



# Effect of Music on Pain and Anxiety during Cystoscopy: A Randomized Controlled Trial

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## Introduction & Objectives

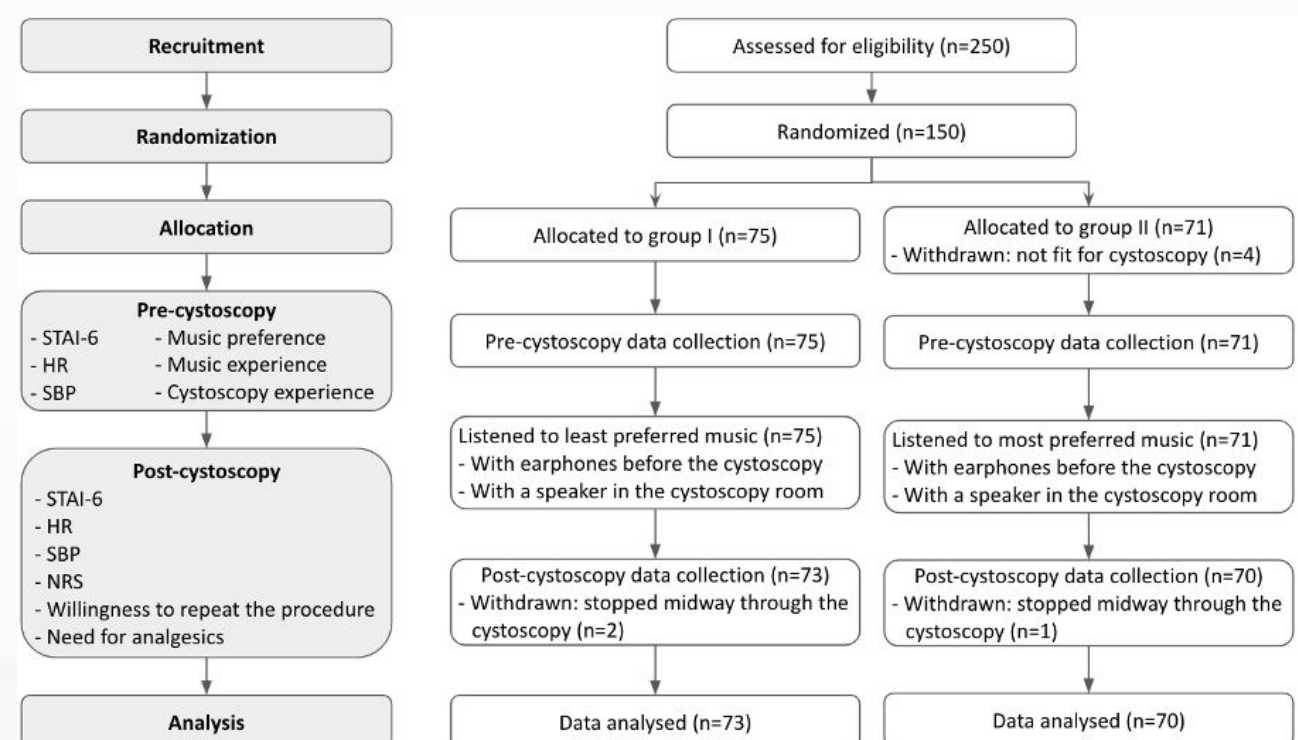
Flexible cystoscopy is commonly performed in urological outpatient settings for investigation of haematuria, suspected urethral or bladder pathology, bladder cancer surveillance, as well as minor procedures such as urethral dilatation or bladder stone retrieval.

Pain and anxiety are two unique components associated with any medical procedure. While analgesics can relieve pain, it may not effectively relieve anxiety. Multiple studies have tested music as a modality that can potentially relieve both pain and anxiety in one go.

This study investigates whether the genre of music would affect pain and anxiety relief associated with flexible cystoscopy.

## Materials & Method

Patients scheduled to have flexible cystoscopy in Prince of Wales Hospital were recruited. Subjects were randomized into experimental arm (Group 1: listening to the patient's most preferred music genre before and during cystoscopy) and control arm (Group 2: listening to the least preferred music genre). Six music genres were available to the patients. Pain was assessed by numerical rating scale (NRS), and anxiety by Six-item State-Trait Anxiety Inventory (STAI-6). Physiological parameters were recorded for analysis. The primary outcomes were procedural pain score and post-procedural change in STAI-6 score.



## Results

A total of 143 patients were recruited (Group 1 n=73, Group 2 n=70). Both groups exhibited a trend in the decrease in STAI-6 score after the procedure. However, there was no statistically significant difference in the change in STAI-6 between two groups (Group 1:  $-1.69 \pm 14.5$ , Group 2:  $-5.19 \pm 3.5$ ,  $p=0.07$ ). NRS was  $2.99 \pm 2.3$  and  $2.97 \pm 2.4$  for Group 1 and Group 2 respectively ( $p=0.48$ ). No difference in systolic blood pressure (Group 1:  $4.36 \pm 10.6$  mmHg, Group 2:  $7.20 \pm 12.4$  mmHg,  $p=0.07$ ) and heart rate (Group 1:  $75.51 \pm 14.1$  bpm, Group 2:  $75.11 \pm 12.3$  bpm,  $p=0.43$ ) was observed after the procedure in both groups.

## Conclusion

Music can have a role in relieving anxiety during cystoscopy regardless of its genre according to the patient's preference.

Table 1. Summary of peri-procedure physiological parameters and pain and anxiety scores

|  | Group I<br>(n = 73) | Group II<br>(n = 70) | p-value |
|--|---------------------|----------------------|---------|
| <b>Pre-procedure</b>                   |                     |                      |         |
| SBP (mmHg), Mean $\pm$ S.D.            | 137.77 $\pm$ 16.9   | 133.01 $\pm$ 18.5    | 0.11    |
| Heart rate (bpm), Mean $\pm$ S.D.      | 77.49 $\pm$ 15.0    | 77.67 $\pm$ 12.5     | 0.94    |
| STAI-6 score, Mean $\pm$ S.D.          | 37.12 $\pm$ 13.8    | 40.62 $\pm$ 13.4     | 0.13    |
| <b>Post-procedure</b>                  |                     |                      |         |
| SBP (mmHg), Mean $\pm$ S.D.            | 142.12 $\pm$ 19.3   | 140.21 $\pm$ 20.7    | 0.28    |
| Heart rate (bpm), Mean $\pm$ S.D.      | 75.51 $\pm$ 14.4    | 75.11 $\pm$ 12.3     | 0.43    |
| STAI-6 score, Mean $\pm$ S.D.          | 35.43 $\pm$ 13.6    | 35.43 $\pm$ 11.9     | 0.50    |
| Pain intensity (NRS), Mean $\pm$ S.D.  | 2.99 $\pm$ 2.3      | 2.97 $\pm$ 2.4       | 0.48    |
| $\Delta$ SBP (mmHg), Mean $\pm$ S.D.   | 4.36 $\pm$ 10.6     | 7.20 $\pm$ 12.4      | 0.07    |
| $\Delta$ HR (bpm), Mean $\pm$ S.D.     | -1.99 $\pm$ 8.8     | -2.56 $\pm$ 6.8      | 0.33    |
| $\Delta$ STAI-6 score, Mean $\pm$ S.D. | -1.69 $\pm$ 14.5    | -5.19 $\pm$ 13.5     | 0.07    |

S.D.: Standard deviation; STAI: State-Trait Anxiety Inventory; NRS: Numerical rating score; SBP: Systolic blood pressure  $\Delta$ SBP: Post-procedure systolic blood pressure minus pre-procedure systolic blood pressure;  $\Delta$ HR: Post-procedure heart rate minus pre-procedure heart rate;  $\Delta$ STAI-6 score: Post-procedure STAI-6 score minus pre-procedure STAI-6 score.

