Toward an Evidence-based Practice Symposium
園藝治療：邁向實證為本研討會
Hong Kong Association of Therapeutic Horticulture

Horticultural Therapy To Date:
Challenges and Opportunities in Developing Evidence-based Practice
園藝治療的前瞻：發展實證為本之挑戰與機遇

Claudia K Y Lai, PhD, RN, FAAN
Honorary Professor & Founding Director, Centre for Gerontological Nursing, School of Nursing
Visiting Professor, Yangzhou University
Board Director, NHCGNE, USA
Member, Sigma Asia Global Regional Council

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The American Horticultural Therapy Association Definitions and Positions Paper (2017)
美國園藝治療協會：定義與立場

Horticultural Therapy

- Participation in horticultural activities facilitated by a registered horticultural therapist (RHT) to achieve specific goals within an established treatment, rehabilitation, or vocational plan.
- An active process which occurs in the context of an established treatment plan where the process itself is considered the therapeutic activity rather than the end product.

園藝治療

- 園藝治療是由受過專業訓練的園藝治療師策劃和帶領，讓服務對象參與園藝活動，達致治療效果。活動的參與是在已確立的治療方案、康復或職業計劃的範圍內。
- 園藝治療是一個進展中的過程，其中過程本身被認為是治療性活動，而不是最終產品。

https://www.ahta.org/assets/docs/definitions%20and%20positions%20final%206.17.pdf

The American Horticultural Therapy Association Definitions and Positions Paper (2017)
美國園藝治療協會：定義與立場

Therapeutic Horticulture

- Therapeutic horticulture is the participation in horticultural activities facilitated by a RHT or other professionals with training in the use of horticulture as a therapeutic modality to support program goals.
- Therapeutic horticulture is the process through which participants enhance their well-being through active or passive involvement in plant and plant-related activities.

有療效的園藝活動

- 指由園藝治療師或其他受過相關訓練的專業人士策劃和帶領，讓服務對象參與園藝活動。是一個運用園藝作為治療方式的活動方案，讓參加者達致治療計畫目標。
- 治療園藝是指一個運用植物及相關活動的過程，讓參加者通過主動或被動參與，努力促進身心康寧。

https://www.ahta.org/assets/docs/definitions%20and%20positions%20final%206.17.pdf

Types of Evidence 證據類型
(French, 2001)

Types 類型	Methods of Collection 收集方法
Experimental 實驗	Randomized controlled trials (RCT), meta-analyses 隨機臨床試驗，薈萃分析
Non-experimental非實驗	Quasi-experimental, observational studies 準實驗，觀察研究
Expert opinion 專家意見	Consensus, based on published literature and consensus process (e.g., Delphi technique), commissioned reports 共識 – 基於已發表的文獻和共識過程（例如德爾菲技術），委託的專家報告
Historical or experiential 歷史或體驗	Anecdotes, case reports 真實故事，案例報導

Levels of Evidence 證據級別 (1)

Oxford Centre for Evidence-based Medicine (2009, 2011)

https://www.cebm.net/2016/05/ocebm-levels-of-evidence/

Level 級別	Therapy/Prevention/Aetiology/ Harm 治療/預防/病因/傷害	Economic & Decision Analyses 經濟與決策分析
1a	Systematic review (SR) (with homogeneity*) of RCTs 隨機對照試驗的系統評價（具有同質性*）	SR (with homogeneity*) of Level 1 economic studies 1級經濟研究的系統評價（具有同質性*）
1b	Individual RCT (with narrow Confidence Interval) 個人隨機對照試驗（具有狹窄的置信區間）	Clinically sensible cost analysis or alternatives; SR of evidence; + multi-way sensitivity analyses 臨床上合理的成本分析或替代方案；系統評價證據；+多向靈敏度分析
1c	All or none § 全部或沒有 §	Absolute better-value or worse-value analyses 絕對更好價值或更差價值的分析

§ Met when all patients died before the Rx became available, but some now survive on it; or when some patients died before the Rx became available, but none now die on it.

§ 當所有患者在死亡前有可用的處方，但現在有些患者可以存活下來； 或者有些患者在有可用的處方之前死亡，但現在沒有人死亡。

Levels of Evidence 證據級別 (2)

Oxford Centre for Evidence-based Medicine (2009, 2011)

https://www.cebm.net/2016/05/ocebm-levels-of-evidence/

Level 級別	Therapy/Prevention/Aetiology /Harm 治療/預防/病因/傷害	Economic & Decision Analyses 經濟與決策分析
2a	SR (with homogeneity*) of cohort studies 隊列研究系統評價（具有同質性*）	SR (with homogeneity*) of Level >2 economic studies >2級經濟研究的系統評價（具有同質性*）
2b	Individual cohort study (including low quality RCT; e.g., <80% follow-up) 個別隊列研究（包括低質量隨機對照試驗;例如，<80%跟進）	Analysis based on clinically sensible costs or alternatives; limited review(s) of the evidence, or single studies; and including multi-way sensitivity analyses 基於臨床合理成本或替代方案的分析；有限審查的證據，或單項研究；並包括多向靈敏度分析
2c	"Outcomes" Research; Ecological studies 「結果」研究;生態學研究	Audit or outcomes research 審計或成果研究

§ Met when all patients died before the Rx became available, but some now survive on it; or when some patients died before the Rx became available, but none now die on it.

§ 當所有患者在死亡前有可用的處方，但現在有些患者可以存活下來；或者有些患者在有可用的處方之前死亡，但現在沒有人死亡。

Levels of Evidence 證據級別(3)

Oxford Centre for Evidence-based Medicine (2009, 2011)

https://www.cebm.net/2016/05/ocebm-levels-of-evidence/

Level 級別	Therapy/Prevention/Aetiology /Harm 治療/預防/病因/傷害	Economic & Decision Analyses 經濟與決策分析
3a	SR (with homogeneity*) of case-control studies 病例對照研究的系統評價（具有同質性*）	SR (with homogeneity*) of 3b and better studies 3b的系統評價（具有同質性*）和更好的研究
3b	Individual Case-Control Study 個別病例對照研究	Analysis based on limited alternatives or costs, poor quality estimates of data, but including sensitivity analyses incorporating clinically sensible variations. 基於有限的替代品或成本、低質量數據估計的分析，但包括結合臨床合理變異的敏感分析

§ Met when all patients died before the Rx became available, but some now survive on it; or when some patients died before the Rx became available, but none now die on it.

§ 當所有患者在死亡前有可用的處方，但現在有些患者可以存活下來；或者有些患者在有可用的處方之前死亡，但現在沒有人死亡。

Levels of Evidence證據級別 (4)

Oxford Centre for Evidence-based Medicine (2009, 2011)

https://www.cebm.net/2016/05/ocebm-levels-of-evidence/

Level 級別	Therapy/Prevention/Aetiology /Harm 治療/預防/病因/傷害	Economic & Decision Analyses 經濟與決策分析
4	Case-series (and poor quality cohort and case-control studies§§) 案例系列（以及差質量的隊列和案例對照研究§§）	Analysis with no sensitivity analysis 沒有靈敏度分析的分析
5	Expert opinion without explicit critical appraisal, or based on physiology, bench research or "first principles“ 沒有明確的批判評估、或基於生理、基準研究或「第一原理」的專家意見	Expert opinion without explicit critical appraisal, or based on economic theory or "first principles“ 沒有明確的批判性評估、或基於經濟理論或「第一原理」的專家意見

§ Met when all patients died before the Rx became available, but some now survive on it; or when some patients died before the Rx became available, but none now die on it.

§ 當所有患者在死亡前有可用的處方，但現在有些患者可以存活下來； 或者有些患者在有可用的處方之前死亡，但現在沒有人死亡。

Grades of Recommendation 推薦等級

(Oxford Centre for Evidence-based Medicine, 2009)

Grade 等級	Meaning (Strength) of Recommendation 建議的強度
A	Consistent level 1 studies 一致的1級研究
B	Consistent level 2 or 3 studies or extrapolation from level 1 studies 一致的2級或3級研究或從1級研究中推斷
C	Level 4 studies or extrapolations from level 2 or 3 studies 2級或3級研究的4級研究或推斷
D	Level 5 evidence or troublingly inconsistent or inconclusive studies of any level 任何級別的5級證據或令人不安的不一致或不確定的研究

Source: https://www.cebm.net/2009/06/oxford-centre-evidence-based-medicine-levels-evidence-march-2009/

Barley et al. (2012): A Study on Primary-care Based Participatory Rehabilitation
Barley et al. (2012):一個初級護理的參與式康復研究

- Sydenham Garden - a primary-care based social therapeutic horticulture and participatory arts rehabilitation project for people with severe mental and/or physical illness.
- Sydenham Garden - 一個初級保健的社區治療園藝和參與式藝術康復項目，適用於患有嚴重精神和/或身體疾病的人。
- **Goal:** to facilitate meaningful creative activities to be undertaken by a community of coworkers, staff, and volunteers, and to deliver therapeutic benefits for the participants.
- 目標：由同事(患者)、員工和志願者組成一個團體，開展的有意義的創造性活動，並為參與者提供治療益處。

Barley et al. (2012): A Study on Primary-care Based Participatory Rehabilitation
Barley et al. (2012):一個初級護理的參與式康復研究

- The Garden was managed as a nature reserve and a garden where the participating community grow vegetables, flowers and herbs.
- 那所花園作為一個自然保護區，由該團體種植蔬菜、花卉和香料
- Art group held weekly in the garden
- 藝術小組每週在花園裡舉行
- Produce used by the coworkers or sold to the local community
- 由同事(患者)使用或出售給當地社區
- A user-centered service – coworkers contributed to decision-making
- 以用者為中心的服務方式;同事(患者)也參與決策

Barley et al. (2012): A Study on Primary-care Based Participatory Rehabilitation
Barley et al. (2012):一個初級護理的參與式康復研究

- Open-ended questions were asked using semi-structured interviews of coworkers
- 使用開放式問題和半結構性的訪談方法，訪問同事
- 16 out of 28 coworkers interviewed
- 28位中16位接受了採訪
- Age range: 38-91 years 年齡範圍：38-91歲
- Male=9; Female=7 男= 9; 女=7
- Duration of attendance: 3 months – 4 years (1 only for 6 weeks)
- 持續出席時間：3個月至4年（其中1位僅出席了6週）
- Participated only in gardening=7; participated only in art=5; participated in both=4
- 僅參加園藝組=7; 僅參加藝術组=5; 參加了兩個組=4

Barley et al. (2012): A Study on Primary-care Based Participatory Rehabilitation
Barley et al. (2012): 一個初級護理的參與式康復研究

Conclusion 結論:

- Felt a sense of ownership 感到有擁有權
- Improved wellbeing (by providing purposeful and pleasurable activity)
- 改善健康/幸福感（通過提供有目的和愉快的活動）
- Social contact was of particular importance to the co-workers
- 社交聯繫對同事(患者)特別重要
- Being outdoor was beneficial
- 戶外活動是有益的
- Appreciation of nature – users linked this to their improvements in mood
- 用者認為欣賞自然改善了自己的情緒

Your thoughts? 你的意見呢？

Oh et al. (2018): Psychopathological Effects of HT on Patients with Schizophrenia
Oh et al. (2018): 園藝治療對精神分裂症患者的病理影響

- Rationale of study: Few studies have assessed the psychopathologic effects of HT on patients with schizophrenia
- 研究理據：很少有研究評估園藝治療對精神分裂症患者的精神病理學影響
- Intervention design: 10-session on plant cultivating activities in a garden plot in a farm from Apr to Jun 2017
- 干預設計：2017年4月至6月在農場花園中種植植物共十次

Oh et al. (2018): Psychopathological Effects of HT on Patients with Schizophrenia
Oh et al. (2018): 園藝治療對精神分裂症患者的病理影響

Sample 研究樣本 :

- HT group n=15; Control group n=13
- 園藝治療組 n=15;對照組 n=13
- Convenience sampling from a clinic and two rehabilitation settings in Suwon, South Korea
- 來自韓國水原的診所和兩個康復機構的便利抽樣
- "Voluntarily" assigned into either intervention or control group
- 「自願」分配到干預組或對照組

Oh et al. (2018): Psychopathological Effects of HT on Patients with Schizophrenia
Oh et al. (2018): 園藝治療對精神分裂症患者的病理影響

Intervention Design

- The garden plot was divided into 8 sections
- All participants worked together
- Joined once a week (~ 2 hours/session) for 10 weeks
- Run by 2 certified HT therapists and 1 volunteer

干預設計

- 花園地塊分為8個部分
- 所有參與者一起工作
- 每週一次，每次約2小時，持續10週
- 由2名經過認證的園藝治療師和1名志願者經營

Oh et al. (2018): Psychopathological Effects of HT on Patients with Schizophrenia
Oh et al. (2018): 園藝治療對精神分裂症患者的病理影響

數據收集和分析

- 精神科醫生進行評估
  干預前後評估
- 工具：韓國版的陽性和陰性症狀量表（PANSS）；精神病學評定量表（BPRS）
- 使用配對t檢驗

Data Collection & Analysis

- Pre- and post-assessment by a psychiatrist
- Tools: Korean version of the Positive and Negative Syndrome Scale (**PANSS**); Brief Psychiatric Rating Scale (**BPRS**)
- Paired t-test was used

Oh et al. (2018): Results – Sample
Oh et al.(2018): 結果 – 樣本

	HT Group 園藝治療組 (n = 15)	Control Group 對照組 (n = 13)	P-value P值
Age (mean [SD]) 年齡（平均值［標準差］）	42.1 [13.0]	33.4 [9.4]	0.057
Gender (% [N]) 性別（%[N]）			
Male 男	93.3 [14]	46.2 [6]	0.006
Female 女	6.7 [1]	53.8 [7]	

Oh et al. (2018): Results
Oh et al. (2018): 結果

PANSS 陽性和陰性症狀量表

- Significant improvement in the HT group but no change in the control group
- 園藝治療組顯著改善但對照組無變化

BPRS 精神病學評定量表

- Significant improvement in the HT group but no change in the control group
- 園藝治療組顯著改善但對照組無變化

Your thoughts? 你的意見呢？

Oh et al. (2018): 園藝治療計劃

	園藝活動	農作物
1	制作蔬菜園圃, 施肥, 耕作	馬鈴薯, 生菜
2	水耕	毛青杠
3	表土覆蓋, 耕作	香草, 茄子, 東方甜瓜(哈密瓜)
4	表土覆蓋, 耕作, 收割	番茄, 甜椒, 生菜
5	築起支架, 除雜草, 收割	番茄, 甜椒, 茄子, 生菜
6	耕作, 收割	蕃薯, 生菜
7	修剪橫枝, 除雜草, 收割, 包裝	番茄, 甜椒, 茄子, 生菜
8	修剪橫枝, 保護農作物, 環保法防治蟲害	番茄, 甜椒, 茄子, 馬鈴薯
9	收割, 除雜草, 泡茶	香草, 生菜
10	收割, 農莊派對	馬鈴薯

Literature Review Reported by Oh et al. (2018)
文獻綜述 - Oh等報導(2018）

HT for patients (schizophrenia) 研究園藝治療用於精神分裂症患者的效果	Goal of Therapy 治療目標	Intervention Sessions 干預次數
Song & Sim (2000)	Improvements in psychopathologic symptoms 精神病理症狀的改善	10
Eum & Kim (2006)	Improve self-efficacy; Reduce psychiatric symptoms 提高自我效能;減少精神症狀	16
Cho et al. (2003)	Improve psychopathological symptoms, Assertiveness, Interpersonal relationship 改善精神病理症狀、自信、人際關係	24
Parvin et al (2016)	Improve positive and negative symptoms 改善積極和消極的症狀	3-months

Potential Confounders in Oh et al.'s Study (2018)
Oh et al. 研究中的潛在混淆因素（2018）

Intervention Design 干預設計	Potential Confounder 潛在的混淆因素	Control Condition 對照組
• 花園地塊分為8個部分 • 所有參與者一起工作 • 每週一次，每次約2小時，持續10週 • 由2名經過認證的園藝治療師和1名志願者經營 • 共同決策	Landscape 景觀	???
	Social interactions 社交互動	
	Social expectations 社會期望	
	Attention 專注力	
	Cognitive stimulation 認知刺激	
	Multi-sensory stimulation 多感官刺激	
	Nature – interactions with plants 自然 – 與植物的相互作用	

Luk et al. (2011): A Pilot Study
Luk等（2011年）：一項預實驗

Research Aim & Design
研究目標與設計

- To examine the effects of horticultural activity on agitation exhibited by patients with dementia in a local Chinese population.
- 研究認知障礙患者的園藝活動對躁動的影響。
- A quasi-experimental study adopting a single-blinded, pre- and post-test design.

Setting 場地

- A local publicly-funded 260-bed nursing home
- 一家公共資助的260床養老院

Luk et al. (2010): Methods – Sample
Luk等(2010):方法 – 樣本

Inclusion Criteria入選標準

- Nursing home residents aged 65 years old or above
- 65歲以上的養老院居民
- Able to communicate and speak Cantonese
- 能夠溝通和說廣東話
- Diagnosed as suffering from dementia
- 被診斷為患有癡呆症
- With symptom(s) of agitation
- 有激越行為的症狀

Exclusion Criteria 排除標準

- Bilateral blindness 失明
- Bilateral deafness 失聰
- Acute illnesses
- 患有急性疾病
- Allergy to any plants, mud, pollen, fertilizer and seeds
- 對任何植物、泥、花粉、肥料和種子過敏
- Physical incapability such as upper limb disability
- 身體功能受損，如上肢殘疾
- Participation in horticultural activities in the previous 6 months
- 過去6個月曾參加園藝活動

Luk et al. (2011): Intervention Design
Luk等（2011）：干預設計

Elements of Horticultural Activities
園藝活動的要素

1. Interactions with living things, nurturing
與生物相互作用，培育
2. Social interaction
社交聯繫
3. Multi-sensory stimulation 多感官刺激

We excluded the element of reminiscence.
排除了懷缅的元素

Interventionists and Raters
施行干預者和評估者

- Training to ascertain sameness of approach
- 培訓以確定施行方法統一
- Raters blinded to group allocation
- 評估員對組別分配不知情

Luk et al. (2011): The Study Groups
Luk等（2011年）：研究組別

Experimental Group實驗組

- Twice-weekly for 6 weeks, 30 min each
- 每週兩次，持續6週，每次30分鐘
- In an outdoor garden 在戶外花園舉行
- Specific plants were provided for the participants to view, smell, and touch
- 為參與者提供特定植物以觀察，嗅聞和觸摸
- At the end of the session, participants helped in tidying up and were reminded to water their plants regularly
- 每週結束時，參與者幫助收拾;並被提醒定期給他們的植物澆水

Control Group 對照組

- Provide sensory stimulation
- 提供感官刺激
- Provided social interaction
- 提供了社交互動
- Took place indoors
- 在室內舉行

Lai et al. (2018): Effect of Horticultural Therapy on Frail and Pre-frail Older People in Residential Care

Lai et al. (2018): 園藝治療對養老院體弱患者的效用研究

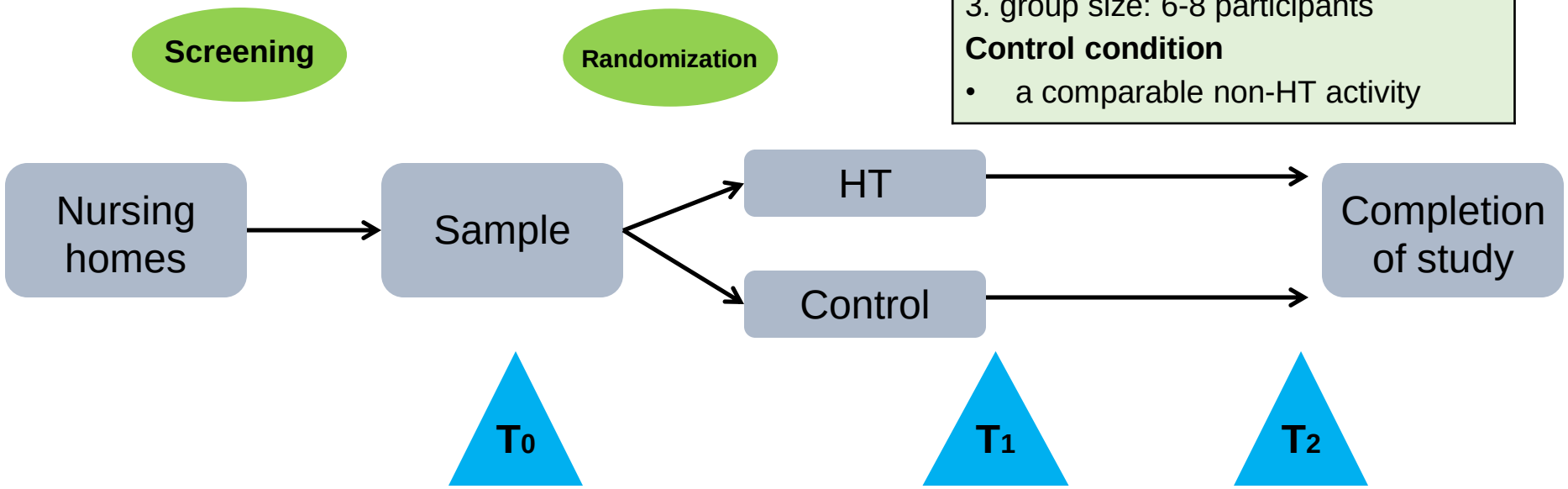
A Randomized Controlled Trial Design

Horticulture Therapy Group:

1. weekly program for eight weeks
2. 45 minutes/session
3. group size: 6-8 participants

Control condition

- a comparable non-HT activity



Data collection time points:

T0: Baseline

T1: Immediate post-intervention

T2: 12 weeks post-intervention

On Clinical Relevancy 臨床相關性 (1)

Zhao et al. (2019):

- To investigate whether there are differential effects in the behavior of humans when viewing different phenological stages of peony flowers in the physical and mental health of middle-aged and older adults
- 研究中年和老年人在觀看牡丹花的不同開放階段時，身體及心理健康是否有差異
- A single group pre- and post-test design at 4 time points
- 在4個時間點進行單一組別的前測試和後測試
- N=73 participants (61.3 years SD 10.78)
- N=73名參加者（61.3歲，標準差10.78）

On Clinical Relevancy 臨床相關性（2）

Zhao et al. (2019):

- Viewing peonies at 4 stages: leaf, initial bloom, full bloom, and terminal bloom
- 在4個階段觀看牡丹：葉子、初始開花、盛開和最後綻放
- Physiological parameters as measures: SBP, DBP, HR, SpO2
- 評估數據採用的生理參數：收缩壓、舒張壓、心跳、血氧含量
- Mental health: Profile of Mood States (POMS), State-Trait Anxiety Inventory (STAI)
- 評估心理健康：情緒狀態量表、情境特質焦慮量表
- Study conducted in a peony garden from April 2-27, 2018.
- 2018年4月2日至27日在一個牡丹園進行此項研究

Zhao et al. (2019): The Intervention 干預

- The participants were gathered at a designated location.
- 參與者聚集在指定地點
- Before the start of the experiment, the participants were allowed to move freely in the courtyard (without peonies) for 15 min.
- 實驗開始之前，允許參加者在沒有牡丹的庭院部份自由活動15分鐘
- Then all participants entered the peony garden in a prearranged order to watch tree peonies.
- 然後所有參與者以預先安排的次序進入牡丹園觀看牡丹花

Zhao et al. (2019): The Intervention 干預

- A guided 15 min peony-viewing program was organized to include the major stimulation of the two senses, namely , vision and olfaction.
- 提供15分鐘的牡丹導賞計劃，其中包括兩種感官的主要刺激，即視覺和嗅覺
- The participants were allowed to touch the tree peonies, but not to talk with others, look at the phone, or walk out of the peony garden.
- 參與者可以觸摸牡丹，但不准與他人交談、看電話、或走出牡丹花園
- Each participant walked for approximately 300 m in the peony garden.
- 每個參與者在牡丹園中走了大約300米

Zhao et al. (2019): Data Analysis and Results
趙等（2019）：數據分析和結果

Analysis 數據分析

- Paired t-tests were used
- 使用配對t檢驗
- Changes between the experimental groups at different stages were tested using ANOVA
- 使用ANOVA測試不同階段的實驗組之間的變化

Results 結果

- All of the POMS and STAI scores revealed significant changes
- 所有情緒狀態量表(POMS)和情境特質焦慮量表（STAI）評分均顯示重要變化

Developing Evidence-based Interventions: Your Approach
開展基於證據的干預：你的方法

Nature of the intervention that you are interested in 你感興趣的干預的性質	Questions that you need to ask 你需要問的問題
Physiological? 生理？	▪ What is my research question for this intervention study? ▪ 這項干預研究的命題是什麼？ ▪ Does the proposed intervention have sufficient evidence in the literature? ▪ 擬定的干預措施是否在文獻中有足夠的證據支持？ ▪ What is the nature of my intervention? ▪ 介入的性質是什麼？ ▪ What is the best way to design my intervention protocol based on evidence? ▪ 什麼是根據證據而設計的最佳干預方法？
Psychosocial？心理社會？	
Spiritual? 精神/靈性？	
Functional or instrumental in nature / Performance-based? 功能性或工具性/所表現的能力？	

Considerations for Developing an Evidence-based Intervention
有關制定循證干預的思考

For example, the Donabedian Model (2003) 例如Donabedian模型(2003):

- A conceptual framework developed for examining health services and evaluating quality of care
- 為檢查衛生服務和評估服務質量而製定的理念框架
- Structure describes the context in which care is delivered, including the infrastructure such as hospital buildings, staffing, resources
- 結構描述了提供服務的背景，包括建築、人員配備、 資源等基礎設施
- Process refers to the transactions between patients and providers throughout the delivery of healthcare
- 過程是指在整個醫療保健過程中患者和提供者之間的互動
- Outcomes refers to the effects of healthcare on the health status of patients and populations
- 結果是指醫療保健服務對患者和人群健康狀況的影響

The Donabedian Model (2003): Structure, Process and Outcome
Donabedian 模型（2003年）：結構、過程和結果

Structure 結構	Process 過程	Outcome 結果
What is already known? 已知的是什麼？	What is already known about the procedures in a similar study? 關於類似研究中的程序已經知道了什麼？	Any untoward events? 有否任何不愉快的事件？
Possible adaptation to the local context? 可能適應當地的背景？	Same question(s) 同樣的問題	Any potential risks? 任何潛在的風險？
What is my research question? **我的研究問題是什麼？**	How do I collect the data I need to answer my research question? 如何收集回答研究問題所需的數據？	What are the question's relevancy to practice? 問題與實踐的相關性是什麼？

The Donabedian Model (2003): Structure, Process and Outcome

Donabedian 模型（2003年）：結構、過程和結果

Structure 結構	Process 過程	Outcome 結果
What is available? 什麼是可應用的？	Do I have enough resources to conduct the required study protocol? 我是否有足夠的資源來執行所需的研究方案？	What about the cost? 費用怎麼樣？
Other practicalities- clinical applications 其他實際情況的考慮 – 臨床上的應用	Have I considered all of the potential confounds? 我是否考慮過所有潛在的混淆？	How far do I need to go? 我需要走多遠？
…		
…		

Blaschke et al. (2017): Nature-based Care Opportunities and Barriers in Oncology
Blaschke 等(2017): 基於自然的護理機會和腫瘤學的障礙

- An international e-Delphi survey
- 一項國際間的德爾菲調查(採用電子方法)
- N=28 panelist from 7 countries (Australia, UK, USA, New Zealand, Canada, Denmark, & Sweden)
- 來自7個國家（澳大利亞、英國、美國、新西蘭、加拿大、丹麥和瑞典）的28名小組成員
- Goal: To develop recommendations for nature-based care in oncology
- 目標：為腫瘤學中的自然療法制定未來發展建議
- **Recommendations**: opportunities rated to be of highest importance
- 建議：評定最重要的發展機會為
- Window views from clinical areas onto natural outdoor settings, gardens & courtyards with easy access, nature-based physical exercise adapted to patient requirements…
- 從臨床區域的窗戶看到的自然戶外環境;如何便利進入花園和庭院的環境;適合患者需求的自然體育鍛鍊等.....

Some Suggestions for Future Studies
對未來研究的一些建議

- Identify the active therapeutic component in HT
- Adoption of rigorous designs, e.g., trial design
- Use of physiological parameters as an integral part of the measurement of outcomes

- 確定園藝治療中的有效治療成分
- 採用嚴格的研究設計，例如試驗設計
- 使用生理參數作為結果測量的組成部分

Facing the Future 面向未來

Opportunities 機會

- Surge of interest in HT and related areas
- 社會對園藝治療和其相關領域感興趣
- A novel field in systematic research where there are many questions to answer
- 一個新的研究領域，有許多問題尚待解釋

Challenges 挑戰

- Investment in research capacity
- 培育人才，投資於開發研究的能力
- Any trials are expensive
- 任何試驗都很昂貴
- The development of evidence takes time
- 證據的發展需要時間
- HT being subsumed under nature therapy or nature-assisted therapy
- 園藝治療被歸入自然療法或自然輔助療法

Concept of Nature Therapy 自然療法的概念
(Song et al. 2016)

Concept of nature therapy 自然療法的概念

Stressed state 緊張狀態

↓

Restorative effects of nature (forests, flowers, etc.)
自然的恢復效果（森林，花卉等）

↓

Physiological **relaxation** 放鬆生理
Immune function **recovery** 恢復免疫功能

→ **Individual differences 個別差異**

↓

Evidence-based Medicine (EBM)
循證為本醫學

Preventive medical effect 預防性醫療效果

Song et al. (2016): A Systematic Review on Physiological Effects of Nature Therapy
宋等（2016）：自然療法生理效應的系統評價

Biomarkers Used and Reported 報告所歸纳的被採用的生物標誌物

- Salivary cortisol
- 唾液皮質醇
- Systolic and diastolic blood pressure
- 收縮壓和舒張壓
- Pulse rate
- 脈搏
- Heart rate variability
- 心率變異性
- Respiratory rate
- 呼吸頻率
- Natural Killer Cell activity
- 自然殺手細胞活動
- Oxyhemoglobin level in the pre-frontal cortex
- 前額葉皮質中的氧合血紅蛋白水平
- Electroencephalography
- 腦電圖

Franco et al. (2017) A Literature Review of Studies on Experiencing Nature with Our Five Senses
「五感」體驗自然研究綜述

Pathway 途徑	Gaps in Knowledge 知識方面的差距
Sound 聲音	Which kinds of nature sounds are important; studies with visually-impaired individuals 那種自然聲音重要;研究視障人士
Smell 氣味	Study of smells directly emitted from plants; how natural smells affect preferences and memory 研究植物直接散發的氣味;自然氣味如何影響喜好和記憶
Taste 味道	Emotional effects of eating natural food; ability to distinguish natural food; cognitive effects of diet 進食天然食物對情緒的影響;區分天然食物的能力;飲食對認知的影響
Touch 觸摸	Non-animal nature touch; touch-specific studies; effects of petting different kinds of animals 非動物性的觸感;特定觸摸的研究;觸摸不同種類動物的影響

Franco et al. (2017) A Literature Review of Studies on Experiencing Nature with Our Five Senses
「五感」體驗自然研究綜述

Pathway 途徑	Gaps in Knowledge 知識方面的差距
Phytoncides 植物殺菌素（芬多精）	Document fine-scale environmental distribution; how much is released from greenery, variations among plant species 記錄精細的環境分佈；從植物裡釋放出多少；植物物種之間釋放出多少的差異
Negative air ions 負空氣離子	environmental distribution; release from greenery; correlation between benefits & sensitivity 環境分佈；從綠化中釋放出來；效益和敏感度之間的相關性
Micro-organisms 微生物	Examine the variations in nature experiences with variation in microbiota 通過微生物群的變化來檢驗體驗自然的變化

Frumkin et al. (2017): A Research Agenda on Nature Contact and Human Health 關於自然接觸與人類健康的研究議程

Domain 領域	Potential Areas/Questions 潛在範圍/問題
Mechanistic biomedical 機械生物醫學	Pathways: stress recovery theory and attention restoration theory; Enhanced immune function & Increased physical activity 途徑：壓力恢復理論和注意力恢復理論；增強免疫功能和增加身體活動
Exposure science 曝光科學(研究曝露於何種環境會產生何種结果的科學)	e.g., assesses the density of photosynthetically active biomass (satellite images); e.g., distance to green space 例如，評估光合作用生物量的密度（衛星圖像）；又例如，由某個地點到綠地的距離
Epidemiology of health benefits 健康研究流行病學	e.g., imagery of nature during treatment in experiments 例如，在實驗治療期間的想像有關大自然的圖像
Diversity & equity considerations 多元化和公平考慮	Socioeconomic and cultural factors in relation to access to green space 與接觸綠地有關的社會經濟和文化因素

Frumkin et al. (2017): A Research Agenda on Nature Contact and Human Health 關於自然接觸與人類健康的研究議程

Domain 領域	Potential Areas/Questions 潛在範圍/問題
Technological nature 技術性質	Increasing use of technology (screen time) compete with activities such as play in natural surrounding; e.g., growing role of technology in human-nature interactions 使用越來越多的科技（屏幕時間）與在自然環境中遊玩等活動競爭；例如，科技在人類與自然互動的作用越來越大
Economic & policy studies 經濟和政策研究	Cost-benefit analyses need to estimate how much benefit will flow fro specific kinds of investments in nature contact and to make comparisons among policy alternatives 成本效益分析 – 需要為自然接觸的特定投資估算獲得多少利益，及比較不同政策
Implementation science 實踐科學	e.g., how should children's play spaces be designed to optimize nature contact 例如，如何設計兒童的遊戲空間以優化接觸自然的方式

Model(s) in Developing Evidence
證據模型的發展

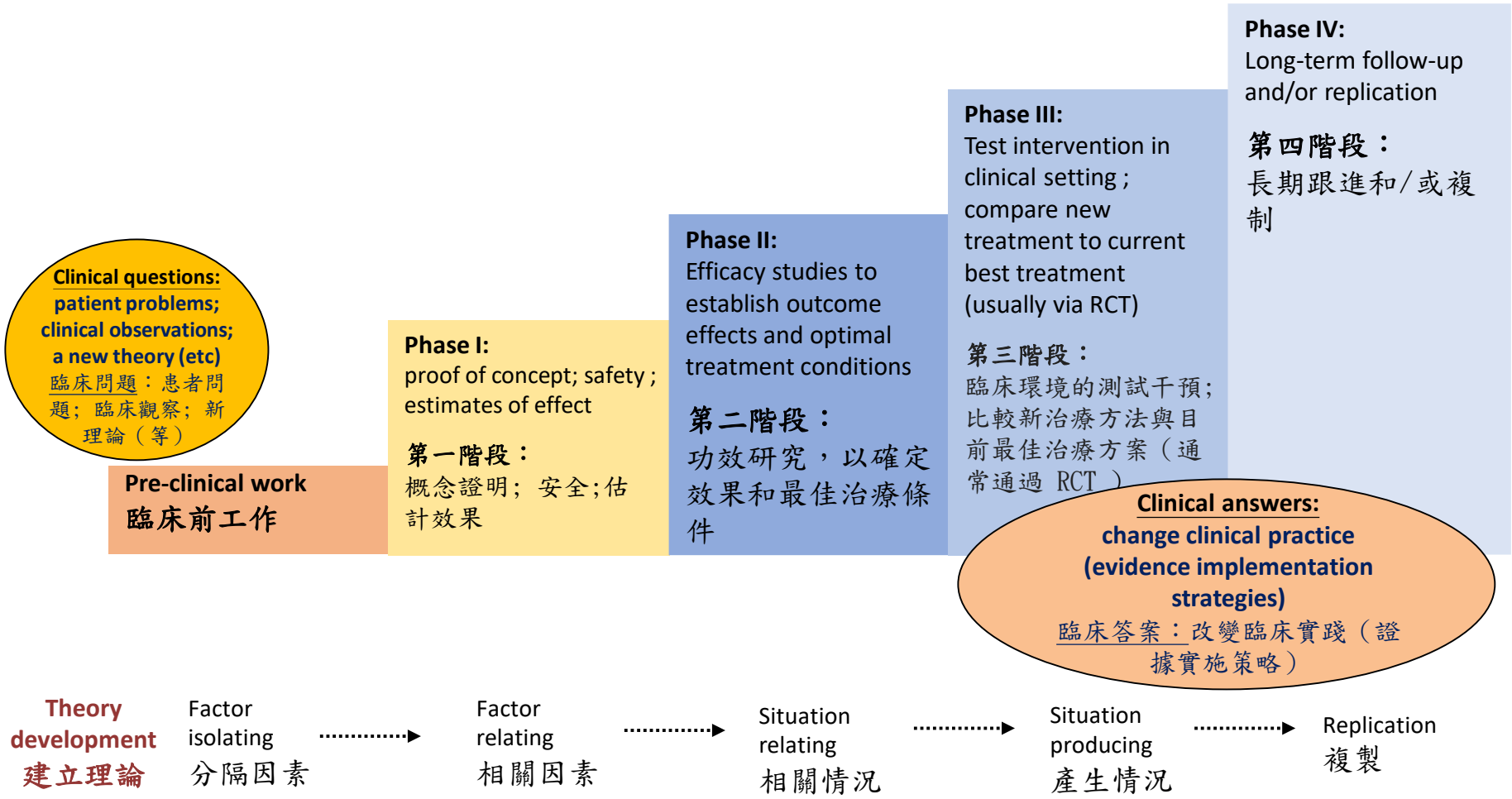
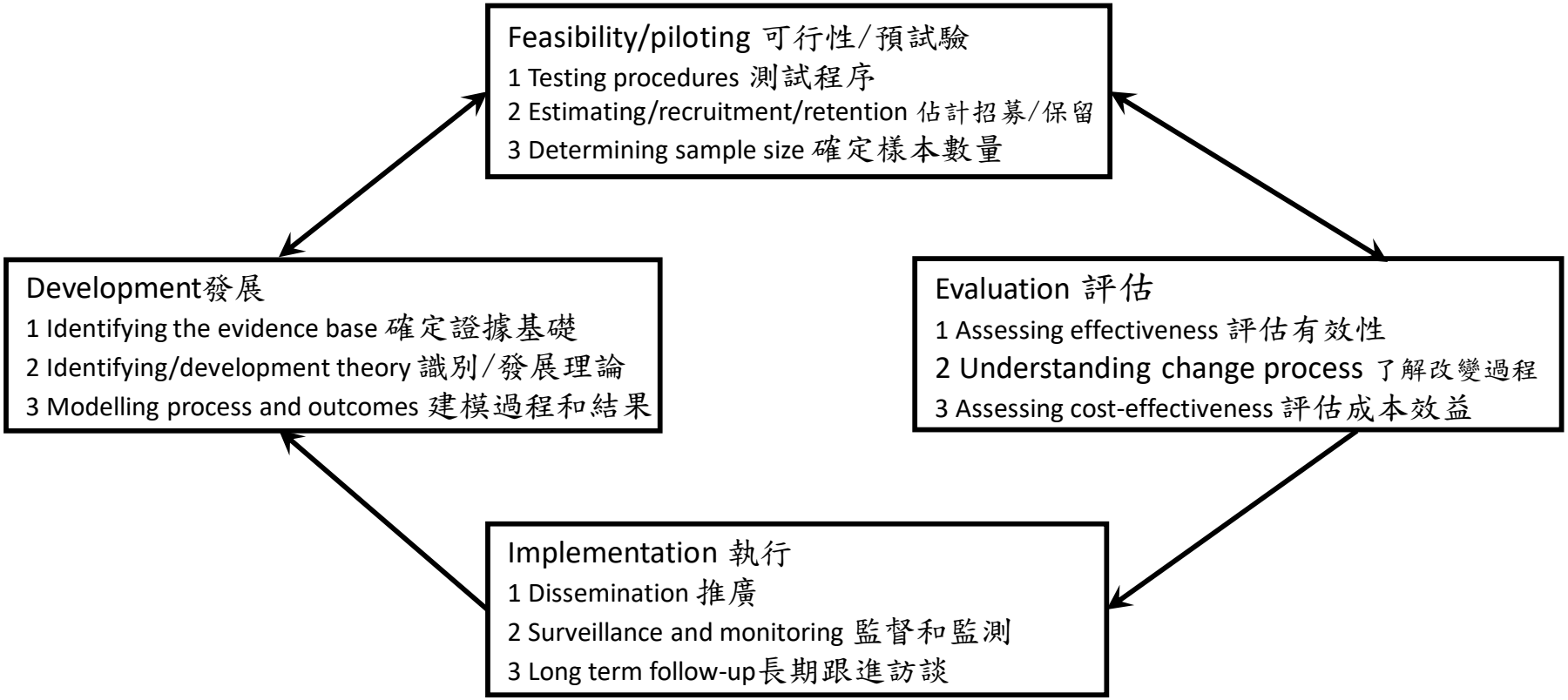


Fig 2. Clinical intervention research (sequential knowledge development) 臨床干預研究（順序知識發展）

Adopted from: Forbes, A. (2009). Clinical intervention research in nursing. International Journal of Nursing Studies, 46(4), 560.

Developing & Evaluating Complex Interventions
開發和評估複雜的干預措施

Key Elements of the Development and Evaluation Process
開發和評估過程的關鍵要素



Craig P, Dieppe P, Macintyre S, Michie S, Nazareth I, Petticrew M; Medical Research Council Guidance. (2008). Developing and evaluating complex interventions: the new Medical Research Council guidance. *BMJ*. 2008 Sep 29;337:a1655. doi: 10.1136/bmj.a1655.

In developing evidence-based practice, there are no quick fixes.

要開發作業上的循證實踐，並沒有捷徑。

Summary 總结 (1)

- There are different types of evidence with varying degrees of rated credibility.
- 不同類型的證據具有不同程度的額定可信度。
- Credible evidence comes from rigorous study design and meticulous compliance.
- 可靠的證據來自嚴謹的研究設計和準確的執行已制定的程序。
- Evidence is useful only when it is clinically relevant.
- 證據必須與臨床相關才有用。

Summary 總结 (2)

- There are various models available to guide knowledge and practice development.
- 有各種理論架構可用於指導知識的開發和實践。
- Develop EBP takes time.
- 發展實證為本需要時間。
- Capacity building in research will help practitioners better able to understand the effects of HT in promoting health and wellbeing.
- 發展從業員的研究能力能夠幫專業更好地了解園藝治療對促進身心健康的影響。

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Thank you! 謝謝

Claudia Lai claudia.lai@polyu.edu.hk