# 失智症患者接受科技非藥物處置

# 是否能改善激躁行為



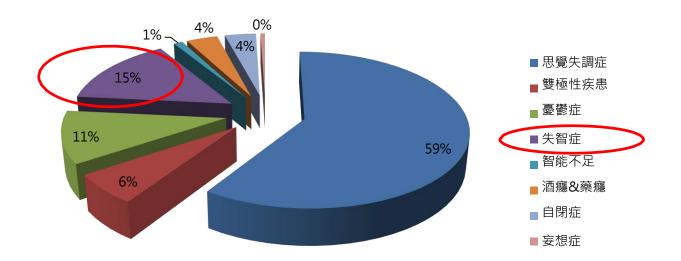
精神科病房護理師謝汶玲

指導者:陳祐蓉護理長、湯梅芬督1



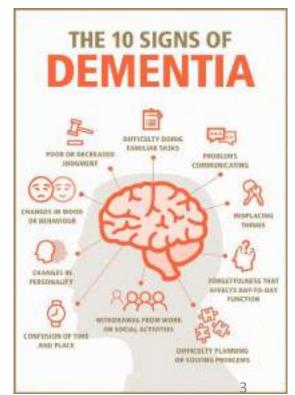
精神科患者診斷: schizophrenia, bipolar, substance use, neurocognitive disorder...

# 111年度精神科病房之疾病診斷





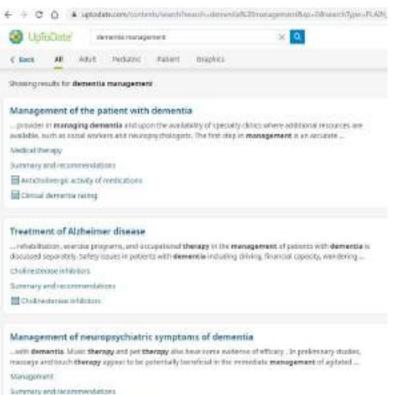
- 失智症患者逐年增加
- 記憶、情緒及行為問題,影響生活品質 及照顧者負荷
- 近年科技進步(如:AI智能照護),許多家屬會詢問,返家後除了藥物之外,還有哪些方法可以使其激躁行為穩定?



# ASK Acquire Audit Appraise Apply

# 失智症治療臨床指引





Approach to agration in patients with demenda

#### Management of the patient with dementia

Authors: Daniel Press, MS, Stephanier S Buoy, MS

Section Editors: Steven T Delivers, MS, PARIL PACE, PANA, Figureach E.Schmacker, MS, Marce P. Mandaz, MS, Phili-

Deputy Editors: Jacon L Witterdoni, VO, June Gilleris, UD, 19525

Corn harter Dissienares

All figures are updated as tree evidence factories available and our peet review process is complete.

Literature renew current through Mar 2023, 1 This training contined Feb 22, 2828.

#### Management of neuropsychiatric symptoms of dementia

Author: Carry Freez, VID

Section Editions: Source: 7 Detector, N.D. FAAN, FACE PANA, Respects Editornation, MD, Martin Polenties, ACI, PMI

Deputy Editor: print | Wikesties, bitt

CONTRACTOR DISCOURSES.

All togics are updated as new wide as becomes available and our pre-review process is complete.

Literatum review current through, Mar 2021. | This topic lest updated: Apr 97, 2022.

# 失智症治療臨床指引

• 日落症候群比率多達2/3,常伴隨行為激躁。被偷/被害等妄想比率為30%。

Nonpharmacologic therapies — Caregivers should be connected in strategies involving distraction and materialistic strategies of contractions, and providing colon, messures when sold interest and sold in the strategies of the strategies of the strategies of the color of the strategies of the strategi

治療

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- Exercise training in constitution with caregiver adocation resy impress outcomed to found that compared with volution medical care, patients who seek antigned to seek heterorial problems had improved poyels of functioning and less depression (SE). We safely demonstra.

Music therapy and pet thinggy also have some evidence of efficiery (37-40).

科技輔助??

i (55), Animatherapy is safe and i three agency may be effective in

andomised that in 153 community) and whole caregoritis racidiyed

Robotic pet



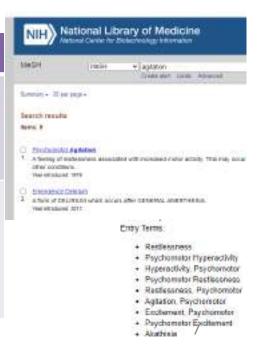
\* In profimmary studies, massage and specific therapy appear to be potentially coneflicial in the immediate management of agreenant sense and in encouragement of

# 實證議題-PICO

# 失智症患者接受科技非藥物處置是否能改善激

# 躁行為

P	1	С	0
失智症患者	科技非藥物 處置	無科技非藥 物處置	激躁
Dementia OR Neurocognitiv e disorder	(non- pharmacogical) AND (technology OR mobile)	Treatment as usual	Psychomotor agitation OR agitation OR Restlessness



# 問題類型

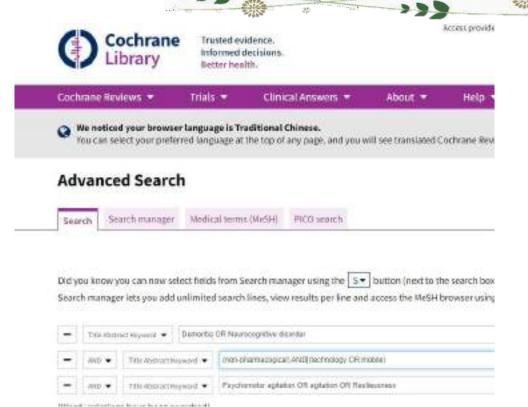


#### Oxford Centre for Evidence-Based Medicine 2011 Levels of Evidence

Question	Step I (Level 1*)	Step Z (Level 2*)	Step 3 (Level 3*)	Step 4 (Level 4*)	Step 5 (Level 5)
How common is the problem?	Local and current random sample surveys (or censuses)	Systematic review of surveys that allow matching to local circumstances**	Local non-random sample <sup>3 a</sup>	Case-series**	n/a
Is this diagnostic or monitoring test accurate? (Diagnosis)	Systematic review of cross sectional studies with consistently applied reference standard and blinding	Individual cross sectional studies with consistently applied reference standard and blinding	Non-consecutive studies, or studies without consistently applied reference standards**	Case-control studies, or "poor or non-independent reference standard**	Mechanism-based reasoning
What will happen if we do not add a therapy?	Systematic review of inception cohort studies	Inception cohort studies	Cohort study or control arm of randomized trial*	Case-series or case- control studies, or poor quality prognostic cohort studies.	h/a
Does this Intervention help? Treatment Benefits)	Systematic review of randomized trials or n-of-t trials		Non-rendomized controlled cohort/follow-up study**	Case-series, case-control studies, or historically controlled studies**	Mechanism-based reasoning
What are the	Suctamentic review of candomized	Andividual condominativial	Non-condensited controlled cohect (follows as	Cara-carias case-control	Machanism-based
COMMON harms? (Treatment Harms)	trials, systematic review of nested case-control studies, n- of-1 trial with the patient you are raising the question about, or observational study with dramatic effect	or (exceptionally) observational study with dramatic effect	study (post-marketing surveillance) provided there are sufficient numbers to rule out a common harm. (For long-term harms the duration of follow-up must be sufficient.)**	or historically controlled studies**	TRASONING
What are the RARE harms? (Treatment Harms)	Systematic review of randomized trials or n-of-1 trial	Rendomized trial or (exceptionally) observational study with dramatic effect			
Is this (early detection) test worthwhile? (Screening)	Systematic review of randomized trials	Randomized trial	Non-randomized controlled cohort/follow-up study**	Case-series, case-control, or historically controlled studies**	Mechanism-based reasoning



# 資料庫-Cochrane

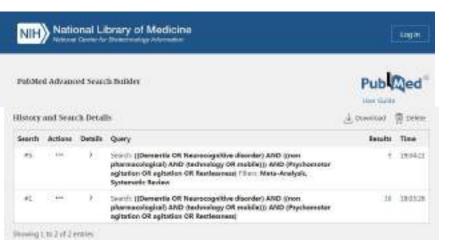


Eachrane Reviews | Eachrane Protects | Triols | Eachrane | Especial Collections | Clinical Acrosms | More |
0 | Cockrane Newtons matching Descentia OR Neurocognitive disorder in Title Abstract Keyword AND (nempharmacogical) AND (technology OR mobile) in Title Abstract Keyword AND Psychomotor agitation OR agitation OR Restlessness in Title Abstract Keyword - (Word variations have been searched)

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tool 12 April 2023

# 資料庫-PubMed



The effectiveness of non-pharmacological interventions using information and communication technologies for behavioral and psychological symptoms of dementia: A systematic review and meta-analysis. Che Cho E Shin J. Seok JW. Lee H. Lee Kit. Jang J. Heo SJ. Kang B. Share Set J Nurs Stud. 2025 Feb:138:104392, doi: 10.1016/j.imurstv.2022.104392. Epub 2023 Nov 11. PMID: 56434931 free article. SACKGROUNG: Although behavioral and psychological symptoms of dementia are a global public health challenge, non-pharmacological interventions using information and communication technologies can be an affordable, cost-effective, and innovative solutio ... Simulated presence therapy for dementia. Abraha I. Rimland JM. Lozano-Montova I. Dell'Aquila G. Vélez-Diaz-Pallarés M. Trotta FM. Cruz-Jentofi AJ. Cherubini A. Cochrane Database Syst Rev. 2017 Apr. 18:444:CD011882. doi: 10.1002/14651858.CD011882.puh2 Share FMID: 28418586 From PMC article. Updated. The majority of people with demontia develop behavioural disturbances, also known as behavioural and psychological symptoms of dementia (BPSD). Several non-pharmacological interventions have been evaluated to treat BPSD in people with dementia. ...

Effects of robotic care interventions for dementia care: A systematic review and

evidence for clinical effectiveness and cost-effectiveness of non-p...

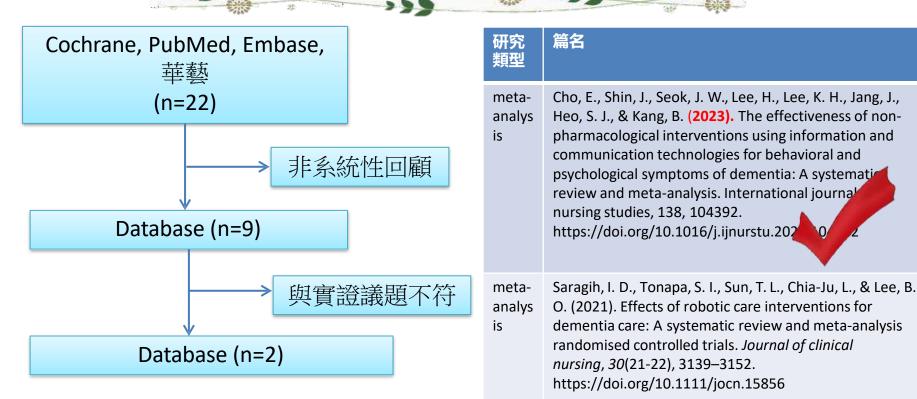
meta-analysis randomised controlled trials. Saragh ID, Tonapa SI, Sun TL, Chia-Ju L, Lee BO.

# 資料庫-Embase & 華藝



# 搜尋流程與證據選擇

13



# 文章簡介

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#### International Journal of Nursing Studies







The effectiveness of non-pharmacological interventions using information and communication technologies for behavioral and psychological symptoms of dementia: A systematic review and meta-analysis

Eurliee Cho \*\*\*, Jinhee Shin \*, Jo Waon Scok \*, Hyangkyu Lee \*\*\*, Kyung Hee Lee \*\*, Jiyoon Jang \*, Scok Sae Heo \*, Bada Kang \*\*\*\*

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Brought to you by: Taipel Medical Univers



CiteScore

6.612 Impact Factor

#### ABSTRACT

Background: Although behavioral and psychological symptoms of dementia are a global public health challenge, non-pharmacological interventions using information and communication technologies can be an affordable, cost-effective, and innovative solution.

Objectives: This study aimed to examine the effectiveness of non-pharmacological interventions using information and communication technologies on the behavioral and psychological symptoms of dementia and identify potential moderators of intervention effects.

Design: Systematic review and meta-analysis of randomized controlled trials.

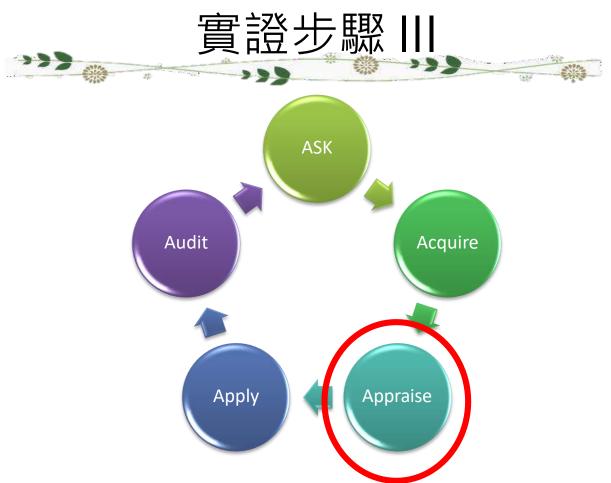
Methods: A systematic literature review was conducted using PubMed, CINAHL, PsycINFO, Embase, and the Cochrane Library from May 2022. Randomized controlled trials that examined the effects of non-phatmacological interventions using information and communication technologies on the behavioral and psychological symptoms of dementia were included. A meta-analysis using a random-effects model was performed to calculate the pooled standardized mean differences between overall symptoms and each type of symptom. For moderator analyses, subgroup and meta-regression analyses were performed.

Results: Sixteen trials (15 articles) met the eligibility criteria. The interventions were grouped into activity engagement interventions using digital health that provided music and reminiscence therapy, physical exercise, social intervaction interventions using social robots, and telehealth-based care aid interventions that provided coaching or counseling programs. Pooled evidence demonstrated that non-pharmacological interventions using information and communication technologies exerted a large effect on depression (SMD = -1.088, 95% CI -1.983 to -0.193, p = 0.017), a moderate effect on overall behavioral and psychological symptoms of dementia (SMD = -0.664, 95% CI -0.990 to -0.338, p < 0.001), and agitation (SMD = -0.586, 95% CI -1.130 to -0.042, p = 0.035). No effects on neuropsychiatric symptoms (SMD = -0.251, 95% CI -0.579 to 0.077, p = 0.133), anxiety (SMD = -0.541, 95% CI -1.270 to 0.188, p = 0.146), and apathy (SMD = -0.830, 95% CI -1.835 to 0.176, p = 0.106) were reported. Moderator analyses identified the mean age of the participants as a potential moderator of intervention effects.

Conclusions: Evidence from this systematic review and meta-analysis suggests that non-pharmacological interventions, using information and communication technologies, were an applicable approach to managing behavioral and psychological symptoms among older adults with dementia, with moderate to large effect sizes. However, evidence on arxiety and apathy is inconclusive due to the limited number of existing randomized controlled trials. Future studies with subgroup analyses are warranted to conclude the most effective types of intervention using information and communication technologies for each type of symptom.

Registration: CRD42021258498.

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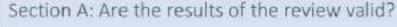




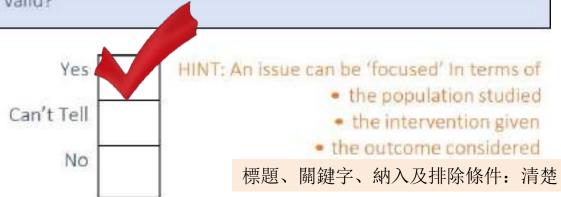
# Checklists

- > CASP Randomised Controlled Trial Checklist
  - o PDF Form
  - a Print & Fill
  - a Word
- > CASP Systematic Review Checklist
  - e PDF Form
  - a Print & Fill
  - a Word
- CASP Qualitative Studies Checklist
  - o. PDF Form
  - o Print & Fill
- > CASP Cohort Study Checklist
  - e PDF Form
  - o. Print & Fill

Paper for appraisal and reference:.....



 Did the review address a clearly focused question?





Donate his nation or proceedings.

International Journal of Nursing Studies

and arrived page were all the notices building

The effectiveness of non-pharmacological interventions using information and communication technologies for behavioral and psychological symptoms of demencia. A systematic review and meta-analysis

#### 2.1. Literature search

To identify relevant articles for review, a comprehensive search was conducted with the assistance of an experienced medical librarian using five databases: PubMed, CINAHL, PsycINFO, Embase, and the Cochrane Library. Based on a review of previous relevant articles, the search strategy used a combination of subject headings and keywords for the following concepts: 1) older adults. 2) dementia. 3) behavioral and psychological symptoms of dementia, 4) non-pharmacological intervention, and 5) technology. No restrictions were applied regarding publication status and date to retrieve all the relevant articles. The search was conducted from the inception of the database to May 29, 2022. The entire search strategy tailored for each database is available in the published protocol (Seok et al., 2022) and also updated in Appendix A (Supplementary Tables 1–5), which describes detailed search trails.

#### 2.2. Inclusion and exclusion criteria

As described in the protocol (Seok et al., 2022), the core elements of inclusion criteria in the PICOS format were used as follows: 1) Population; older adults diagnosed with any type of dementia; 2) Intervention: non-pharmacological interventions using information and communication technologies for managing behavioral and psychological symptoms of dementia. A non-pharmacological intervention using information and communication technologies refers to one that employs information and communication technologies such as Internetbased mobile, tablet, video, sensor, and robot as one of the intervention delivery modes, which enhance collecting, processing, saving, and communicating information electronically (Lau et al., 2011); 3) Comparison; studies that assigned participants into either an experimental group or a control group including usual, routine, and conventional care, or waitlist as defined by the original studies; 4) Outcomes: effects of interventions in overall or at least one type of behavioral and psychological symptoms of dementia (e.g., depression, anxiety, agitation, and apathy ; and 5) Study Design: randomized controlled trials.

Paper for appraisal and reference:.....

Section A: Are the results of the review valid?

2. Did the authors look for the right type of papers?

Can't Tell

Yes

No

#### 2.2. Inclusion and exclusion criteria

As described in the protocol (Seok et al., 2022), the core elements of inclusion criteria in the PICOS format were used as follows: 1) Population: older adults diagnosed with any type of dementia; 2) Intervention: non-pharmacological interventions using information and communication technologies for managing behavioral and psychological symptoms of dementia. A non-pharmacological intervention using information and communication technologies refers to one that employs information and communication technologies such as Internetbased mobile, tablet, video, sensor, and robot as one of the intervention delivery modes, which enhance collecting, processing, saving, and communicating information electronically (Lau et al., 2011); 3) Comparison: studies that assigned participants into either an experimental group or a control group including usual, routine, and conventional care, or waitlist as defined by the original studies; 4) Outcomes: effects of interventions in overall or at least one type of behavioral and psychological symptoms of dementia (e.g., depression, anxiety, agitation, and apathy); and 5) Study Design: randomized controlled trials.

HINT: 'The best sort of studies' would

• address the review's question

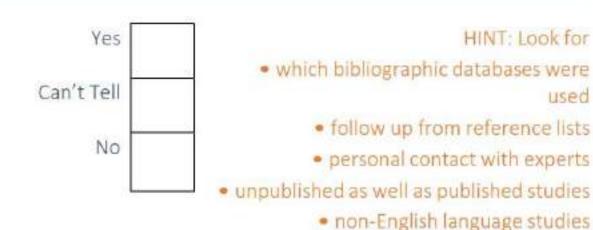
 have an appropriate study design (usually RCTs for papers evaluating interventions)

介入性研究,納入嚴謹RCT: 合適

# 3. Do you think all the important, relevant studies were included?

#### 2.1. Literature search

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#### 2.2 Inclusion and exclusion criteria

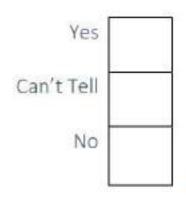
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Studies were excluded if they 1) were publications in languages other than English; 2) incomplete studies such as study protocols or ongoing studies; 3) included participants with only mild cognitive impairment or cognitive impairment without dementia; 4) did not have sufficient information about the measurement of the outcome of interest; and 5) did not include adequate statistical values (e.g., mean, standard deviation, and median with range) of the quantitative results, which are required to compute an effect size for the meta-analysis procedure.

雖然只有納入英文出版的文章, 但可 搜尋5個資料庫,納入及排除條件清晰

HINT: Look for

3. Do you think all the important, relevant studies were included?



HINT: Look for

- which bibliographic databases were used
  - follow up from reference lists
  - personal contact with experts
- unpublished as well as published studies
  - non-English language studies

流程圖清楚、表一可知: 國家、研究機構非單一,雖沒有納入Gray reference,但 內文有交代其原因(考量文章品質)

		panantages from	Control group	Anterestim group.	CONTYN BIRTH	
Activity organization D'Activity organization D'Activitio et al. (2021   Kally Davisso et al. (2021   Kally Davisso et al. (2026   Activation Intel Massac and Simonio (2018). Torkey Mison and Park (2026). Seeds Rama Novem	Residential CIC Residential CIC Residential CIC Day core contain Equidantial CIC Residential CIC Residential CIC	20 71 70 22 41 12 <sup>6</sup> 28	39 11 18 19 72 18 <sup>7</sup> 20	893 (3.8)* 969 (6.2)* 34.1.4.9) 96.1 (8.2) 96.1 (7.6) 96.2* (98) 94.7 (3.6)	89.5 (7.07)* 868 (5.07)* 74.8 (4.0) 85.8 (7.4) 96.8* (98.) 86.0 (6.5)	58.3 58 38,7 1900 513 65,7 25,8
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3. Do you think all the important, relevant studies were included?



HINT: Look for

which bibliographic databases were used

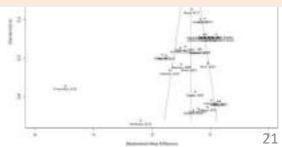
- follow up from reference lists
- personal contact with experts
- unpublished as well as published studies
  - non-English language studies

3.5. Risk of bias

The risk of bias assessment for the 15 studies is summarized in Supplementary Table 6 and demonstrated in Supplementary Fig. 1. The quality of the included studies varied, Four studies were rated as having "low risk." Six studies were judged as having "some concerns," primarily in terms of the randomization process or deviations from intended intervention, or both, or in measurement of the outcome. The remaining studies were rated as having "high risk" due to an inadequate randomization process, deviations from intended interventions, measurement of the outcome, or selection of the reported result. All included studies had a low risk of bias in missing outcome data, and all but one had a low risk of bias in the selection of reported results.

Publication bias was evaluated based on a visual inspection of the funnel plot asymmetry and Egger's test (Egger et al., 1997). Egger's test failed to detect a statistically significant asymmetry in the study distribution (p = 0.331). However, the funnel plot in Supplementary Fig. 2 is broadly symmetrical, indicating no publication bias in behavioral and psychological symptoms of dementia,

Q3:雖然沒有手動搜尋灰色文獻,但有搜尋5個資料庫、納入及排除條件、流程圖清晰,且(表一)有整理國家及場域,並驗證"出版偏差"。



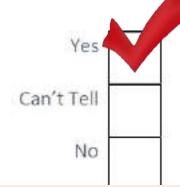
Supplementary Figure 1. Accomment of publication bias

# 4. Did the review's authors do enough to assess quality of the included studies?

written peer-reviewed studies that fulfilled the following inclusion criteria: 1) two independent reviewers (35 and 3%5) screened the sides and abstracts of the identified articles according to the inclusion and exclusion criteria, and 2) after retrieving and uploading the full text of the potentially relevant articles to the Endoncte software, the two reviewers conducted a fulf-text-level assessment to select the eligible articles to be included in this systematic review and meta-analysis. At each step, any disagreements and discrepancies were discussed with a third reviewer (BIC) until a consensus was reached.

#### 2.4. Risk of biox assessment

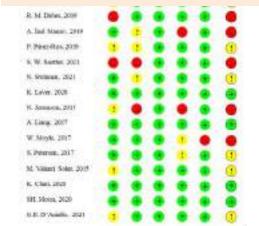
At least two reviewers independently assessed the risk of bias ar quality of the included studies using the revised Cochrane risk-of-bitool for randomized trials (RoB 2) (Sterne et al., 2019). The tool assess five bias domains that could occur in randomized controlled trials: rai domization process, deviations from intended interventions, missis outcome data, measurement of the outcome, and selection of reports results. Each domain consists of a set of questions with response option ("low," "some concerns," and "high") for categorizing risk-of-bias jud ments. Studies were categorized as "low," "some concerns," or "high" the overall risk of bias score. The overall risk of bias was considered "lo risk of bias" if all five domains were judged as low risk, "Some concern bias" if at least one domain was judged as having some concern of bi with no domains judged as high risk, and "high risk of bias" when least one domain was judged as high risk (Sterne et al., 2019). Any di crepancies were resolved in the discussion with a third reviewer who necessary, and a consensus was reached,



rigour of the studies they have identified.

Lack of rigour may affect the studies'
results ("All that glisters is not gold"
Merchant of Venice – Act II Scene 7)

由二位評讀人員使用RoB2.0工具獨立評讀文章品質,意見紛歧時,則 由第三位評讀者判定。雖然高風險偏誤有5篇,但整體為低到中度風險。 也有在內文呈現高風險的原因。



#### 3.5. Risk of bias

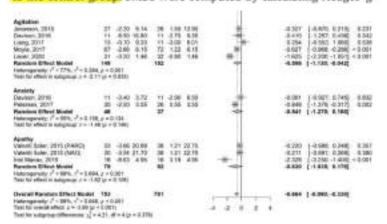
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had a low risk of bias in missing outcome data, and all but one had a
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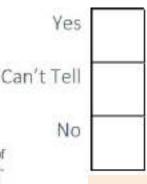
22

5. If the results of the review have been combined, was it reasonable to do so?

#### 2.5. Data synthesis and analysis

A narrative synthesis was conducted to describe the characteristics of the included studies. Statistical analyses for the meta-analysis were performed using R version 4.0.3 (R Foundation for Statistical Computing, Vienna, Austria). As the studies used different measures for the outcomes of interest, the standardized mean difference was calculated (SMD) to determine the effects of the intervention in the experimental group compared to the control group. SMDs were computed by calculating Hedges' g





HINT: Consider whether

- results were similar from study to study
  - results of all the included studies are clearly displayed
  - · results of different studies are similar
- reasons for any variations in results are

I<sup>2</sup> >50%, 由森林圖可知, 其結果大多偏於線的左邊。

This study had several limitations. First, the major limitation of this review is the moderate to large heterogeneity between studies. Although the underlying sources of the variation were explored and detected by conducting moderator analyses, results must be interpreted with caution because uncontrolled or unmeasured factors, which were not included in the moderator analyses due to unavailable information, potentially produce bias. Second, although blinding interventionists is challenging in care settings for the dementia population, there were risks of bias caused by the absence of blinding for study participants and interventionists in most of the included studies. Third, the results regarding the effectiveness of non-pharmacological interventions using information and communication technologies on anxiety and apathy are inconclusive because of the small number of studies. Thus, interpretations regarding the results from the subgroup analyses for anxiety and apathy should be made with caution. Furthermore, although this study was unable to conduct multivariate meta-regression due to the insufficient number of studies concerning the nonsignificant results of the subgroup analyses for potential moderators, future moderator analyses using multivariate meta-regression with a

5. If the results of the review have been combined, was it reasonable to do so?

smiling (Jøranson et al., 2015; Liang et al., 2017; Moyle et al., 2017;

Petersen et al., 2017; Valenti Soler et al., 2015). Humanoid robots have been utilized to increase social interactions via talking and singing

(Chen et al., 2020; Valentí Soler et al., 2015).

interventions (D'Aniello et al., 2021; Pérez-Ros et al., 2019). Reminiscence interventions have been implemented using the smartphone application (Moon and Park, 2020) and internet-based video (Inel Manav and Simsek, 2019; Moon and Park, 2020). A few studies provided activity programs using personalized multimedia devices (Davison et al., 2016; Sautter et al., 2021). Training games with motion-based input devices have been used to motivate participants' engagement in physical exercise activities (Swinnen et al., 2021). For care-aid programs, a telephone support program, an internet-based e-learning course, and a real-time consultation program using an online meeting program have been implemented to aid informal caregivers of older adults with dementia (Drões et al., 2019; Laver et al., 2020). For social interaction interventions, most studies have used a companion pet robot to encourage social interaction through behaviors such as petting, talking, and

No

Yes

HINT: Consider whether
results were similar from study to study
Can't Tell

雖然 I<sup>2</sup> >50%,但在討論時有分析可能的原因 (無法控制的干擾因素、多篇之介入者未盲化、 篇數較少)。由森林圖可知,其結果大多偏於線 的左邊。但Population及Intervention範圍較大

discussed

- 網絡音樂播放器(音樂治療)
- APP視頻 ( 懷舊治療)。
- 促進運動之個性化多媒體設備
- 護理遠距衛教/支持,
- 寵物機器人(通過撫摸、交談和微笑等行為來 鼓勵社交互動)
- AI機器人

## Section B: What are the results?

## 6. What are the overall results of the review?

HINT: Consider

 If you are clear about the review's 'bottom line' results

what these are (numerically if appropriate)

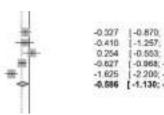
 how were the results expressed (NNT, odds ratio etc.)

整體結果: 非藥物科技處置可降低失智症患者的激躁行為,效果量為0.586,屬中等效應

#### 4.4. Conclusions

The present review has shown that non-pharmacological interventions using information and communication technologies were a functional approach to managing behavioral and psychological symptoms among older adults with dementia, with several trials reporting moderate to large effect sizes. Pooled evidence has demonstrated that nonpharmacological interventions using information and communication technologies exert a significant effect on depression and a moderate effect on agitation and overall behavioral and psychological symptoms of dementia. However, given that insufficient evidence is currently available to assess whether this intervention approach can effectively manage anxiety and apathy, results on anxiety and apathy remain inconclusive. Effect sizes varied between target symptoms, and the moderator analyses suggested that this intervention approach was more effective in younger participants than older participants. Thus, cli-

Agitation						
leranson, 2015	27	-2.20	9.14	26	1.50	12.90
Davison, 2016	11	-8.50	16.80	11	-2.70	9.35
lang 2017	13	-0.70	9.33	11	-3.00	8.01
Moyle, 2017	67	-2.65	6.15	72	1.22	6.15
aver, 2020	31	-3.20	1.46	32	-0.80	1.48
Random Effect Model	149			152		
Seterogeneity: $r^2 = 77\%$ , $\epsilon^2 = 0$	284, # = 0	100				
the state of the state of the second state of						



## Section B: What are the results?

## 7. How precise are the results?

agitation, five trials involving 301 participants were pooled. The pooled effects of interventions on the reduction of the level of agitation were statistically significant, with a moderate effect size (SMD = -0.586, 95% CI -1.130 to -0.042, p = 0.035). Moderate but significant heterogeneity was observed among the studies ( $I^2 = 77\%$ , p = 0.001). For anxiety, only two trials tested the effects of the interventions on anxiety levels. The pooled effects of the interventions on the reduction of anxiety were not statistically significant (SMD = -0.541, 95% CI -1.270 to

#### Agitation

Random Effect Model	31 149	-3,20	1.46	152	-0.80	1.46
Moyle, 2017	67	-2.66	0.0000000000000000000000000000000000000	100000	100000000000000000000000000000000000000	6.15
Liang, 2017	13	-0.70	9.33	11	-3.00	8.01
Davison, 2016	11	-8.50	16,80	11	-2.70	9.35
Jøranson, 2015	27	-2.20	9.14	26	1.50	12.90

Heterogeneity:  $I^2 = 77\%$ ,  $\tau^2 = 0.284$ , p = 0.001Test for effect in subgroup: z = -2.11 (p = 0.035)



HINT: Look at the confidence intervals, if given

-0.586	[-1.130; -0.042]	3000
-1.625	[-2 200: -1 051]	< 0.001
-0.627		< 0.001
0.254	[-0.553; 1.060]	0.538
-0.410	[-1.257; 0.436]	0.342
-0.327	[-0.870, 0.215]	0.237

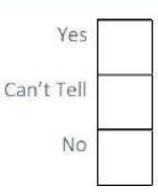
# 8. Can the results be applied to the local population?

inclusion criteria in the PICOS format were used as follows: 1) Population: older adults diagnosed with any type of dementia; 2) Interven-

Studies were excluded if they 1) were publications in languages other than English: 2) incomplete studies such as study protocols or ongoing studies; 3) included participants with only mild cognitive impairment or cognitive impairment without dementia; 4) did not have sufficient in-

#### 3.2. Characteristics of the included studies

Table 1 presents the characteristics of the included studies. With the publication years ranging from 2015 to 2021, over 37.5% of the included studies were published after 2020. The studies were conducted in Europe (n=8). Oceania (n=4), the United States (n=2), and Asia (n=2). The trials were implemented in both residential long-term care settings (n=12) and community settings, including daycare centers (n=1), meeting centers (n=1), homes (n=1), and both daycare centers and homes (n=1). The mean age of study participants ranged from 74.1 years (Inel Manav and Simsek, 2019) to 90.0 years (Sautter et al., 2021). The percentage of female participants ranged from 39.7% (Laver et al., 2020) to 100% (Moon and Park, 2020).



the patients covered by the review could be sufficiently different to your population to cause concern your local setting is likely to differ much from that of the review.

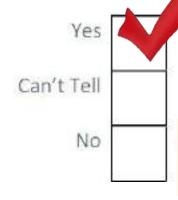
Table 3 Mideland analyses for the immersion effects in the overall behavioral and psychological symptoms of dementia.

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fampe		10	-0.923	-1.557, -6.268		
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Table .		100	The same of		2.000	0.191
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Stood interestion			-0296	-0321, -6888	0.5460	11000
Camould		7	-0.624	2,327, 0,579		
Masi: reministers, continue	TRIMOP.	34 11	1.174	-1.058 - 0.309		
Drivige		200			0.450	0.500
Greek			-0.868	-1.627, -0.000		
(pulsylchus) level		10	-0.570	-61836; B.303		
Douglinis					1,720	0.04
26 mmbs		9 9	-0.389	-0.00T,0.04E		
4-8 weeks		. 9	-0.907	-1,771, $-0.042$		
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ER PRO			-0.640	* *** *****	3,000	6301
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Siene concrete		18	-0.888	-1.005 -0.03		27
line		8.	-0.534	-0.757, -0.109.		<i>-</i> /

8. Can the results be applied to the local population?

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HINT: Consider whether

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(APADICM: NA

Millery 14

AVMUNION (NPI)

the patients covered by the review could be sufficiently different to your population to cause concern

Q8: 未限定特殊失智症族群、國家有歐美及亞洲, 地點包含長期機構、社區、日間及居家,且表一 可提供詳細的介入科技類型

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Freebank (MCM)

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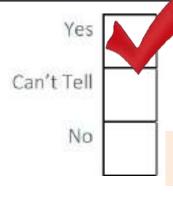
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size of Europe Michigan

9. Were all important outcomes considered?



HINT: Consider whether there is other information you would like to have seen

Q8: 探討的結果變項包含憂鬱、激躁、冷漠、 焦慮,且有探討干擾因素

Table 2
Characteristics of con-pharmacological interventions using information and communication technologies for behavioral and psychological symptoms of domestic.

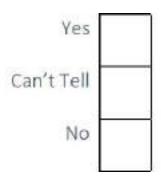
Author; (year)	(suppopulation) in Scools)	Technology	Cavitral group	provider knowled	"Duance/ Length "(frequency)	(sustainment)
Artivity engagement						
(2021)	Mose stanupy with participants' preferred song selection (and/edulorst)	Wirb-hoost mans player (MPS)	Usual tory	Psychologist;	8/38 (2)	Perungagolitatina ayesptores (NPS)
Davisse et al. (2010)	Operating could need a device loaded with participants' perferred naternils such as favorite result tracks, memics, video reseages, and photos (Individualised)	Personalized realizedta device (Memory Rec.)	Weekby Wi-man enets	Researcher	4/2.8 ( <i>entrago</i> ) (Delty)	Depressina (CSDD), Assorby (EAD), Agnation (CSAII)

Either overall behavioral and psychological symptoms of dementia or a single type of behavioral and psychological symptoms of dementia were measured as target outcomes in the included trials; neuropsychiatric symptoms (n=8), depression (n=9), agitation (n=5), apathy (n=3), and anxiety (n=2). Previous studies have measured the aforementioned outcomes using various symptom-measuring instruments. Most studies used the Neuropsychiatric Inventory (NPI) to measure neuropsychiatric symptoms (Chen et al., 2020; D'Aniello et al., 2021;

#### 3.7. Moderator analysis

Univariate meta-regressions for continuous moderators based on the random-effects model were performed to examine whether the effect sizes on reduction in behavioral and psychological symptoms of dementia were significantly correlated with the mean age of participants, the proportion of women, and sample size. As shown in Table 3, the results revealed that the intervention effect was significantly moderated by age ( $\beta = 0.129$ , SE = 0.058, p = 0.026) but not by proportion of women (p = 0.064) and sample size (p = 0.109). Subgroup analyses were performed to assess pre-selected potential categorical moderators such as country, setting, intervention type, intervention mode (group vs. individualized), intervention duration, and risk of bias. As a result, none of the preselected categorical variables were moderagors that caused heterogeneity in effect sizes between trials. For example, activity

10. Are the benefits worth the harms and costs?



 even if this is not addressed by the review, what do you think?



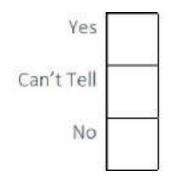
"When her humans arrive home, she goes quickly to welcome them. When they walk around, she follows. When she is pet, she expresses happiness."

But that's not all she does. She sneezes, scratches, and roams the home easily, and even investigates suspicious objects. This robot also beatboxes, dances, and even poses for pictures.

At just \$449 USD, she is very affordable, especially considering she can stay with the family forever.

Loona uses vision, listening, and haptic perception to engage with the world around her making her very responsive to her environment.

## 10. Are the benefits worth the harms and costs?



# 運用 Zenbo 陪伴型機器人於路易氏體失 智症併精神行為症狀病人之護理經驗

年及201年年第1

### 三·Zenbe 赔件型機器人於路易氏體失智症病人之 運用

精神行為症狀常遊成失智症病人增加醫療費用 和負擔、織物治療的介入多年來已證實在情感上是有 助益的、隨著超易齡化社會到來及失智創新科技發 展、陪伴里機器人已漸漸取代傳統微物深人高齡者生 活扮演不同角色。研究亦顯示其可緩解失智症病人的 壓力及焦慮感(Petersen et al., 2017)。「这內科技公司 区態人工智慧的興起、開發了結合經濟自然語言處理 技術的陪伴里機器人「Zenbo」(區一),內建教育。

與要、健康因實等功能運用於居家經費(從業員·自· 2018)。

作用、被鲜明的视幻覺、视覺扭曲伴隨肢體障礙之間 持行為症狀所苦,Zenbo可應用功能有「語音接受控 制 計 建立弯動指播放指定間候語句,括配音效與顯 超效果吸引病人注意,以益助培養具現實感的日常作 担:「擬職」: 底盤加装輪子可移動・常告知「哩! Zenbo。離我走。」即啟動感知前方人物並隨行。搭 配互動過程透過營華呈現不同級諸與音控互動情 通、確慎機器人類部時展現書業表情,達到給予病人 请结支持及陪伴效果。其「提放事」「應转發酵」」 能則可是領馬問題文學作為、下穀蘭拉亞蘭、播放音 原及影片之互動結果, 讓居人由症狀干擾中違爭轉移 主意力成改,以內建遊戲互動方式進行塚宮刺激及肢 體復建,可錄解焦点情绪,算低精神行為非狀發生, 同時減輕家屬負擔並僱補照護人力的不足(白等。 2018: 朱、林、2019 1=

HINT: Consider

 even if this is not addressed by the review, what do you think?



3.证用Zeate附件型维着人介入目案生活、每下表:

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14:00-14:30(30)	大寒午安
19:00-19:30(30)	72.95年1月

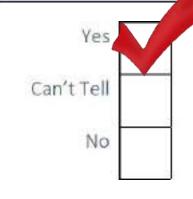
- D. 持配病人作息於每日學不學學的使用確定之傳動器:「武平枪」。「曹美」。「大吏午茶」。但 2crbs以質較丽、夏轉、裝面、不同表情報点。排籍音樂高頻的發光效果項引所人注意力、也知程 心時間、引導與平極增進致體活動、於學便請取後給予遵則並與病人互動:午休結束後給予增放 報數音樂晚報明人。最終一致他的生活常視讓其違立定均應。
- (2) 包天晚到说完時於南保Zeebo至何人回信,同意「顧佐士」遊戲的歌風人物但屬何互助。訓練報告 分部、致難協調生達到概象效果,當個人觀對同觀也十學配對吗Zeebe同項目前子「散得亞生」以 在內回屬。
- (3) 書寫人面做以便干捷時,使用Zeabo 情感歌曲,切圖。播放其原语的台密歌曲如:「烟智時人」, 「春星相名」。「走用绘」,使动情報的氣鋼。以高級及轉移精神行移控號。

# 10. Are the benefits worth the harms and costs?

#### 討論與結論

筆者並非初次照應失智症病人,但面對幻覺及焦 憲症狀如此明單,調整用藥初期時常大哭、激動幾層 的路易氏體失智症病人,衝擊的感受仍十分強烈,當 病人廢於幻覺和焦躁言行同時出現的急性發作期 時,護理過程更感挫折,故透過查閱文獻,運用Zenbo 隨伴型機器人變定合適的活動安排,加上相關溝通技 巧及環境調節,協助調人逐漸達成護理目標。其來屬 及外儲也從一開始喪氣。不耐煩的負向表現。在治療 後期以自信言談回饋。恰同病人出院返來,將筆者成 就感听在。

本次運用Zenbo時伴型機器人於路易氏體失智能 病人照應過程中正向收穫將初期病人即被其腦滑帶 質感的外觀、可愛計喜的表情吸引,其語音回讀互 動。跟隨、展現害蓋臉語功能皆讚病人感到新奇好 玩,進一步能持續接受相關視覺、聽覺、觸覺刺激, 達到改善症狀之效果。圖示Zenbo外型被接的度高, 快速提供多樣化訊息能力可屬利與病人建立關係,具



HINT: Consider even if this is not addressed by the review, what do you think?



## 備有輔助照護人力深入醫療院所或居家環境之優勢。

然而,單位初引進Zenbo時筆者類自行摸索其功能來發想照護措施,且執行中發現語音回饋功能易受環境音影響而中斷、網路連線不穩定、跟隨指令易感測到其他人物而偏移,以及本身重量為10公斤,難以被搬運;高度為62公分,病人坐下後仍需彎腰來互動,加上Zenbo運用僅限於病人住院期間,不同醫療場域的應用尚不善及,若要求家屬自行購買仍有經濟者量或操作問題,皆是本次治療過程的限制。

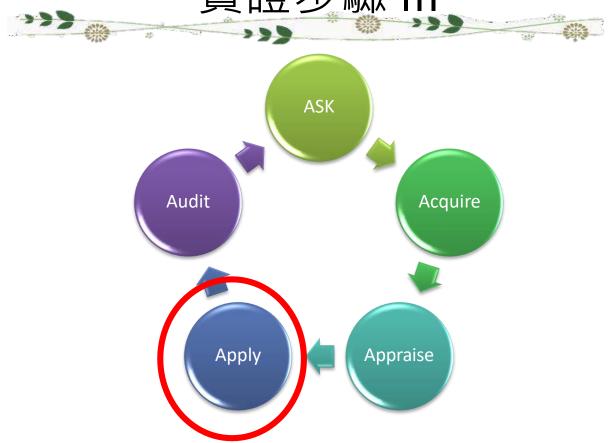
建議開發商可建立與護理人員討論機制,針對病 人需求爲Zenbo進行升級改善,提升使用者接受度; 護理人員可學辦Zenbo操作與應用之教育訓練,提升 醫療照護普及率,如;將失智症照護技巧或各科別檢 查內容灌入Zenbo,由護理人員引導病人及照顧者與 之互動達到衡教效果,探索其運用於各類診斷病人的 可能性,亦可推廣Zenbo至日照中心等機構,鼓勵病 人至相關機構參與活動,促進照護的連織性。



# 評讀結果-總表

項目	結果	備註說明
1. Did the review address a clearly focused question?	Yes	PICO清楚
2. Did the authors look for the right type of papers?	Yes	納入RCT
3. Do you think all the important, relevant studies were included?	Yes	5個資料庫
4. Did the review's authors do enough to assess quality of the included studies?	Yes	獨立評析
5. If the results of the review have been combined, was it reasonable to do so?	Can' t Tell	PI範圍過大
6. What are the overall results of the review?	ES = 0.586	中等效果
7. How precise are the results?	-1.13~0.04	接近(),精準度?
8. Can the results be applied to the local population?	Yes	
9. Were all important outcomes considered?	Yes	
10. Are the benefits worth the harms and costs?	Yes	33

# 實證步驟 |||





# 是否同意將「科技非藥物治療」之內容,加 入失智症病人返家照護之衛教選項?







# Thank you for your patience