



# A Comparison of COPD Patients' Quality of Life Using the Harmonica as a Means of Pulmonary Rehabilitation

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# Background

- Very little research has been done on COPD patients playing the harmonica.
- Reports have been written, which allude to playing the harmonica improves COPD patients QOL.
- My personal experience checking one patients O2 sat.

# Research Question

- Will playing the harmonica be an effective tool for pulmonary toileting in COPD patients and does it improve their QOL?
- Will there be a decrease use of antibiotic therapy, Emergency room visits or hospitalizations?

# Hypothesis

- COPD patients who use the harmonica in addition to their pulmonary rehabilitation program will decrease or wean off oxygen therapy, decrease the need for antibiotics, Emergency room visits, hospitalizations and show improvements in their QOL scores.

# Design

- Quantitative Study using a quasi-experimental design.

# Sample

- Convenience sample
- Inclusions: outpatients with COPD disease enrolled in Pulmonary Rehabilitation
- Recruited on a volunteer basis
- Exclusions: patients with restrictive Lung disease and pulmonary hypertension, non English speaking.
- A statistician calculated a power analysis to determine sample size needed to achieve statistical significance

# Method

- The study was IRB approved.
- Signed written informed consent was obtained prior to any data collection.
- Subjects were randomized to either:
  - Control Group (non-harmonica playing)
  - Experimental Group (harmonica playing)

# Data Collection

- Demographics, oxygen saturations and other variable were recorded on data collection tools.
- Ferrans and Powers QLI tool was used pre & post which has a total score and the following subscales:
  - Health & Functioning
  - Social & economic
  - Psychological/spiritual
  - Family

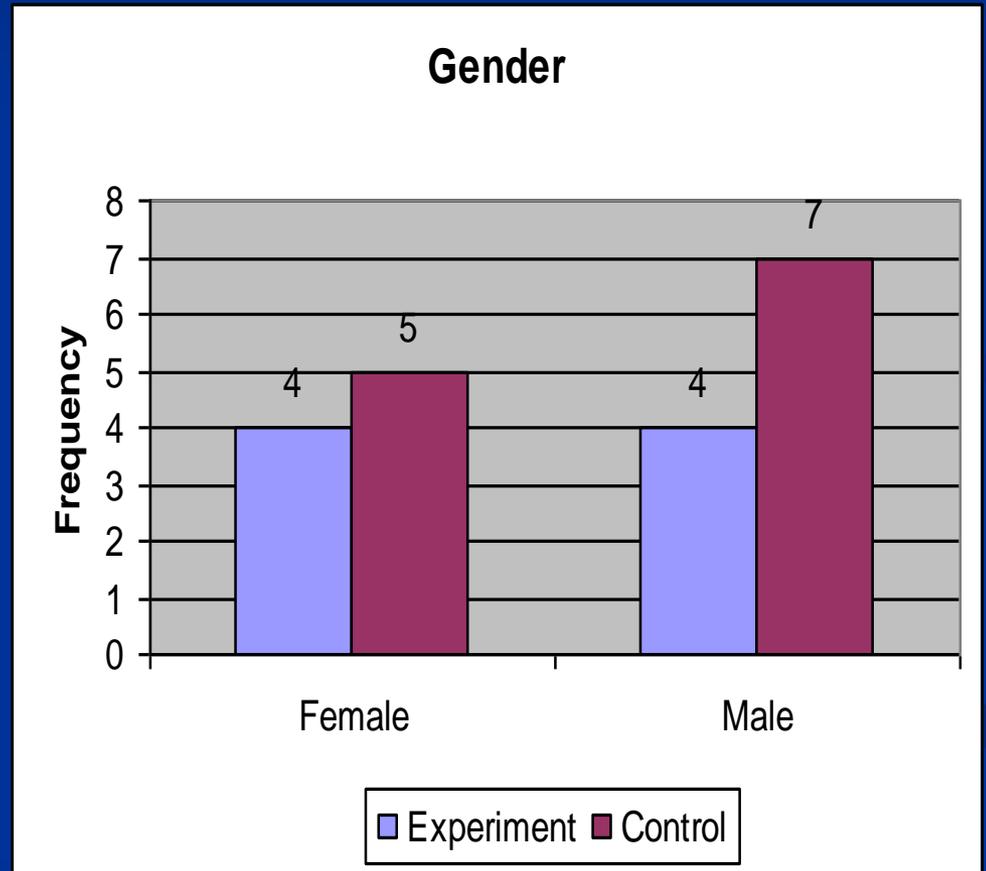
# Interventions

- Subjects in the experimental group played the harmonica for ten minutes (with an instructor) three times per week for 4-6 weeks.
- Control group received the standard pulmonary rehabilitation.
- Every participant would sit for five minutes before O<sub>2</sub> saturation was measured.

# Results: Background

- Experiment group:  
four female and four male  
patients (n=8)
- Control Group:  
Five female and  
seven male  
patient (n=12)

*Figure 1. Respondents' gender*



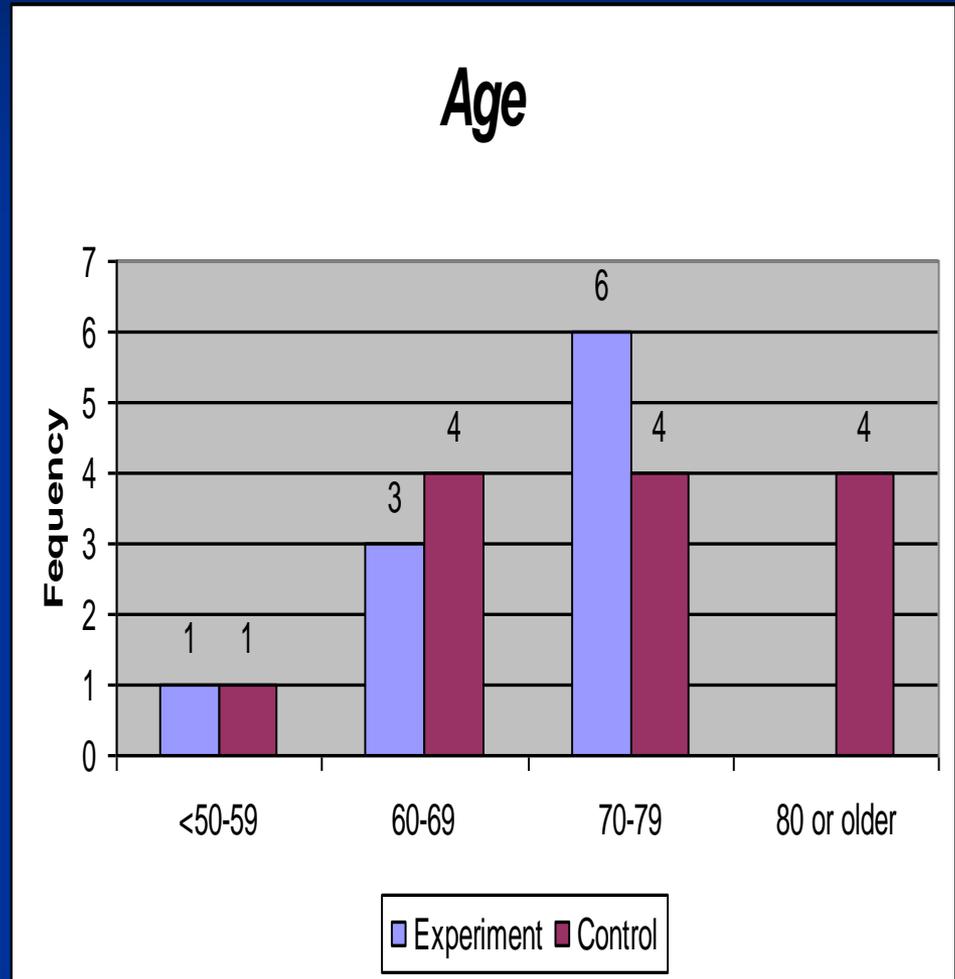
# Respondents' Age:

- Mean age: 71.43  
(SD 8.38)

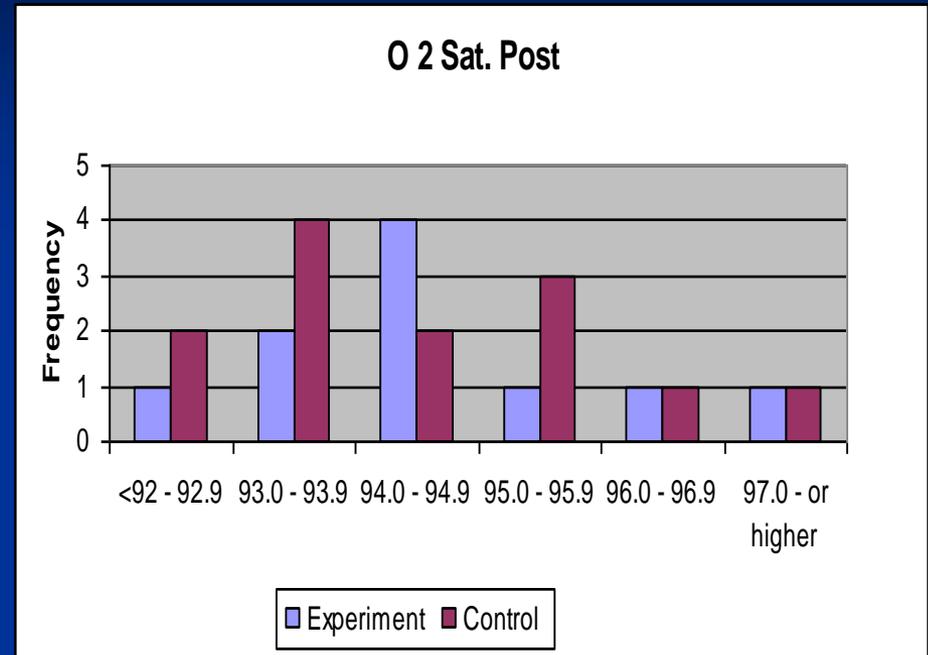
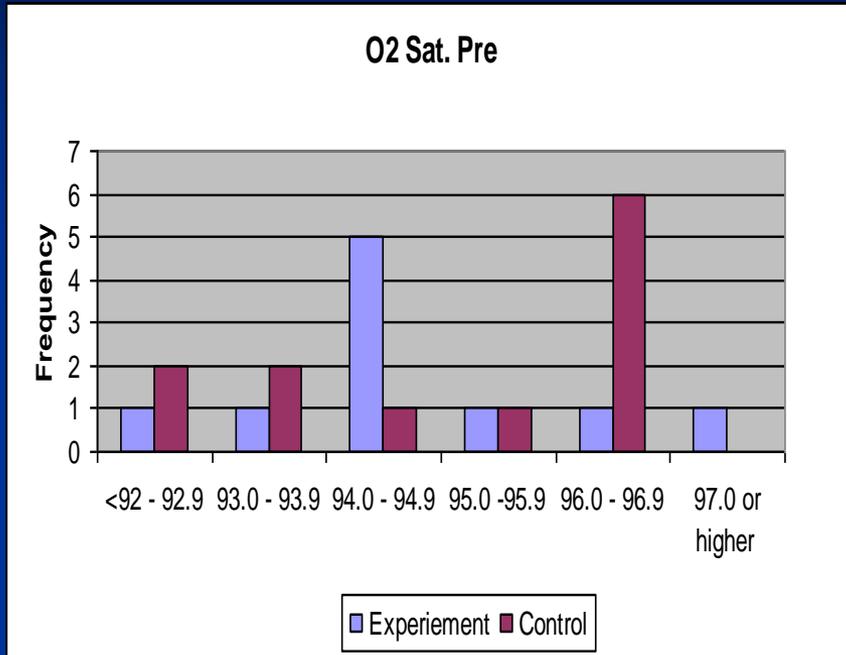
Control group: 72.7 yrs (SD 9.04)

Experiment group: 69.8 yrs  
(SD 7.56)

- Age range: 53 – 87 yrs



# Oxygen therapy



- O2 saturation: statistically significant differences were not found within or between the two groups before and after the classes/Rx

	Harmonica	Control	Mean Diff	t	p
Pre	94.68 (1.28)	94.97 (1.60)	-0.290	-0.467	0.645
Post	94.75 (1.45)	94.51 (1.55)	0.241	0.379	0.709

# ED Visits

## Pre Class ED Visits

## Post Class ED Visits

### Experiment Control

### Experiment Control

Non	9 (90%)	12 (92.3%)
One	1 (10%)	1 (7.7%)

Non	10 (100%)	13 (100%)
One	-	-

- Patients in both groups had only one ED visit (pre class) and no ED visits after the Class

# Hospitalizations

## Pre Dx Hospitalizations

	<u>Experiment</u>	<u>Control</u>
Non	9 (90%)	12 (92.3%)
One	1 (10%)	1 (7.7%)

## Post Dx Hospitalizations

	<u>Experiment</u>	<u>Control</u>
Non	10 (100%)	13 (100%)
One	-	-

- Patients in both groups had only one hospitalization episode and no hospitalizations after the Dx

# Need for Antibiotics

## Pre Antibiotic Use

	<u>Experiment</u>	<u>Control</u>
Non	9 (90%)	11 (84.6%)
One	1 (10%)	2 (15.4%)

## Post Antibiotic Use

	<u>Experiment</u>	<u>Control</u>
Non	9 (90%)	11 (84.6%)
One	1 (10%)	2 (15.4%)

- One patient in experiment and two in control groups needed antibiotics before and after the program

# Quality of Life

- The **experiment/harmonica group** increased 2.06 points and health and functioning increased 3.21 points after pulmonary rehab. There were clinically relevant improvements ( $>2$  points) in:
  - overall QOL ( $p<.05$ ) and
  - health and functioning ( $p<.01$ ) before and after harmonica playing
- The **control group** experienced also increases in QOL across all subscales with an average increase of 1.35 points. There were clinically significant increases ( $p<.05$ ) in
  - overall QOL (3.05 points)
  - health and functioning (4.38 points) and
  - family (2.92 points) after pulmonary rehab

# Implications

- This was a good study, however it did not support my hypothesis of improving O<sub>2</sub> saturations
- It was rewarding to see that QOL improved for both groups after pulmonary rehabilitation and that harmonica playing is an inexpensive tool in which a nurse can recommend to patients to improve their QOL

# Patient comments

- “Had not played the harmonica in many years. I enjoyed this session and I have come to understand that breathing through the harmonica has done my lungs good. I will continue to do so, thank you all.”
- “First of all, I must say that I enjoyed this study very much. It helped me to know how to breathe properly. The harmonica was a good tool for this, I think. I looked forward to the sessions and the instructions given by Sharon.”
- “One of my patients was a 65 y.o. woman who had never played a musical instrument but by the end of the program she had learned to play 10-12 songs. She was going to teach her grandchild how to play and was excited to be able to play it with him. To see the smile on her face and her enthusiasm filled my heart with joy.”

# References

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Questions?