

JOURNAL CLUB

- ◆ 蘇慧娟 護理長
- ◆ 2013.09.10.



現況說明

✖ 目前單位的作法

- + 先連哄帶騙帶病人到治療室，告訴病童要在手上抽血(避開說打針)
- + 跟病童說抽血結束後贈送卡通貼紙或小禮物
- + 依照家屬意願決定是否留下來陪伴病童
- + 病童對於打針的焦慮很明顯

✖ 曾經用過EMLA軟膏減輕注射疼痛

- + 需先塗抹等藥效發揮，若一針沒on上，要再花另一段時間準備另一個注射部位
- + 藥物需自費

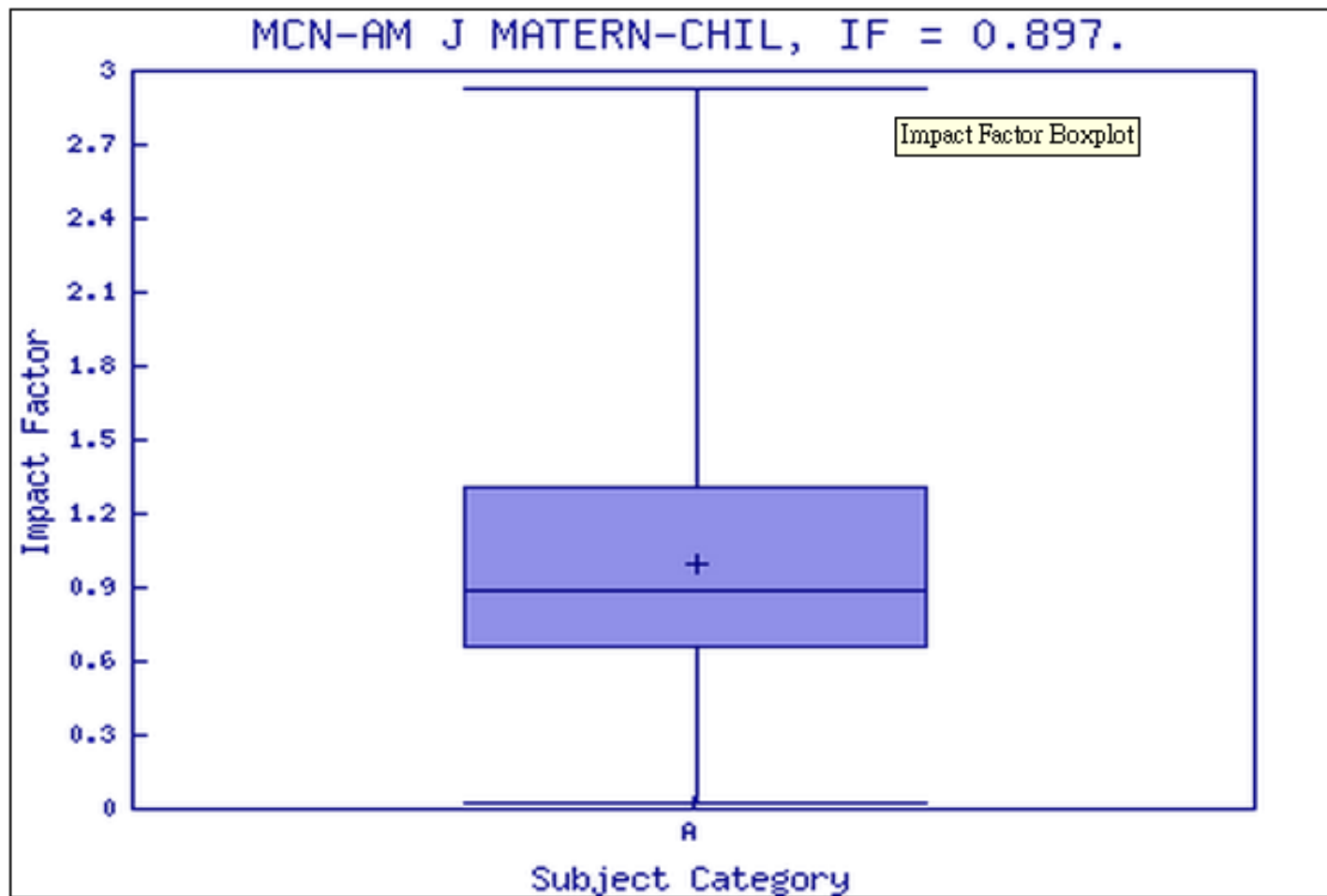


評讀文獻

- Relief of Pain During Blood Specimen Collection in Pediatric Patients
 - ✓ Sevil Inal, PhD and Meral Kelleci, PhD
 - ✓ MCN, 37(5), 2012; 10, p339-345
 - ✓ DOI: 10.1097/NMC.0b013e31825a8aa5



MCN-THE AMERICAN JOURNAL OF MATERNAL-CHILD NURSING



Key

A - NURSING

Category Name	Total Journals in Category	Journal Rank in Category	Quartile in Category
NURSING	103	50	Q2

INTRODUCTION

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- ✘ Needle procedures are the most common and **important source of pain and distress** in children in the healthcare setting.
- ✘ Reducing the emotional and physical effects of painful procedures in children **through pain management is an important part of nursing.**
- ✘ Needle pain management includes **pharmacological and non-pharmacological** approaches.



- ✘ External cold and vibration stimulation via Buzzy® have been shown to be a quick-acting option for pain reduction (Baxter et al., 2011).
- ✘ The Gate Control Theory may offer an explanation on the effect of cold stimulation and vibration (Melzack & Wall, 1965).
- ✘ Prolonged cold stimulates the C fibers and may further block the A-delta pain signal.

PURPOSE AND HYPOTHESES

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- ✗ This study investigated the effects of the external cold and vibration (Buzzy ®) on pain and anxiety levels during blood specimen collection in children between 6 and 12 years of age.
- ✗ A secondary aim of this study was to evaluate the success of venipuncture during the procedure.
- ✗ There were three hypotheses:
 - + (1) the external cold and vibration stimulation via Buzzy ® **reduces procedural pain** during blood specimen collection in children.
 - + 2) the external cold and vibration stimulation via Buzzy ® **reduces procedural anxiety** during blood specimen collection in children.
 - + (3) the external cold and vibration stimulation via Buzzy ® **does not affect the success of blood specimen collection procedure.**

步驟 1：研究探討的問題為何？

研究族群 / 問題 (Population/ Problem)

- Children aged from 6 to 12 years undergoing phlebotomy.

介入措施 (Intervention)

- Use of external cold and vibration via Buzzy® were applied just before the blood specimen collection procedure and continued until the end of the procedure.

比較 (Comparison)

- No intervention

結果 (Outcomes)

- Decreased perceived pain and reduced children' s anxiety during blood specimen collection.

PICO-INTERVENTION

EXTERNAL COLD AND VIBRATION STIMULATION VIA BUZZY

✖ <https://www.youtube.com/watch?v=MjwhWIaBhdc>



✖ <https://www.youtube.com/watch?v=I3rsSADibiE>

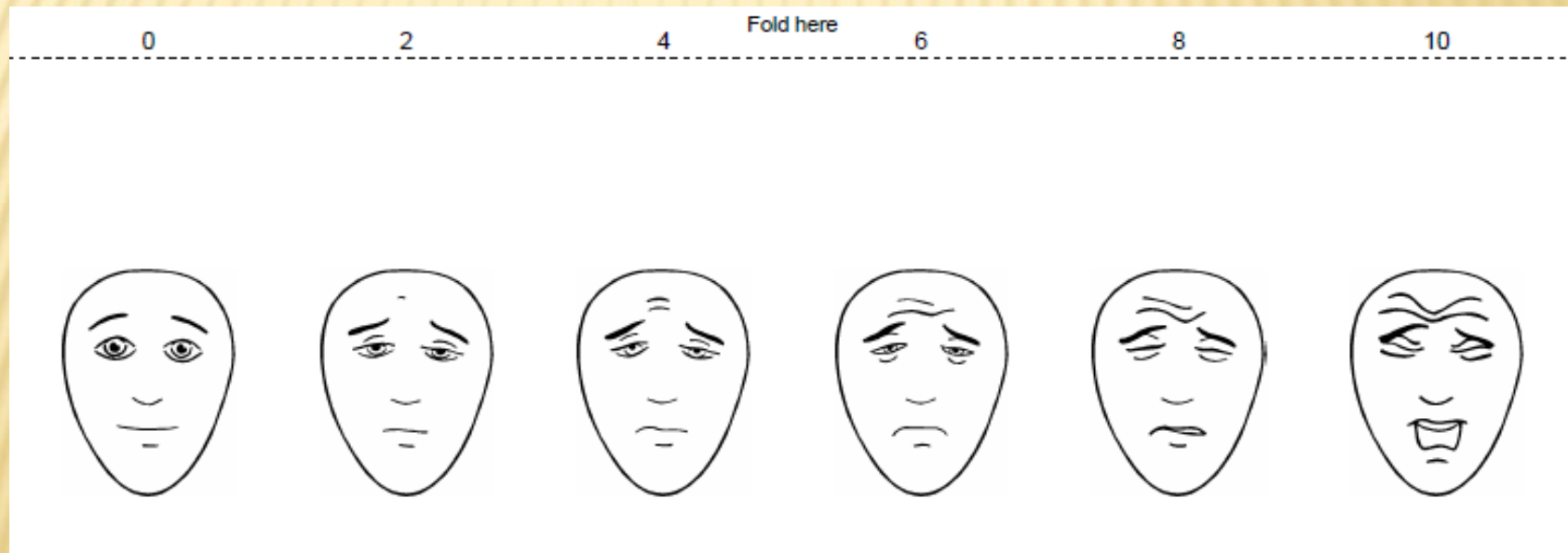


PICO – OUTCOMES MEASURES (1)

- ✗ CAPS(Children' s Anxiety and Pain), two sets.
 - + **Anxiety score**: (0-no anxiety; 5-severe anxiety)
 - + Pain score: (0-no pain; 5-severe pain)
 - + five cartoon face
- ✗ The **observer and parents** scored each response blinded to the others' ratings.

PICO – OUTCOMES MEASURES (2)

- ✖ FPS-R(Face Pain Scale)
 - ✖ The children' s pain levels were assessed via self-report, the parents' and the observers' reports



步驟 2：研究的品質有多好(內在效度)？

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招募(Recruitment) - 受試者是否具有代表性？

最好的狀況是？

我可以在哪裡找到這些資訊？

我們是否知道病人族群為何(收案場所、納入 / 排除條件)？在理想情況下，納入本研究之受試者應具有連續性(有時為隨機取樣)，了解符合收案條件的對象且簽署同意書。

在文章的方法(Methods)章節的開頭，可以找到本研究篩選病人的方式。

評讀結果：☒是 ☐否 ☐不清楚 說明：

- This was a randomized clinical trial conducted at the phlebotomy station of Istanbul University, Cerrahpas,a Faculty of Medicine, Pediatric Clinic, Turkey, between February 22 and March 28, 2010.
- Informed consent was obtained from the parents of each child undergoing blood specimen collection.
- This study was approved by the Ethical Commission of Cerrahpas,a Faculty of Medicine (Ethical Commission 1 for Clinical Research, Istanbul).

步驟 2：研究的品質有多好(內在效度)？

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招募(Recruitment) - 受試者是否具有代表性？（續）

最好的狀況是？

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評讀結果：☒是 ☐否 ☐不清楚 說明：

- Inclusion criteria: 6-to 12-year-old patients who required blood tests.
- Excluded:
 1. Break or abrasion on the skin where the device would be placed .
 2. Nerve damage in the affected extremity.
 3. Critical, unstable health status.
 4. Chronic illness, neurodevelopmental delays.
 5. Verbal difficulty; if they had used an analgesic within the last 6 hours.
 6. A history of syncope due to blood specimen collection.

步驟 2：研究的品質有多好(內在效度)？

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分派(Allocation) - 分派方式是否隨機且具隱匿性...？（續）	
最好的狀況是？	我可以在哪裡找到這些資訊？
最理想的方式是以 <u>中央電腦進行隨機分配</u> ，此方式常用於多中心試驗，而較小型的試驗可由獨立人員(如醫院藥師)「監督」隨機分配的過程。	在文章的方法(Methods)段落中，可以找到病人分配到不同組的方式，以及 <u>隨機分配是否具隱匿性</u> ；作者應說明隨機分派方式「監督」或屏蔽(masking)的方式(如使用外觀相同的安慰劑、或給予一個「假的」治療 sham therapy)。
評讀結果： <input checked="" type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不清楚 說明：	

- One hundred and twenty children **were randomized** on the basis of a **computer-generated table of random numbers** into two equal groups.
- The parents and observers assessed the children' s anxiety levels.

步驟 2：研究的品質有多好(內在效度)？

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... 每個組別，在研究開始時的情況是否相同？

(續)

最好的狀況是？

我可以在哪裡找到這些資訊？

若隨機分配順利，各組研究對象的條件應是相近、可互相比較的。每組研究對象的基本條件越相近越好。應有指標可確認各組研究對象之間的差異是否達到統計上顯著的差異(如 p 值)。

在文章的結果(Results) 段落中，可以找到「研究對象基本資料」的表格，裡面包括幾個可能影響隨機分配的各組研究結果之重要變項(如年齡、風險因子等)。如果作者沒有用表格呈現，在結果章節的第一段中，可能可以找到各組研究對象特性的說明。

評讀結果：☒是 ☐否 ☐不清楚 說明：

✕ Table 1



步驟 2：研究的品質有多好(內在效度)？（續）

Table 1. Comparison of Groups on Demographic and Background Variables

Characteristic	Control Group (<i>N</i> = 60)	Experimental Group (<i>N</i> = 60)	<i>t</i>	<i>p</i>
Age (Mean ± <i>SD</i>)	9.41±2.08	9.20±1.96	0.58	0.55
BMI (Mean ± <i>SD</i>)	16.76±3.62	17.04±3.05	-0.45	0.65
Mother's age (Mean ± <i>SD</i>)	35.80±5.11	36.18±5.01	-.041	0.67
Father's age (Mean ± <i>SD</i>)	40.53±6.68	38.66±4.50	1.79	0.08
Preprocedural anxiety Parent report (Mean ± <i>SD</i>)	2.16±1.25	2.20±1.14	-0.15	0.87
Observer report (Mean ± <i>SD</i>)	2.05±1.24	2.15±1.32	-0.42	0.67
Characteristic	Control Group (<i>N</i> = 60) <i>n</i> (%)	Experimental Group (<i>N</i> = 60) <i>n</i> (%)	χ^2	<i>p</i>
Sex				
Female	26 (43.3)	31 (51.7)	0.83	0.36
Male	34 (56.7)	29 (48.3)		
Education of mother				
Sec. school and under	36 (60)	31 (51.7)	0.84	0.35
High school and above	24 (40)	29 (48.3)		
Education of father				
Sec. school and under	21 (35)	27 (45)	1.25	0.26
High school and above	39 (65)	33 (55)		
Previous venipuncture				
1-3	43 (71.7)	46 (76.7)	0.39	0.53
4-10	17 (28.3)	14 (23.3)		
Success of blood drawing attempt				
In first attempt	53 (88.3)	56 (93.3)	0.90	0.34
In second attempt	7 (11.7)	4 (6.7)		

步驟 2：研究的品質有多好(內在效度)？

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維持(Maintenance) - 各組是否給予相同的治療？ (續)

最好的狀況是？

我可以在哪裡找到這些資訊？

各研究組別之間，除了對病人的介入之外，其餘的治療應完全相同(即為了執行本研究所增加的治療、檢驗或評估應相同)。

在文章的方法段落中，可以找到各組詳細的治療方式(如追蹤時間表、研究中可以使用的額外治療)，在結果段落中，應該也可以找到更進一步的資訊。

評讀結果：☒是 ☐否 ☐不清楚 說明：

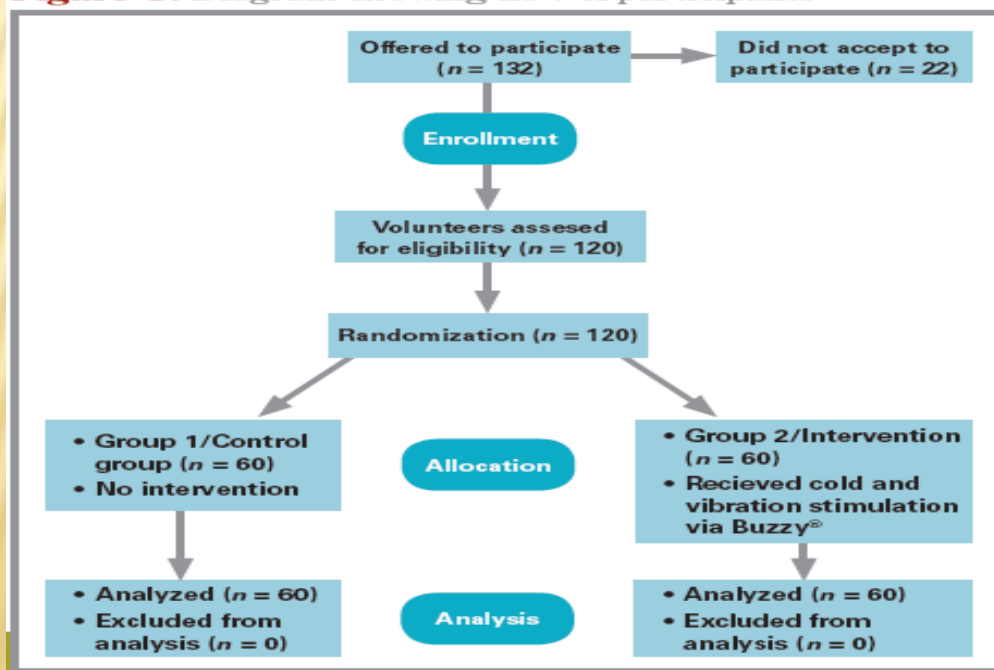
- The **control group** received no intervention.
- The **experimental group**, before the procedure a single researcher applied external cold and vibration stimulation via Buzzy.

步驟 2：研究的品質有多好(內在效度)？

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... 是否有足夠的追蹤(Follow up)？		續
最好的狀況是？		我可以在哪裡找到這些資訊？
研究中流失(無法繼續追蹤)的病人，最好少於 20%。 病人應依照隨機分配的組別進行統計分析(即「治療意向分析法」Intention – to-treat, ITT analysis)。		在文章的結果段落中，應可以找到接受隨機分配的病人人數，以及實際進行分析的人數。 <u>有時會有流程圖</u> (如果沒有，可自行繪製)。
評讀結果： <input checked="" type="checkbox"/> 是 <input type="checkbox"/> 否 <input type="checkbox"/> 不清楚 說明：		

Figure 1. Diagram showing flow of participants



F/U rate 100%

步驟 2：研究的品質有多好(內在效度)？

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評估(Measurement) - 受試者與評估者是否對治療方式及(或)評估目的維持盲法(blind)？(續)

最好的狀況是？	我可以在哪裡找到這些資訊？
在客觀結果(如：死亡)方面， <u>盲法的重要性較低</u> ，但在主觀結果(如：症狀或功能)方面，評估者維持盲法非常重要。	在文章的方法段落中，可以找到研究結果的評估方式，以及評估者是否知道病人接受何種治療。
評讀結果： <input type="checkbox"/> 是 <input checked="" type="checkbox"/> 否 <input type="checkbox"/> 不清楚 說明：	

- This study was **not double-blind**.
- **Researchers** had information on which child was in each study group.
- Children, parent, and the observer scored **each response blinded to the others'** responses.

步驟 3：研究結果及討論

研究結果

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Table 2. Comparison of Children' s Pain and Anxiety Levels during Blood Draw

	Control Group (M ± SD)	Experimental Group (M ± SD)	t	p
Pain (FPS-R)				
Self-report (M ± SD)	6.56±1.65	2.78±1.94	11.47	0.001
Parent reported (M ± SD)	6.50±1.58	2.80±2.12	10.81	0.001
Observer reported (M ± SD)	6.40±1.59	2.70±1.87	11.65	0.001
Anxiety (CAPS)				
Parent reported (M ± SD)	3.36±0.99	1.61±0.99	9.66	0.001
Observer reported (M ± SD)	3.31±1.04	1.68±0.92	9.02	0.001

步驟 3：研究結果及討論

研究結果 (續)

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- Children in the external cold and vibration stimulation group had significantly lower pain levels by self-report, parent report, and observer report than the control group ($p < .001$).
- The external cold and vibration stimulation group had significantly lower intra-procedural anxiety levels by parent and observer report than the control group ($p < .001$).
- Use of the external cold and vibration stimulation method via Buzzy® did not cause a significant difference in the success of the blood specimen collection procedure.

步驟 3：研究結果及討論

研究結果

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Clinical Implications

- The combination of cold and vibration may relieve pain during blood specimen collections in children.
- The Buzzy® device may decrease pain and anxiety without decreasing phlebotomy success.
- The use of a device such as this one also may provide a way to decrease anxiety for future procedures.
- A fast acting device may facilitate nurses' provision of pain relief, an important part of clinical practice in pediatrics.

討論(一)

- Buzzy是否可用於臨床單位?
 - 檢驗科櫃檯抽血嗎? 空間是否足夠?
 - 急診可用嗎?
- 對於打針/抽血次數很多的小孩，是否還有用?
- 成本考量
 - Buzzy 成本 USD\$40
 - 電池可更換使用20小時/380針，平均每次 USD\$0.1
 - 可消毒，重覆使用
- 台灣FDA 申請中

討論(二)

使用BUZZY設備，能緩解兒科病人注射時的疼痛跟焦慮？但是否可以用於臨床上？

- 同意：19票
- 懷疑：3票
- 不同意：0票

值得一試!
JUST DO IT!



THANK YOU!

