



Summaries of Nursing Care-Related Systematic Reviews from the Cochrane Library

Psychological interventions for needle-related procedural pain and distress in children and adolescents

Question

Needle-related procedures are a common source of pain and distress for children. When children and adolescents experience unpleasant sensations whilst undergoing medical procedures involving needles, how effective are the treatments of psychological intervention (for example, distraction, hypnosis, and cognitive behavioral therapy) towards pain and stress reduction?

Objectives

This review is to provide an update to a previous review (Uman 2006) assessing the efficacy of psychological interventions for needle-related procedural pain and distress in children and adolescents. Distraction, hypnosis and various coping skills training are commonly used psychological interventions to reduce pain and distress (anxiety and fear, or both) that children and adolescents experience while undergoing medical procedures involving needles. Further, providing information or preparing for the procedure using virtual reality such as interactive video equipment, goggles, and computers showing images, games, stories etc. were also been tested.

Study characteristics

This systematic review concludes from research conducted for relevant randomized

controlled trials (RCTs). Studies included children aged 2 to 19 years, with the most evidence available based on children under 12 years of age. Consistent with the original review, the most commonly studied psychological interventions for needle procedures were distraction, hypnosis, and cognitive behavioral therapy (CBT). Studies in which the psychological intervention(s) was combined with a non-psychological intervention were excluded when the unique effects of the psychological intervention could not be evaluated.

In contrast to the previous review, this research employs only the peer-reviewed studies that include randomized controlled trials (RCTs) with at least five participants. The two measured outcomes of interest were pain and distress, assessed using scales or measures with established reliability and validity. The majority of included studies (19 of 39) examined distraction only.

This review concentrates on true RCT designs and excluded all quasi-randomized trials so that the approach could be more consistent and stringent. There are 39 studies considered to be a true RCT as the authors explicitly stated that participants were randomly assigned to groups and did not indicate using quasi-randomization methods at any point.

Results

The effects of interventions are concluded as followed:

- **Distraction:** Various distraction interventions such as passive or active involvement of the child, parent or health professional involvement, or opportunity for the child to choose a distractor, are conducted in 19 examined studies. Among the studies, the effects of distraction on self-reported pain are significant. On observer-reported pain, the effect was not significant. The effects of distraction on self-reported distress, observer-reported distress and behavioural measures of pain are not significant. The effects of distraction on the physiological measure of heart rate and physiological measure of oxygen saturation are significant. No conclusions could be drawn for the effects of distraction on the physiological measures of respiratory rate, systolic blood pressure, and diastolic blood pressure.
- **Hypnosis:** The effects of hypnosis on self-reported pain and self-reported distress, behavioural measures of distress are significant. No additional conclusions could be drawn for the effects of hypnosis on either observer-reported distress or behavioural measures of pain due to limited data.
- **Preparation and information:** The effects of preparation and information on self-reported pain are not significant. No conclusions could be drawn for the effects of preparation and information on observer-reported pain, observer-reported distress, behavioural measures of distress and the physiological measure of pulse rate.
- **Virtual reality:** This effect of virtual reality on self-reported pain was not significant.
- **Combined Cognitive Behavioural Intervention/ Treatment (CBT):** The effects of CBT on self-reported pain, self-reported distress, observer-reported distress, and behavioural measures of distress are not significant.
- **Parent coaching + child distraction:** The effects of parent coaching plus child distraction on self-reported pain, observer-reported distress, behavioural measures of distress, are not significant. No conclusions could be drawn for the effects of parent coaching plus child distraction on either self-reported distress or the physiological measure of cortisol responsivity.
- **Suggestion:** The effects of suggestion on self-reported pain are not significant. No conclusions could be drawn for the effects of suggestion on observer-reported pain and self-reported distress and for observer-reported distress.
- No conclusions could be drawn about interventions of memory alteration, parent positioning plus distraction, blowing out air, or distraction plus suggestion, as evidence was available from single studies only.
- In addition, the Risk of bias scores indicated several domains with high or unclear bias scores (for example, selection, detection, and performance bias) suggesting that the methodological rigor and reporting of RCTs of psychological interventions continue to have considerable room for improvement.

Implication for nursing care

The conclusion drawn by this review indicates that the psychological interventions may be effective at reducing pain from needle-related procedures. Properly coordinated psychological interventions during needle-related procedures could lead to significant pain and stress reduction. For example, hypnosis can be particularly helpful for more invasive needle procedures such as lumbar punctures, and for reducing both pain and distress. To raise availability of health professionals trained in hypnosis shall increase its application in practice. On the other hand, these psychological interventions can also help empower children, adolescents, and their parents in being active agents in their own pain management, thereby facilitating generalizability across settings and time.

Implications for research

This review extends and strengthens the results that concluded from previous research that established the efficacy of several interventions (namely distraction and hypnosis) and made several clinical and research recommendations, including identifying interventions requiring further research. The authors also made recommendations for improving the quality of trials in the area, which were explored in more depth and outlined in a subsequent paper (Uman 2010). There are continuing issues with the quality of trials examining psychological interventions for needle-related pain and distress.

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Reference

Uman 2006

Uman LS, Chambers CT, McGrath PJ, Kisely S. Psychological interventions for needle-related procedural pain and distress in children and adolescents (Review). The Cochrane Database of Systematic Reviews 2006; Art. No.: CD005179(4):DOI:10.1002/14651858.CD005179. pub2.

Uman 2010

Uman LS, Chambers CT, McGrath PJ, Kisely S, Matthews D, Hayton K. Assessing the quality of randomized controlled trials examining psychological interventions for pediatric procedural pain: Recommendations for quality improvement. *Journal of Pediatric Psychology* 2010;35: 693693ed

Uman 2013

Uman LS, Birnie KA, Noel M, Parker JA, Chambers CT, McGrath PJ, Kisely SR. Psychological interventions for needle-related procedural pain and distress in children and adolescents. *Cochrane Database Syst Rev*. 2013 Oct 10;10:CD005179. doi: 10.1002/14651858.CD005179.pub3.



Summaries of Nursing Care-Related Systematic Reviews from the Cochrane Library

Cochrane Library 針對兒童與青少年在接受針頭注射相關醫療程序產生的疼痛與焦慮所進行的心理介入處置

議題

使用針頭注射的醫療程序是兒童就診時疼痛與焦慮的常見來源。當兒童與青少年在接受使用針頭注射的醫療程序而產生這些不愉快的知覺時，透過心理上的介入處置（如轉移注意力、催眠與認知行為醫療等）是否能有效減緩疼痛與焦慮？

目標

本研究是以 (Uman 2006) 的分析為基礎，更新對兒童與青少年就診時，因為接受使用針頭注射相關的醫療程序所產生的疼痛與焦慮進行心理上的介入處置之有效性評估。轉移焦點、催眠以及各式各樣的對應技巧是減緩兒童與青少年在就診時因為面對與針頭注射相關的醫療程序所產生的疼痛與憂慮（焦慮、恐懼或兩者兼具）常用的心理介入處置方式。進一步地，本文也分析與測試了運用諸如錄影設備、護目鏡、電腦生成影像、遊戲以及故事等虛擬實境所提供的訊息或心理準備。

研究特質

在這份系統化的評述中歸納了進行隨機控制試驗 (RCTs) 有關的研究。研究對象涵蓋的年齡層從 2 歲到 19 歲，其中尤以 12 歲以下群組的驗證最具有實證意義。與原研究一致的是，針對針頭注射程序所做的實驗中，最常見的心理介入處置包含轉移焦點、催眠以及認知行為診療 (cognitive behavior therapy, CBT)。在此，當研究中因為同時納入心理介入與非心理介入的處置方式而無

法單獨評估心理介入處置方式的有效性時，研究的結果將不納入本分析。

與過去的研究相對照，在此納入的隨機控制試驗相關研究均經『同儕審查』且包含至少五個病患樣本。疼痛與憂慮是以具有信度與效度的衡量指標與模式為基準所設定的兩項研究標的。在納入的研究中，多數 (39 件中的 19 件) 僅分析焦點移轉這一項介入處置。

本分析專注在真實隨機控制實驗而排除所有準隨機實驗以確保分析更具一致性，也更為嚴謹。在納入被界定為真實隨機控制實驗的 39 份研究中，作者均明確的陳述分析的病患樣本是隨機的被分配至群組中而未在研究中的任何部分提及準隨機方法。

結論

介入處置的效果歸納如下：

- 轉移焦點：在 19 份研究中，分別運用了不同的轉移焦點介入處置，例如主動或被動地引導孩子、經由家長或專業醫療人員介入，或是有機會讓孩子自行選擇移轉的焦點目標。在這些研究中，轉移焦點對自我陳報的疼痛有顯著的正面效果。然而，對觀察陳報的疼痛，轉移焦點的效果並不顯著。轉移焦點對自我陳報的憂慮、對觀察陳報的憂慮，以及透過行為衡量的疼痛來說，效果都不顯著。轉移焦點對以生理量度的心跳速度以及生理量度的氧氣飽和度都具有顯著效果。



轉移焦點對生理上衡量的呼吸速率、收縮壓與舒張壓的影響難以評估。

- 催眠：催眠對自我陳報的疼痛與自我陳報的憂慮以及透過行為衡量的憂慮有顯著的正面效果。然而，由於觀察資料不足，無法針對催眠對於觀察陳報的憂慮或是透過行為衡量的疼痛之效果作出結論。
- 準備與訊息：準備與訊息對自我陳報的疼痛效果不顯著。對觀察陳報的疼痛、觀察陳報的憂慮、透過行為衡量的憂慮，以及由生理上衡量的脈搏來說，無法作出結論。
- 虛擬實境：虛擬實境對自我陳報的疼痛效果不顯著。
- 結合認知行為介入 / 處置 (CBT)：CBT 對自我陳報的疼痛、自我陳報的憂慮、觀察陳報的憂慮以及透過行為衡量的憂慮效果不顯著。
- 父母輔助 + 兒童焦點移轉：父母輔助加上兒童焦點移轉對自我陳報的疼痛、觀察陳報的憂慮以及透過行為衡量的憂慮效果不顯著。父母輔助加上兒童焦點移轉對自我陳報的憂慮與心理衡量的皮質醇反應無法判定效果。
- 建議：建議對自我陳報的疼痛的效果不顯著。建議對觀察陳報的疼痛、自我陳報的憂慮與觀察陳報的憂慮無法判定效果。
- 由於只有一份研究資料，記憶轉變的介入、父母態度加上焦點轉移、吐氣、或是焦點轉移加上建議等效果無法確認。
- 此外，偏誤計分的風險顯示具有高偏執計分或不明確偏誤計分的範疇中（例如，選擇、偵測與表現偏誤）意味著方法嚴謹度以及心理介入的 RCTs 呈報方式上都有很大的持續進步空間。

對護理照護的意義

這份研究的結論說明心理介入處置或可有效的降低與針頭注射相關的醫療程序所造成的疼痛。適當地整合心理介入處置方法可以顯著降低疼痛與焦慮。例如，催眠對降低因腰椎穿刺這一類的侵入性針頭注射醫療措施所帶來的疼痛與憂慮特別有幫助。要提升人員的催眠專業醫

療訓練必須增加其實務上的應用。另一方面，這些心理上的介入同樣可以賦予兒童、青少年以及父母在其疼痛管理扮演主動的角色，並由此促進設定及時效上的普及。

對研究的意義

這份研究延伸並強化過去以幾項介入的處置行為（例如焦點移轉以及催眠）有效性之研究的結論，同時做出臨床上及研究上的一些建議，也找出需要進一步研究的一些介入處置行為。作者也為這個範疇裡實驗品質的改善做出建議，這些建議在後續的分析文獻 (Uman 2010) 有更深入與完整的闡述。針對與針頭注射相關的醫療程序時疼痛與憂慮的心理介入處置的試驗品質將會是一個持續受關注的議題。

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