The Global Language of Music:  
The Impact of Organized Music Experiences on Success in Undergraduate Nursing Programs

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Background

• Music
  – Is referred to as a universal language
  – Transcends ethnic, socio-economic, and geographic barriers
  – Has the potential to enhance success of nursing school students
Problem

- Stringent admission criteria exist for nursing programs worldwide, but better predictors of success at the time of admission are needed to reduce nursing school attrition rates.

- Admitting students unlikely to succeed expends sparse resources of time, money, and clinical space.
Benefit of Music Education

• Organized music experiences are associated with greater ability in math, reading, cognition, critical thinking, verbal skills, motivation, concentration, confidence, and teamwork.

• All of these are desirable characteristics of a professional nurse in any country.
Music Stimulates All Parts of Brain

Music on the mind

When we listen to music, it’s processed in many different areas of our brain. The extent of the brain’s involvement was scarcely imagined until the early nineties, when functional brain imaging became possible. The major computational centres include:

- **CORPUS CALLOSUM**: Connects left and right hemispheres.
- **MOTOR CORTEX**: Movement, foot tapping, dancing, and playing an instrument.
- **PREFRONTAL CORTEX**: Creation of expectations, violation and satisfaction of expectations.
- **NUCLEUS ACCUMBENS**: Emotional reactions to music.
- **AMYGDALA**: Emotional reactions to music.
- **SENSORY CORTEX**: Tactile feedback from playing an instrument and dancing.
- **AUDITORY CORTEX**: The first stages of listening to sounds. The perception and analysis of tones.
- **HIPPOCAMPUS**: Memory for music, musical experiences and contexts.
- **VISUAL CORTEX**: Reading music, looking at a performer’s or one’s own movements.
- **CEREBELLM**: Movement such as foot tapping, dancing, and playing an instrument. Also involved in emotional reactions to music.

Mike Faille/The Globe and Mail © Source: This is Your Brain on Music: The Science of a Human Obsession
Purpose

• The purpose of this study was to examine the association of organized music instruction in grades 5-12 and performance of undergraduate students enrolled in nursing programs in Texas.
Methods

• An exploratory, online, anonymous, survey-design study with interprofessional collaboration between nursing and music.

• The target population was associate degree, diploma, and baccalaureate level nursing program graduates in Texas, USA and students enrolled in the same programs who were not successful in program completion.
Recruitment and Data Collection

• TWU – Houston IRB
• All 78 accredited nursing program in TX were invited to participate via an email to the dean or program director
• The individual programs recruited study participants allowing participants to remain anonymous to the researchers
• Completion of the survey implied consent
Instrument

• Researcher-developed survey
• Reviewed by a panel of 3 expert nurse educators and 2 music educators
• Pilot tested with 9 nursing students to determine readability and clarity prior to being posted online
Study Participants

- N = 309
- 270 females (87.4%), 39 males (12.6%)
- Ethnicity – 204 (66 %) white, 105 (34%) non-white
- Respondents received education in grades 5-12 in 30 different states and 8 countries
- 235 (76.1%) received some music instruction in grades 5 -12
- ADN 26%, Diploma 6 %, BS/BSN 64 %, 4% missing
Hypotheses

• Undergraduate nursing students who participated in organized music instruction in grades 5 through 12 are more likely to:
  – H1 graduate from their nursing programs than students who have not had this experience
  – H2 have higher grade point averages upon exit from the nursing programs than students who have not had this experience
  – H3 pass the NCLEX-RN exam on the first attempt following graduation when compared to students who have not had this experience
Hypotheses

- H4 There is a positive relationship between the extent/duration of participation in organized music instruction in grades 5 through 12 and final/exit grade point averages of undergraduate nursing students.
Results

• Undergraduate nursing students who participated in organized music instruction in grades 5 through 12 were more likely to
  – H1 Graduate
  • Crosstabulations utilizing Pearson’s chi square
  • $\chi^2 (1) = 33.08, p < .001, \text{Cramer’s} V = .35$
  • Of those who graduated from a nursing program, a greater proportion reported having been in some type of organized music program (64.8%)
  • Only 2% of non-graduates participated in music programs in grades 5-12.
Results

- Undergraduate nursing students who participated in organized music instruction in grades 5 through 12 were more likely to:
  - H2 Have higher GPAs upon exit from their programs of study
    - ANOVA
    - There was a significant relationship between being in an organized music education and GPA at graduation, $F(1, 260) = 92.40, p < .001, \eta^2 = .26$.
    - Those who had been in music programs had significantly higher GPAs at graduation ($M = 8.03, SD = 1.42$) than those not in music programs ($M = 5.96, SD = 2.07$)
    - Students who had been in organized music programs had GPAs around 3.5-3.79 at graduation, and those who were not had GPAs around 3.0-3.19
    - The average non-graduate GPA was below 3.0
Results

• Undergraduate nursing students who participated in organized music instruction in grades 5 through 12 were more likely to
  • H3 pass the NCLEX-RN exam on the first attempt following graduation when compared to students who have not had this experience
    – Crosstabulations utilizing Pearson’s chi square
    – There was a significant relationship between music participation and passing the NCLEX-RN exam on the first attempt
      – $\chi^2 (1) = 25.18, p < .001$, Cramer’s $V = .35$
      – A greater proportion of those who had been involved in an organized music group passed the NCLEX-RN on the first attempt (70.4%) compared to those who failed their first attempt (17.4%).
Results

• H4 There is a positive relationship between the extent/duration of participation in organized music instruction in grades 5 through 12 and final/exit grade point averages of undergraduate nursing students
  – Pearson’s Product Moment Correlations
  – There was a significant, positive relationship between number of years taking music lessons and GPA at graduation of a nursing program, $r = .54$, $p < .01$
Implications for Nursing

• There is a need for new graduate professional nurses to be creative, critically thinking, confident, team-minded individuals.

• This study demonstrates these characteristics can be developed through music education in grade school through high school.

• Prior music education can be added as an indicator of potential success during the admissions process.
Conclusion

• Participation in organized music instruction during grade school is associated with greater nursing student success.
• Organized music participation data is objective, quantifiable, and can be collected quickly and inexpensively.
• Music in public schools is available to all students in Texas mediating bias of race, ethnicity, or socio-economic status.
• When selecting students for a limited number of slots offered by nursing schools, valid predictive criteria are essential.


References


Questions