



澳門鏡湖護理學院
MACAO KWONG WAH NURSING COLLEGE
INSTITUTO DE ENFERMAGEM KWAH DE MACAU

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Effects of Self-Management Education in improving inhalation technique on patients with Chronic Obstructive Pulmonary Disease (COPD) in Macau

自我管理教育對提升澳門慢性阻塞性肺病患者 藥物吸入技巧的效果

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Background 背景

- COPD is characterized by chronic airflow limitation which is due narrowing and changes in the airway structures and collapse of alveolar.

慢性阻塞性肺病是由於慢性氣道炎症而致氣道結構改變或狹窄, 以及肺泡塌陷 (*ATS 2009, GOLD 2008, Reid & Innes 2010*)

- Chronic respiratory disease state
慢阻肺是呼吸道慢性疾病狀態
- Cannot be cured, but can be prevented and treated
不可以治癒, 但它可以預防及治療

(*ATS 2009, GOLD 2008, Reid & Innes 2010*)

- An increased prevalence of COPD with associated morbidity and mortality in the coming decades

在未來數十年, 其發病率及死亡率將會增加

(*GOLD 2008, Lopez et al. 2006, Reid & Innes 2010*)



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Background 背景

- Contribute more to the global burden of disease in terms of disability-adjusted life years (DALYs) than other respiratory diseases

預計慢阻肺比其它呼吸道疾病為全球造成更沉重的疾病負擔及更長的失能調整生命年 (Al-J-Khaled et al. 2001)

- In Macau, respiratory disease is the top three causes of all deaths in recent years

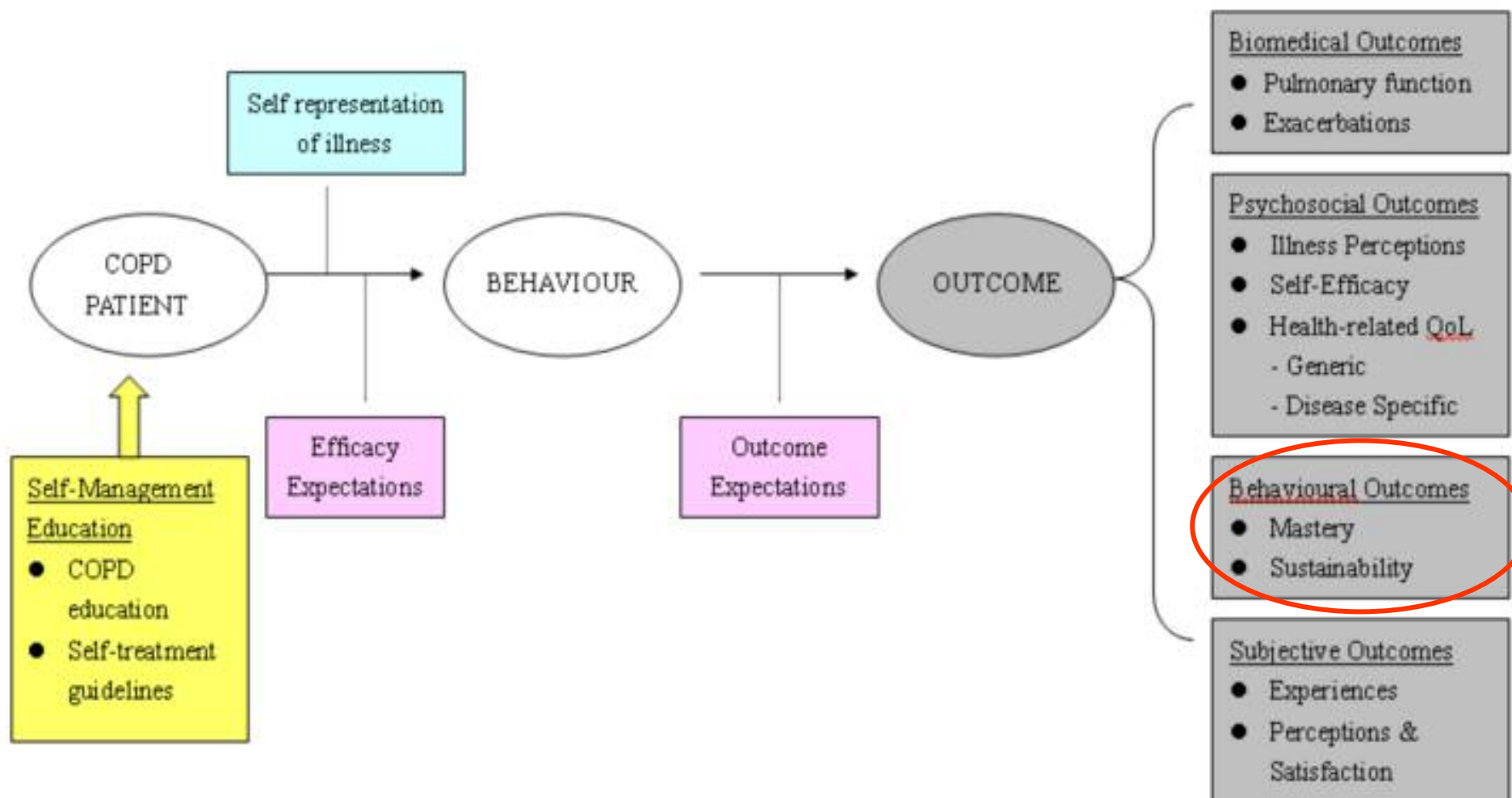
在澳門, 呼吸系統疾病是近年三大死因之一 (澳門統計局, 2008).

- Healthcare service provision focused on acute management
衛生服務則是集中於慢阻肺患者的急性處置



Theoretical Framework 理論框架

自我管理教育對澳門慢性阻塞性肺病患者的影響 ~ 臨床探索性試驗





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Research Aims 研究目的

- 1) To compare the inhalation technique of Macau COPD patients before and after implementation of self-management education.

在自我管理教育實踐前後，比較澳門COPD患者藥物吸入正確率

- 2) To compare the inhalation technique of Macau COPD patients who have undergone self-management interventions and who have received conventional therapy.

比較接受自我管理教育(干預)及接受傳統治療(對照)的澳門COPD患者的藥物吸入正確率



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Research Design 研究設計

An experimental design with a mixed methods approach

實驗性設計 + 混合方法進路

Methodology

Exploratory randomized controlled trial (RCT)

臨床探索性隨機對照試驗



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Sampling 取樣

Target population :

Stage II~IV COPD patients in Macau

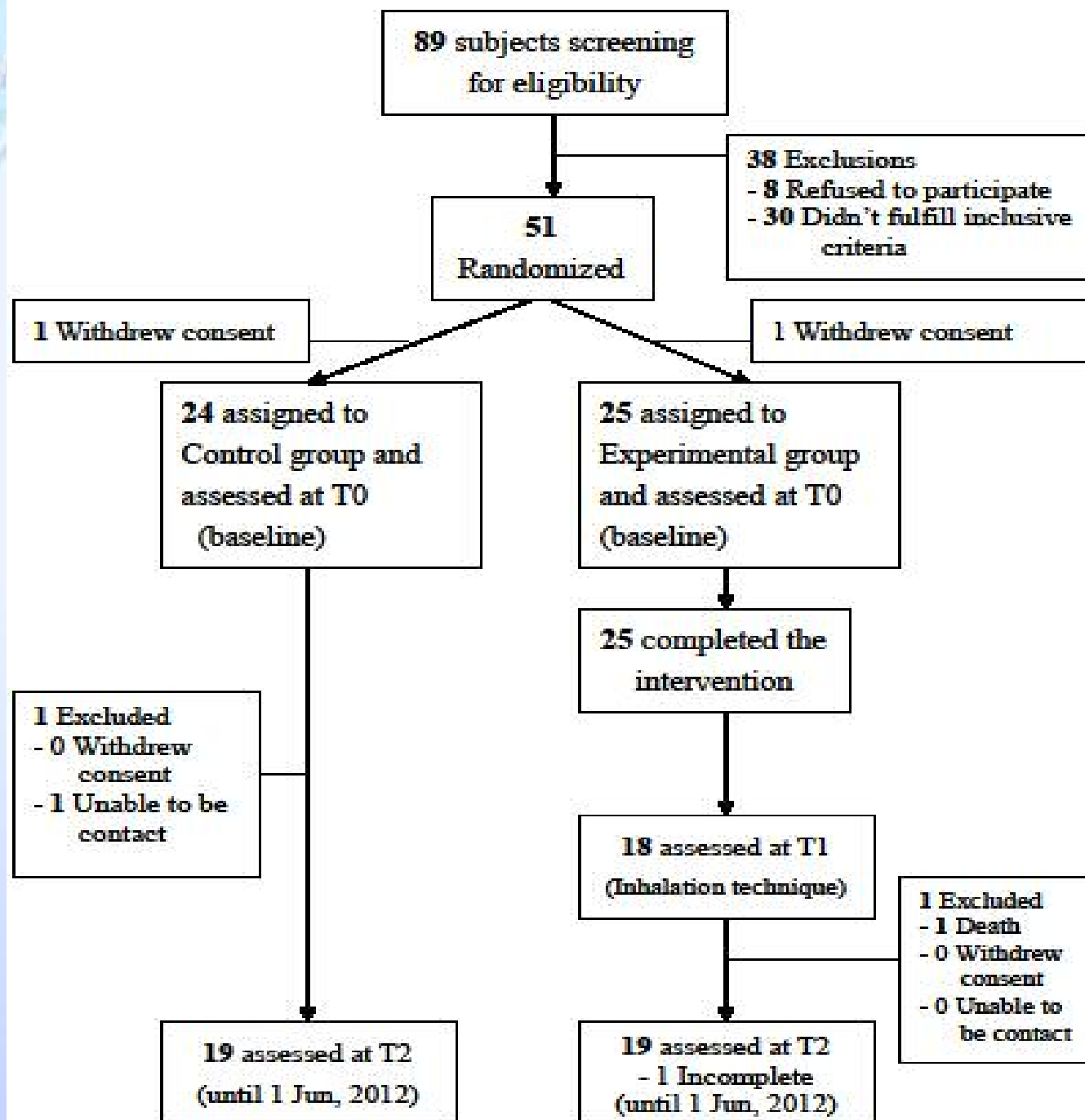
Time Period : 2011-1-19 to 2012-2-20

Place : Medical wards & respiratory out-patient departments of KWH, Elderly day care centers

鏡湖醫院內科病室、門診、社區日間中心

Sampling Procedure

取樣流程





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Method of Data Collection 收集資料方法

Mixed methods

Quantitative data 量性資料

Biomedical aspects :

- FEV₁, FEV₁/FVC
- No. of exacerbations, out-patient and ER visits, hospital admission.

Psychosocial aspects :

- **Inhalation technique checklist**
- Revised illness perception questions (IPQ-R),
- COPD self-efficacy scale (CSES),
- SF-36
- St. George respiratory questionnaire (SGRQ)

Qualitative data 質性資料

Focus group interviews – open-structured interview with main focus on (i) perceptions and (ii) experiences of the participants towards self-management.

手壓式定量霧化器吸入技巧 (MDI)

參與者編號：

吸入藥物名稱：_____

步驟	內容	第一次 工作坊	第四次 工作坊	工作坊後 6個月
1.	正確說出藥物作用			
2.	檢查藥物有效日期			
3.	打開瓶蓋，搖動氣霧器			
4.	緩緩地呼一口氣			
5.	將吸嘴放入口中，兩唇充份包含吸嘴			
6.	往下按藥筒的同時深深地吸入			
7.	屏氣 10 秒或盡量可能長久			
8.	呼氣			
9.*	若有第二劑，休息 30 秒後再吸一次			
10.	用干乾紙巾清潔瓶口			
11.	套回瓶蓋			
12*	短效支氣管擴張劑的是隨身攜帶			
13.*	吸入類固醇後漱口			
評估者編號：_____				
合計				

* 有需要時評估

“V” 正確

“X” 不正確

“O” 不適用

Validity

- Content validity

Reliability

- Training of Investigators
- Investigators were blinded





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Results 結果 (1)

基本資料 Demographic data (N=51)	實驗組(%) Exp. group	對照組(%) Control group	p-value
Number of patients 病人數	26 (51.0)	25 (49.0)	
Sex 性別			0.07
<i>Male</i>	16 (61.5)	21 (84.0)	
<i>Female</i>	10 (38.5)	4 (16.0)	
Age 年齡 \bar{x} (SD)	67.4 (10.5)	68.8 (10.1)	0.93
Diagnosis 診斷			0.65
<i>Emphysema</i> 肺氣腫	4 (15.4)	4 (16.0)	
<i>Chronic Bronchitis</i> 慢支	7 (26.9)	10 (40.0)	
<i>COPD</i> 慢阻肺	15 (57.7)	11 (44.0)	
COPD Classification 分級			0.42
<i>Stage II</i>	12 (46.1)	10 (40.0)	
<i>Stage III</i>	10 (38.5)	8(32.0)	
<i>Stage IV</i>	4 (15.4)	4(16.0)	

Results 結果 (2)

基本資料 Demographic data	實驗組(%) Exp. group	對照組(%) Control group	p-value
Long-term treatment 長期治療			0.34
<i>Under treatment</i>	19 (73.1)	21 (84.0)	
<i>No treatment</i>	7 (26.9)	4 (16.0)	
Educational level 教育程度 (N=42)			0.96
<i>Illiterate</i>	4 (18.2)	3 (15.0)	
<i>Primary school</i>	12 (57.1)	12 (60.0)	
<i>Secondary school</i>	5 (22.7)	5 (25.0)	
Inhalers used 吸入器使用			
MDI 定量手壓式吸入器		14	
MDI + Spacer 儲霧器		5	
Turbuhaler 干粉劑		3	
Accuhaler 準納器		3	
Handihaler 易得噴	4	5	





Results 結果 (3)

1) Inhalation technique of Macau COPD patients before and after implementation of self-management education

COPD患者在自我管理教育實踐前後的藥物吸入正確率

吸藥種類		Tier 0	Tier 1	Tier 2	<i>p</i> -Value	
Types of inhaler		干預前	干預完結	干預後6個月		
總體藥物吸入	(N=17)	54.9 (19.6)	83.4 (12.9)		T0<T1	.000
正確率	(N=14)		81.2 (13.1)	80.6 (10.6)	T1 :T2	0.89
	(N=20)	49.7 (20.5)		80.2 (10.9)	T0<T2	.000
MDI	(N=9)	41.4 (19.5)	75.9 (13.1)		T0<T1	.000
定量手壓式	(N=9)		75.9 (13.1)	76.8 (10.9)	T1 :T2	0.88
吸入器	(N=11)	37.7(19.4)		75.7 (10.2)	T0<T2	.000
其它吸入器	(N=7)	62.8 (8.4)	90.6 (5.2)		T0 :T1	0.69
	(N=4)		88.5 (3.8)	86.1 (6.1)	T1 :T2	0.37
	(N=8)	62.6 (8.3)		84.9 (9.6)	T0 :T2	0.55

Results 結果 (4)

2) Comparison of Inhalation technique between COPD patients in experimental and control group

實驗組與對照組的藥物吸入正確率比較

吸藥種類 Types of inhaler	實驗組 % (SD) Exp. Group	對照組 %(SD) Control group	p-value
Overall mastery rate 總體吸藥正確率	(N=32)	(N=30)	
Tier 0 干預前	54.9 (19.6)	58.6 (24.2)	0.17
Tier 2 干預後6個月	80.3 (10.9)	66.3 (24.9)	0.01
MDI 定量手壓式吸入器	(N=20)	(N=23)	
Tier 0 干預前	45.7 (22.8)	47.4 (27.9)	0.23
Tier 2 干預後6個月	75.7 (10.2)	54.8 (30.2)	0.007
其它吸入器	(N=15)	(N=16)	
Tier 0 干預前	63.3 (9.1)	68.4(15.3)	0.04
Tier 2 干預後6個月	84.9(9.6)	77.0(12.4)	0.43



Results 結果 (5)

MDI Inhalation

定量手壓式吸入

Tier 0

Tier 1

Tier 2

干預後6個月
(N=11)

Step 步驟

1

2

3

4

5

6

7

8

9

10

11

12

檢查藥物有效期

吸藥前緩緩地呼一口氣

若有第二劑，休息30秒後再吸一次

用干乾紙巾清潔瓶口

100.0

62.5

87.5

25.0

87.5

72.7

72.7

90.9

37.5

62.5

100.0

100.0

90.9

54.5

63.6

54.5

81.8

72.7

72.7

90.9

54.6

45.5

100.0

100.0

53.3



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Discussion 討論

- Overall mastery rate of inhaler usage is low, esp. for MDI inhalers (Hardwell, A., et al., 2011; Melani, A.S., et al., 2004)
- Self-management education could improve the inhalation technique of COPD patients in the short-run and long-run.
- COPD patients who have received self-management education significantly manage to use MDI inhalers in a more correct way.
- One-time interventions are not sufficient for all patients to learn how to perform error-free inhalation technique (Hämmerlein, A, Müller, U, & Schulz, M., 2011). Significant factors associated with patients' adherence and repeated instruction on inhalation techniques (Takemura, M., et al., 2010)
- Another study found out different error in inhalation from this study (Hämmerlein, A, Müller, U, & Schulz, M., 2011). Nonetheless, these 4 steps still need more emphasis in education.



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Conclusion

- Self-management education is necessary for COPD in improving their treatment compliance.
- Education is not a one-point task, but a continuous nursing intervention for COPD patients.



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Thank you!!