

# END OF LIFE VIRTUAL REALITY TRAINING: MEDICAL STUDENT INCREASED EMPATHIC ABILITY

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# Background

- It is unclear if empathy in both osteopathic and allopathic medical students declines by the third year of medical school as the students enter their clinical rotations.<sup>1</sup>
- However, some individuals believe that empathy declines over the years. One idea proposed by Triffaux believes there is a difference between in-group and out-group that can lead to a decline in empathy.<sup>2</sup>
- Empathy is important to maintain throughout the career as it is vital for physician-patient relationship. <sup>3</sup>

# Purpose

- To determine if self-assessed empathy can be increased through an end of life virtual reality (VR) experience.
- Embodied Labs, Inc. Clay Lab.



# Methods

- Second year UNE COM medical students (N=174) completed the Clay Lab VR experience during January 2020.
- VR Clay Lab: 3-part VR experience – 21 min total
  - Student embodied Clay, 66 year old male veteran with incurable lung cancer.
  - Experiences included a difficult end-of-life conversation; transition to home hospice care; and eventually death.
- Students were asked to complete a pre-test and post-test survey.
- UNE IRB Approved



# Survey and Data Analysis *[Methods Continued]*

- The pre/post test surveys included eight Likert scale questions and two open-ended questions.
- The data was collected via the RedCap program.
- Pre and post-test data was paired based on student email address. Only the students that completed both the pre and post-test were included.
- Closed questions were analyzed through frequency analysis and paired-sample t-test using excel.
- Open ended question were analyzed through N-VIVO 12+
- This study focused on quantitative data.



# Results

Final data: N=146  
students  
UNE COM Class of  
2022.

## Frequency Analysis (Class of 2022 COM students; N=146)

Likert scale 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Question	PRE - % agree or strongly agree	POST - % agree or strongly agree	Difference
I understand what a <b>loved one</b> experienced during the dying process and therefore have knowledge of end of life care	25.33	52.05	26.72
My <b>experience</b> with dying patients in a hospital or nursing home provided a good education on end of life care.	27.40	44.52	17.12
I gained <b>knowledge</b> about what hospice is by embodying Clay in this virtual reality lab.	23.97	64.38	40.41
I am <b>comfortable talking</b> about end of life.	26.03	38.36	12.33
I am <b>comfortable caring</b> for a person who has less than six months to live.	24.66	42.47	17.81

# Results

Likert Scale 1 = Negative, 2 = Somewhat negative, 3 = Neutral, 4 = Somewhat positive, 5 = positive

Question	PRE - % somewhat positive or positive	POST - % somewhat positive or positive	Difference
What is your view of <b>hospice</b> care?	62.33	75.34	13.01
What is your view of conducting a full code on a patient with a <b>DNR</b> ?	4.11	10.96	6.85

# Results

Likert Scale 1 = Choosing life-saving care, 2 = Probably choose life-saving care, 3 = Not sure/Neutral, 4 = Probably choose palliative care, 5 = Choosing palliative care

Question	PRE - % probably choose palliative care or choose palliative care	POST - % probably choose palliative care or choose palliative care	Difference
With what you know right now, how likely would you <b>choose</b> lifesaving treatments over palliative care for your patient who is nearing the end of life?	37.67	66.44	28.77



# Results

## Paired Sample t-tests (Class of 2022 COM students; N=146)

Questions	Mean - PRE	Mean - POST	Sig (0.01)
I understand what a <b>loved one</b> experienced during the dying process and therefore have knowledge of end of life care	2.68	3.51	0.00
My <b>experience</b> with dying patients in a hospital or nursing home provided a good education on end of life care.	2.57	3.32	0.00
I gained <b>knowledge</b> about what hospice is by embodying Clay in this virtual reality lab.	2.45	3.77	0.00
I am <b>comfortable talking</b> about end of life.	2.79	3.22	0.00
I am <b>comfortable caring</b> for a person who has less than six months to live.	2.70	3.21	0.00
What is your view of <b>hospice</b> care?	3.81	4.16	0.00
What is your view of conducting a full code on a patient with a <b>DNR</b> ?	1.98	2.08	0.14
With what you know right now, how likely would you <b>choose</b> lifesaving treatments over palliative care for your patient who is nearing the end of life?	3.37	3.82	0.00

# Discussion

- 7 of 8 Closed Questions Pre-Post met statistical significance ( $P=.01$ )
- Question 7 (*What is your view of conducting a full code on a patient with a DNR?*) failed to meet statistical significance ( $P= .14$ )
- Question 3 data had greatest difference (*I gained knowledge about what hospice is by embodying Clay in this virtual reality lab*);
  - Pre Test (23.97% agree or strongly agree)
  - Post-Test (64.38% agree or strongly agree)
  - $P= .00$ .
- This Research did not test enduring empathy of these students.
- Further research could entail a longitudinal study to assess the impact of virtual reality on self-assessed empathy as these students interact with patients during their clinical rotations.

# Limitations

- Empathy that is measured is self-reported and within a short time frame.
- Study is limited to medical students from one school

# Conclusion

- This virtual reality experience increased self-assessed empathy at the time of Clay Lab completion.



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# References

- [1] 1. HOJAT M. *Empathy In Health Professions Education And Patient Care*. SPRINGER; 2018.
- [2] Triffaux JM, Tisseron S, Nasello JA. Decline of empathy among medical students: Dehumanization or useful coping process?. *Encephale*. 2019;45(1):3-8.  
doi:10.1016/j.encep.2018.05.003
- [3] McTighe AJ, DiTomasso RA, Felgoise S, Hojat M. Effect of Medical Education on Empathy in Osteopathic Medical Students. *J Am Osteopath Assoc*. 2016;116(10):668-674.  
doi:10.7556/jaoa.2016.131