

第 25 屆

職能治療學術研討會



民國114年4月19日(星期六)上午9點至下午5點

會議地點：

臺灣大學公衛大樓101講堂、全球廳與交誼廳

主辦單位：

國立臺灣大學 職能治療學系



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2025 第 25 屆職能治療學術研討會議程

地點：公衛大樓 1 樓 101 講堂（台北市中正區徐州路 17 號 1 樓）

時間：民國 113 年 4 月 19 日 星期六 上午 9:00 至下午 5:00

主辦單位：國立臺灣大學醫學院職能治療學系

專題演講及口頭報告

地點：公衛大樓 1 樓 101 講堂

時間	主題	負責人/主持人
08:20~08:50	報到暨張貼壁報論文	
08:50~09:00	大會開幕暨主席致詞	主持人： 薛漪平系主任
09:00~09:45	專題演講一 講者：吳軍緯 博士 講題：回顧非侵入性腦刺激的發展，是科學還是科幻？	主持人： 薛漪平系主任
09:45~10:30	專題演講二 講者：賴建宏 醫師 講題：非侵入性腦刺激在神經復健的應用	主持人： 薛漪平系主任
10:30~10:45	中場休息	
10:45~11:30	口頭報告一	主持人： 黃千瑀老師
11:30~13:30	系友會活動	主持人： 王志元會長
12:00~13:00	中午休息	
12:30~13:30	壁報論文發表與競賽	主持人： 李士捷老師
13:30~14:30	口頭報告二	主持人： 黃怡靜老師
14:30~15:00	中場休息	
15:00~15:45	專題演講三 講者：楊婕凌 助理教授 講題：科技導入遠距中風復健	主持人： 黃怡靜老師
15:45~16:30	專題演講四 講者：林孟廷 醫師 講題：非侵入性腦刺激術在腦中風患者的應用與研究	主持人： 黃怡靜老師

口頭報告

地點：公衛大樓 1 樓 101 講堂

時間	主題	主持人/負責人
10:45~11:00	講者：李士捷 講題：臉部情緒辨識應用於思覺失調症患者之向度結構	主持人： 黃千瑀老師
11:00~11:15	講者：黃怡靜 講題：廣泛性焦慮症之情緒處理：前額葉對非情緒、威脅與正向表情的活化差異	主持人： 黃千瑀老師
11:15~11:30	講者：謝清麟 講題：提升學術英文文獻閱讀效能：My GPTs 自學系統可行性驗證	主持人： 黃千瑀老師
11:30~11:45	講者：蕭嫩妮 講題：深化家庭為中心的自閉症介入模式：以母職壓力與家庭動力為切入點	主持人： 黃千瑀老師
13:30~13:45	講者：王昕芊 講題：健康成人與尺神經損傷患者之書寫的近端-遠端肌肉活化原則：前驅研究	主持人： 黃怡靜老師
13:45~14:00	講者：徐百儀 講題：初探高精度經顱電刺激在中風復健中的最佳神經調控波形	主持人： 黃怡靜老師
14:00~14:15	講者：耿逸涵 講題：體感覺動作整合、動作導向及體感覺導向療法對慢性中風患者上肢體感覺動作功能之立即療效：先導性隨機試驗	主持人： 黃怡靜老師
14:15~14:30	講者：鄭筱儒 講題：TMS-based neurofeedback facilitates motor imagery of different hand actions	主持人： 黃怡靜老師

壁報論文

地點：公衛大樓 1 樓全球廳

時間	主題	負責人
09:00~16:00	壁報論文展示	李士捷老師
12:30~13:30	壁報論文發表與競賽	李士捷老師

口報及壁報競賽頒獎

地點：公衛大樓 1 樓 101 講堂

時間	主題	主持人
16:30~17:00	頒獎	薛漪平主任

一、邀請演講

編號	講者	題目
1	吳軍緯	回顧非侵入性腦刺激的發展，是科學還是科幻？
2	賴建宏	非侵入性腦刺激在神經復健的應用
3	楊婕凌	科技導入遠距中風復健
4	林孟廷	非侵入性腦刺激術在腦中風患者的應用與研究

講者介紹（按照演講順序排列）

講者	簡介
吳軍緯 博士 北醫醫工系	現職為臺北醫學大學生物醫學工程學系博士後研究員。專長領域為非侵入性神經刺激醫療器材研發與動物實驗。
賴建宏 醫師 北醫附醫復健部	現職為臺北醫學大學附設醫院復健部主治醫師暨臺北醫學大學醫光機電研究所教授。專長領域為神經復健、骨關節復健、醫學工程與復健工程。
楊婕凌 助理教授 長庚大學職治系	現職為長庚大學臨床行為科學研究所暨職能治療學系助理教授。專長領域為中風後神經復健、執行科學、動作控制與分析、功能性腦影像學、上肢穿戴式感應器及復健裝置。
林孟廷 醫師 臺大醫院復健部	現職為臺大醫院復健部主治醫師暨臨床講師。專長領域為中樞神經復健、周邊神經復健、肌肉骨骼關節疾病、超音波導引注射。

二、口頭報告

編號	作者	題目	頁碼
1	李士捷、王怡晴、謝清麟	臉部情緒辨識應用於思覺失調症患者之向度結構	8
2	黃怡靜、林柏岑、李政洋、 陳宜明、林奕廷、黃宇銳、 陳抱寰	廣泛性焦慮症之情緒處理：前額葉對非情緒、威脅與正向表情的活化差異	9
3	謝清麟、Okki Dhona Laksmi、王怡晴	提升學術英文文獻閱讀效能：My GPTs 自學系統可行性驗證	10
4	蕭嫩妮、吳哲良	深化家庭為中心的自閉症介入模式：以母職壓力與家庭動力為切入點	11
5	王昕芊、徐秀雲、郭立杰	健康成人與尺神經損傷患者之書寫的近端-遠端肌肉活化原則：前驅研究	12
6	徐百儀、馮同賢、夏綯緹、 陳秀榕、郭映彤、黃怡靜、 林孟廷	初探高精度經顱電刺激在中風復健中的最佳神經調控波形	13
7	耿逸涵、徐百儀、郭映彤、 陳秀榕、黃怡靜	體感覺動作整合、動作導向及體感覺導向療法對慢性中風患者上肢體感覺動作功能之立即療效：先導性隨機試驗	14
10	Hsiao-Ju Cheng、Olivia Hochstrasser、Eunice Tai、 Daryl Chong、Nicole. Wenderoth	TMS-based neurofeedback facilitates motor imagery of different hand actions	15

三、壁報論文

(一) 生理領域

編號	作者	題目	頁碼
1	鄭堯云、王詩涵、何境祥、林柔妤、李佳靜、李依齡、白佑芯	使用肌電驅動機器手治療合併肉毒桿菌素注射後慢性中風患者之遠端上肢動作功能成效	16
2	馮同賢、黃怡靜、徐百儀	高精度經顱電刺激於慢性中風患者雙側大腦皮質神經調節之成效	17
3	彭德瑄、黃暉瑄	急性肝炎症患者接受早期床邊職能治療之介入成效—個案報告	18
4	Wei Hsuan Huang、Si-Xuan Peng	Effectiveness of Early Bedside Occupational Therapy in a Patient with Sepsis-Induced Peripheral Gangrene Undergoing Amputation: A Case Report	19
5	葉修辰、王國明、張玄松	轉換慣用手對伸臂拿取動作模式之影響-個案研究	20
6	鄭惠珊、張瑜錦、黃小玲	職能治療介入對手部骨關節炎患者的成效—文獻回顧	21
7	蘇逸晞、徐秀雲、郭立杰	應用光學動作分析系統於手指到鼻測試的初步研究	22
8	陳秀榕、黃怡靜、耿逸涵	感覺再教育對於中風患者上肢體感覺功能及患側使用之療效：個案報告	23
9	陳秀榕、黃怡靜、徐百儀	經顱直流電刺激與複合間歇性叢集型陣發刺激對中風患者皮質興奮性影響之比較：個案報告	24
10	陳秀榕、黃怡靜、耿逸涵	體感覺動作同步訓練促進中風患者上肢功能：個案報告	25
11	李士捷、王怡晴、謝清麟	交叉驗證 12 題短版 WHODAS 2.0 總分應用於中風個案之有效性	26
12	許惟鈞、李士捷、謝清麟	發展預測原版向度分數之 12 題短版世界衛生組織功能障礙評估量表機器學習算則	27
13	Chih-yu Lin、Keh-chung Lin、Yi-chun Li、Hsiang-han Lo、Jing-yi Mei、Ju-chun Tseng、Yi-Hsuan Wu、Wen-Shiang Chen、Chia-Ling Chen、Ya-Yun Lee	視覺回饋復健機器人結合創新性鏡像治療與功能練習於中風復健之成效研究方案	28
14	Keh-chung Lin、Yi-chun Li、Yi-chun Lu、Chih-chieh Kuo、Yi-Hsuan Wu、Chia-jung Lin、Chih-yu Lin、Jing-yi Mei	鏡像治療合併擴增實境於中風復健的練習情境效應	29

(二) 兒童領域

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1	黃千瑀、李冠璇	學齡前兒童視覺動作整合能力與視知覺、動作協調之相關性	30
2	謝雅琳、賴雯忻	愛伯特氏症孩童握力與上肢動作功能改善成效—智慧復健儀器之應用	31
3	王心慧、黃文豐、蔡喻安、楊晏禎、黃以珊、葉淨維、王湑妮、陳顥齡	學齡階段弓弦樂器演奏者的本體感覺表現	32
4	呂陳奇、姜富美	個案報告：Knox 學前遊戲量表修訂版於臨床個案問題分析之應用	33
5	梁右靖、蔡艾融、王湑妮	發展台灣學齡兒童情緒表情圖集：不同拍攝方式對臉部情緒辨識測驗的影響	34

(三) 精神領域

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1	呂家誌	音樂劇表演與精神復元：參與者與觀眾主觀感受之比較研究	35
2	孟筱庭、黃怡靜、林奕廷、陳宜明、黃宇銳、陳抱寰、李政洋	廣泛性焦慮症患者與健康對照組在語意流暢任務後的心率變異比較	36
3	游佳蓉、陳妍伶	芳香療法對更年期女性憂鬱症狀療效的文獻回顧	37
4	蔡佳靜、陳子翎	急性精神病人轉介日間病房復健意願之影響因素初探—以北 部某區域醫院為例	38
5	藍千雅、李士捷、謝清麟	探討思覺失調症患者主觀獨立生活信心	39
6	邱鈺書、黃梅琪、康世育、李佳霖	精神科患者對工作訓練的滿意度與挑戰分析	40
7	王悅倫、鄭宇涵	電腦化互動認知矯正訓練用於雙向情緒障礙症患者之療效探討：文獻回顧	41
8	黃怡靜、林柏岑、李政洋、陳宜明、林奕廷、黃宇銳、陳抱寰	前額葉皮質在廣泛性焦慮症患者焦慮調節與抑制控制中的角色	42
9	Ay Woan Pan、Chei-Ruei Hsu、Yu-Hsuan Chin、Zi-Yu Lin	職能活動問卷的再測信度研究	43
10	Ay-Woan Pan、I-Ting Wang、Chei-Ruei Hsu、Zi-Yu Lin、Yu-Hsuan Chin	Criterion related validity of the satisfaction of daily occupation in Taiwan	44
11	楊舜宇、潘瓊琬、李士捷、蔡郁欣	以 Training in Affect Recognition 之訓練原則進行急性精神疾病患者團體治療並探討臨床應用成效	45
12	楊舜宇、許浣淇	音樂治療團體對於慢性精神疾病患者：聽覺注意力之增進與自覺 Yalom 療癒因子作用	46
13	侯思靜、張嘉文、卓珊合、林佳靜、方仁慶、李士捷、謝清麟	社會知識電腦適性測驗應用於思覺失調症患者之再測信度分析	47
14	劉玉慧、余濟成、魏偉智、陳英祿、吳佑霖、李士捷、謝清麟	電腦化弦外之音測驗應用於思覺失調症患者之再測信度分析	48
15	游云慈、陳彤語、王滢妮	亞裔大學生對於成人與孩童的臉部情緒辨識能力	49

(四) 社區領域

編號	作者	題目	頁碼
1	陳佩苓	認知障礙就業者的職務再設計-以加油站為例：個案報告	50
2	張儷馨、呂怡慧	社區高齡者生命歷程回顧懷舊輔療 GDS-15 前後測改變之差異	51
3	李雅珍、邱恩琦	檢驗老年憂鬱量表應用於長期照護機構長者之單向度	52
4	許庭榕、黃琇凌、黃婕甯、傅中玲	「今牌人生」認知牌卡—全臺推廣培訓與回饋分析	53
5	程柏豪、陳筱雯、毛慧芬	VR 介入相較傳統介入在老年人認知功能上的影響：系統性文獻回顧	54
6	張芷綺、洪婧睿、林巧茵、葉家行、李亭儀、柯瑋婷、吳益芳	結合認知訓練的職業重建對思覺失調患者之就業成效探討：文獻回顧	55

(五) 職能治療教學領域

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1	陳依瑜	運用可信賴專業活動評核(EPAs)於兒童職能治療實習學生學習成效之探討	56
2	薛文媛	職能治療學生與實證實務：現況分析與未來實行建議	57

(六) 其他領域

編號	次領域	作者	題目	頁碼
1	視能復健	陳奕綺、侯鈞賀、蔡麗婷	特殊需求兒童視覺篩檢工具之範疇式文獻回顧	58
2	視能復健	陳虹貴、陳鈺君、蔡麗婷、侯鈞賀	罕見疾病與基因異常兒童視覺損傷與發展特徵分析：台大醫院特殊需求視覺門診四年回溯性研究	59
3	視能復健	劉若萱、陳虹貴、侯鈞賀、蔡麗婷	視覺擁擠效應視覺復健模式對特殊需求兒童視覺功能改善之成效探討	60
4	視能復健	蔡泓恩、宮圓媛、翁祥庭、陳欣琪、蘇乾嘉、侯鈞賀、蔡麗婷	探討臺灣不同嚴重度低視能患者之視覺相關日常生活功能及輔具需求：以臺大醫院眼科低視能門診為例	61

四、臺大職治系碩博班畢業聯展壁報

編號	作者	題目	頁碼
1	藍千雅、李士捷、謝清麟	探討思覺失調症患者獨立生活信心：患者自評與代理評估比較	62
2	Ai-Rung Tsai、Tien-Ni Wang	中文字視知覺測驗之發展與心理計量特性驗證	63
3	Tong-Yu Chen, Tien-Ni Wang	腦性麻痺學齡孩童雙手協調能力之探究	64
4	朱宇擎、朱慧婕、吳建德、毛慧芬	以事件相關電位為基礎研究探討六週動手樂活動對於主觀認知衰退患者之認知彈性成效	65
5	朱慧婕、毛慧芬、吳建德	動機影響認知介入成效之初探：以動手樂活動介入主觀認知衰退長者為例	66
6	李昕怡、毛慧芬	高齡健康促進團體帶領技巧問卷之專家效度	67
7	I-Ning Fu、Kuan-Lin Chen、Ching-Lin Hsieh	自閉症類群障礙兒童日常生活社交勝任之評估：問卷式測量工具之系統性回顧	68
8	金郁萱、潘瓊琬	職能平衡與時間管理能力、睡眠品質、生活滿意度的相關性研究	69
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深化家庭為中心的自閉症介入模式：以母職壓力與家庭動力為切入點
Refining Family-Centered ASD Intervention: Exploring Maternal Stress and Family Dynamics

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背景及目的：職能治療在自閉症類群障礙兒童與青少年的療育過程中，除了直接針對個案的職能參與及核心困難進行介入改善，也愈發強調以家庭為中心的模式，以支持照顧者的需求。本研究旨在從全人觀點，探究母親作為主要照顧者，在共同養育自閉症孩子並陪同療育的過程中，對於配偶特質的觀察與行為的詮釋，如何影響其親職壓力與因應策略，以探求如何在職能治療中納入更全面的家庭支持，提升自閉症介入的效益。

方法：本研究六位招募自閉症兒少的母親，進行半結構式訪談。資料以主題分析法進行編碼與分析。

結果：母親在陪同孩子參與療育介入的過程中，常感到雙重壓力：除需應對孩子的特殊需求，亦需處理婚姻關係中的緊張與衝突。許多母親表示，丈夫的情緒調節與社交互動問題加劇了她們的心理負擔，甚至影響療育的整體成效。

結論：本研究強調，自閉症療育不應僅聚焦於兒童青少年個案本身，而需將照護範圍擴展至整個家庭系統。母親的內在力與家庭動力密切相關，職能治療師可提供更全面的介入，例如婚姻支持、親職教育及壓力調適。這些策略不僅能改善母親的心理健康，也能提升家庭功能與兒童療育成效。未來研究可進一步探討父親角色在 ASD 療育中的影響，以提供更完整的家庭支持模式。

關鍵字：自閉症、兒童與青少年、母親、配偶、醫療化語言

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Proximal-Distal Principle of Muscle Activation in Handwriting between Healthy Adult and Patient with Ulnar Nerve Injury: A Pilot Study

健康成人與尺神經損傷患者之書寫的近端-遠端肌肉活化原則：前驅研究

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Background and Objectives: Handwriting is a crucial skill relates to academic achievement and personal confidence. Its motor execution relies on well-coordinated neuromuscular activation patterns following the proximal-distal principle. Disruptions in these patterns impair force control, fine motor skills, and handwriting legibility. However, previous studies primarily focused on children and handwriting legibility, neglecting neuromuscular mechanisms and adults with handwriting disabilities. This study aimed to explore the proximal-distal principle in handwriting by comparing healthy adult with patient with ulnar nerve injury.

Methods: One healthy adult (24-year-old, female, right lateral tripod) and one patient (22-year-old, female, 6 months post-injury, transitioned from dynamic to lateral tripod) were recruited. Participants performed two tracking tasks using lateral (Lat) and dynamic (Dy) tripod grips with Arabic numeral "1", circles, and triangles. Surface electromyography recorded muscle activation in Upper Trapezius, Flexor Carpi Radialis, Flexor Carpi Ulnaris, Extensor Carpi Radialis Longus, Extensor Carpi Ulnaris, and Flexor Pollicis Brevis, while a Force Acquisition Pen measured axial pen force. Root mean square (RMS, μV), median frequency (MF), and correlation coefficients (CC) between muscle activation and force output were analyzed using descriptive statistics.

Results: RMS revealed only number tracking task in healthy adult aligned with the principle (Healthy Adult: $RMS-FPB-Dy = 74.40 \pm 68.74 > RMS-FPB-Lat = 52.06 \pm 50.48$; Patient: $RMS-FPB-Dy = 87.63 \pm 66.19 < RMS-FPB-Lat = 140.54 \pm 99.80$), while radial-ulnar imbalances were observed in patient's wrist muscles during dynamic tripod tasks. MF and CC indicated healthy adult demonstrated relatively consistent and efficient patterns overall, with number tracking task strongly adhering to the principle ($CC-FPB-Dy = 0.68 > CC-FCU-Dy = 0.35$; $CC-FPB-Lat = 0.31 < CC-FCU-Lat = 0.45$). Additionally, the Upper Trapezius in healthy adult consistently showed negative correlations, indicating desynchronization of horizontal arm movements from handwriting, whereas patient exhibited inconsistent CC values (-0.17 to 0.35).

Conclusions: This pilot study highlighted the importance of proximal-distal principle in handwriting, particularly in simple tasks. Task types and native pencil grip postures influenced adherence to this principle, with healthy adult demonstrated more consistent and efficient patterns compared to compensatory and imbalanced patterns observed in patient with ulnar nerve injury. These findings provide insights into neuromuscular mechanisms, and offer strategies for handwriting performance and rehabilitation. Future research should include data normalization, variation analysis, and larger sample sizes to further understand handwriting mechanisms.

Keywords: Surface electromyography, Handwriting, Proximal-distal principle, Ulnar nerve injury

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體感覺動作整合、動作導向及體感覺導向療法對慢性中風患者上肢體感覺動作功能之立即療效：先導性隨機試驗

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背景及目的：中風常導致病人的動作及體感覺功能受損，多數療法側重動作功能，然體感覺與動作密切相關；現有療法中，少有同時以此兩者為目的之整合治療，若能結合動作及體感覺訓練，可望同時提升兩者功能。此研究目的為比較三種療法：體感覺動作整合治療(SMI)、動作導向治療(M)及體感覺導向治療(S)，於慢性中風患者的上肢動作及體感覺功能之立即療效。

方法：本單盲隨機對照試驗納入 20 名中風 6 個月以上之慢性中風患者，於前測後依患者之動作及體感覺功能進行分層區塊隨機分組至其中一組(SMI、M、S)，並在前測後一週內開始接受 15 次的治療（每次療程 60 分鐘，每週 3 至 5 次，在 3 至 5 週內完成）。療程結束後一週內進行後測評估。主要療效指標包含 Fugl-Meyer Assessment-Upper Extremity (FMA-UE) 及 Revised Nottingham Sensory Assessment (rNSA)。

結果：M 組在體感覺及動作功能方面進步最多。FMA-UE 分數從 34.7 進步至 35.6，rNSA 分數從 97.4 進步至 99.1。S 組的體感覺功能有改善，rNSA 分數從 98.5 提升至 100，而 FMA-UE 分數則維持不變。SMI 組在體感覺及動作功能方面皆略有改善，FMA-UE 從 36.0 增加至 36.8，rNSA 由 105.2 增加至 105.6。三組間各項指標之變化量無顯著差異。

結論：M 組的動作及體感覺功能的改善幅度最大，S 組主要影響體感覺功能。相較之下，SMI 組僅表現微小的進步。雖無顯著組間差異，但改善趨勢顯示不同療法對中風患者上肢體感覺及動作功能影響不同，後續可進行大規模研究以進一步驗證。

關鍵字：體感覺功能、動作功能、中風、整合治療

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廣泛性焦慮症之情緒處理：前額葉對非情緒、威脅與正向表情的活化差異

Emotional Processing in Generalized Anxiety Disorder: Differential Prefrontal Activation to Non-Emotional, Threat, and Positive Emotional Faces

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背景及目的：廣泛性焦慮症 (generalized anxiety disorder, GAD) 患者之情緒與執行功能異常，可能與前額葉皮質 (prefrontal cortex, PFC) 的功能缺陷有關。然而，GAD 患者在面對不同情緒類型的認知刺激時，PFC 的活化模式仍不清楚。本研究旨在探討 GAD 患者與健康對照組在執行 Go/No-Go 任務時，PFC 對非情緒、憤怒（威脅性）、及快樂（正向）臉部表情作為目標刺激的活化差異。

方法：本研究共 20 名 GAD 患者與 31 名健康成人參與。研究者使用功能性近紅外光譜儀測量受試者在執行 Go/No-Go 任務時之雙腦 PFC 血氧濃度變化 (ΔHbO)。Go/No-Go 任務包含三回合，分別使用藍色圓形、憤怒臉部表情、快樂臉部表情作為目標刺激。研究者以相依樣本 t 檢定分析各組受試者在情緒與非情緒刺激下，及憤怒與快樂臉部表情下，其 PFC 的 ΔHbO 變化，並使用獨立樣本 t 檢定比較 GAD 患者相較健康對照組，在各種目標刺激下的 ΔHbO 組間差異。

結果：GAD 組在情緒與非情緒刺激下 PFC 的 ΔHbO 無顯著差異，而健康對照組在情緒刺激下 PFC 活化略低於非情緒刺激，但未達顯著。組間比較顯示，GAD 組在非情緒刺激下 PFC 的 ΔHbO 顯著低於健康對照組 ($p = 0.001-0.045$)，而情緒刺激下亦較低，但未達統計顯著。在憤怒與快樂臉部表情的比較中，GAD 組 PFC 的 ΔHbO 無顯著變化，而健康對照組在憤怒臉部表情下 PFC 活化顯著高於快樂臉部表情 ($p = 0.046$)。組間比較顯示，GAD 組在兩種情緒條件下 PFC 活化均較健康對照組低，且對憤怒臉部表情的活化下降更為顯著 ($p = 0.046$)。

結論：GAD 患者無法根據刺激類型選擇性地調節 PFC 活化，且相較於健康對照組，其 PFC 活化均較低。GAD 患者對情緒刺激可能存在偏誤性注意 (attentional bias)，但此偏誤並未能有效招募 PFC 進行認知控制或情緒調節。此外，GAD 患者在憤怒臉部表情下的 PFC 活化顯著較健康對照組低，顯示 GAD 患者對威脅性情緒刺激的處理異常。

關鍵字：廣泛性焦慮症、前額葉皮質、情緒處理、認知控制

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TMS-based neurofeedback facilitates motor imagery of different hand actions

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Background and Objectives: Non-invasive brain-computer interfaces (BCIs) enable users to modulate brain activity in a goal-directed manner. Most non-invasive BCIs can decode only gross movements but many daily tasks require finer finger and hand control. We developed a novel BCI using motor imagery (MI) and transcranial magnetic stimulation (TMS)-based neurofeedback (NF) training to reinforce representations of complex hand actions in the brain. This proof-of-concept study investigates the utility of this BCI for training hand function via MI.

Methods: 12 participants (6 males, age 32.0 ± 2.7 years) completed 4 (1 motor execution and 3 motor imagery (MI)) sessions of TMS-based NF training on 3 right-hand actions (holding a bottle, turning a key, and opening the hand). There were 4 blocks in each session. The MI sessions comprised 1 no NF and 3 NF blocks but Session 4 had an additional no NF block as ending. During the training, a personalized, adaptive support vector machine (SVM) ensemble was used to classify coming MI trials and provide NF accordingly. An SVM classifier with leave-one trial-out cross-validation was used to derive block-wise average classification accuracy as an outcome measure to assess the training effect.

Results: We used a linear mixed-effect model with MI without NF data and noted that the accuracy of the final block ($61.7\% \pm 12.9\%$) showed nearly significant improvement compared to the first block ($52.6\% \pm 12.8\%$; $\beta = 0.091$, $t_{33} = 1.974$, $p = 0.057$). We used another linear mixed-effect model with MI+NF data to evaluate the learning effect and found that Session 3 accuracy ($60.3\% \pm 13.1\%$) was significantly higher than Session 2 ($52.3\% \pm 11.5\%$, $\beta = 0.080$, $t_{88} = 3.208$, $p = 0.006$) and Session 4 accuracy ($58.4\% \pm 12.0\%$) was marginally significantly higher than Session 2 ($\beta = 0.060$, $t_{88} = 2.421$, $p = 0.053$).

Conclusions: We developed and tested a novel, personalized, and adaptive MI and TMS-based BCI for complex hand actions. Our findings suggest that healthy adults could modulate brain activities for complex hand actions with the guidance of NF. This demonstrates that TMS-based BCI could be used for hand function training in individuals who are unable to produce overt motor output.

Keywords: Transcranial Magnetic Stimulation, Neurofeedback, Brain-Computer Interfaces, Kinesthetic Imagery

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初探高精度經顱電刺激在中風復健中的最佳神經調控波形

Exploring the Optimal Neuromodulation Waveform of High-Definition Transcranial Electrical Stimulation for Stroke Rehabilitation: A Pilot Study

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背景及目的：高精度經顱電刺激（high-definition transcranial electrical stimulation, HD-tES）為一項新興神經調控技術，透過多個小型電極施加微電流，能提升空間精準度，精準調節特定腦區之興奮性。常見波形包括傳統經顱直流電刺激（tDCS）的陽極（aDC）與陰極（cDC）刺激；源自經顱磁刺激（TMS）的叢集陣發刺激（theta burst stimulation, TBS），如間歇性（iTBS）與連續性（cTBS）波形；以及結合上述波形的組合——aDC+iTBS 與 cDC+cTBS。然而，現有文獻對於不同波形在神經調控效應上的探討有限，本研究旨在比較不同 HD-tES 波形對慢性中風患者的神經調控效果，探索最具潛力的刺激模式。

方法：本研究共招募八位慢性中風患者，每位受試者以隨機且對抗平衡 (counterbalance) 順序接受六種不同的 HD-tES 波形。其中患側腦接受興奮性波形刺激，而健側腦則接受抑制性波形刺激。每次刺激以 2 mA 電流強度，持續 10 分鐘進行，刺激位置為主要運動皮質。研究者量測受試者刺激前以及刺激後兩小時內不同時間點的運動誘發電位（motor evoked potential, MEP），以觀察雙側運動皮質興奮性變化。

結果：針對施加於健側腦的抑制性波形而言，cDC+cTBS 可誘發最持續且穩定的抑制效應。相較之下，cDC 與 cTBS 的 MEP 僅在特定時間點觀察到短暫的 MEP 下降，缺乏長期調控效果。而在施加於患側腦的興奮性波形中，aDC+iTBS 能最顯著增強患側腦的皮質興奮性，表現出持續的興奮性效應。相較之下，iTBS 僅於刺激後 20 與 90 分鐘短暫地表現出促進皮質興奮性的效果，未能維持穩定的調控，而 aDC 則在刺激後兩小時內仍維持抑制患側腦的效果。

結論：本研究結果顯示，結合直流電與 TBS 的波形在調節大腦皮質興奮性方面可能具有更佳的效能。未來研究應進一步擴大樣本數，並探討此刺激模式在雙側大腦調控中的應用潛力。

關鍵詞：高精度經顱電刺激（HD-tES）、中風復健、腦部刺激、運動皮質興奮性、慢性中風

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臉部情緒辨識應用於思覺失調症患者之向度結構

Factorial structure of facial emotion recognition in individuals with schizophrenia

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背景及目的：思覺失調症患者常有臉部情緒辨識 (facial emotion recognition, FER) 損傷，影響其人際關係與社會功能。精準且有效的 FER 評估有助於臨床與研究人員掌握個案之功能程度，從而最佳化治療計畫，並探討相關影響因素。然而，常用 FER 評估工具提供的分數數量與意義不一（如單一分數 vs. 7 種個別情緒分數），影響分數解讀的有效性，且不利於實證資訊之整合。然而，目前尚無證據顯示哪一種方式計算方式較為有效，難挑選合適的評估工具並有效解讀評估結果。本研究目的為比較 FER 應用於思覺失調症患者之單向度與多向度結構。

方法：以驗證性因素分析，檢驗 351 位思覺失調症患者作答 168 題 FER 題庫（含快樂、悲傷、生氣、厭惡、害怕、驚訝與平靜，每種 24 張照片）作答反應對單因子模型與 7 向度模型之適配度。我們使用題項包裹 (item parceling) 以提升結果之統計檢定力，並藉比較二種包裹組成（前後半 vs. 奇偶數題）的適配度結果，以確保結果的穩健性。

結果：7 向度模型於所有指標的適配度皆良好，但單因子模型的適配度很差。同時，二種題目包裹方式的結果高度相似，支持分析結果相當穩定。

結論：FER 應用於思覺失調症患者較可能為 7 因子的向度結構。因此，使用者應使用分別計算 7 種情緒類別的 FER 分數，並謹慎解讀單一 FER 總分的意義與有效性。

關鍵字：社會認知、情緒辨識、思覺失調症、因素結構

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提升學術英文文獻閱讀效能：My GPTs 自學系統可行性驗證

Enhancing Academic English Literature Reading Efficiency: A Feasibility Study of a My GPTs Self-Learning System

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背景及目的：閱讀英文文獻是吸收新知的關鍵。但英文非母語者常面臨諸多閱讀問題。My GPTs 具備翻譯、彙整、解釋名詞/概念、協助命題與複習之功能，故極具潛力可以發展自學系統，完全由讀者自行操作。本研究發展「My GPTs 英文文獻自學系統」，並初步測試其可行性，以期協助英文非母語者提升英文文獻之閱讀效能。

方法：研究者以 ChatGPT 之 My GPTs 發展「My GPTs 英文文獻自學系統」，以中文輸入提示給予 My GPTs 任務，提示架構包含：任務/目標、核心知識、對話準則、輸出架構等。主要任務包含以中文彙整文獻內容、挑選關鍵詞彙/文獻概念並提出解釋、提供問題諮詢、協助各種題型之命題與複習等。研究者測試 15 篇英文文獻（10 篇期刊論文與 5 篇書籍章節，皆 20 頁以內），以測試自學系統之可行性與初步成果。可行性指標包含 My GPTs 的回應是否符合設計之任務，由 3 位專家判斷之。

結果：「My GPTs 英文文獻自學系統」系統可快速擷取文獻重點，並以條理分明的結構呈現關鍵資訊，對於關鍵詞彙及專業術語皆提供清晰解析。可提供諮詢釐清困惑、輔助各種題型之命題與複習等。My GPTs 可依據所設計之任務提供回應與解釋，符合程度極高，且速度快。

結論：本研究發展的英文文獻自學系統之可行性高，且便利使用。預期可大幅提升英文非母語者英文文獻之閱讀效能，後續研究宜驗證其成效。

關鍵字：英文文獻、閱讀、ChatGPT、自學系統

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使用肌電驅動機器手治療合併肉毒桿菌素注射後慢性中風患者
之遠端上肢動作功能成效

Effects of EMG-driven robot-assisted therapy for the distal upper limb motor function in the
chronic stroke patients with Botox injections.

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背景及目的：過去研究指出中風病人有著長期上肢表現問題並影響著日常生活活動的獨立性以及生活品質。本研究希望檢視肉毒桿菌注射加希望之手以及職能治療對於上肢功能的效果，並比較對照組僅接受肉毒桿菌以及職能治療的慢性中風個案之療效差異。

方法：本研究為類實驗設計，分為實驗組與控制組，計有 20 名受試者完成試驗並進入統計分析。使用傳格梅爾評估量表手腕部分測驗、渥夫動作功能測驗與 Box and Block Test 用以上肢動作功能表現之成效評量。

結果：(一)傳格梅爾評估量表手腕部分測驗，兩組別於每次的評估分數中均無顯著進步，在總分進步上兩組別無顯著差異。(二)渥夫動作功能測驗其動作品質(功能性能力)評分，兩組別於每次的評估分數中均無顯著進步，在總分進步上兩組別無顯著差異。(三)Box and Block Test 測驗項目中兩組別分別在每次的評估分數中均有顯著進步，但在總分進步上兩組別無顯著差異。

結論：雖在每次的評估分數方面，兩個組別或多或少進步但未達顯著差異。可能因疫情影響研究收案時間拉長、收案進度受阻。未來亦可將受試者的上肢張力納入分析，做較全面的研究。

關鍵字：中風、希望之手、肌電驅動機器手、肉毒桿菌、上肢功能

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高精度經顱電刺激於慢性中風患者雙側大腦皮質神經調節之成效

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背景及目的：中風導致患者雙側大腦活性失衡，健側過度興奮抑制患側，降低復健潛能。高精度經顱直流電刺激 (high definition-transcranial direct-current stimulation, HD-tDCS) 可精確地調節特定腦區的興奮性，然而其效果可能受電流特性影響。本研究欲探討陰極直流電 (cathodal direct current, cDC) 能否抑制患者健側腦皮質興奮性，提高患側腦皮質興奮性，並比較其對中風患者與健康成人之神經調節效果差異。

方法：本研究納入一位 53 歲右腦中風（六個月以上）女性與一位 58 歲健康女性，慣用手皆為右手。兩位接受雙側大腦動作誘發電位 (motor-evoked potential, MEP) 基礎值量測後，在左腦主要動作皮質區施以 10 分鐘 2mA 的 cDC 電刺激，並於電刺激後 120 分鐘內量測雙側大腦 MEP。

結果：在患者健側腦進行 cDC 電刺激後，可抑制健側腦皮質活性。患側腦則是前半小時皮質活性亦稍受抑制，但在刺激完 90 分鐘有較明顯的興奮。在多數時間點，健康成人雙腦皮質活性趨勢與患者相仿，但被抑制與被活化的效果都比患者大。

結論：本研究結果支持於中風患者健側腦提供 cDC 具有調節雙側腦皮質興奮性之效果，其作用機制可能為先抑制健側腦之活性，約 90 分鐘後促進患側腦皮質活性。中風患者與健康成人接受 HD-tDCS 之神經調節效果相仿，但健康成人的效果較為明顯，可能是中風患者神經損傷後對神經刺激之敏感性降低。

關鍵字：中風、高精度經顱電刺激、皮質興奮性

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急性肝炎症患者接受早期床邊職能治療之介入成效－個案報告

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背景及目的：急性肝炎是指肝臟因感染、毒物等因素造成急性炎症狀態，其會導致肝功能受損，其症狀包含疲倦、關節和肌肉疼痛等，且在過去文獻曾提及對於床邊急性個案來說，早期接受職能治療之介入，可顯著提升其未來日常生活之獨立性，而此為職能治療臨床介入中較少接觸的，因此報告目的為探討一名急性肝炎症之個案，在接受職能治療介入後之成效。

個案問題：案為一名 43 歲女性，為交通局員工，因出現急性意識障礙、言語不清和癲癇入院，診斷為急性肝炎，主要問題為協助個案活動量維持、生心理之機能恢復和回歸職場之準備。職能治療之介入為每周五次，每次三十分鐘，為期三周，其介入活動主要以個案為中心，考量個案之生心理及返家後回歸職場之規劃(如:工作內容調適、環境調整等)進行介入，其中包含:手機使用策略、處理家事技巧訓練(如:掃地、曬衣服)等，並於介入前後進行兩次評估。主要成效評量工具含功能獨立性評定(FIM)、動作活動日誌 30 題版本(MAL 30)、加拿大職能表現量表(COPM)、工具性日常生活活動量表(IADL)、自我效能感量表 (CGSE)。

職能治療評估及處置：過三週的職能治療介入後，個案在多項評估指標上皆有顯著進步。FIM 評估顯示，個案的日常生活獨立能力由 90 分提升至 118 分（提升約 30%）。MAL 30 評估結果顯示，個案在日常活動中的上肢使用量與動作品質由 2.04/2.25 提升至 3.64/3.39（進步超過 50%）。COPM 評估中，手機使用、步行及家事處理三項目標皆有明顯改善，表現及滿意度分數平均提升 3 分。IADL 量表評估顯示，個案的分數由 2 分提升至 4 分。CGSE 評估則顯示，自我效能感由 15 分提升至 26 分，反映個案在職能表現上的自信心增強。

結果及討論：能治療旨在協助個案達成其期望之活動，以個案為中心進行復建計畫，同時須考量個案之身心靈的改變，促使個案得到良好的醫療品質，透過個案報告分享，得知床邊進行職能治療早期介入，可協助急性肝炎症個案在日常生活獨立性、動作品質和使用量、活動滿意度、IADL 和自我效能感等有效提升，並給予返家後日常生活建議與床邊介入進行結合，可為未來返家生活和工作回歸做完善準備。

關鍵字：急性肝炎症

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Effectiveness of Early Bedside Occupational Therapy in a Patient with Sepsis-Induced Peripheral Gangrene Undergoing Amputation: A Case Report

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Background and Objectives: Sepsis is a potentially fatal systemic inflammatory response, typically caused by infection, leading to systemic inflammation, organ dysfunction, and even death. The physiological effects vary among individuals, and it is a condition that is less frequently encountered in occupational therapy practice. Previous literature has suggested that early rehabilitation intervention in sepsis cases can improve recovery of daily living activities post-discharge, with more significant improvements seen in cases with more severe initial symptoms. The purpose of this report is to explore the effectiveness of early bedside occupational therapy intervention in a patient with sepsis-induced peripheral gangrene undergoing amputation.

Methods: The case involved a 60-year-old female who underwent extracorporeal shock wave lithotripsy for kidney stones, followed by symptoms of respiratory distress and hypotension, and was diagnosed with septic shock. During treatment, she developed peripheral gangrene, leading to amputation. Following amputation, the patient began receiving five days a week of 30-minute bedside occupational therapy intervention for four weeks, including two assessments. The intervention was centered around patient-specific activities, including eating, assistive device use and application, transfer training, and personal hygiene techniques. The primary outcome measures included the Functional Independence Measure (FIM), Canadian Occupational Performance Measure (COPM), EuroQoL 5-Dimension 5-Level Questionnaire (EQ-5D-5L), and Instrumental Activities of Daily Living scale (IADL).

Results: After the intervention, the patient showed improvements in all assessment measures. In FIM, the patient's independence in daily living activities improved from a score of 81 to 113, an increase of approximately 40%. In COPM, the goals discussed with the patient were: (1) walking, (2) personal hygiene, and (3) eating. For walking, both performance and satisfaction scores improved from 3/10 to 7/10; for personal hygiene, both performance and satisfaction scores improved from 5/10 to 8/10; and for eating, the performance score improved from 6/10 to 9/10, while the satisfaction score improved from 5/10 to 9/10, with all three items showing an improvement of about 30%. In EQ-5D-5L, the patient's self-rated health quality score in the first section improved from 7 to 12, and in the second section, the visual analog scale for self-rated health status on the day of assessment improved from 65 to 85, with both showing improvements of over 30%. In IADL, the patient's score improved from 1 to 3.

Conclusions: Sepsis-induced peripheral gangrene leading to amputation is a relatively rare case in occupational therapy practice. For occupational therapy, intervention through important activities of daily living is an essential and often overlooked issue. Through this case report, it can be understood that early bedside occupational therapy rehabilitation intervention for sepsis amputation cases can significantly improve independence, performance, satisfaction, health-related quality of life, and instrumental activities of daily living. Additionally, providing recommendations for the patient's return home can help prepare for post-discharge adjustments.

Keywords: Sepsis, extremity amputation, occupational therapy

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轉換慣用手對伸臂拿取動作模式之影響-個案研究

The impact of motor control in reaching and grasping on forced right handedness-Case study

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背景及目的：隨著社會文化的改變，對於慣用左手的接受度已大幅提升但有少部分的族群仍被強迫轉換至右手操作。轉換慣用手後對於物品操作以及大腦側化的影響在動作控制研究領域中也有不少文獻探討。伸臂取物是日常活動中常見的重要動作，成功的動作經驗會影響個體的自信、獨立性與生活品質。本個案研究探討在相同距離下，轉換慣用手在伸臂抓取不同大小水杯時，動作反應時間、動作執行的速度與加速度變化是否仍存在雙側差異。

方法：透過橫斷立意取樣一位已知為轉換慣用手之健康成年男性參與，受試者隨機進行雙手拿取大、小杯子兩種情境的重複量測（Repeated measure）以避免次序效應。使用動作捕捉系統(Phasespace Impulse X2E)透過系統的攝影機接收標記於手指、手背、手腕與手臂的LED射頻訊號收集上肢與手部在空間中位置與時間變化資料。取樣頻率為每秒 960 筆，經過校正程序以確保數據的正確與精準度。操作定義:以伸臂拿取杯子平均速度(Average velocity, AV)呈現伸臂動作的快慢；以伸臂拿取杯子最大速度(Peak velocity, PV)呈現運動執行速度；以運動單位數(Number of movement units)呈現動作的平穩流暢度。

結果：透過統計分析發現該個案雖然已轉換慣用手多年，但不論在伸臂拿取不同大小水杯時，左手的平均速度($p < 0.05$)與最大速度($p < 0.05$)均優於右手，運動單位數則無顯著差異。

結論：轉換慣用手後左手的操作執行速度並未比右手弱，操作流暢度則雙手相近。由於本次只立意一位個案進行前驅探討無法推論至其他族群，期待後續更多收案數據來呈現轉換慣用手在雙手動作模式的影響。

關鍵字：伸臂拿取、動作模式、轉換慣用手

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The Efficacy of occupational therapy intervention in patients with hand osteoarthritis- Literature Review

職能治療介入對手部骨關節炎患者的成效—文獻回顧

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Background and Objectives: The prevalence of hand osteoarthritis (OA) is increasing, particularly in older adults, affecting daily tasks and productivity. Access to occupational therapy (OT) for hand OA remains limited. This systematic review will evaluate the therapeutic effects of OT on hand OA, focusing on assessment tools and outcomes such as range of motion, grip strength, and daily functioning to improve patient care.

Methods: An electronic search of PubMed (2015-2024) was conducted, supplemented by hand-searching. Eligible studies included RCTs or clinical trials on hand OA using occupational therapy interventions. Non-English studies were excluded.

Results: The Results: from eight studies on occupational therapy (OT) interventions for hand OA indicate significant improvements in pain, grip strength, and occupational performance. Seven studies reported reductions in pain, with six showing significant group differences. Three studies showed significant gains in grip strength, while only one demonstrated improvement in pinch strength. Self-reported hand function improved in five studies, and two studies noted functional gains using standard tests. Occupational performance improved in three studies, with two showing significant group differences. Overall, OT interventions positively impacted various functional outcomes in hand OA patients.

Conclusions: This review demonstrates that occupational therapy (OT) interventions, such as patient education, hand exercises, orthoses, and assistive devices, are effective in improving outcomes for individuals with hand osteoarthritis (OA). Significant improvements in pain, grip strength, pinch strength, hand function, and occupational performance were observed in most studies, highlighting the value of OT in managing hand OA symptoms compared to control groups.

Keywords: hand osteoarthritis, occupational performance, occupational therapy

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應用光學動作分析系統於手指到鼻測試的初步研究

Applying motion capture to the finger-to-nose test: a preliminary study

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背景及目的：手指到鼻測試 (finger-to-nose test) 在臨床上常用以評估動作協調。然而，傳統的評估方法主要依賴治療師的觀察報告，缺乏精確、客觀的量化分析。光學動作分析系統 (motion capture system) 可測量動作的運動學參數，在近年來廣泛運用於動作表現的分析，可搭配臨床觀察的結果，輔助臨床推理及記錄個案進展。本研究旨在探討三維光學動作分析系統是否能夠在手指到鼻測試中偵測出正常與暈眩狀態下協調能力的差異。

方法：四名健康受試者參與此研究。實驗分為兩階段：(1) 受試者在正常狀態下完成五組手指到鼻測試，(2) 受試者自轉五圈後立即進行五組手指到鼻測試。實驗過程中，三維的光學動作分析系統記錄受試者指尖的位置。正常及暈眩狀態下的前兩組測試數據會用於分析指尖終點與目標點之間的絕對誤差。此外，所有參與者需主觀評估自身的暈眩程度。

結果：在 x 軸方向，正常及暈眩狀態下連續兩次試驗的絕對誤差具相同的變化趨勢。在 z 軸方向上，暈眩程度較高的參與者，在旋轉後的試驗中表現出較大的絕對誤差。

結論：此初步研究的結果顯示光學動作分析系統能夠提供客觀且精確的數據以評估協調能力。未來研究應納入更多樣本，並與其他易取得、便攜的動作分析系統做比較，進一步提升此技術在臨床上的應用。

關鍵字：暈眩，手指到鼻測試，動作分析

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感覺再教育對於中風患者上肢體感覺功能及患側使用之療效：個案報告

Effects of Sensory Reeducation on Upper Limb Somatosensory Function and Use of the Affected Side after Stroke: A Case Report

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背景及目的：體感覺受損為中風後常見的後遺症之一，使患者難以辨別物品或肢體位置，因而影響患側使用，甚至威脅其日常生活的安全性，如溫度覺受損將增加患者燙傷或凍傷之風險。相比於動作損傷，體感覺損傷常在中風復健中被忽略。然而，體感覺的受損也會造成患者的患側廢用，並直接影響中風患者整體復健成效，故針對中風後體感覺損傷進行介入是必要的。本研究旨在透過個案報告探討感覺再教育對於中風患者患側手體感覺功能的效果，及其是否能夠改善患側手的使用頻率及品質。

個案問題：個案為 54 歲男性，於民國 111 年 9 月 28 日右側基底核出現阻塞性中風，造成左側偏癱，主要問題為體感覺功能異常，無法分辨物品材質與形狀、肢體在空間中的位置、患側上肢使用頻率及品質不佳。

職能治療評估及處置：113 年 4 月（中風後 1 年 6 個月）接受前測評估後，個案進行為期五週、每週三小時的感覺再教育，如使用各種材質的杯子讓患者分辨不同的材質、用各種形狀的積木讓患者分辨不同形狀。在療程結束時進行後測評估。研究者使用 Rivermead Assessment of Somatosensory Performance (RASP)、Revised Nottingham Sensory Assessment (rNSA) 評量體感覺功能，Motor Activity Log (MAL) 評量其患側上肢在日常生活中的使用頻率及動作品質。

結果：個案之 RASP 分數由 45 分升至 57 分，rNSA 由 75 分升至 89 分，MAL 的使用頻率則從 0.4 分降至 0.2 分，使用品質從 0.5 分降至 0.4 分。

結論：感覺再教育可能提升中風個案體感覺功能，但在患側使用頻率及使用品質上並無明顯的直接效益，可能因為患側肢體的使用意願亦與動作相關，較難透過單獨的感覺再教育就有所提升。

關鍵字：感覺再教育、中風、體感覺功能、患側上肢使用

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經顱直流電刺激與複合間歇性叢集型陣發刺激對中風患者皮質興奮性影響之比較：個案報告

Comparison of the Effects of Transcranial Direct Current Stimulation with and without Intermittent Theta Burst Stimulation on Cortical Excitability in a Stroke Patient

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背景及目的：中風為導致成人失能的主要原因之一，常伴隨運動功能障礙、感覺異常及其他認知障礙。經顱電刺激 (transcranial electrical stimulation, tES) 為一種非侵入性腦刺激術，對多種神經系統疾病有潛在的治療效果。當中較為人知的屬經顱直流電刺激 (transcranial direct current stimulation, tDCS) 及間歇性叢集型陣發刺激 (intermittent theta burst stimulation, iTBS)，能夠針對特定大腦區域進行刺激，改善皮質興奮性，從而提高中風患者的神經塑性。儘管兩種技術皆顯示出潛在療效，然而，tDCS 結合 iTBS 是否能產生更顯著的影響，目前仍缺乏研究探討。本個案報告旨在探討使用 tDCS 與 tDCS 複合 iTBS 對中風患者皮質興奮性的影響。

個案問題：個案為 76 歲男性，於民國 111 年 10 月左側大腦發生阻塞性中風，造成右側偏癱，主要問題為上肢動作異常。

職能治療評估及處置：113 年 10 月接受兩次電刺激，分別為 tDCS 與 tDCS 複合 iTBS 波形，兩次刺激間隔 7 天。每次刺激時間為 10 分鐘，總電量為 2 mA，刺激位置為左腦主要運動皮質區。研究者於每次電刺激前與電刺激後的 0、10、20、30、40、50、60、90 與 120 分鐘量測個案患側腦的運動誘發電位 (motor-evoked potentials, MEP)，以估算其大腦興奮性的變化。

結果：個案在接受 tDCS 複合 iTBS 波形的電刺激時，患側腦的 MEP 在電刺激完後 20 分鐘升至 1.5 倍、30 分鐘升至 2 倍、40 分鐘升至 1.8 倍，其餘時間點則無明顯上升。個案在接受 tDCS 波形的電刺激時，患側腦的 MEP 在電刺激完後每個時間點的測量皆無明顯提升。

結論：相較傳統 tDCS，tDCS 複合 iTBS 波形可更有效增強中風患者患側腦皮質興奮性，此效果在電刺激後 20 至 40 分鐘最為明顯，最高可達基準值 2 倍。然而，本研究之證據力有限，未來還需大樣本研究以進一步驗證本研究之初步發現。

關鍵字：經顱電刺激、皮質興奮性、中風、間歇性叢集型陣發刺激

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體感覺動作同步訓練促進中風患者上肢功能：個案報告

Simultaneous Somatosensory-Motor Training Promotes Upper Limb Function after Stroke: A Case Report

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背景及目的：體感覺以及動作受損為中風常見後遺症，可能影響其患肢的使用意願。體感覺功能為動作控制與學習之重要基礎，而動作過程也會影響體感覺訊息的處理，例如在伸手拿取物品時，需要知道肢體在空間中的位置以及與物品的距離，並時刻透過體感覺回饋來調整動作。然而，現有療法多側重於單一的動作或感覺訓練，較少有研究將兩者合併於同一功能性任務同步訓練。若能整合動作與體感覺訓練，可望同時提升兩者功能，但其療效目前尚待確認。本個案報告旨在呈現慢性中風患者進行體感覺動作整合治療後的雙重療效，含體感覺功能及上肢運動功能的恢復，並驗證此療法能否有效改善其生活品質。

個案問題：個案為 77 歲女性，於民國 113 年 2 月 23 日右腦阻塞性中風，造成左側偏癱，主要問題為上肢動作及體感覺功能異常。

職能治療評估及處置：113 年 8 月接受前測評估後，個案進行了為期五週、每週三小時的體感覺動作整合治療。在療程結束時及三個月後進行後測和追蹤評估。研究者使用 Fugl-Meyer Assessment-Upper Extremity (FMA-UE) 評估動作功能，Revised Nottingham Sensory Assessment (rNSA) 評量體感覺功能，Motor Activity Log (MAL) 評量其患側上肢在日常生活中的使用頻率及動作品質。

結果：個案之 FMA-UE 分數由 28 分升至 34 分，rNSA 由 118 分升至 120 分，且治療後及追蹤期間皆持續進步。MAL 使用頻率由 10 分升至 16 分，動作品質由 11 分升至 25 分。

結論：體感覺動作整合治療可能同時改善中風患者的上肢動作及體感覺功能，並提升患側上肢的使用頻率及動作品質。

關鍵字：體感覺動作整合治療、動作功能、體感覺功能、中風、上肢功能

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交叉驗證 12 題短版 WHODAS 2.0 總分應用於中風個案之有效性

Cross-validation of the summed score of the WHODAS 2.0 in individuals with stroke

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背景及目的：世界衛生組織障礙評估表 (WHO Disability Assessment Schedule, WHODAS 2.0) 為中風復健常用的失能評估工具。完整版 WHODAS 2.0 包含 36 題，可評估受試者於認知、移行、自我照顧、與人互動、日常生活與社會參與面向之困難程度，亦可將分數加總以表徵整體失能程度，故能兼顧臨床與研究的需求。有鑑於完整版題目數量多，不利於臨床常態使用，故 WHO 另發展 12 題短版，以增進其實務可用性。昔日研究亦顯示 12 題短版具備良好的因素效度，支持其總分可代表受試者的整體失能程度。然而，這些研究多採用二階因子模型（於一階 6 因子度模型後再加單一整體失能因子），且未區分一階與二階模型的適配度，可能導致解讀偏誤。本研究欲分別檢驗一階與二階的結果，以確認 12 題短版 WHODAS 2.0 總分的有效性。

方法：研究資料取自台灣身心障礙資料庫，含 1,343 位中風個案作答 WHODAS 2.0 的數據。我們使用驗證性因素分析檢驗 12 題短版的一階（6 因子模型）、二階（6 因子後之整體失能因子），以及整體模型適配度，以確認其總分有效性。

結果：一階與整體模型的適配度良好，但二階模型的適配度不佳。此結果顯示 12 題短版的總分缺乏實證支持。

結論：本研究結果顯示 12 題短版 WHODAS 2.0 的總分缺乏實證支持，可能無法合理且有效地反應中風個案的整體失能程度。

關鍵字：失能評估、中風、驗證性因素分析、短版

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發展預測原版向度分數之 12 題短版世界衛生組織功能障礙評估量表機器學習算則
Development of a machine learning algorithm for the 12-item WHODAS 2.0 to predict six domain scores

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背景及目的：世界衛生組織功能障礙評估量表 (World Health Organization Disability Assessment Schedule 2.0, WHODAS2.0) 是臨床與學界常用的失能評估工具。尤其，12 題短版可提供快速且準確的評估，是臨床與研究人員的優先選擇。然而，12 題短版僅能產生單一總分，未能提供原版的 6 向度分數，嚴重限制其應用價值。機械學習 (machine learning, ML) 已被廣泛應用於發展短版測驗，極具潛力改善 12 題短版的限制。本研究目的是發展預測原版向度分數之機械學習算則 (ML-WHODAS)，以提升 12 題版 WHODAS 2.0 之臨床可用性。

方法：帕金森氏症 (Parkinson's disease) 個案的資料取自台灣身心障礙資料庫。由於受試者多無正職工作，故使用 32 題版 WHODAS 2.0 之向度分數為預測目標。我們以深度學習模型 (3 層各 64 個神經元) 發展預測模型，並將資料依 4:1 分割為訓練與驗證集，另使用 5 折交叉驗證 (5-fold cross validation) 以確保結果的穩定性。預測模型有效性則以決定係數 (coefficient of determination, R^2)、均方根誤差 (root-mean-square error, RMSE)，以及組內相關係數 (intraclass correlation coefficient, ICC) 驗證。

結果：因為 32 題版僅包含短版中的 11 題，故我們僅使用 11 題發展 ML-WHODAS。各向度之分數皆與 32 題版高度相似 ($R^2 = 0.80-0.92$, $RMSE = 1.39-3.66$, $ICC = 0.89-0.96$)，除四處走動向度 ($R^2 = 0.66$, $RMSE = 3.20$, $ICC = 0.80$) 外。

結論：ML-WHODAS 可提供與原版高度相似的向度分數，除四處走動向度外。因此，ML-WHODAS 有助提升 12 題短版的可解釋性，並增進其提升臨床與研究評估的實務價值。

關鍵字：帕金森氏症、機器學習、短版評估工具、WHODAS 2.0

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Robotic therapy with augmented visual feedback preceding innovative mirror therapy and functional task practice in stroke rehabilitation: A study protocol

視覺回饋復健機器人結合創新性鏡像治療與功能練習於中風復健之成效研究方案

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Background and Objectives: Robotic therapy (RT) may complement with mirror therapy (MT) and functional task practice to promote recovery from stroke. The use of visual gaming feedback may motivate engagement in repetitive robotic practice. Traditional MT involved practice using a mirror box, requiring the participant to focus on the mirror for observation of the reflected image of the practicing unaffected upper limb. This practice required attentive observation and bilateral limb movement. Participants with limited ability for imagery and simultaneous movements by both upper limbs may encounter difficulty implementing the actions. To overcome the limitations to mirror box therapy, MT with computerized visual feedback may be used to complement MT. RT for motor rehabilitation and computerized MT for movement learning may be combined to formulate a hybrid regimen. This regimen may be combined with functional task practice to augment motor and functional recovery in stroke rehabilitation. This study protocol was proposed to study the effects of RT with augmented visual feedback preceding innovative MT and functional task practice in stroke rehabilitation. The Bi-Manu-Track (BMT) will be used for RT in this proposed study. This robotic device includes a forearm and a wrist module. These modules can be shifted flexibly. In addition, the BMT robotics can be used for unilateral (i.e., the affected upper limb) and bilateral (i.e., bilateral upper limbs) approaches to movement practice. MT is versatile and can be implemented based on the unilateral or bilateral approach. We hypothesize that the unilateral and bilateral approach to RT with visual feedback combined with the innovative MT regimen will enhance sensorimotor and balance function, upper-limb activity, and quality of life more than dose-matched control treatment (i.e., conventional occupational therapy and functional task practice) immediately after treatment and at three-month follow-up. We further hypothesize that the unilateral and bilateral approaches to hybrid protocols will render differential benefits.

Methods: This proposed clinical trial will study the effects of three groups: (1) unilateral RT with computerized visual feedback plus unilateral innovative MT with functional task practice, (2) bilateral RT with computerized visual feedback plus bilateral innovative MT with task practice, and (3) dose-matched control treatment (i.e., conventional occupational therapy and functional task practice). Functional task practice will be delivered using augmented reality-assisted gamified practice in domains relevant for daily functioning (i.e., upper and lower limb movements, balance, and cognitive skills). To be eligible for enrollment, the participants must be at least three months post first ever stroke with at least 18 points in the Fugl-Myer Assessment-Upper Extremity. The participants must be able to follow instructions for treatment and will be randomized to receive one of the treatments. Comparison of the three regimens will be analyzed using analysis of covariance. To reach a Type I error of .05, a total of at least 48 participants will be sufficient for achieving statistical power at .80.

Expected Results and Contributions: The investigators anticipate that Results: of the study will inform occupational therapists about the feasibility and benefits of robotic practice prior to technology-based mirror therapy in stroke rehabilitation.

Keywords: stroke, rehabilitation technology, robotic therapy, mirror visual feedback, gamified task practice

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The Effect of Practice Context in Mirror Therapy Combined with Exergaming in Stroke Rehabilitation

鏡像治療合併擴增實境於中風復健的練習情境效應

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Background and Objectives: Practice context is important for consideration in stroke rehabilitation. Mirror therapy (MT) may facilitate motor learning and reorganize the sensorimotor system, while augmented reality (AR) may offer interactive gamified interventions. Combined use of MT and AR in the clinic- and home-based setting may augment the recovery from stroke. This study aims to evaluate the differential effects of the hybrid interventions in the clinical and home settings.

Methods: In this crossover study, enrolled participants with stroke were randomly assigned to receive intervention in either setting. There was a three-week washout period before the crossover. Each treatment phase included nine treatment sessions (45 min MT + 45 min AR, for 3 sessions per week). The clinic-based practice was supervised by a therapist. The home-based practice was remotely monitored. SPSS 19.0 was used for data processing.

Results: Clinic-based practice significantly improved performance on the FMA-UE and BBS. There was a trend for greater improvement in MAL-AOU with home-based practice. No adverse effects were reported.

Conclusions: The findings suggest that clinic-based practice may facilitate motor skill acquisition, while home-based practice is beneficial for enhancing functional arm use. Practice context warrants consideration in stroke rehabilitation.

Keywords: stroke, rehabilitation, exergaming, context

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學齡前兒童視覺動作整合能力與視知覺、動作協調之相關性
The Relationship Between Visual-Motor Integration, Visual Perception, and Motor
Coordination in Preschool Children

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背景及目的：視覺動作整合能力為視知覺與手指動作之間的協調程度，兒童需要此能力來完成各種日常活動，了解視覺動作整合相關影響因子可作為治療師擬定介入計畫之參考。本研究目的為探討學齡前兒童視覺動作整合能力之影響因子。

方法：本研究蒐集台南一間幼兒園 3~6 歲兒童之 Berry-VMI 測驗(The Berry-Buktenica Developmental Test of Visual-Motor Integration, Berry -VMI)和視知覺(Visual Perception, VP)、動作協調(Motor Coordination, MC)二分測驗，以及人口學資料。本研究使用皮爾森相關係數分析 Berry-VMI 總分、VP 總分、MC 總分、年齡之相關性，使用複迴歸模型探討 VMI 總分之兒童和家庭影響因子。

結果：共納入 187 名兒童，包含 107 位男生，占總人數的 57.22%；和 80 位女生，占總人數的 42.78%，平均年齡為 4.5 歲。皮爾森相關分析顯示，Berry-VMI、VP、MC 以及兒童年齡之間呈現中至高度正相關($r = 0.666 - 0.822, p < 0.05$)。複迴歸模型結果顯示兒童年齡、VP 和 MC 皆與 Berry-VMI 有顯著相關 ($\beta = 0.151 - 0.276, p < 0.05$)。其他兒童(如性別、疾病診斷)與家庭因子(如家長教育程度)未對 Berry-VMI 總分有顯著影響 ($p > 0.05$)。

結論：Berry-VMI 與 VP、MC 以及兒童年齡有密切關係。本研究有助於治療師、家長對一般發展兒童之視覺動作整合能力表現與相關因子有更深入之瞭解，可作為進一步探討有診斷兒童表現之參考依據。

關鍵字：視覺動作整合能力、視知覺、相關性、學齡前兒童

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愛伯特氏症孩童握力與上肢動作功能改善成效—智慧復健儀器之應用
Improvement of Grip Strength and Upper limb motor Function in Children with Apert
Syndrome—Application of Intelligent Rehabilitation Devices

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背景及目的：伯特氏症為一種自體顯性遺傳顱顏發育不良症，且個案會有併指、手指指節關節緊連的狀況。即使完成併指分離手術後，仍需進行復健療育。本研究希望透過智慧復健儀器的介入，利用有趣的電腦遊戲提高孩童參與復健治療的動機，並探討此方式是否有助於提升孩童的握力與上肢動作功能表現。

方法：個案為愛伯特氏症之7歲女童，接受每週一次，每次60分鐘，共9次之智慧復健儀器訓練。孩童需透過操作手上的搖桿進行遊戲。孩童於訓練前後，以及結束訓練一個月後分別接受評估，包含握力、箱子與積木測驗(Box & Blocks test, BBT)，以及兒童動作評估測驗(MABC-2)之手部靈巧度分測驗。

結果：個案的右手握力由2.7kg(T0)進步至5.1kg(T1)，再測期(T2)平均4.7kg。BBT測驗，右手由拿取17個(T0)進步至39個(T1)，再測期(T2)平均34個。MABC-2手部靈巧度分測驗受floor effect影響，雖然操作速度明顯變快(如：右手串珠由74秒縮減至31秒)，但百分等級於前後測均維持0.5。

結論：研究結果初步支持利用智慧復健儀器於改善愛伯特氏症孩童握力、上肢動作功能之療效。此外，孩童在參與過程中表現得愉快且高度投入，因此未來可考慮將智慧復健儀器應用於臨床治療，或拓展至居家介入，以提升孩童在參與復健過程中的動機和主動參與感。

關鍵字：智慧復健儀器、愛伯特氏症、握力、上肢動作功能

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學齡階段弓弦樂器演奏者的本體感覺表現

Proprioception Performance in School-Aged Bowed-String Instrument Players

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背景及目的：本體覺（proprioception）提供個體對關節位置與肢體運動的覺知，對於兒童動作協調發展極為重要。弓弦樂器演奏需演奏者精準按弦及穩定拉弓，長期的演奏訓練對於本體覺可能有正向助益，然過去文獻仍無完整探究。因此，本研究目的為探討學齡階段弓弦樂器演奏者的本體感覺表現。

方法：本研究採橫斷型實驗，招募 27 位長期規律弓弦樂器訓練三年以上經驗之典型發展學童（弓弦樂組），及 27 位無任何課外音樂教育經驗之年齡相符學童為對照組。有關本體覺的評估，本研究使用手腕關節位置重現任務（Wrist joint position reproduction task）評估關節位置感(joint position sense)，同時利用平板電腦化位置配對任務（point-matching task）評估運動覺(kinesthesia)，本體覺指標以目標位置與動作位置的差異表示，差異越小代表準確度越高，以獨立樣本 t 檢定比較兩組關節位置感及運動覺表現的差異。

結果：結果顯示，弓弦樂組在所有測驗項目中均顯著優於控制組，與對照組相比，弓弦樂組有較好的內外(P=0.024)及前後(P<0.001)運動覺準確度，此外，弓弦樂組也有較佳的關節位置感(p=0.003)。

結論：根據結果，可以知道弓弦樂組的本體覺整體顯著優於對照組，顯示弓弦樂器訓練或可助於提高學童感知自身肢體及關節運動狀態的能力，未來研究可進一步驗證樂器訓練與本體覺提升之因果關係，以擴展本研究的發現與應用。

關鍵字：本體覺、關節位置感、運動覺、兒童、音樂教育、平板電腦

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個案報告：Knox 學前遊戲量表修訂版於臨床個案問題分析之應用

Case report: The Application of Revised Knox Preschool Play Scale (RKPPS) in Clinical Case Problem Analysis

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背景及目的：遊戲為兒童之重要職能表現，透過遊戲可觀察其社交互動與抽象思考等多方面發展情形。本文以案例以 Revised Knox Preschool Play Scale(RKPPS)評量及介入發展遲緩兒童玩性、遊戲技巧，藉由系統性觀察引導，呈現結構化之分項量化結果，並進一步探討臨床意義與分析個案問題。

個案問題：個案為4歲11個月（59個月）大男童，診斷為混合性發展遲緩及情緒行為障礙，於複雜語句與抽象概念與情境理解弱，社交互動與情緒表達能力弱，與同儕互動意圖低，口語表達頻率與詞彙豐富度低，難合宜表達情緒；有部分堅持行為，遭制止時亦有強烈情緒反應。

職能治療評估及處置：測驗結果顯示個案之整體遊戲發展年齡為49.5個月，遊戲發展落後同齡孩童，空間處理60個月；材料處理54個月；假裝/象徵39個月；參與45個月。精細動作不熟練，難維持遊戲注意力；有基礎模仿假扮玩法，但難有系列假扮情節；多為平行遊戲，少合作性玩法。職能治療透過合作性遊戲與添加假扮情境，提升個案遊戲層級。

結果及討論：使用 RKPPS 提供之架構分析個案問題，可系統性地觀察與總結孩童於遊戲表現，對個案能力與發展了解更加具體全面；並對照發展年齡了解孩童優弱勢，根據發展順序設計治療性活動，將孩童能力推往下個遊戲層級，提供介入方向之指引。

關鍵字：Knox 學前遊戲量表修訂版、發展障礙、情緒行為障礙、遊戲、問題分析

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發展台灣學齡兒童情緒表情圖集：不同拍攝方式對臉部情緒辨識測驗的影響

Developing a Facial Expression Set for Taiwanese School-age Children: The Effect of Different Shooting Methods: on Facial Emotion Recognition Tests

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背景及目的：兒童的臉部情緒辨識能力影響人際互動與情緒調節，與社交適應及自閉症等發展疾患相關。情緒辨識測驗常使用表情圖集，但辨識表現可能受圖片拍攝方式影響。現有研究多採用表演 (Felt-experience Acting) 或模仿 (Prototype Imitating) 兩種方式拍攝，惟其對辨識結果之影響仍未充分探討。本研究旨在比較兩種拍攝方式下的辨識準確率，以提供情緒測驗的發展與應用之參考。

方法：本研究招募 15 位台灣國小學童，以兩種方式拍攝：(1)表演：回想情緒經驗並表達相應表情；(2)模仿：模仿現有圖庫中的表情原型。建立由七種情緒組成之表情圖集（共 331 張照片）。接著，由 24 位成人進行情緒辨識測驗，選擇最符合各圖片的情緒。以成對樣本 t 檢定比較兩種方式下拍攝照片之辨識準確率。

結果：結果顯示表演方式的整體準確率顯著高於模仿方式 ($p < .001$)，且在多數情緒類型下的平均準確率均較高，開心表情的辨識差異達統計顯著水準 ($p = < .01$)，而生氣 ($p = .225$)、害怕 ($p = .203$)、傷心 ($p = .127$)、驚訝 ($p = .219$)、厭惡 ($p = .785$) 和中性表情 ($p = .569$) 則未達顯著差異。

結論：表演方式拍攝之表情優於模仿方式，能提高情緒辨識測驗的準確率，並更有效呈現情緒資訊，故此方式在表情圖集建置時具有重要性。未來選擇圖集時應考量拍攝方式之影響，以更準確評估情緒辨識能力。

關鍵字：臉部情緒辨識、學齡兒童、情緒表情圖集、拍攝方式

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音樂劇表演與精神復元：參與者與觀眾主觀感受之比較研究

Musical Theatre Performance and Mental Recovery: A Comparative Study of Subjective Experiences between Participants and Audience

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背景及目的：慢性精神疾病患者常面臨情感表達、社交互動及生活品質的挑戰。音樂劇表演作為藝術治療的一種形式，提供集體互動及自我表達的機會，有助於提升患者的心理及社交功能。本研究希望探討音樂劇表演對慢性精神疾病病人自信心、社交互動、生活經驗及情感感受的影響，並比較參與者與觀眾的主觀感受差異。

方法：本研究採橫斷式設計，對北部某教學醫院精神科日間病房的 13 名住院病人進行方便取樣，參與者每週參加 2 至 3 次音樂劇訓練，每次 1 小時，共 4 週。訓練過程包括選擇現代流行歌曲、設計舞蹈及戲劇動作，並最終在病房中演出。活動後，參與者及觀眾完成問卷，評估活動內容、場地、流程、教學、能力探索、社交互動、自信心及情感表達等方面的主觀感受。

結果：共收集 28 份問卷（參與者 13 份、觀眾 15 份），使用 Mann-Whitney U 檢定分析。結果顯示，表演者在活動設計、場地佈置、教學質量、自信心及情感表達等方面的評價較高（4.69-4.85），而觀眾的評價較低（3.87-4.33）。除活動流程和生活經驗多樣性外，其他項目均顯示顯著差異（ $p < 0.05$ ）。

結論：本研究顯示，音樂劇表演能顯著提升慢性精神病患者的主觀感受，尤其對參與者來說，能增強其活動興趣、自信心及情感表達能力。觀眾亦有正面反應，但影響較為緩和。由於樣本數量有限，未來研究可擴大樣本及涵蓋不同地區，進一步探討音樂劇對精神復元的長期效果。

關鍵字：音樂劇表演、精神復元、慢性精神疾病

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廣泛性焦慮症患者與健康對照組在語意流暢任務後的心率變異比較
Comparison of Heart Rate Variability Between Patients with Generalized Anxiety Disorder and Healthy Controls Following a Verbal Fluency Task

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背景及目的：廣泛性焦慮症 (Generalized anxiety disorder, GAD) 患者常表現出過度焦慮與執行功能異常。心率變異 (heart rate variability, HRV) 為相鄰心跳間的時間變化，反映自律神經平衡。GAD 患者在靜息狀態的 HRV 顯著低於健康對照組 (healthy controls, HCs)，反映患者在常規狀態的自律神經功能受限。然針對 GAD 患者執行認知任務後 HRV 變化的研究有限。以語意流暢 (verbal fluency, VF) 任務評估執行功能，可誘發認知負荷並影響自律神經調控。故本研究比較 GAD 患者與 HCs 於 VF 任務後的 HRV 差異，以探討患者在認知負荷後的自律神經調控能力。

方法：共納入 23 名 GAD 患者及 34 名 HCs。執行 4 回合 VF 任務後，進行 5 分鐘 HRV 測量。VF 任務請受試者在 1 分鐘內說出越多指定語意類別的詞彙。以 Mann-Whitney U test 分析組間 HRV 指標差異，包括：心率、LF power（交感神經活性）、HF power（副交感神經活性）及 LF/HF 比值（自律神經平衡）。

結果：GAD 組在 LF power、HF power 及心率顯著較 HCs 高 ($p = .043, .002, .032$)，但 LF/HF 顯著較 HCs 低 ($p = .035$)。

結論：VF 任務後之恢復期，GAD 患者的心率及交感神經活性顯著較高，顯示其維持高度警覺。副交感神經活性亦顯著較高，但交感/副交感平衡比值顯著較低，可能反映患者面對壓力時，副交感神經系統試圖代償過度活躍的交感神經，但仍無法有效抑制心率上升及交感神經活性，顯示其自律神經調控能力受限，導致壓力恢復不佳。

關鍵字：焦慮症、心率變異、語意流暢任務、自律神經

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The Efficacy of Aromatherapy for Alleviating Depressive Symptoms in Postmenopausal Women: A Literature Review

芳香療法對更年期女性憂鬱症狀療效的文獻回顧

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Background and Objectives: The menopausal transition leads to significant hormonal changes, particularly a decline in estrogen and progesterone, which are crucial for mood regulation. As a result, women in this phase are twice as likely to be diagnosed with depression or experience depressive symptoms compared to premenopausal women. Aromatherapy has been used since ancient Rome, where incense, herbal fumigation, and essential oils were believed to have therapeutic effects. Modern studies suggest that aromatherapy may help alleviate depression and anxiety; however, its effectiveness in treating postmenopausal depression remains unclear. Therefore, this study aims to evaluate the effectiveness of aromatherapy as a complementary therapy for postmenopausal depressive symptoms.

Methods: Articles published between 2013 and 2024 were selected through a PubMed database search. The selection focused on depression, aromatherapy, and treatment Methods: for postmenopausal depression, with a particular emphasis on randomized controlled trials (RCTs) of aromatherapy. The relevant studies were categorized and summarized.

Results : Our findings indicate that both inhalation and massage aromatherapy can help alleviate depressive symptoms in postmenopausal women. Aromatherapy is performed through inhalation and massage, both of which allow aromatic molecules to enter the body and exert therapeutic effects. Inhalation therapy works through olfactory absorption, while massage therapy enables essential oils to be absorbed through the skin or inhaled through the nose during treatment. Once inside the body, these molecules influence the limbic system by regulating and transforming signals passing through the hypothalamus. Additionally, they help reduce sympathetic nervous system activity while enhancing parasympathetic nervous system activity, ultimately promoting physical, mental, and emotional relaxation. When comparing the two methods, massage therapy showed more favorable Results: than inhalation therapy. Notably, a 30-minute massage session, performed once per week for eight weeks, resulted in significant improvements in depressive symptoms.

Conclusions: This study supports the effectiveness of aromatherapy in alleviating depressive symptoms in postmenopausal women, but further follow-up is needed to determine how long its therapeutic effects can be sustained.

Keywords: depression, aromatherapy, postmenopausal , menopausal ,randomized controlled trials (RCTs) of aromatherapy

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急性精神病人轉介日間病房復健意願之影響因素初探—以北部某區域醫院為例
A Preliminary Examination of the Factors Influencing the Willingness of Acute Psychiatric
Inpatients to be Referred to the Day Ward for Rehabilitation: A Regional Hospital Study in
Northern Taiwan

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背景及目的：急性精神病人經過住院治療後可改善急性症狀，但需持續治療以預防復發及功能退化。日間病房提供藥物及多元復健治療，延續全日住院治療效果，為急性精神病人獨立生活與回歸社區的橋樑。為了解病人是否願意接受轉介並探討影響意願的因素，本研究以問卷調查初步探討急性精神病人轉介日間病房復健意願之影響因素。

方法：由精神科跨專業團隊成員召開會議，討論急性精神病人無意願轉介日間病房的原因。發放問卷予症狀趨緩即將自急性病房出院且有重大傷病卡之精神病人，題目為「病人是否有意願轉介日間病房：☐有意願☐無意願」，若病人勾選無意願則需勾選原因，並可複選。使用柏拉圖分析法分析無意願的關鍵因素，再使用 Cochran's Q 檢驗整體選擇次數及 McNemar's test 進行事後比較。

結果：共 30 位病人完成問卷調查，2 位病人有意願轉介日間病房，28 位無意願。有 6 項因素佔所有無意願因素 80% 以上，為無意願的關鍵因素。故檢驗 6 項關鍵因素的整體選擇次數差異，結果無顯著不同($p=0.35$)，事後比較亦無顯著。

結論：工作因素是 6 項關鍵因素選擇最多的，雖無統計顯著，此結果仍可作為精神科醫療團隊提升急性精神病人至日間病房復健意願之參考。未來研究可不限有重大傷病卡者，此外亦可招募其他醫院之病人，以及進行問卷信效度驗證。

關鍵字：急性精神病、日間病房、復健意願

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Exploring Subjective Confidence in Independent Living Confidence Among Individuals with Schizophrenia

探討思覺失調症患者主觀獨立生活信心

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Background and Objectives: Independent living is a crucial goal in the rehabilitation of individuals with schizophrenia, yet the factors influencing their confidence in this domain remain underexplored. This study aimed to identify factors associated with self-reported confidence in independent living among individuals with schizophrenia, providing insights into subjective perceptions of independence.

Methods: Data were obtained from the Taiwan Databank of Persons with Disabilities, a nationwide registry of individuals applying for disability evaluations. Participants included individuals diagnosed with schizophrenia, excluding those with comorbid conditions. Confidence in independent living was measured using a 32-item version of the World Health Organization Disability Assessment Schedule 2.0, which assesses six functional domains. Multiple regression analysis with forward selection was conducted to identify associated factors, controlling for age and sex. Variance inflation factors were calculated to assess multicollinearity.

Results: A total of 95 individuals with schizophrenia were included in the analysis. Self-reported confidence in independent living was explained by four key factors, accounting for 73% of the variance. Among these factors, long-distance walking ($B = 0.84$), learning new tasks ($B = 0.46$), and joining community activities ($B = 0.29$) were positively associated with independent living confidence. In contrast, standing for long periods was negatively associated ($B = -0.39$).

Conclusions: These findings highlight the functional domains that shape individuals' perceived confidence in independent living, underscoring the importance of mobility, cognition, and social functioning. Rehabilitation programs should prioritize interventions in these areas to enhance autonomy and quality of life. Future research should further explore how subjective confidence aligns with real-world functional outcomes.

Keywords: Independent living, schizophrenia, self-reported confidence

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精神科患者對工作訓練的滿意度與挑戰分析

An analysis of psychiatric patients' satisfaction and challenges with occupational training

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背景及目的：職能復健及工作訓練實屬精神復健裡重要的一環，然精神科患者因症狀或功能受限，於訓練過程中可能面臨不同的挑戰，本研究透過滿意度調查，分析學員對環境、內容、人際及成果的評價，且藉開放式問題了解學員遇到的挑戰及改善需求，以提升訓練的動機與成效。

方法：篩選 112 年 6 月接受工作訓練且獎勵金收入高於 500 元者，共發出 388 份問卷，由職能治療師發放並自行填寫，內容包含基本資料、滿意度填答及開放式問題，最終回收有效問卷 245 份，並使用 SPSS 第 19 版進行 T-test、ANOVA 及 Scheffe 多重比較分析，檢視各因子對工作滿意度的影響。

結果：工作訓練類型中滿意度以技術類最高，文書類次之，最後為清潔勞務；滿意度最高的五項為：可提升自信、訓練人員的指導方式及態度、具充分指導、可規律生活作息及穩定情緒、訓練時間；滿意度最低的五項為：獎勵金收入、訓練場所的廁所盥洗設備、訓練項目多樣化、學員間相處互動、訓練規則明確度；開放式問題中則有數位學員提出獎勵金偏低及不清楚計算方式。另 78.4%的學員認為沒有工作壓力，且自覺無壓力者滿意度較高，且有接受訪視及知悉福利措施者的滿意度較高。

結論：整體滿意度良好(平均 4.20/滿分 5)，對於訓練成果、時間及與訓練人員有較高的滿意度，且定期訪視、提供福利措施及壓力因應技巧可能有助於提升滿意度；然而獎勵金制度則是學員遇到最主要的挑戰，亦為影響其繼續進行訓練之重要因素，如何在獎勵機制與資方營運間取得平衡，將是提升學員滿意度的關鍵。

關鍵字：職能治療、精神復健、工作訓練

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電腦化互動認知矯正訓練用於雙向情緒障礙症患者之療效探討：文獻回顧
Computerised cognitive remediation therapy programme(“CIRCuiTS”) for patients
with bipolar disorder: a literature review

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背景及目的：約 70%BD 患者即使在情緒穩定期也會因認知功能障礙影響日常生活，其中最受影響的神經認知領域包括語言記憶、注意力、執行功能及社會認知（如心智理論和情緒識別）。因此本篇針對電腦化互動認知矯正訓練治療雙向情緒障礙症進行文獻回顧。

文獻來源：使用資料庫 PubMed、PubMed Central 和 Medline 搜尋 2019 至 2024 發表之英文文獻，關鍵字包含 bipolar disorder、computerised cognitive remediation，認知功能需為主要評估項目，共搜尋到 4 篇文獻。

結果：Young 等人(2021)發現平均年齡 42 歲的 BD 患者接受為期 12 周、每周 3 次“CIRCuiTS”訓練較常規治療組在工作記憶、執行功能、心理社會功能及目標達成上有顯著改善且於 25 周追蹤評估仍維持顯著性。2022 年發現完成 20 次以上治療的患者整體認知表現提高超過半個標準差；心理社會功能改善與治療師接觸時間相關；目標達成改善則與每次課程使用的有效策略數量相關。同年又進行患者基線因素與治療成效關係的探討，發現 CRT 組中較差的基線認知表現在治療後整體認知、語言記憶及心理社會功能的改善較多、在目標達成改善較少，其他基線特徵則與任何結果變化不具顯著相關；組間比較僅目標達成方面，基線特徵（整體認知、主觀認知抱怨及先前心理治療經歷）具調節效果。2023 年發現 CRT 組約 35%的心理社會功能改善可歸因於整體認知表現的提升，CR 對心理社會功能改善的直接效果仍顯著，表示介入後(第 13 周)整體認知表現部分中介 CR 對追蹤期（25 週）心理社會功能的影響，推測其餘 65%之心理社會功能改善，可能受 CR 介入後的後設認知提升影響。CR 對追蹤期（25 週）目標達成的效果受介入後（13 週）的標準化認知表現所調節，對於達到平均認知水平或更高認知水平（與組內平均認知能力高 0.7 個標準差）的患者效果顯著，有小到中的調節效果。

結論：電腦化互動式認知矯正訓練對 BD 患者之認知及功能改善有顯著療效，尤其是完成 20 次以上者，故 20 小時的課程可能代表此治療對結果產生影響的最低「劑量」。接受該治療後心理社會功能的改善僅部分歸因於整體認知表現的提升，推測後設認知可能是影響因素之一，需進一步探討。基線認知表現越好，目標達成的效果越明顯，可能是因較高的認知水平使個案能有效地管理和應用治療中的策略來實現個人目標。

關鍵字：電腦化互動認知矯正訓練、雙向情緒障礙症

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前額葉皮質在廣泛性焦慮症患者焦慮調節與抑制控制中的角色

The Role of the Prefrontal Cortex in Anxiety Regulation and Inhibition Control in Patients with Generalized Anxiety Disorder

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背景及目的：廣泛性焦慮症 (generalized anxiety disorder, GAD) 為常見的心理疾病之一，不僅影響患者之情緒調節，亦影響其執行功能（如抑制控制）。前額葉皮質 (prefrontal cortex, PFC) 在抑制控制與情緒調節皆扮演關鍵角色。然而，GAD 患者焦慮調節與抑制控制的神經交互作用仍不清楚。本研究旨在探討 GAD 患者在焦慮調節與抑制控制共享 PFC 神經資源時，其 PFC 活化模式與健康控制組的差異，並進一步分析焦慮程度與 PFC 活化之關聯性。

方法：本研究共 20 名 GAD 患者與 31 名健康成人參與。研究者透過功能性近紅外光譜儀 (functional near-infrared spectroscopy) 測量受試者在休息狀態與 Go/No-Go 任務中雙腦 PFC 的帶氧血紅素濃度 (ΔHbO)，以呈現受試者之 PFC 活化改變。研究者使用獨立樣本 t 檢定比較兩組間 ΔHbO 的差異，並使用 Pearson's r 分析 PFC 活化程度與任務表現及焦慮嚴重程度之相關性。

結果：GAD 組在休息狀態與 Go/No-Go 任務中的 PFC ΔHbO 均低於健康控制組，尤其在雙腦背外側 PFC (dorsolateral PFC)、背內側 PFC (dorsomedial PFC) 及右腦腹內側 PFC (ventromedial PFC) 呈現顯著活化低下 ($p = 0.015-0.050$)。GAD 患者之休息狀態 PFC 活化程度與任務正確率呈負相關 ($r = -0.554-0.405$)，與焦慮特質則呈正相關 ($r = 0.441-0.514$)；而任務期間 PFC 活化程度與任務正確率呈正相關 ($r = 0.541$)，與焦慮特質則呈負相關 ($r = -0.521$)。

結論：GAD 患者在休息狀態與抑制控制過程中，PFC 皆顯著活化低下，表示患者呈現慢性 PFC 功能低下，且在執行任務時仍無法有效提升 PFC 之活化，此現象可能與病理性焦慮相關。此外，具有焦慮特質較高的 GAD 患者，其 PFC 的基礎神經活性較高，但在任務執行時 PFC 活化程度較低，這些神經機制對任務表現有負面影響。上述結果凸顯 PFC 功能障礙在 GAD 中的重要性，並為未來針對執行功能與情緒調節之治療介入提供神經生理學的實證基礎。

關鍵字：廣泛性焦慮症、前額葉皮質、抑制控制、功能性近紅外光譜儀

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Test-retest reliability of the occupational questionnaire

職能活動問卷的再測信度研究

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Background and Objectives: The Occupational Questionnaire assesses an individual's engagement in daily activities and aspects of volition, such as perceptions of importance, interest, and competence related to these activities. It provides insights into clients' temporal adaptation and occupational balance, which are crucial for occupational therapists in treatment planning. This study utilized the translated Taiwan version of the occupational questionnaire to evaluate its test-retest reliability among individuals with mental illness.

Methods: The study involved individuals with mental illness who regularly attended outpatient clinics. After providing informed consent, 25 participants completed the Occupational Questionnaire based on a typical day. They repeated the questionnaire one week later. Test-retest reliability was measured using indices of leisure participation hours, rest hours, perceived competence, importance, and enjoyment of activities (rating 1-5). Data analysis was conducted using SPSS version 22.

Results: The study sample comprised 25 participants, with a mean age of 36.52 years. Of the participants, 12% were male, 40% had college degrees, 48% were married, 84% lived with family, 24% were employed, 36% were homemakers, and 72% were diagnosed with mood disorders. Additionally, 40% rated themselves as partially independent. On average, participants engaged in leisure activities for 3.2 hours, rested for 11.96 hours, and rated their perceived competence at 3.23, importance at 3.69, and enjoyment at 3.41. Life satisfaction (1-100) had an average score of 52.56. Significant negative correlations were found between hours of rest and life satisfaction ($r = -0.43$), perceived competence and importance ($r = 0.42$), perceived competence and enjoyment ($r = 0.765$), and importance and enjoyment ($r = 0.653$). Test-retest reliability indices for leisure participation hours, rest hours, perceived competence, importance, and enjoyment were 0.718, 0.696, 0.703, 0.727, and 0.709, respectively. All are significant.

Conclusions: The findings support the test-retest reliability of the Taiwan version Occupational Questionnaire for individuals with mental illness over a one-week interval. Notably, the negative correlation between life satisfaction and hours of rest contrasts with previous studies. The interrelationship among perceived competence, importance, and enjoyment provides evidence supporting the concept of volition within the Model of Human Occupation (MOHO). We did not account for hours dedicated to work and self-care activities, which are limitations of this study. Future research could explore the percentage of time spent on various occupations and diversity of these activities with occupational balance measure.

Keywords: occupational questionnaire, mental illness, test retest reliability

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Criterion related validity of the satisfaction of daily occupation in Taiwan

職能活動滿意度量表的效度研究

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Background and Objectives: The Satisfaction with Daily Occupation (SDO), developed by Swedish occupational therapist Mona Eklund, was initially designed to evaluate satisfaction levels with daily activities among individuals with mental disorders. Subsequent research has demonstrated that, with appropriate modifications, the SDO can also be applied to patients with physical illnesses. This study aims to examine the criterion-related validity of the traditional Chinese Taiwan version of the SDO when used with clients diagnosed with breast cancer.

Methods: Participants for the study were recruited from the breast cancer center of a medical institution. A total of 100 individuals consented to participate in the evaluation, with an average age of 49.6 years; 77% of participants were married, and 55% had attained a college-level education or higher. They completed the Satisfaction with Occupation Questionnaire and the World Health Organization Quality of Life Questionnaire (Taiwan version; WHOQOL). The item 3 & 4 of SDO were excluded from analysis due to their irrelevance to the study population. Satisfaction ratings (on a 1–7 scale) were used as indices of occupational balance and participation. Data were analyzed using SPSS 22.

Results: The average satisfaction ratings for SDO items 1–7 were 5.56, 5.62, 5.15, 5.16, 5.33, 5.08, and 6.15, respectively. Significant relationships were observed between psychological, environmental, social, and physical quality of life (QOL) domains and SDO items 1–7, with correlation coefficients ranging from 0.231 to 0.547. The strongest correlations between SDO items and WHOQOL domains were observed for the environmental, social, psychological, and physical domains. No relationship was found between cancer stage and satisfaction with daily occupation.

Conclusions: The findings support the criterion-related validity of the SDO, consistent with Results: from Eklund's 2013 study. The higher correlations observed between satisfaction ratings and the WHOQOL environmental domain highlight the potential influence of environmental factors on satisfaction with daily occupation. Study limitations include the absence of data on the number of participated occupations among subjects. Future research could explore additional environmental variables and compare findings with the related measures.

Keywords: Satisfaction with Daily Occupation, SDO, Quality of Life, WHOQOL

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以 Training in Affect Recognition 之訓練原則進行急性精神疾病患者團體治療 並探討臨床應用成效

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背景及目的：訓練臉部表情辨識 Training in Affect Recognition (TAR) 是一種以電腦輔助的訓練模式，主要針對思覺失調症患者的臉部表情辨識缺陷進行訓練。TAR 訓練的核心原則包括：1. 無錯誤學習原則 (errorless learning)、2. 多次學習 (over-learning)、3. 即時正向回饋 (positive feedback)、4. 特徵抽象化 (feature abstraction)。本研究探討使用 TAR 之訓練核心原則，設計治療活動，並檢驗其應用於急性病房精神疾病個案之成效。

方法：6 位住於草屯療養院急性病房病人參與此研究。病人完整參與五次以 TAR 之核心原則所設計之團體治療活動，並完成臉部情緒辨識電腦適性測驗 (Computerized Adaptive Test of Facial Emotion Recognition, CAT-FER) 短版之團體施測。本研究以 CAT-FER 評量病人七種基本情緒臉部情緒辨識能力，並使用 Wilcoxon Signed-Rank Test 統計分析。

結果：受試者在平靜 ($p = 0.028$)、厭惡 ($p = 0.028$)、害怕 ($p = 0.028$) 等三種情緒臉部表情辨識有顯著進步。

結論：本研究結果顯示，以 TAR 訓練原則設計的團體治療模式可能有助於提升急性病房精神疾病患者部分情緒的臉部表情辨識能力。然而，研究結果也顯示，某些情緒的臉部表情辨識能力提升有限，未來研究可以探討其原因，並設計更有效的介入策略。

關鍵字：思覺失調、臉部情緒辨識、Training in Affect Recognition (TAR)

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音樂治療團體對於慢性精神疾病患者：聽覺注意力之增進與自覺 Yalom 療癒因子作用

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背景及目的：較結構化的音樂治療已證實對於注意力有顯著增進效果，也在情緒與社交功能相關之療癒因子有正向影響。本研究探音樂治療對於慢性病房之精神疾病患者的聽覺注意力之增進與自覺 Yalom 療癒因子作用。

方法：11 位住於草屯療養院慢性病房病人參與此研究。受試者完整參與六次音樂治療團體，並進行蒙特利爾認知評估 (Montreal Cognitive Assessment, MoCA)，及自填後測 Yalom 療癒因子問卷。本研究以 MoCA 的注意力之警覺性測驗及兩題重複句子測驗評量病人的聽覺注意力之改變，並使 paired t test 統計分析，另以後測自填自製 Yalom 療癒因子五點問卷評量病人於團體中之治療效果。

結果：(一) MoCA 之所有注意力面向皆無顯著差異，包含注意力之警覺性測驗 ($p = 0.68$)、重複句子測驗第一題 ($p = 0.09$)，而第二題 ($p = 0.49$) 甚至整體偏向較差方向改變。(二) 注意力之警覺性測驗 (55%) 及重複句子測驗第一題 (91%) 皆有超過半數受試者維持良好或有正向改變。(三) Yalom 療癒因子所有分項平均分數皆高於 3.4 分，在利他主義因子超過 4 分。

結論：在經過音樂治療後，於 MoCA 部分分測驗中有過半數受試者有正向改變或維持，代表對於較短或突發的聽覺注意力有相對較好的進步，然涉及較長的語言聽覺訊息則無特別影響；而療癒因子大多平均得分偏高，也表示對於受試者主觀認定之社交互動及自我覺察部分有正向影響。建議未來可以探討更多結構化音樂治療對於聽覺認知之影響，及關注音樂治療對於不同族群之 Yalom 療癒因子成效。

關鍵字：音樂治療、聽覺注意力、Yalom 療癒因子

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社會知識電腦適性測驗應用於思覺失調症患者之再測信度分析

Test-retest reliability analysis of the Computerized Adaptive Testing of Social Knowledge in individuals with schizophrenia

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背景及目的：社會知識電腦適性測驗 (Computerized Adaptive Testing of Social Knowledge, CAT-SK) 為國人發展之社會認知評估工具，可提供準確且有效地評估受試者的社會知識程度。然而，CAT-SK 於重複測量的穩定性未知，影響其分數解讀的實證基礎。為克服此問題，本研究欲驗證 CAT-SK 應用於思覺失調症患者的再測信度、隨機測量誤差與練習效應，以確認其評估結果的穩定性。

方法：本研究的思覺失調症患者共作答 CAT-SK 二次，間隔時間約為 5 週。再測信度則、隨機測量誤差，以及練習效應則分別使用組內相關係數 (intraclass correlation coefficient, ICC)、評估標準誤百分比 (percentage of standard error of measurement, SEM%)，以及 Cohen's d 效應值檢驗。

結果：本研究共納入 47 位思覺失調症患者。重複評估平均間隔 34.6 天，此期間的 ICC 為 0.79、SEM% 為 19%，Cohen's d 則為 0.19。

結論：本研究結果顯示 CAT-SK 於一個月的期間具有大致穩定的再測信度。同時，其受到隨機測量誤差與練習效應的影響亦小。因此，CAT-SK 可提供穩定的社會知識評估，能應用於團體層級的評估。然而，有鑑於其數值低於個別層級的需求 (ICC > 0.90)，故於臨床等評估個別受試者的情境，宜考慮其信度數值，以合適地解讀分數。

關鍵字：社會認知、社會知識、思覺失調症、再測信度

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電腦化弦外之音測驗應用於思覺失調症患者之再測信度分析

Test-retest reliability analysis of the computerized implied meaning test in individuals with schizophrenia

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背景及目的：電腦化弦外之音測驗 (computerized implied meaning test, COTIME) 可提供精準且有效的心智理論 (theory of mind) 分數，有助於臨床人員瞭解思覺失調症個案對弦外之音理解的損傷程度，且有利於研究人員探討相關之影響因素。然而，COTIME 應用於該族群的再測信度未知，難確認其應用於重複測量時的穩定性，限制其分數解讀之實證基礎。本研究欲檢驗 COTIME 之再測信度、隨機測量誤差與系統誤差，以確認其應用於重複測量的穩定性。

方法：參與本研究之思覺失調症患者共作答 COTIME 二次，間隔時間約為一個月。我們使用組內相關係數 (intraclass correlation coefficient) 檢驗再測信度、以評估標準誤百分比 (percentage of standard error of measurement) 檢驗隨機測量誤差，並以 Cohen's d 效應值與相依樣本 t 檢定 (paired t-test) 檢驗系統誤差。

結果：共 47 位思覺失調症個案參與本研究，評估間隔時間為 34.6 ± 4.1 天。COTIME 之組內相關係數為 0.86、測量標準誤百分比為 18%，Cohen's d 為 0.12 ($p = 0.133$)。

結論：本研究結果顯示 COTIME 具有可接受至良好的再測信度。同時，其受到隨機與系統誤差的影響程度小。因此，本研究支持 COTIME 於間隔一個月之重複測量，以提供穩定的心智理論分數。

關鍵字：社會認知、心智理論、思覺失調症、再測信度

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亞裔大學生對於成人與孩童的臉部情緒辨識能力

Asian College Students' Facial Emotion Recognition Ability for Adult and Child Faces

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背景及目的：臉部情緒辨識能力影響社交行為，且個體通常能較準確地辨識熟悉群體的情緒。然而，亞裔族群辨識不同年齡層表情的表現差異尚未被充分探討。本研究旨在探討成人辨識成人與孩童情緒的準確度差異，以供未來評估參考。

方法：本研究招募 10 位成人進行電腦測驗，受試者觀看 120 張由 AI 生成的不同年齡層人物圖片，並於快樂、悲傷、憤怒、恐懼與中性中選擇相應情緒。並後續使用雙因子相依變異數分析與成對樣本 t 檢定分析受試者辨識不同年齡圖像的差異

結果：情緒種類與年齡間存在顯著交互作用($p < 0.05$, $F = 20.507$)，且情緒種類對準確率具有主效果。憤怒情緒中，成人辨識成人準確率顯著較高 ($p < 0.05$, $d = 1.58$)，快樂情緒的辨識未達統計顯著水準，但效果量達中等範圍 ($d = 0.59$)；悲傷 ($p < 0.05$, $d = 1.33$)與恐懼 ($p < 0.05$, $d = 1.25$)情緒中，成人辨識孩童的準確率顯著較高，中性則無顯著差異。

結論：不同情緒種類下，年齡對情緒辨識的影響有所不同，成人較能準確辨識成人憤怒情緒，及孩童的悲傷、恐懼情緒。此可能與圖片中成人、孩童的表達強度有關，悲傷與恐懼情緒中，孩童的情緒表達較直接，特徵較明顯而較容易判斷。成人的情緒表達比較含蓄，特徵較細微而辨識難度較高。未來評估過程可參考成人與孩童表達情緒強度的差異，以更準確解釋評估結果。

關鍵字：臉部情緒辨識、年齡、亞裔

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檢驗老年憂鬱量表應用於長期照護機構長者之單向度

Examination of the unidimensionality of the Geriatric Depression Scale in older adults residing in long-term care facilities

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Background and Objectives: Early detection of depression in older adults living in long-term care facilities is essential for timely intervention and prevention of adverse outcomes, including reduced quality of life, increased physical illness, and higher mortality rates. The Geriatric Depression Scale (GDS) is a 30-item self-report assessment and widely used for screening depression in this population. However, unidimensionality, a key component of construct validity, must be confirmed to ensure the scale accurately measures a single underlying construct. This study aimed to examine the unidimensionality and item performance of the GDS using Rasch analysis.

Methods: Two hundred residents from long-term care facilities completed the GDS. Rasch analysis was conducted to evaluate the unidimensionality of the scale. Key indicators, including infit and outfit mean-square (MnSq) statistics and residual principal component analysis, were used to identify misfit items and assess the scale's construct validity.

Results: Six items from the GDS demonstrated misfit (outfit MnSq = 0.40–2.94). After removing these items, the revised GDS-24 showed improved unidimensionality, with infit MnSq values ranging from 0.74 to 1.31 and outfit MnSq values from 0.52 to 1.48. The residual principal component analysis further supported the unidimensionality of the revised GDS-24.

Conclusions: The revised GDS-24 demonstrated better unidimensionality compared to the original GDS. It offered a more accurate tool for screening depression in older adults living in long-term care, potentially enhancing early detection and intervention.

Keywords: depression, unidimensionality, elderly, long-term care facilities

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「今牌人生」認知牌卡—全臺推廣培訓與回饋分析
‘Live for Today: Cognitive Card Set (LFTCS)’—
Analysis of promotion workshops and feedback in Taiwan

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背景及目的：失智者可透過參與藝術活動以「創意老化」刺激誘發大腦功能。於 2021 年臺北榮民總醫院與國立故宮博物院合作發展今牌人生認知牌卡，欲連結失智者過去生活經驗整合藝術與生命歷程懷舊，促進大腦認知功能與社交互動。本研究目的乃彙集近年於全臺辦理推廣培訓工作坊資料，以及學員質性回饋進行分析，探討牌卡應用可行性與適用性。

方法：採兩階段進行：(一)培訓前：應用線上表單彙整報名資料，並以長期照顧服務人員類別進行學員性質分類及隨機分組；(二)培訓後：以簽到表確立實際參與學員，並予五題滿意度問卷調查，採李克特氏五點量表(Likert scale)計分，另含自由填寫回饋建議。

結果：自 2023 年起於嘉義、臺北、高雄、臺中、桃園、新北、苗栗等縣市辦理共七場培訓工作坊，共 393 位照護專業人員完成培訓，其中 69.47 % 為醫事專業人員($n=293$)；整體滿意度平均數達 4.88 分 ($SD=.32$ ； $n=180$)，另有效質性回饋共 134 筆，賦予其概念分類主題分別有：可應用的創新活動媒介、誘發生命歷程經驗分享、嘗試應用於不同個案族群等。

結論：醫療與藝術跨域合作辦理之培訓工作坊，透過不同專業人員間交流，將今牌人生認知牌卡落實於失智照護中，提升其應用可行性與適用性。未來宜持續運用執行科學，使今牌人生牌卡實踐至永續發展期，以期提升照護品質。

關鍵字：失智症、認知、今牌人生、工作坊、滿意度

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The effectiveness of virtual reality-based interventions compared to conventional approaches on cognitive function in older adults: A systematic review

VR 介入相較傳統介入在老年人認知功能上的影響：系統性文獻回顧

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Background and Objectives: Virtual reality (VR) has emerging as a promising non-pharmacological intervention, providing immersive environments with high ecological validity for cognitive training. Despite its growing use, the comparative effectiveness of VR-based cognitive training versus conventional cognitive training remains unclear. This systematic review evaluates the effects of VR-based interventions compared to conventional training on cognitive function in older adults.

Methods: A systematic review using following databases: Cochrane, PubMed, Web of Science, Scopus, Embase, and PsycINFO. Articles published between February 2020 to February 2025, randomized controlled trials (RCTs) that included cognitive assessments as outcome measurements and control group that included conventional interventions were considered for inclusion. The risk of bias was assessed using the Cochrane Risk of Bias 2 (ROB 2) tool.

Results: Six studies were included in this review. VR-based cognitive training showed superior improvements in spatial ability, instrumental activities of daily living (IADL), and executive function compared to conventional interventions. However, findings on general cognitive function were inconsistent; while some studies reported greater improvement in the VR group, others found similar or superior outcomes in the control group. The risk of bias was generally high across studies, primarily due to unclear reporting of missing data. Moreover, most included studies using semi-immersive VR systems.

Conclusions: VR-based cognitive training appears to offer advantages over conventional approaches in enhancing spatial ability, IADL, and executive function. However, inconsistent effects on general cognitive function, combined with a high risk of bias and variability in intervention design, VR immersion levels and dosage, highlight the need for further high-quality RCTs.

Keywords: Systematic review, Virtual reality, Cognitive function

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結合認知訓練的職業重建對思覺失調患者之就業成效探討: 文獻回顧

Employment Outcomes of Vocational Rehabilitation Combined with Cognitive Remediation in People with Schizophrenia: A Literature Review.

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背景及目的：本研究旨在回顧近年相關文獻，探討結合認知訓練的職業重建是否能更有效提升思覺失調症患者的就業表現。

方法：本研究透過 PubMed 資料庫，使用關鍵字「思覺失調症」、「認知訓練」及「職業重建」，檢索過去十年內發表的隨機臨床試驗。初步篩選結果為 21 篇文獻，排除 12 篇不符合納入標準的文章，最終納入 9 篇進行分析。

結果：納入研究中的認知訓練方式包括紙筆訓練、電腦化訓練、認知代償策略訓練及多種形式的結合。職業重建模式則有庇護性就業、支持性就業及綜合性職業重建服務。結果顯示，認知訓練能顯著提升患者在執行功能、注意力與記憶力等方面的表現。無論是單獨職業重建或結合認知訓練，皆能促進患者的就業成效。其中四篇研究指出，結合認知訓練的職業重建在部分就業指標上優於單獨職業重建，其餘研究則未發現顯著差異。這些差異可能與各研究中參與者的狀態及所採用的認知訓練與職業重建方式的不同有關。

結論：結合認知訓練的職業重建顯示出提升思覺失調症患者就業表現的潛力，但仍需更多研究來確認其效果。未來研究應聚焦於探討不同認知訓練方式與職業重建模式的最佳結合，並考慮參與者個體差異的影響，以提供更有效的介入方案。

關鍵字：思覺失調症、認知訓練、職業重建

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認知障礙就業者的職務再設計-以加油站為例：個案報告

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背景及目的：我國勞動部訂定「身心障礙者職務再設計實施方式及補助準則」，旨在協助身心障礙者排除工作障礙，提升工作效能並促進就業。加油站聘用的認知障礙員工多擔任洗車員角色，若遇雨季無洗車需求，需協助加油，由於加油作業繁雜，員工常在記憶上遇到困難，經常忘記詢問客人問題或記錄油品種類。本研究旨在設計一款就業輔具，協助加油站身心障礙員工提升工作效能並穩定就業，並記錄輔具設計及工作改善過程。

個案問題：個案為持有第一類身心障礙證明的認知障礙員工，主要負責洗車及清潔工作，若人力不足，需協助加油。工作項目包括加油、洗車、清潔及販賣商品等，未使用輔具前，認知障礙員工工作上有較大限制，尤其加油服務需要記憶客戶需求。

職能治療評估及處置：本研究設計了視覺化輔具，協助員工記憶客戶需求，可依客戶需求，將強力磁鐵移動並標註在視覺圖卡上，圖卡顏色對應加油槍顏色，輔具大小與手機相似，附筆方便攜帶。製作成本為 300-500 元，使用常見文具材料製作。

結果：有效協助記錄並提醒加油的步驟，該輔具不僅有助於身心障礙員工，也可供新進員工使用，幫助理解流程。

結論：職能治療師可根據職務再設計原則提供客製化輔具，幫助員工克服工作障礙，提升工作效能。

關鍵字：職務再設計、輔具設計、認知障礙就業者、就業輔具

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社區高齡者生命歷程回顧懷舊輔療 GDS-15 前後測改變之差異
Differences in Changes of GDS-15 Before and After Life Course Review of Nostalgia Therapy in
Community-Dwelling Elderly

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背景及目的：生命歷程回顧（Life course review）若能有設計的帶領及運用，懷舊輔療（Nostalgia Therapy）在 GDS-15（老人憂鬱量表）上會有指數的整體降低。本研究探討社區高齡者在 GDS-15 個子題，生理、心理、認知上前後測的差異。

方法：本研究以台南玉井及南化共 27 位社區高齡者，參與生命歷程回顧之舊輔療課程操作；每次 2 小時，共五次後，GDS-15 前後測之數值為主軸。另輔以每次學員課程間觀察紀錄，進行資料分析。

結果：（一）兩社區高齡者 GDS-15 前後測降低 1.55 分(整體分數降低 10.3%)，達到生命歷程回顧之舊輔療課程操作之預期效果。（二）兩個社區高齡者在自覺記憶問題改善皆有最佳的差異，平均降低 4 分(整體分數降低 26.7%)。另外，在沒動力、宅在家、少活動、空虛、沒精神、不快樂、不想活、沒希望及不幸福，的子題上，皆有降低的差異。

結論：社區高齡者在認知得分最顯著，代表生命歷程回顧之舊輔療課程操作存在相當程度的效果。生理面向，以活動的動力最相關。但心理面向，則較多元，含蓋：情緒、生存權、幸福感。所以從臨床與研究中得知，對於認知加強、動力啟發和多元心理素質提升，可用此工具來操作。

關鍵字：生命歷程回顧、懷舊輔療、GDS-15

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運用可信賴專業活動評核(EPAs)於兒童職能治療實習學生學習成效之探討
Exploring Learning Outcomes of Pediatric Occupational Therapy Interns through
Entrustable Professional Activities (EPAs)

陳依瑜¹

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背景及目的：職能治療臨床實習為治療師養成教育中重要階段，本研究導入可信賴專業活動評核(EPAs)於兒童職能治療實習，探討其對實習學生之學習成效及作為勝任能力導向評核工具之適用性。

方法：本研究於 2024 年 7 月至 2025 年 1 月期間收訓 7 位兒童職能治療實習學生，每位學生皆完整參與 12 週實習課程。評核教師皆為完成院內 EPAs 訓練課程並具臨床能力委員會(Clinical Competency Committee, CCC) 資格認證之臨床教師。實習期間規劃職能治療面談與評估實體課程，並輔以線上自主學習。評核方式包含兩次操作型技能直接觀察評量法(Direct Observation of Procedural Skills, DOPS) (第 5 週、第 11 週)、兩次 EPAs (第 6 週、第 12 週) 及一次客觀結構化臨床測驗(Objective Structured Clinical Examination, OSCE) (第 10 週)，系統性記錄學生學習進展。

結果：經 12 週實習訓練，學生整體表現呈現進步趨勢。然而在「選擇適當評估工具」、「依個案狀況調整」及「說明結果」三個面向，雖期末較期中有所提升，但仍為相對具挑戰性的項目，需要教師較多指導與確認。

結論：EPAs 評核能有效識別學生的學習進展及需加強之專業面向，不僅協助臨床教師調整教材與教學策略，也使實習學生明確掌握自我精進方向。建議未來可針對較具挑戰性的評核項目發展特定教學策略，持續優化實習教學品質。

關鍵字：可信賴專業活動、職能治療實習、教學評核

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職能治療學生與實證實務：現況分析與未來實行建議

Evidence-Based practice (EBP) Among Occupational Therapy Students: Current Status and Future Implementation Recommendations

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背景及目的：實證實務（EBP）是職能治療教育的重要組成部分，目前針對職能治療學生與實證實務的研究仍較少，故本研究的目的主要透過資料庫搜尋當前職能治療學生與實證實務的相關研究，並分析當前執行現況與未來實行建議。

方法：使用關鍵字”Evidence-based practice ”以及”occupational therapy students”在資料庫PubMed 進行搜索，設定年限為 2020-2025 年。

結果：共搜尋到 18 篇文章，刪除非職能治療領域、非針對學生為對象、刪除探討評估工具以及影響實施因素之文章，納入四篇文章做分析。儘管職能治療學生對實證實務（EBP）抱持正面態度，且在知識層面有明顯提升，但在實際運用上仍面臨挑戰。四篇研究皆強調 EBP 五大核心步驟的重要性，但學生普遍在「應用」與「評估成效」階段表現最弱，缺乏將研究結果整合到臨床決策的能力。教學模式呈現多元化，包括線上課程、文書資料、手機應用程式及期刊讀書會，各有優勢，但皆顯示單一教學策略難以全面提升學生 EBP 能力。此外，學生在實習過程中仍面臨時間壓力、臨床指導不足、以及跨團隊溝通能力欠缺等障礙。

結論：未來實施 EBP 建議 1.整合多元教學法 2.強化應用與評估成效訓練 3.引入臨床導師與跨專業合作 4.培養 EBP 溝通能力。未來 EBP 教育應朝向多元教學策略、強化實踐與促進跨團隊合作發展，確保學生能將 EBP 知識真正轉化為臨床行動。

關鍵字：實證實務、職能治療學生、臨床教育

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A Scoping Review of Visual Screening Tools for Children with Special Needs

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Background and Objectives: Visual function is fundamental to the development and learning of children. Children with special needs are at a higher risk of experiencing visual function deficits compared to their typically developing peers. However, current ophthalmic assessment tools are often insufficient for identifying visual difficulties in this population, as cognitive, behavioral, and communicative challenges can hinder their cooperation during standard vision examinations. This scoping review aimed to explore the currently available visual screening tools for children with special needs, with the goals of promoting the use of well-validated, parent- or professional-administered tools or supporting the development of new assessments to facilitate the early detection of visual impairments.

Methods: This scoping review was conducted following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Scoping Reviews (PRISMA-ScR) guidelines. A comprehensive literature search was performed across four databases: PubMed, Cochrane Library, Embase and Google scholar. Studies were included if they primarily focused on assessing visual acuity, visual field, or functional vision development, and if they involved the development or validation of assessment tools or questionnaires for children with special needs. Articles focusing on pharmacological interventions or therapeutic treatments were excluded.

Results : Available tools for screening visual development in children with special needs are limited. Currently, only four patient-reported outcome measures (PROMs) or questionnaires for parents or caregivers are appropriate for visual screening and assessment: Preverbal Visual Assessment (PreViAs), Questionnaire of Evaluating Daily Visual Function (QEDVF), Pediatric Eye Questionnaire (PedEyeQ), and Measure of Early Vision Use (MEVU). Among these, PreViAs is particularly suitable for assessing visual development in infants and young children with special needs. Additionally, one professional – administered tool, the Test Battery of Child Development for Examining Functional Vision (ABCDEV), has been developed to assess the developmental progress of visual function in children.

Conclusions: This review highlighted the limited number of assessment tools or questionnaires for evaluating visual development, and suggested that some items within these questionnaires should be modified to better reflect the cultural context and usage patterns of local populations. These findings underscore an unmet need to develop a new assessment tool to support the screening of visual development in children with special needs.

Keywords: children, scoping review, special needs, vision, visual assessment, visual screening

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罕見疾病與基因異常兒童視覺損傷與發展特徵分析：

台大醫院特殊需求視覺門診四年回溯性研究

Visual Impairments and Developmental Profiles in Pediatric Patients with Rare Diseases and Genetic Disorders: A Four-Year Retrospective Review from the Special Needs Vision Clinic at National Taiwan University Hospital

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背景及目的：罕見疾病與基因異常兒童與青少年常伴隨多重障礙，難以配合眼科常規檢查，潛在視覺問題易被忽略。本研究透過分析特殊需求視覺門診資料，探討此族群常見眼科診斷與視覺狀況，作為後續評估與介入之參考。

方法：回顧民國 111 至 114 年間於台大醫院眼科特殊需求視覺門診就診，具罕見疾病或基因異常診斷之兒少，彙整與分析其年齡、性別、疾病類型、眼科診斷、視覺功能和功能性視覺資料。視覺功能包括以近距離偵測量表（Near Detection Scale, NDS）、Keeler 視覺敏銳度卡（Keeler Acuity Cards, KAC）、Lea 圖形視力測驗（Lea Symbols Acuity Test）評估視力，特殊需求兒童視覺功能表（Visual Function Battery for Children with Special Needs, VFB-CSN）評估整體視覺功能，功能性視覺問卷（Functional Vision Questionnaire, FVQ）評估功能性視覺。

結果：本研究共納入 40 名個案，平均年齡為 57.5 個月（標準差: 37.3 個月），年齡區間 7 至 138 個月。男性 21 名、女性 19 名。17 人符合政府公告之罕見疾病，其中僅 2 人被分類為眼睛異常；42.5% 基因型為點突變（Point mutation）、30% 為缺失（Deletion）。高達 95% 有眼科疾病診斷，最常見的問題依序是屈光異常（72%）、腦性視覺障礙（32.5%）、眼位不正（22.5%）。屈光異常中，散光佔總人數 50%。NDS 和另二項視力測驗評估雙眼視力結果，初診時小於 1 歲個案平均視力為 0.018（n=5），1—2 歲為 0.017（n=7），2—3 歲為 0.019（n=6），3—4 歲為 0.022（n=3），4—5 歲為 0.062（n=3）；5—6 歲含以上為 0.062（n=14）。14 名 6 歲以上個案視力皆低於 0.3，已達台灣視覺障礙標準。VFB-CSN 評估結果（n=35），平均為 30.1（標準差: 14.2），範圍在 3 至 56.5。FVQ 評估結果（n=38）平均分數為 94.3（標準差: 27.5），分數範圍在 44 到 135。

結論：基因異常型為缺失（Deletion）與點突變（Point mutation）的個案，視覺問題普遍且嚴重，視力和整體視覺功能發展明顯落後正常兒童，也影響其功能性視覺表現。臨床介入應予以高度重視。

關鍵字：罕見疾病，基因異常，屈光異常，特殊需求，視力，視覺功能，功能性視覺

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視覺擁擠效應視覺復健模式對特殊需求兒童視覺功能改善之成效探討
A Study on the Effectiveness of a Visual Rehabilitation Approach for Reducing Visual Crowding in Improving Visual Function in Children with Special Needs

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背景及目的：特殊需求兒童常伴隨視覺功能損傷，其中異常視覺擁擠效應（visual crowding）為一常見問題，會造成目標物在擁擠背景下難以辨識，影響搜尋、維持注視、日常物體辨識與閱讀能力。本研究旨在探討以降低視覺擁擠效應為介入目標之視覺復健介入模式，是否能改善特殊需求兒童的視覺功能，並提升其日常功能性視覺表現。

方法：本研究納入六名診斷為腦性麻痺、發展障礙且伴隨其他眼科問題之特殊需求兒童。平均年齡為 8.11 歲（標準差=1.06），年齡區間 6 至 9 歲。其中五名為男性。平均介入為期 6—7 次，每次 60 分鐘，每 1 至 2 週進行一次，內容包含搭配眼動儀和使用特殊排列視覺刺激，進行視覺搜尋和辨識訓練等，並提供居家視覺訓練建議。使用以下評估工具作為成效評量指標：(1)單一與擁擠視標視力測試(2)功能性視覺問卷（Functional Vision Questionnaire, FVQ）評估功能性視覺(3)特殊需求兒童視覺功能表（Visual Function-Based Checklist for Special Needs, VFB-CSN）評估整體視覺功能。

結果：六名個案介入後在視力、功能性視覺、視覺功能皆有改善。單一視標視力平均進步 0.063（標準差=0.015），擁擠視標視力平均進步 0.066（標準差=0.006）。FVQ 平均提升 10 分（標準差=7.21），VFB-CSN 平均改善 3.33 分（標準差=1.26）。Wilcoxon signed-rank test 檢定比較前後變化，亦達統計顯著差異($p < 0.05$)。家長與臨床觀察亦指出，個案更常主動使用眼睛，並在閱讀、注視與數數等活動中展現出較佳的穩定度與專注力。

結論：針對視覺擁擠效應特性所設計的視覺復健介入模式，可能透過強化眼動控制與視覺注意力，有助於提升特殊需求兒童的視覺辨識能力與功能性視覺表現。雖本研究樣本數有限，六位個案皆呈現視覺表現與日常視覺行為之正向變化，顯示本介入策略具潛在臨床效益，值得未來進一步擴大驗證與推廣。

關鍵字：特殊需求兒童，視能復健，視力，功能性視覺，視覺功能

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Exploring Visual-Related Daily Living Function and Assistive Device Needs Among People with Varying Severities of Low Vision in Taiwan: A Study at the Low Vision Clinic of National Taiwan University Hospital

**探討臺灣不同嚴重度低視能患者之視覺相關日常生活功能及輔具需求：
以臺大醫院眼科低視能門診為例**

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Background and Objectives: Low vision refers to visual impairment that cannot be improved with regular glasses, contact lenses, medication, or surgery, leading to difficulties with daily activities and a diminished vision-related quality of life. The Low Vision Clinic at National Taiwan University Hospital (NTUH) is the first in Taiwan to integrate the expertise of ophthalmologists, optometrists, and occupational therapists to offer comprehensive low vision assessments and rehabilitation services. This study aims to explore the challenges of vision-related activities of daily living (VRADL) and the needs for assistive devices among individuals with varying severities of low vision who visited the NTUH Low Vision Clinic.

Methods: A retrospective chart review was conducted for people with low vision who attended the clinic between 2023 and 2024. Data collected included demographics, refractive errors, visual function, VRADL performance, low vision rehabilitation services received, and the demand for assistive device. VRADL was assessed using the Revised Self Reporting Assessment of Functional Visual Performance (R-SRAFP) questionnaire. Participant were categorized into three group (mild, moderate, severe/profound) based on the severity of visual impairment. One-way ANOVA and post-hoc analysis were conducted to examine the differences in overall and subscale VRADL scores among the three low vision groups. Descriptive statistics were used to present assistive device needs.

Results: A total of 60 patients (mean age \pm SD: 46.47 \pm 27.42 years) were included in this study, categorized into mild ($n=36$), moderate ($n=9$), and severe and profound ($n=15$) visual impairment groups. Significant differences in reading-related R-SRAFP scores were found between the moderate and mild groups ($p = 0.021$), as well as between the moderate and severe/profound groups ($p = 0.004$). Filters were the most commonly used assistive devices across all groups (mild: 13.89%, moderate: 33.33%, severe/profound: 26.67%).

Conclusions: This study highlights that reading ability is the most affected, particularly when it comes to reading small Chinese characters and digits. The findings align with clinical observations at the Low Vision Clinic. However, given the small sample size after subgrouping, further studies with larger cohorts are needed to validate these results.

Keywords: low vision, vision-related activities of daily living, assistive devices

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Exploring Independent Living Confidence Among Individuals with Schizophrenia: Self- and Proxy Perspectives

探討思覺失調症患者獨立生活信心：患者自評與代理評估比較

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Background and Objectives: Independent living is a key goal in the rehabilitation of individuals with schizophrenia. However, understanding the factors influencing confidence in this area remains limited. This study aimed to identify factors associated with both self-reported and proxy-reported confidence in independent living among individuals with schizophrenia, addressing the gap in subjective and external perceptions of functional independence.

Methods: This study analyzed both self-reported and proxy-reported data to explore differences in confidence in independent living among individuals with schizophrenia. Data were obtained from the Taiwan Databank of Persons with Disabilities, a nationwide registry of individuals applying for disability evaluations. Participants included individuals diagnosed with schizophrenia, excluding those with comorbid conditions. Confidence in independent living was measured using a 32-item version of the World Health Organization Disability Assessment Schedule 2.0, which assesses six functional domains. Multiple regression analyses with forward selection were conducted separately for patient- and proxy-reported data to identify associated factors, controlling for age and sex. Variance inflation factors were calculated to address multicollinearity.

Results: Data from 95 patients and 108 proxies were analyzed. The self-reported group's confidence in independent living was explained by four factors, accounting for 73% of the variance. Positive associations were observed for mobility (long-distance walking, $B = 0.84$), cognition (learning new tasks, $B = 0.46$), and social participation (joining community activities, $B = 0.29$). A negative association was found for mobility (standing for long periods, $B = -0.39$). In contrast, the proxy-reported group's confidence was influenced by eight factors, explaining 57% of the variance. Positive associations included mobility (standing for long periods, $B = 0.41$), getting along (making new friends, $B = 0.63$), self-care (getting dressed, $B = 0.46$), and cognition (remembering important things, $B = 0.43$). Negative associations were found for cognition (understanding speech, $B = -0.29$; concentrating for 10 minutes, $B = -0.43$), mobility (indoor movement, $B = -0.22$), and getting along domain (sexual activities, $B = -0.23$).

Conclusions: Notable differences were found between patient and proxy evaluations, emphasizing the importance of integrating both perspectives to enhance clinical decision-making. Interventions targeting mobility, cognition, and social functioning are essential for improving confidence in independent living. Further research is needed to address discrepancies in perspectives and refine therapeutic strategies for optimizing autonomy and quality of life among individuals with schizophrenia.

Keywords: Independent living, schizophrenia, self-reported confidence, proxy-reported confidence

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Development and Psychometric Validation of the Chinese Character Visual Perception Test

中文字視知覺測驗之發展與心理計量特性驗證

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Background and Objectives: Handwriting is crucial for academic success of school-age children and relies heavily on visual perception. Through a literature review, the process of writing Chinese characters has been identified as involving the recognition of character features, the analysis of spatial relationships among strokes and components, and the storage and retrieval of this information in memory. However, existing assessment tools of visual perception may not comprehensively address the specific demands of Chinese handwriting. Therefore, this study aims to develop a new assessment tool specifically designed to evaluate the visual perception abilities related to Chinese handwriting in school-age children. Furthermore, the tool's psychometric properties, including internal consistency, test-retest reliability, measurement error, content validity, and construct validity, will be examined following COSMIN guideline.

Methods: The Chinese Characters Visual Perception Test (CCVPT) was developed with 3 subtests: visual identification, visual-spatial perception, visual memory. To ensure content validity, seven experts, including three with over five years of clinical experience, evaluated each item. To assess its psychometric properties, 50 first- and second-grade students will be recruited. Among them, 25 students will be assessed twice within a two-week interval to estimate test-retest reliability and standardized error of measurement (SEM). Additionally, 25 first-grade students will be reassessed after a six-month interval to investigate its predictability for handwriting performance. Construct validity will be examined through testing ten hypotheses based on the concepts of concurrent and predictive validity.

Expected Outcomes and Contributions: The CCVPT is expected to demonstrate acceptable reliability and good validity. By addressing the visual perceptual demands of Chinese characters, this tool may help identify deficits and support the early diagnosis of handwriting difficulties. Early detection of children's visual perceptual abilities can facilitate timely, targeted interventions, alleviating handwriting challenges and minimizing the broader impacts of impaired writing performance.

Keywords: visual perception, Chinese Character, handwriting, school-age children, reliability and validity

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Exploration of Bimanual Coordination Abilities in School-Aged Children with Cerebral Palsy

腦性麻痺學齡孩童雙手協調能力之探究

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Background and Objectives: Daily life involves various bimanual activities, including symmetrical and asymmetrical forms. These activities require precise spatiotemporal coupling of both upper limbs. Several studies have shown that children with unilateral cerebral palsy (UCP) or bilateral cerebral palsy (BCP) exhibit poorer bimanual coordination than typically developing (TD) children. However, differences in bimanual coordination across different types of CP in various daily life conditions have not been thoroughly explored. Additionally, no studies have comprehensively analyzed the relationship between upper limb motor performance and bimanual coordination abilities. Thus, this study aims to use the markerless body posture tracking Methods: (1) to investigate the differences in bimanual coordination under symmetric and asymmetric conditions among UCP, BCP, and TD groups, (2) to investigate the relationship between bimanual coordination and upper extremity motor ability in CP group.

Methods: The study will recruit 45 children aged 7–13 years (15 UCP, 15 BCP, and 15 TD children). Bimanual coordination abilities will be assessed through daily life tasks involving symmetric and asymmetric conditions (tray-lifting, cube-collecting, beads-threading, and bottle-opening). Outcome variables include task completion time, goal synchronization, and percent movement overlap. Upper limb motor performance will be evaluated using the Melbourne Assessment 2, the Box and Block Test, the Bruininks-Oseretsky Test of Motor Proficiency, and the ABILHAND-Kids questionnaire. For the first objective, 2-way mixed repeated measure ANOVA will be used to examine group differences in bimanual coordination. For the second objective, Pearson correlation analyses will be conducted to explore relationships between bimanual coordination and upper limb motor performance in CP groups.

Expected Outcomes and Contributions: We hypothesize that bimanual coordination differences between symmetric and asymmetric conditions will be greatest in the UCP group, followed by the BCP group, and smallest in the TD group. Second, we hypothesize that there is a moderate correlation between bimanual coordination and upper limb motor performance in CP groups. Results: from this study are expected to provide a deeper understanding of bimanual coordination in CP and contribute to clinical assessments and interventions.

Keywords: Daily life, Upper limb function, Markerless body posture tracking

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以事件相關電位為基礎研究探討六週動手樂活動對於主觀認知衰退患者之認知彈性成效
An ERP-based Evaluation on the Effect of Cognitive Flexibility of the 6-week Tinkering
Activity Program in Adults with Subjective Cognitive Decline

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背景及目的：主觀認知衰退(Subjective Cognitive Decline, SCD)為臨床前失智症階段，患者失智風險較高，且各認知功能已有衰退，除記憶力，執行功能也有變化，進而影響日常生活。認知彈性為執行功能中，與日常生活功能最具相關之面向，早期認知促進及介入對延緩失智至關重要，然現較少 SCD 患者之認知彈性介入方案。動手樂活動(Tinkering Activities)為以主動推理核心的認知介入，已初步證實對 SCD 患者的可行性與療效。惟 SCD 患者認知缺損較輕微，神經心理測試難偵測行為變化，本研究將結合事件相關電位(Event-Related Potentials, ERP)瞭解 SCD 患者參與動手樂活動後之大腦活動變化及機轉，作為介入成效的神經生理學依據。

方法：採單組前後測實驗設計，預計招募 24 名台灣北部社區篩檢之 SCD 患者，接受每週 2 次，每次 2 小時，共 6 週之團體介入，介入前後進行腦電圖及行為測驗評估。主要成效指標含 ERP 分析及交替任務測驗(Task Switching Task, TS)，ERP 成分含任務激活相關之 frontal P2 及與涉及工作記憶、認知資源分配之 parietal P3b。次要成效指標含執行功能、工具性日常生活活動(Instrumental Activities of Daily Living, IADLs)、整體認知功能、注意力、記憶力及創意性思考表現。

預期結果與貢獻：參與者於介入後，frontal P2 峰值振幅顯著減少、parietal P3b 峰值振幅顯著增加，兩成分之波潛伏期顯著提早，即任務激活及認知資源效率分配進步，從神經生理層面驗證動手樂活動對 SCD 患者之療效。

關鍵字：主觀認知衰退、認知彈性、事件相關電位、交替任務測驗、主動推理

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動機影響認知介入成效之初探：以動手樂活動介入主觀認知衰退長者為例
Preliminary Exploration of Motivation's Impact on Cognitive Intervention Outcomes:
Tinkering Activities Program for Individuals with Subjective Cognitive Decline as an
Example

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背景：主觀認知衰退（subjective cognitive decline, SCD）為失智症前期之重要階段。雖在客觀一般性認知測驗未達損傷，然，在主觀及客觀認知評量中，SCD 的執行功能、記憶力等與健康長者有差異。近年來，針對 SCD 的認知介入方案增加，本研究團隊也初步驗證動手樂活動（Tinkering activities）對 SCD 執行功能之成效，發現個案間的成效不同，這可能與個體差異有關，而動機更是重要的因子。過去研究顯示，動機的高低與成效、表現之好壞有關。然，鮮少文獻探討動機對 SCD 認知介入成效的影響。

目的：本研究以動手樂活動作為執行功能介入方案，探討動機與相關因子對執行功能成效之影響。

方法：本研究採單一組別前後測，招募社區篩檢之 SCD 患者 30 人，參與為期 6 週之動手樂活動。介入前、後將對參與者進行評估。主要成效指標為執行功能。次要成效指標含整體認知功能、創意、記憶、注意、焦慮、憂鬱。另將評估影響成效的因子，含動機、自我效能感等。前後測差異將以 Wilcoxon signed-rank test 分析。以 Spearman rank correlation 檢測影響因子間、及其與成效變化之相關性。動機與自我效能感的變化以 simple linear regression 之斜率表示。最後以 multiple linear regression 探索影響認知介入成效的因子。

預期結果與貢獻：透過影響因子之辨識，得以釐清不同特質之 SCD 患者在認知訓練中可能的表現與預估其效益。

關鍵字：主觀認知衰退，執行功能，動機

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高齡健康促進團體帶領技巧問卷之專家效度

Expert Validity of the Questionnaire of Group Leadership Skills in Older Adults Health Promotion Program

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背景及目的：帶領者能力對社區高齡健康促進方案介入成效至關重要，然尚缺乏標準化評估工具。本研究欲驗證《高齡健康促進團體帶領技巧問卷》之專家效度，以評估帶領者專業能力，提升介入品質。

方法：採二回合專家德菲法，預計邀請社區長者健康促進之專家，蒐集對初版問卷之重要性與合適性的看法，採李克氏五點量尺評分。問卷共 39 題，涵蓋五大構面：專業實踐的態度與特質(6)、溝通與人際關係建立(5)、健康促進專業知能(11)、教育與健康促進技巧(10)與服務協調與資源應用(7)。資料分析採描述性統計，並蒐集具體文字建議，作為問卷改良參考。

結果：共招募14位專家，含職能治療、護理、物理治療、營養、社工、運動與健康促進和高齡健康與老人福利專業。第一回合：重要性與合適性之題項內容效度指標(I-CVI)為0.78~1.00與0.64~1.00；重要性與合適性之量表內容效度指標(S-CVI/Ave)為0.94~0.98與0.86~0.96。專家建議：1) 定義構面概念。2) 修飾題目敘述，幫助理解。3) 避免單題評估多種能力。4) 整合相似概念題目。修正後，第二回合：重要性與合適性皆提升，重要性與合適性之I-CVI為0.93~1.00與0.86~1.00；重要性與合適性之S-CVI/Ave為0.97~0.99與0.96~0.98，專家效度良好。

結論：《高齡健康促進團體帶領技巧問卷》具重要性與合適性，可有效評估帶領者能力。未來可作為標準化工具，促進社區健康方案品質，提升長者健康福祉。

關鍵字：專家效度、德菲法、團體帶領技巧、高齡健康促進

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Assessing Social Competence in Daily Life in Children with Autism Spectrum Disorder: A Systematic Review of the Psychometric Properties of Questionnaire-Based Measures
自閉症類群障礙兒童日常生活社交勝任之評估：問卷式測量工具心理計量特性之系統性回顧
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Background and Objectives: Social competence enables individuals to effectively engage in various social contexts and comprises four key dimensions: social skills, social reciprocity, social adjustment, and social effectiveness. Children with autism spectrum disorder (ASD) frequently exhibit impairments in social competence, resulting in difficulties in peer interactions and mental health challenges. Questionnaire-based measures are crucial for accurately assessing social competence in everyday situations, guiding effective interventions. However, a systematic review of measures evaluating the four dimensions of social competence in daily life among both preschool and school-age children with ASD is lacking. Therefore, this systematic review aimed to identify and categorize the psychometric properties of existing questionnaire-based measures for assessing daily life social competence among children with ASD.

Methods: This systematic review was conducted according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. A comprehensive electronic database search was conducted using PubMed, MEDLINE, APA PsycInfo, and APA PsycArticles for studies published between March 6, 2015, and March 6, 2025. Inclusion criteria included (a) applicability to children with ASD, (b) use of a social competence measure, and (c) evidence of psychometric properties. Exclusion criteria included (a) measures relying on direct observation of social competence, (b) lack of full text, (c) publication in a language other than English, and (d) targeting a population outside the 2–12 age range. The extracted data were synthesized using a narrative approach.

Results: Among the 96 retrieved articles, 15 measures were included. Of these, 56% were designed for screening or diagnosing the ASD, developed according to Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR), DSM-5, or International Classification of Diseases, Tenth Revision (ICD-10) diagnostic criteria, and contained non-social competence concepts. A total of 87% of the measures included concepts unrelated to social competence. Seven measures covered four dimensions of social competence simultaneously. Additionally, 87% of measures were claimed to be applicable to both preschool and school-aged children. All measures demonstrated reliability and validity, while only three were developed or examined using item response theory.

Conclusions: No current questionnaire-based measure comprehensively assesses all four dimensions of social competence in daily life for preschool and school-aged children with ASD, while maintaining robust psychometric properties and using item response theory. Future research should develop an assessment tool that evaluates all four dimensions simultaneously to enhance clinical assessment and intervention for children with ASD.

Keywords: Systematic review, Social Competence, Questionnaire, Children with Autism Spectrum Disorder

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**The Relationship between Occupational Balance and
Time Management Ability, Sleep Quality, Life Satisfaction**
職能平衡與時間管理能力、睡眠品質、生活滿意度的相關性研究

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Background and Objectives: Occupational balance is closely related to health and well-being. Effective time management facilitates appropriate daily occupational engagement, while sleep quality also influences participation in daily activities. Some evidence suggests that time management ability, sleep quality, and life satisfaction are associated with occupational balance, and both time management ability and sleep quality are related to life satisfaction. However, few studies have simultaneously examined the relationships among these variables. This study aims to explore the associations between occupational balance, time management ability, sleep quality, and life satisfaction and examine the potential mediating role of occupational balance.

Methods: This cross-sectional study plans to recruit 100 participants from a psychiatric day ward at a medical center using convenience sampling. Inclusion criteria: (1) age 18 and above; (2) diagnosed based on DSM-IV or DSM 5 as mental illness; (3) competent to answer questionnaire (at least 5 grades elementary school, occupational therapist judge that the client is capable of answering the questionnaire); (4) no change of prescription in the past month. The study instruments include the Neuro-QoL Applied Cognition, the Occupational Questionnaire, the Occupational Balance Questionnaire, a self-developed Time Management Ability Questionnaire, the PROMIS Sleep Disturbance Short Form, the PROMIS Sleep-Related Impairment Short Form, and the Satisfaction with Life Scale. Participants will be categorized based on levels of occupational balance, time management ability, sleep disturbance, sleep-related impairment, and life satisfaction. Chi-square tests will be used to analyze categorical variables, while independent t-tests and one-way ANOVA will be conducted for continuous variables. Pearson correlation analysis will be employed to examine associations between variables, and if significant correlations are found, bootstrapping will be used to assess the mediating effect of occupational balance

Expected Results and Contributions: Occupational balance is expected to have a moderate correlation with all variables and to demonstrate a mediating effect. The preliminary findings of this study will contribute to understanding the mechanisms underlying occupational balance, providing insights for future research and clinical interventions.

Keywords: Occupational Balance, Time Management, Sleep Quality, Life Satisfaction

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Effectiveness of a Caregiver-Involved Group-Based NDBI Program for Autistic Preschoolers: a Pilot Randomized Controlled Trial

照顧者參與之團體自然發展行為介入 (NDBI) 對學齡前自閉症兒童的療效：一項初步隨機對照試驗

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Background and Objectives: Naturalistic Developmental Behavioral Interventions (NDBIs) are effective in enhancing cognitive and social communication skills in autistic children, with caregiver involvement further amplifying their impact. Some NDBI models delivered in group settings suggest additional benefits, such as fostering development and increasing feasibility for community-based implementation. However, most existing evidence is based on one-on-one programs, which require certified therapists and a high staff-to-child ratio. To address this gap, we developed a caregiver-involved group-based NDBI program following open-access fidelity guidelines. This study evaluates its effectiveness in improving (1) developmental outcomes, (2) autistic symptoms, and (3) adaptive functioning in preschool-aged autistic children.

Methods: We recruited autistic children aged 2–6 years and randomly assigned them to either a group-based NDBI program (one therapist leading five caregiver-child dyads) or a one-on-one NDBI program (active control). Both interventions were delivered twice a week for 12 weeks (1-hour sessions). Fidelity was maintained using the NDBI-Fi for one-on-one therapy and an adapted version for group-based sessions. Children were assessed using the Autism Diagnostic Observation Schedule and clinically diagnosed by a child psychiatrist. Outcome measures included the Mullen Scales of Early Learning (MSEL), Autism Treatment Evaluation Checklist (ATEC), and Vineland Adaptive Behavior Scales, Third Edition (VABS-3), administered at baseline, postintervention, and 3-month follow-up. Repeated measures ANOVA was used to analyze time effects and time-by-group interactions.

Results: Twenty children (17 boys and 3 girl, mean age = 4.2 years, [SD = 1.2]), were assigned to the group-based NDBI program, while twenty children (14 boys and 5 girls, mean age = 4.0 years [SD = 1.0]), were assigned to the one-on-one NDBI program. One child from each group withdrew due to scheduling conflicts. There were no significant differences between the groups at baseline regarding age, sex, or baseline developmental quotient (DQ). In the MSEL, a significant time effect was found for verbal DQ ($F = 5.32$, $p = 0.035$, $\eta^2 = 0.006$) and overall DQ ($F = 4.33$, $p = 0.017$, $\eta^2 = 0.005$). In the ATEC, a significant time effect was found for communication ($F = 7.15$, $p = 0.001$, $\eta^2 = 0.039$), sociability ($F = 8.5$, $p < 0.001$, $\eta^2 = 0.047$), and sensory/cognitive awareness ($F = 5.09$, $p = 0.009$, $\eta^2 = 0.029$). In the VABS-3, a significant time effect was found for adaptive behavior composite ($F = 3.74$, $p = 0.029$, $\eta^2 = 0.011$), communication ($F = 8.07$, $p < 0.001$, $\eta^2 = 0.018$), and socialization ($F = 3.29$, $p = 0.043$, $\eta^2 = 0.021$). However, no significant time-by-group interaction effects were identified.

Conclusions: Preliminary findings suggest that the caregiver-involved group-based NDBI program yields benefits similar to those of individual interventions in verbal development, autistic symptoms reduction, and adaptive function in communication and socialization. The involvement of caregivers, compliance with open-access NDBI fidelity guidelines, and a reduced staff-to-child ratio indicate that this program is both clinically feasible and effective in achieving its therapeutic objectives.

Keywords: autism, naturalist developmental interventions, effectiveness

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Effectiveness of Metacognitive Training for People with Schizophrenia in Taiwan: A One-Group Pretest-Posttest Study

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Background and Objectives: Schizophrenia is characterized by positive symptoms such as delusions and hallucinations, which significantly impact daily functioning. While antipsychotics are the primary treatment, many patients exhibit resistance or intolerance. Metacognitive Training (MCT) has shown promise in addressing cognitive biases related to positive symptoms. However, its effects and cultural feasibility in Taiwan remain unexplored. Therefore, this study aims to examine the effectiveness of the Traditional Chinese version of MCT for individuals with schizophrenia in Taiwan.

Methods: This study adopts a one-group pretest-posttest design, recruiting 26 participants to undergo an 8-session MCT group intervention over four weeks. Assessment tools include the Chinese version of the Psychotic Symptom Rating Scales (C-PSYRATS), the Chinese version of the Davos Assessment of Cognitive Biases (MCL-DACOBS), and the Self-Report Graphic Personal and Social Performance Scale (SRG-PSP). Treatment satisfaction is also collected. Data analysis is conducted using SPSS version 27.0. The Wilcoxon Signed-Rank Test is applied for within-group comparisons, and Hedges' g is used to calculate effect sizes.

Expected Results and Contributions: Due to the one-group pretest-posttest design and the study being conducted in a single teaching hospital, internal and external validity may be limited. However, this study is one of a few studies exploring the effectiveness of the Traditional Chinese version of MCT for individuals with schizophrenia in a psychiatric day care setting in Taiwan. The Results: will provide preliminary insights into the clinical application of MCT in Taiwan. We expect that MCT will significantly improve participants' positive symptoms, cognitive biases, and social functioning. Future studies should include multi-center randomized controlled trials to further validate its clinical effectiveness.

Keywords: Schizophrenia, Metacognitive Training, Cognitive Biases, Positive Symptoms, Social Functioning

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Tracking Cognitive Performance in Elderly with Cognitive Decline Using Chinese Handwriting Tasks

以書寫任務追蹤探討認知退化長者之認知表現

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Background and Objectives: Mild cognitive impairment (MCI) represents a transitional stage between normal aging and dementia. Current clinical assessments for MCI require intensive and costly evaluations, and close monitoring of individuals with MCI is a critical step for the early identification of Alzheimer's disease (AD). Among various assessment methods, behavioral markers such as handwriting have emerged as a promising tool for identifying early cognitive decline. However, most existing research focuses on cross-sectional comparisons between cognitive groups, with limited attention given to how handwriting performance changes over time in individuals with MCI. To improve early detection of cognitive impairment, it is crucial to investigate the longitudinal patterns of handwriting performance and their relationship to cognitive changes in MCI patients. This study aims to address this gap by conducting a longitudinal analysis of handwriting performance within the MCI subgroup.

Methods: This study will plan to recruit 25 participants with MCI and 10 participants with AD to undergo handwriting assessments and related questionnaire evaluations at three time points (baseline, six months, and one year). The handwriting assessments will utilize a tablet-based Chinese handwriting evaluation system developed by the research team, focusing on single-character and sentence-copying tasks. Dynamic handwriting features and handwriting products will be collected for further analysis. Additionally, cognitive and demographic data will be gathered using the Montreal Cognitive Assessment (MoCA), Lawton Instrumental Activities of Daily Living Scale, 15-item Geriatric Depression Scale, State Anxiety Inventory, and the Subjective Cognitive Decline Questionnaire. The generalized estimating equations (GEE) model will be primarily utilized to identify representative handwriting features that reflect longitudinal changes over time.

Expected Results and Contributions: Individuals in the severe MCI subgroup are expected to exhibit poorer handwriting performance at baseline compared to those in the mild MCI subgroup. Through longitudinal tracking, changes in handwriting features associated with the progression from mild MCI to severe MCI or AD can be identified. These representative features may serve as potential biomarkers for predicting the conversion from MCI to AD in future screening efforts.

Keywords : Cognitive Decline; Mild Cognitive Impairment (MCI); Alzheimer's disease (AD); Chinese handwriting; Handwriting performance

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Academic Challenges in School-Age Children with Cerebral Visual Impairment: A Systematic Review

腦性視覺障礙對學齡兒童學業表現之挑戰：系統性文獻回顧

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Background and Objectives: Cerebral visual impairment (CVI) is a congenital or acquired visual disorder caused by brain injury, and it has become one of the leading causes of visual impairment in both developed and developing countries. CVI involves damage to one or more brain regions responsible for visual perception and processing, resulting in highly variable clinical presentations. As children with CVI reach school age, their visual-behavioral difficulties often become more evident, frequently leading to academic challenges. However, existing studies on the visual-behavioral characteristics and academic difficulties in this population remain scattered and lack comprehensive synthesis. Therefore, the aim of this study is to integrate findings on the visual-behavioral characteristics of school-aged children with CVI and explore how these behaviors influence academic functioning. The Results: aim to provide clinical insights to guide intervention planning and coping strategies for this population.

Methods: Following the Population, Issue, Comparison, and Outcome (PICO) framework, a systematic literature review was conducted using three databases: PubMed, Embase, and the Cochrane Library. The review process adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines. A PRISMA flow diagram was used to document the study selection process.

The search included articles published prior to March 2025. Keywords related to cerebral visual impairment (CVI), school-age children, vision, visual behavior, academic performance, challenges, and qualitative research were used to identify and categorize relevant studies.

Results: A total of 1,131 articles were initially identified from PubMed, 684 from Embase, and none from the Cochrane Library. After removing duplicates and excluding articles with low relevance to the research topic, review articles, non-original studies, non-English publications, those without full text, studies not addressing visual-behavioral outcomes, and those involving participants younger than 6 or older than 12 years of age, 20 studies were included for full-text review. The literature suggests that children with CVI often exhibit abnormalities in the posterior visual pathways, leading to deficits in visual perception, functional vision, and oculomotor control. These vision-related impairments are associated with decreased academic performance, particularly in reading and mathematics, and such challenges are consistently reported across the school-age population.

Conclusions: Academic achievement is a critical occupation for school-aged children and is closely linked to their long-term developmental outcomes. A comprehensive understanding of the vision-related functional impairments and academic challenges associated with CVI is essential for accurate assessment and individualized intervention planning. Targeted strategies aimed at improving visual perception and oculomotor functioning may play a pivotal role in enhancing core academic skills and improving the overall quality of life in children with CVI.

Keywords: academic, behavior, cerebral visual impairment, children, school-age

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Bilateral Robot-Assisted Training as a Priming Intervention to Enhance Upper Limb Recovery after Stroke: A Systematic Review and Meta-Analysis
雙側機器人輔助訓練作為中風後上肢功能恢復的前導介入：系統性文獻回顧與統合分析

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Background and Objectives: Post-stroke upper limb impairment often limits motor and functional recovery. Bilateral robot-assisted training (BRT), a movement-based priming technique involving symmetrical bimanual movements before rehabilitation, may enhance neuroplasticity by rebalancing cortical excitability. This priming effect is believed to create a more favorable environment for motor relearning. BRT may further amplify rehabilitation outcomes when implemented before other interventions, such as task-oriented therapy. However, the effectiveness of BRT, specifically as a priming strategy, has not been systematically reviewed. This review aims to synthesize current evidence on using BRT as a priming intervention to enhance upper limb motor recovery after stroke.

Methods: A systematic literature search was conducted using PubMed, Cochrane Library, EMBASE, and Google Scholar, covering studies published from 2000 to 2024. Inclusion criteria were studies involving stroke patients, BRT delivered as a priming intervention before a primary rehabilitative approach, a comparison group receiving rehabilitation without BRT, and quantitative outcomes reported in peer-reviewed English-language publications. The primary outcome measure focused on motor recovery, primarily Fugl-Meyer Assessment-Upper Extremity (FMA-UE) scores.

Results: Thirteen studies met the inclusion criteria. The included studies involved participants with subacute to chronic stroke, with most samples in the chronic phase. Most participants had moderate to severe upper limb motor impairment at baseline. Interventions varied in dosage and pairing strategies, with common combinations including BRT followed by functional training, task-oriented therapy, or conventional rehabilitation. Among these, eight studies reported post-intervention outcomes using the FMA-UE and were included in the meta-analysis. The analysis showed a significant benefit of BRT priming over conventional therapy in improving upper limb function, with a mean difference of 3.69 points on the FMA-UE (95% CI: 0.72–6.66, $p = 0.01$). Heterogeneity was low ($I^2 = 0\%$), indicating consistent effects across studies. In addition to FMA-UE, studies used various outcome measures based on focus. For example, the Wolf Motor Function Test (WMFT) was used to assess activity performance, while the Modified Barthel Index (MBI) captured participation in daily life.

Conclusions: When used as a priming intervention, BRT demonstrates promising effects in enhancing upper limb motor function in individuals with stroke. The consistent findings and positive effect size suggest its potential as an effective adjunct to conventional therapy. Further large-scale, high-quality trials are warranted to confirm these findings, optimize dosage and timing, and support integrating BRT priming strategies into clinical practice.

Keywords: Bilateral priming, robot, upper limb, stroke rehabilitation

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