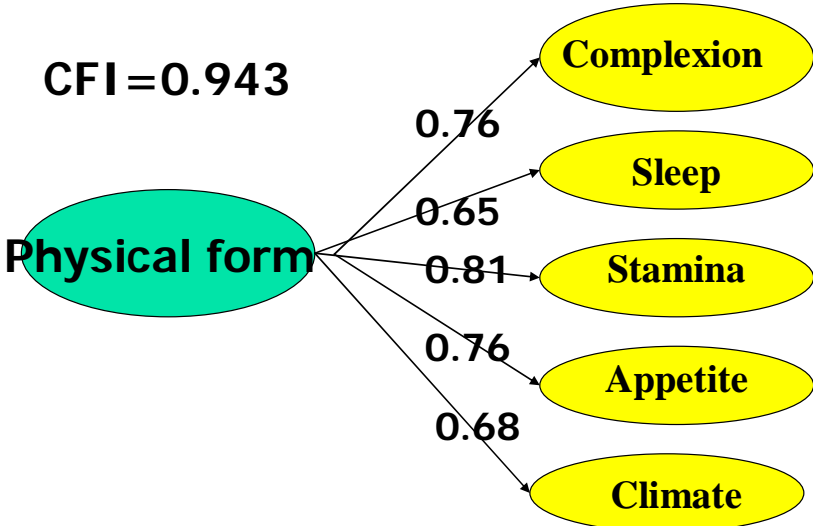
	CFI
Consciousness (精神状态) (3)	0.967
Thinking (思维) (5)	0.982
Spirit of the Eye (眼神) (2)	1.000
Verbal Expression (语言表达) (2)	1.000

Emotion (18 items)

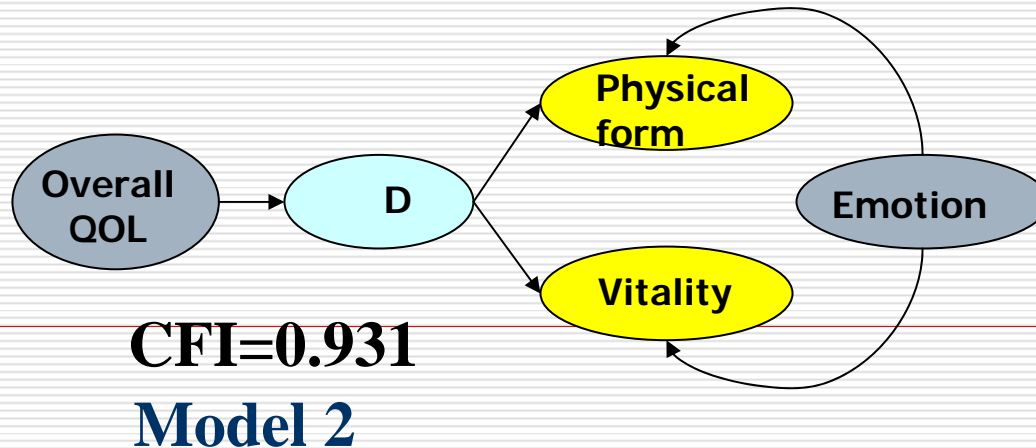
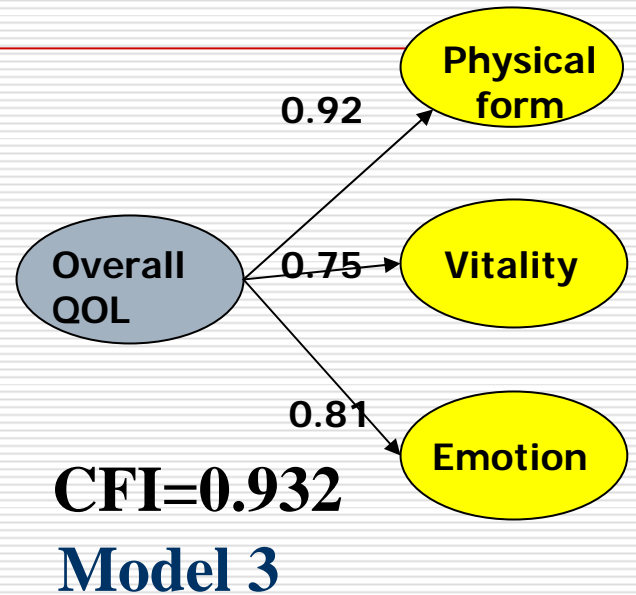
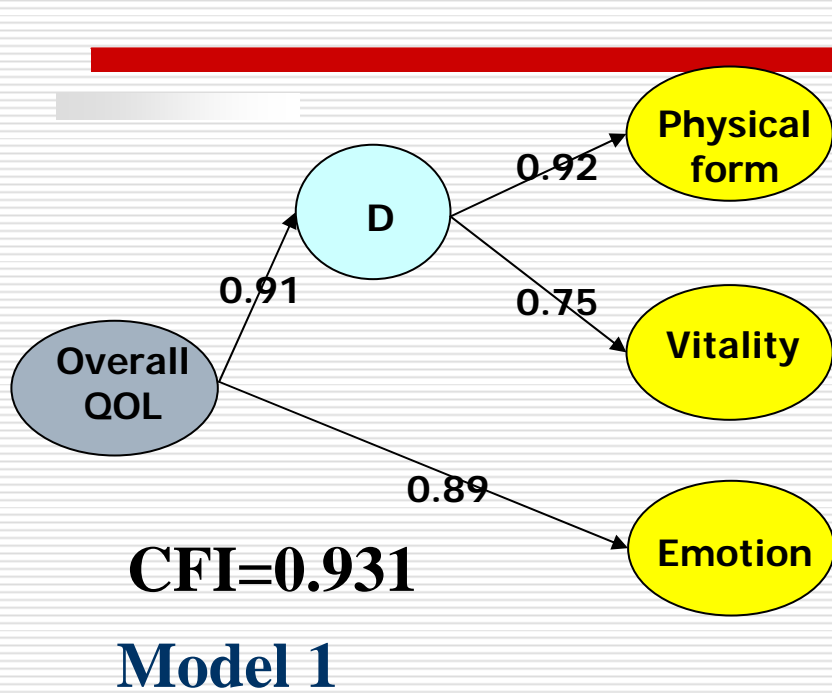
	CFI
Joy (喜) (4)	0.990
Anger (怒) (5)	0.961
Depress (悲忧) (6)	0.982
Fear & Anxiety (惊恐) (3)	0.991

Total – 50 items

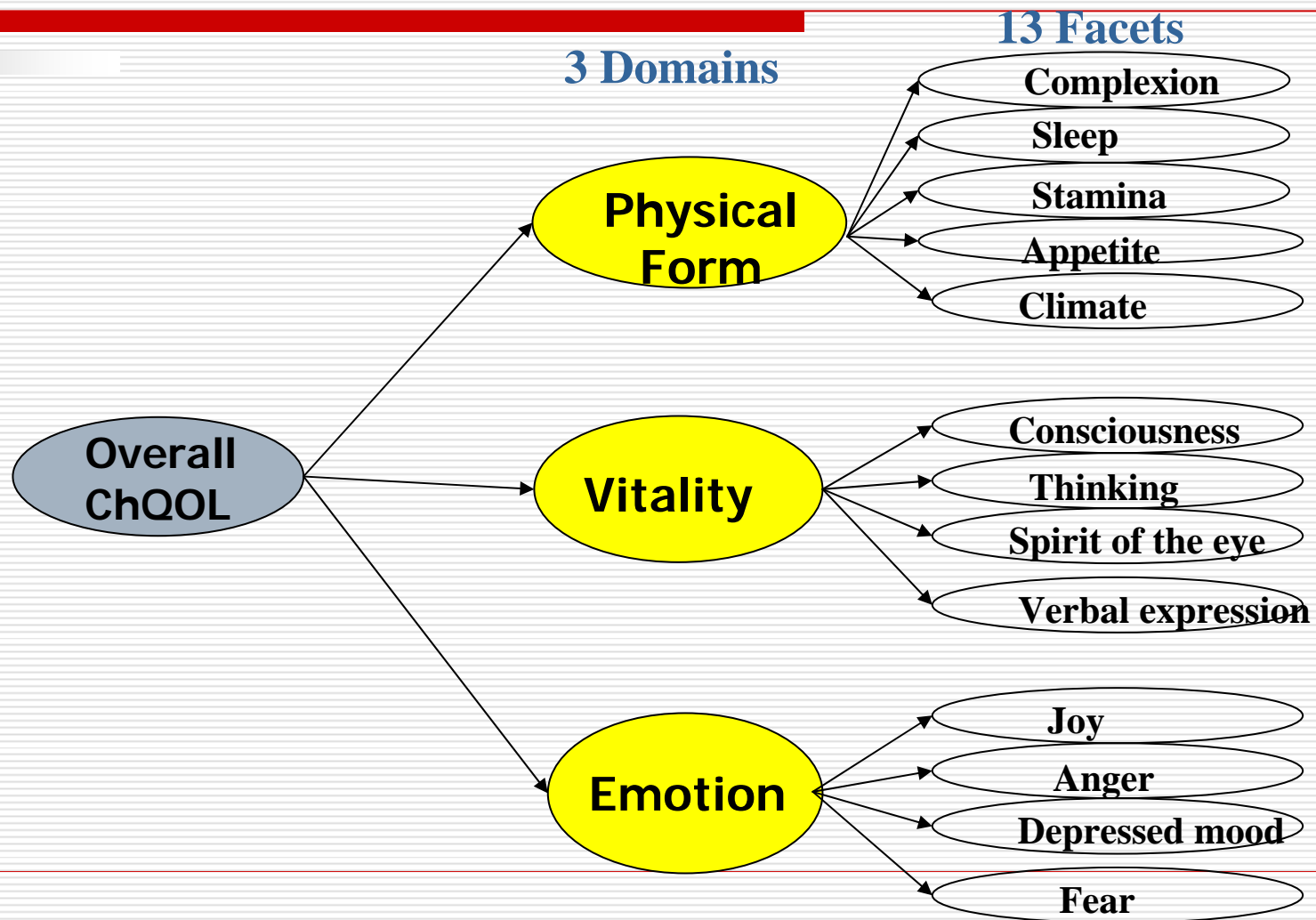
Facet – Domain Fitness



Final Structure of the ChQOL



Final Domains and Facets Structure of the ChQOL



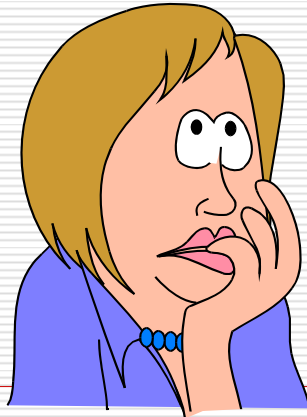
Construct Validity

CHQOL	Number of items	CFI index	
		Item-facet fitness	Item-facet-domain fitness
Physical Form			0.943
Complexion	4	0.928	
Sleep	3	0.946	
Stamina	6	0.994	
Appetite & digestion	4	0.985	
Adaptation to climate	3	0.820	
Vitality & Spirit			0.956
Consciousness	3	0.967	
Thinking	5	0.982	
Spirit of the eyes	2	1.000	
Verbal expression	2	1.000	
Emotion			0.872
Joy	4	0.990	
Anger	5	0.961	
Depressed mood	6	0.982	
Fear & Anxiety	3	0.991	
Total number of item		50	

ChQOL

How does ChQOL facet correlate with each other and with other HRQOL measures ?

???



Correlation between Facets & Domain & Overall Score

Pearson correlation coefficients

ChQOL facets	Physical form Domain	Vitality & Spirit Domain	Emotion Domain	Overall ChQOL
Complexion	0.736**	0.553**	0.417**	0.672**
Sleep	0.730**	0.264**	0.452**	0.564**
Stamina	0.783**	0.534**	0.596**	0.752**
Appetite & digestion	0.763**	0.400**	0.409**	0.619**
Adapt to climate	0.705**	0.366**	0.383**	0.572**
Consciousness	0.518**	0.889**	0.541**	0.777**
Thinking	0.498**	0.908**	0.513**	0.766**
Spirit of the eyes	0.521**	0.833**	0.396**	0.700**
Verbal expression	0.411**	0.846**	0.427**	0.673**
Joy	0.446**	0.534**	0.774**	0.691**
Anger	0.490**	0.405**	0.795**	0.662**
Depressed mood	0.562**	0.434**	0.886**	0.739**
Fear & Anxiety	0.468**	0.358**	0.774**	0.639**

Correlation between Domains, and Domains and Overall Scores

ChQOL domains	Pearson's correlation coefficients			
	Physical form	Vitality & Spirit	Emotion	Overall ChQOL
Physical form	1.000			
Vitality & Spirit	0.562**	1.000		
Emotion	0.609**	0.542**	1.000	
Overall ChQOL	0.852**	0.838**	0.845**	1.000

Correlation between ChQOL Domains and WHOQOL-100 Domains

ChQOL domains	WHOQOL-100 domains					
	Physical	Psycho-logical	Level of independent	Social	Environ-mental	Spirituali
Physical form	0.730**	0.481**	0.627**	0.306**	0.358**	0.084
Vitality & Spirit	0.397**	0.470**	0.399**	0.274**	0.291**	0.187**
Emotions	0.516**	0.642**	0.382**	0.462**	0.449**	0.263**
Overall ChQOL	0.644**	0.628**	0.554**	0.406**	0.430**	0.208**

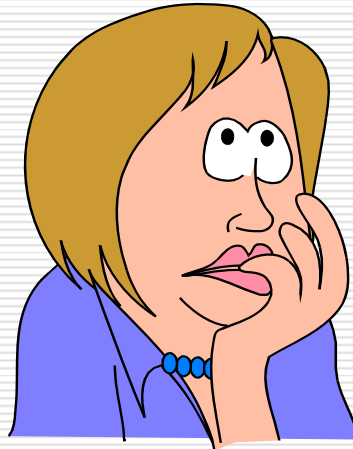
Correlation between ChQOL Domains and SF-36 Facets

ChQOL domains	SF-36 facets							
	PF	RP	BP	GH	VT	SF	RE	MH
Physical form	0.400 **	0.423 **	0.398 *	0.610 **	0.512 **	0.501 **	0.170 **	0.377 **
Vitality & Spirit	0.233 **	0.237 **	0.161 **	0.379 **	0.320 **	0.251 **	0.070	0.298 **
Emotion	0.279 **	0.317 **	0.188 **	0.416 **	0.522 **	0.408 **	0.246 **	0.647 **
Overall Health	0.359 **	0.386 **	0.294 **	0.553 **	0.533 **	0.458 **	0.192 **	0.520 **

ChQOL

Is the ChQOL Reliable ?

???



Internal Consistency and Test-Retest Reliability (ChQOL Facets)

ChQOL facets	Cronbach's alpha N=273	ICC N=56
Complexion	0.8601	0.75
Sleep	0.7425	0.68
Stamina	0.8484	0.82
Appetite & Digestion	0.8183	0.74
Adaptation to Climate	0.7403	0.84
Consciousness	0.7949	0.67
Thinking	0.9022	0.78
Spirit of the Eyes	0.7534	0.70
Verbal Expression	0.7083	0.81
Joy	0.8707	0.71
Anger	0.8012	0.80
Depressed Mood	0.8409	0.76
Fear & Anxiety	0.7280	0.80

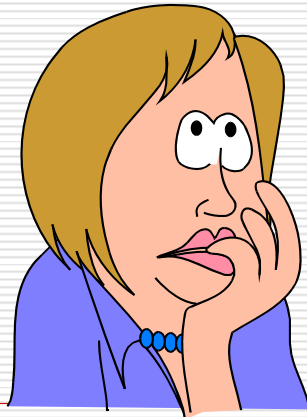
Internal Consistency and Test-Retest Reliability (ChQOL Domains)

ChQOL domains	Cronbach's alpha N=273	ICC N=56
Physical form	0.7950	0.83
Vitality & Spirit	0.8907	0.87
Emotion	0.8212	0.87
Overall ChQOL	0.7986	0.90

ChQOL

Can ChQOL discriminate different groups of subjects with known differences in health status ?

???



Differences between domain scores in healthy and patient subjects adjusted for gender and age

ChQOL domains	Mean domain scores						F	P-value ¹
	Healthy subjects N=80		Out-patients N=91		In-patients N=102			
	Mean	SD	Mean	SD	Mean	SD		
Physical form	66.64	12.54	61.18	13.04	55.32	15.85	14.087	0.000** ²
Vitality & Spirit	72.02	12.97	70.14	15.00	66.20	17.85	2.954	0.054
Emotion	70.52	14.52	67.59	14.30	63.13	14.90	6.269	0.002** ⁵
Overall ChQOL	69.84	11.26	66.30	11.73	61.50	13.61	9.781	0.000** ⁴

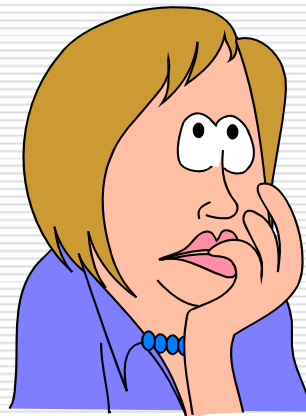
Differences between Domain Scores in Three Groups of Subjects of Different Self Reported Health Status adjusted for Gender and Age

ChQOL Domains	Mean domain scores						F	P-value
	Poor N=58		Neither poor nor good N=98		Good N=116			
	Mean	SD	Mean	SD	Mean	SD		
Physical form	47.16	16.00	59.52	10.74	68.08	11.69	57.891	0.000**
Vitality & Spirit	59.44	20.44	67.60	12.94	75.37	12.08	23.723	0.000**
Emotion	58.37	16.83	66.21	13.74	71.37	12.43	19.210	0.000**
Overall ChQOL	54.99	14.92	64.46	9.55	71.63	10.01	46.131	0.000**

ChQOL

Can ChQOL detect small changes ?

???



Responsiveness of ChQOL in Detecting Changes in Self-Perceived QOL (n=32)

ChQOL Domains	Baseline	After 4-wk	Observed change	t – value	P – value	ES	SRM
	Mean (SD)	Mean (SD)					
Physical Form	39.92 (13.53)	52.47 (12.46)	12.55	6.449	0.000**	0.93	1.14
Vitality & Spirit	57.66 (9.90)	62.40 (9.95)	4.74	2.720	0.011*	0.48	0.48
Emotion	62.09 (15.76)	66.07 (14.74)	3.98	2.152	0.039*	0.25	0.38
Overall ChQOL	53.23 (10.23)	60.32 (10.12)	7.09	5.678	0.000**	0.69	1.00

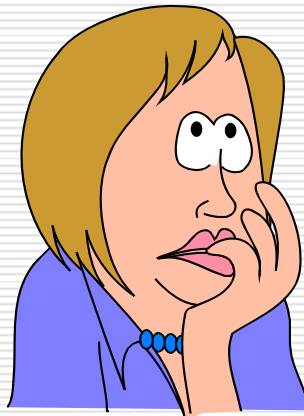
Responsiveness of ChQOL in Detecting Changes in the NYHA Functional Class (n=31)

ChQOL domains	Baseline	After 4-wk	Observed change	t – value	P – value	ES	SRM
	Mean (SD)	Mean (SD)					
Physical Form	39.07 (12.85)	52.30 (12.62)	13.23	7.013	0.000**	1.03	1.26
Vitality & Spirit	57.10 (9.54)	62.00 (9.85)	4.90	2.734	0.010*	0.51	0.49
Emotion	61.45 (15.59)	65.84 (14.92)	4.39	2.361	0.025*	0.28	0.42
Overall ChQOL	52.54 (9.63)	60.05 (10.17)	7.51	6.173	0.000**	0.78	1.11

ChQOL

Does ChQOL overlap with existing
generic HRQOL measures ?

???



Exploratory Factor Analysis on the 24 Facets of WHOQOL-100 and the 13 Facets of ChQOL

Facets	Component						
	1	2	3	4	5	6	7
F2.1 Positive Feelings	.663						
F2.2 Thinking, Learning, Memory & Concentration	.604						
F2.3 Self-esteem	.712						
F2.4 Bodily Image and Appearance	.521						
F4.1 Personal Relationships	.779						
F4.2 Social Support	.643						
F4.3 Sexual Activity	.607						
F5.5 Acquiring New Information & Skills	.563			.509			
F5.6 Participation in Leisure	.675						
F6.1 Spirituality/ Religion/ Personal Beliefs	.533						
F1.1 Pain & discomfort		-.604					
F1.2 Energy and Fatigue		.655					
F1.3 Sleep and Rest		.604					
F3.1 Mobility		.768					
F3.2 Activities of Daily Living		.723					
F3.3 Dependence on Medication		-.723					
F3.4 Working Capacity		.650					
Ch1.1 Complexion			.535				
Ch2.1 Consciousness			.807				
Ch2.2 Thinking			.869				
Ch2.3 Spirit of Eyes			.776				
Ch2.4 Verbal Expression			.786				
Ch1.5 Adaptation to climate							
F5.1 Physical Safety and Security				.547			
F5.2 Home Environment				.730			
F5.3 Financial Resources				.704			
F5.4 Availability & quality of health & social care				.676			
F5.7 Physical Environment				.711			
F5.8 Transport				.763			
Ch3.1 Joy					.476		
Ch3.2 Anger					.664		
Ch3.3 Depressed mood					.765		
Ch3.4 Fear					.681		
F2.5 Negative Feelings					-.570		
F1.3 Sleep and Rest						.776	
Ch1.2 Sleep						.745	
Ch1.4 Appetite & digestion							.580
Variance (%)	13.98	11.74	11.29	10.38	8.68	6.28	3.63
Cumulative (%)	13.98	25.72	37.01	47.40	56.08	62.37	66.00

Exploratory Factor Analysis of the 8 Facets of SF-36 and the 13 Facets of ChQOL

	Component			
	1	2	3	4
SF-RP Role Physical	.824			
SF-SF Social Functioning	.798			
SF-BP Bodily Pain	.702			
SF-VT Vitality	.643			
SF-GH General Health	.614			
SF-PF Physical Functioning	.604			
SF-RE Role Emotional	.592			
Ch2.1 Consciousness		.836		
Ch2.2 Thinking		.857		
Ch2.3 Spirit of Eyes		.802		
Ch2.4 Verbal Expression		.800		
Ch3.1 Joy			.657	
Ch3.2 Anger			.664	
Ch3.3 Depressed mood			.786	
Ch3.4 Fear			.622	
SF- Mental Health			.785	
Ch1.1 Complexion		.527		.488
Ch1.2 Sleep				.677
Ch1.3 Stamina				.481
Ch1.4 Appetite& digestion				.711
Ch1.5 Adaptation to climate				.559
Variance (%)	18.86	17.79	15.97	11.82
Cumulative (%)	18.86	36.66	52.63	64.45

Summary

- ❑ The ChQOL, a self-reported health status instrument, was developed basing on health in CM.
 - ❑ The structure of the ChQOL was valid and the psychometric properties were good.
 - ❑ It could provide additional information of health on top of some other generic health related QOL instruments.
 - ❑ The ChQOL is ready for use in clinical trial especially in studies related to the use of Chinese medicine.
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Acknowledgements

- Mr. Leung Kwok-fai, Queen Elizabeth Hospital
 - Dr. Liu Feng-bin, Guangzhou University of Traditional Chinese Medicine
 - Prof. Fang Ji-qian, Sun Yat-Sen University
 - Prof. Chan Kelvin, University of Wolverhampton, UK
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Thanks!



zhaoli@cuhk.edu.hk