Adolescent Experiences With Ambient Therapy

24th Annual Conference of the American Psychiatric Nurses Association
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• Ambient Therapy is an integrative and complementary psychoacoustic application that uses ambient sounds and music to support positive patient health, recovery and healing.
  – Marketed by Ambience Medical in collaboration with the Mannheim Steamroller brand (Chip Davis).

• Psychoacoustics (the ability to create spatial perceptions through the interrelationships of sound, hearing and the mind’s eye) is known to move the emotional parts of the whole person.

• Special “dosing and timing” capabilities of the system, specifically for healthcare requirements, helps guide emotional perceptions.
  – some programs last 6 hours.
IS IT JUST MUSIC THERAPY?

• NO - Ambient Therapy goes far beyond music therapy and may be better described as “sound” or “audio therapy”.

• It is a compilation of “natural sounds” recorded in a 200’ x 200’ algorithm in combination with musical parts to address the linear processing portion of human hearing.
AMBIENT THERAPY SYSTEM

• Required to deliver the algorithm in a clear and predictable way...

• 6 programs play back various seasonal natural algorithms and musical content...

• Balances the room dimensions with 4 matched speakers to place patient in the proper listening position...
PURPOSES OF AMBIENT THERAPY

• The primary role is one of distraction to minimize feelings of pain, anxiety, and unease.

• The surround-sound modality of this techniques, coupled with psychoacoustic “flooding” offers an experience of calmness through its induction on sensory-neural pathways in the brain.

• Clinical use evokes patients to imagine they are in the place they are hearing, putting their minds at ease through distraction.

• Allows listener/patient to be transported through audio illusion to a comforting environment.

• The total effect results in a “backdrop” of believable locations in which the listener is placed, to provide a sense of well-being.
PROPOSED BENEFITS

• Known positive affects on hormones that affect stress and sleep quality...
  – cortisol
  – melatonin

• Is an economical and available resource...

• Enhances the overall therapeutic treatment experience and milieu...

• Possible use as a de-escalation tool in lieu of seclusion (time-outs)…
RESEARCH STUDY AIM

• To provide Ambient Therapy on an inpatient child and adolescent psychiatric/behavioral health unit to introduce patients to an alternative method for coping with life stressors.

Sometimes, when patients cannot articulate difficult feelings, they may respond better to receptive, rather than direct verbal approaches.
HYPOTHESIS

Exposure to ambient therapy experiences and activities makes no difference in reducing adolescent ratings of stress.
STUDY DESIGN

• 8-week descriptive, exploratory pilot study
  • Start: January 11, 2010
  • End: March 5, 2010

• Purposive, non-probability cohort design

• Institutional Review Board
  • Submitted: August 17, 2009
  • Approved: December 2, 2009
  • Expedited Review: # 00008549
  • Informed Consent and Informed Assent
SAMPLE

• N=16 male and female subjects aged 12-18 yrs.
  - Eligibility criteria
    • Adolescent male and female patients admitted to a 14-bed acute care psychiatric/behavioral health unit
    • Ethnicity: ~ 55% Caucasian, 40% Black, 5% other
    • Average length of stay = 5-7 days
    • Guardian consent AND
    • Adolescent assent
  - Exclusion criteria
    • Physician, nurse, team clinical judgment
“How much stress do you feel right now?”

• Self-rated pre and post Likert scale: lower ratings indicate less stress
# AMBIENT THERAPY PROTOCOL

45-minute Recreation Therapy Group led by a licensed recreation therapist

<table>
<thead>
<tr>
<th>Monday</th>
<th>Wednesday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Ambient Therapy Exposure stress level Likert scale (3-5 minutes)</td>
<td>Ambient Therapy Exposure: dose of 30 minute interval (10:05 am – 10:40 am)</td>
<td></td>
</tr>
<tr>
<td>While laying on the floor for 10 minutes</td>
<td>While completing stress management worksheet for 10 minutes</td>
<td>While engaged in progressive muscle exercises for 10 minutes</td>
</tr>
<tr>
<td>Patient directed to draw, write, or cut out pictures of that represent their responses to the sounds and/or music they heard from the ambient therapy system. Debriefing/sharing (visual creation and/or verbal expressions)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post- Ambient Therapy Exposure stress level Likert scale (3-5 minutes)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

First Name: __________  Date: Wednesday ______

**Stress Management:**

What is stress to you?

________________________________________________________________
________________________________________________________________

What situations do you consider stressful?

What are things that you have done in the past to cope with stress?

- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

What are things that you would like to try to do to cope or reduce your stress?

- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]
- [ ]

Source to create word search 1-13-2010: http://www.puzzle-maker.com/WS/index.htm
Ambient Therapy

What is your reaction to the sounds and music you heard from the ambient therapy system?

Happy

Peace

Calm

Non-stress

Sleepy

What does the ambient environment look like to you?
ANALYSES

• Descriptive and Inferential Statistics (2-tailed tests)
  - Paired t-tests of pre and post stress
    • post exposure minus pre exposure
    • between gender and among the 3 days
  - Two-sample t-test
    • Paired scores difference tested with the null hypotheses stating “no difference” (i.e., mean of differences = 0
  - Press Ganey Patient Satisfaction Survey (post hosp)
    • quantitative and qualitative measures
### INFERENTIAL STATS RESULTS TABLE

<table>
<thead>
<tr>
<th>Test Level</th>
<th>N</th>
<th>Mean (S.E)</th>
<th>P-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>16</td>
<td>0.8 (0.2)</td>
<td>0.001</td>
</tr>
<tr>
<td>• Females</td>
<td>8</td>
<td>0.9 (0.2)</td>
<td>0.006</td>
</tr>
<tr>
<td>• Males</td>
<td>8</td>
<td>0.6 (0.3)</td>
<td>0.049</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Days</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>• Monday</td>
<td>10</td>
<td>0.9 (0.2)</td>
<td>0.004</td>
</tr>
<tr>
<td>• Wednesday</td>
<td>11</td>
<td>0.4 (0.2)</td>
<td>0.038</td>
</tr>
<tr>
<td>• Friday</td>
<td>8</td>
<td>0.8 (0.3)</td>
<td>0.020</td>
</tr>
</tbody>
</table>

Generated 32 individual data points.

Stress level improved, significantly, in all cases: overall; for each gender; and for each day/activity.
<table>
<thead>
<tr>
<th>OTHER MEMBERS OF THE TREATMENT TEAM</th>
<th>Very poor</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Very good</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall rating of recreational therapist</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>X=88.6 (n=68)</td>
<td></td>
<td></td>
<td></td>
<td>69.1% -very good (n=47)</td>
</tr>
<tr>
<td>PROGRAM ACTIVITIES</td>
<td>Very poor</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Very good</td>
</tr>
<tr>
<td>Helpfulness of individual contact with staff</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>X=88.1 (n=67)</td>
<td></td>
<td></td>
<td></td>
<td>68.7% -very good (n=46)</td>
</tr>
<tr>
<td>Amount of time spent in therapeutic activities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>X=86.7 (n=66)</td>
<td></td>
<td></td>
<td></td>
<td>59.1% -very good (n=39)</td>
</tr>
<tr>
<td>Helpfulness of social/recreational activities</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>X=89.6 (n=67)</td>
<td></td>
<td></td>
<td></td>
<td>68.7% -very good (n=46)</td>
</tr>
<tr>
<td>PERSONAL ISSUES</td>
<td>Very poor</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Very good</td>
</tr>
<tr>
<td>Degree to which staff was sensitive to your emotional needs</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>X=87.7 (n=67)</td>
<td></td>
<td></td>
<td></td>
<td>67.2% -very good (n=45)</td>
</tr>
<tr>
<td>OVERALL ASSESSMENT</td>
<td>Very poor</td>
<td>Poor</td>
<td>Fair</td>
<td>Good</td>
<td>Very good</td>
</tr>
<tr>
<td>Degree to which you feel that your condition has improved</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>X=82.4 (n=68)</td>
<td></td>
<td></td>
<td></td>
<td>57.4% -very good (n=39)</td>
</tr>
</tbody>
</table>
**Study Strengths**

- No previous studies on an inpatient child and adolescent psychiatric/behavioral health unit...
- Anticipated low risk for harm...
- Conducted in a safe milieu in clear and open plexiglass surrounding...
- Augments nursing care models...
  - Family-Centered Care
  - Blended Relationship Based Care
- Represents a/an...
  - interdisciplinary collaboration intervention
  - complementary and integrative therapy intervention

**Study Limitations**

- Non randomized, non experimental design
- Small study team
- Unknowns related to patient variables (i.e., psychoses, exposure to neuronal stimulation)
  - potential for paradoxical reactions
- Clinical interruptions
  - medication time
  - treatment team meetings
- Can’t determine if stress was reduced by sound or activity alone, since no comparison group.
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- Karen Benson, RN, 10 Pediatric Behavioral Health
- Sarah Bullock, RN, MS (c), Unit Manager 10 Pediatric Behavioral Health
- Nursing Management and staff of 10 Pediatric Behavioral Health
• QUESTIONS?
COMMENTS?
DISCUSSION?