

# Walk a Mile in Their Shoes:

Using simulation to improve medical student understanding of barriers to medication adherence

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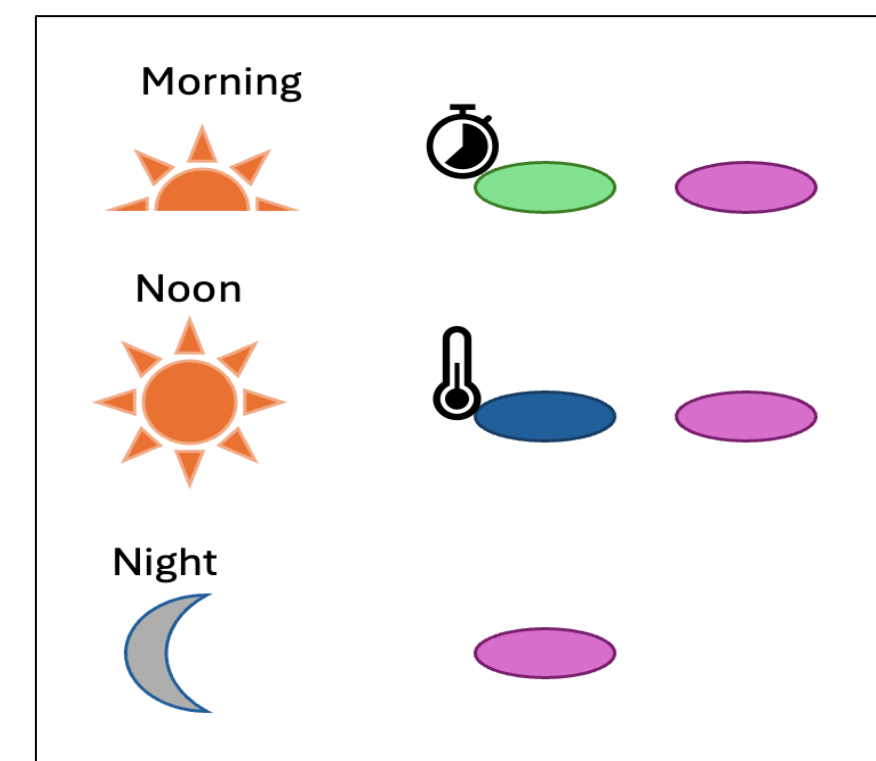
## Background

- Medication non-adherence impacts an estimated 25% of the United States population<sup>1</sup>
- WHO defines medication adherence as “the extent to which a person’s behavior [...] corresponds with agreed recommendations from a health care provider<sup>2</sup>”
- Increasing patient’s trust in their provider can improve medication adherence<sup>3,4</sup>
- Trust may be improved with physician communication training and increased provider empathy<sup>5</sup>
- Simulation is a highly effective tool to increase empathy in healthcare trainees, as is communication training<sup>6,7</sup>
- The aim of this study is to evaluate whether use of a medication adherence simulation will lead to increased knowledge of and ability to communicate about barriers to medication adherence as well as solutions to these challenges.

## Methods

- Curriculum was designed utilizing the Curriculum Proposal Worksheet designed by Dr. Dyess and Dr. Miller
- Participants will be recruited by word-of-mouth from first, third, and fourth year medical students enrolled in University of Colorado School of Medicine’s Rural Medicine Track
- Pre- and post- intervention surveys will be used to assess impacts of intervention.
- For this curricular intervention, participants will engage with a 1-week simulation of managing three ‘medications,’ followed by a debrief session to explore participant experiences and solidify learning objectives
- Comparison will be made pre- and post-intervention utilizing survey responses. Quantitative pre- and post- intervention data will be compared using 1-tailed paired T-test.

## Curricular Intervention



**Figure 1: Illustration of medication schedule to be followed by participants.** Medication 1 indicated by green oval. Medication 2 indicated by pink oval. Medication 3 indicated by navy oval. Clock icon indicates that this medication has a timing requirement. Thermometer icon indicates that this medication has a temperature requirement.



**Figure 2: Photograph of medication kit assembly process.** Each student received 3 labeled bottles of ‘medications,’ which were different types of candies.

### Schedule:

#### Day 1:

- Take pre-intervention survey
- Receive 5 minute pre-brief of simulation structure and learning objectives
- Participants given the three ‘medications’ as well as administration instructions in the form of an ‘after-visit summary’

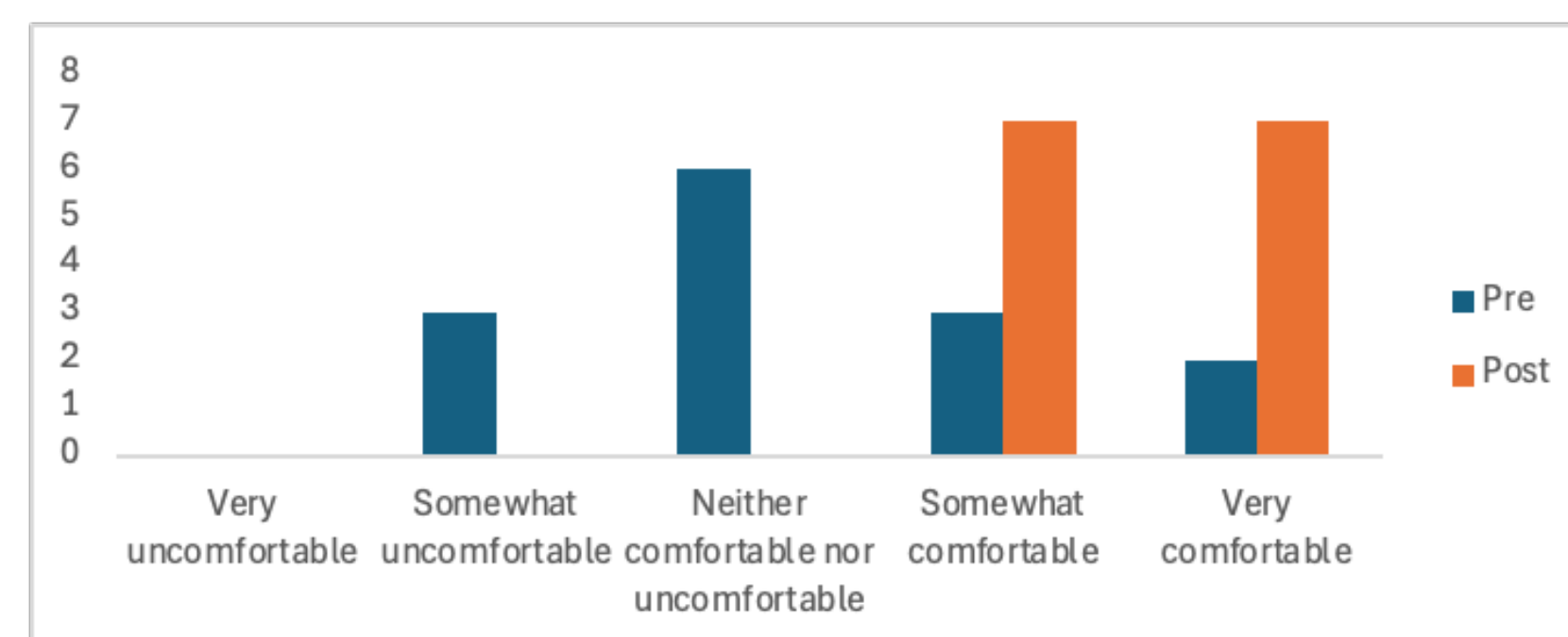
#### Day 1-7:

- Participants take medications as instructed
  - Medication 1 : Take 30 minutes before eating in the morning
  - Medication 2 : Take 3 times per day
  - Medication 3: Must be refrigerated and taken at lunch

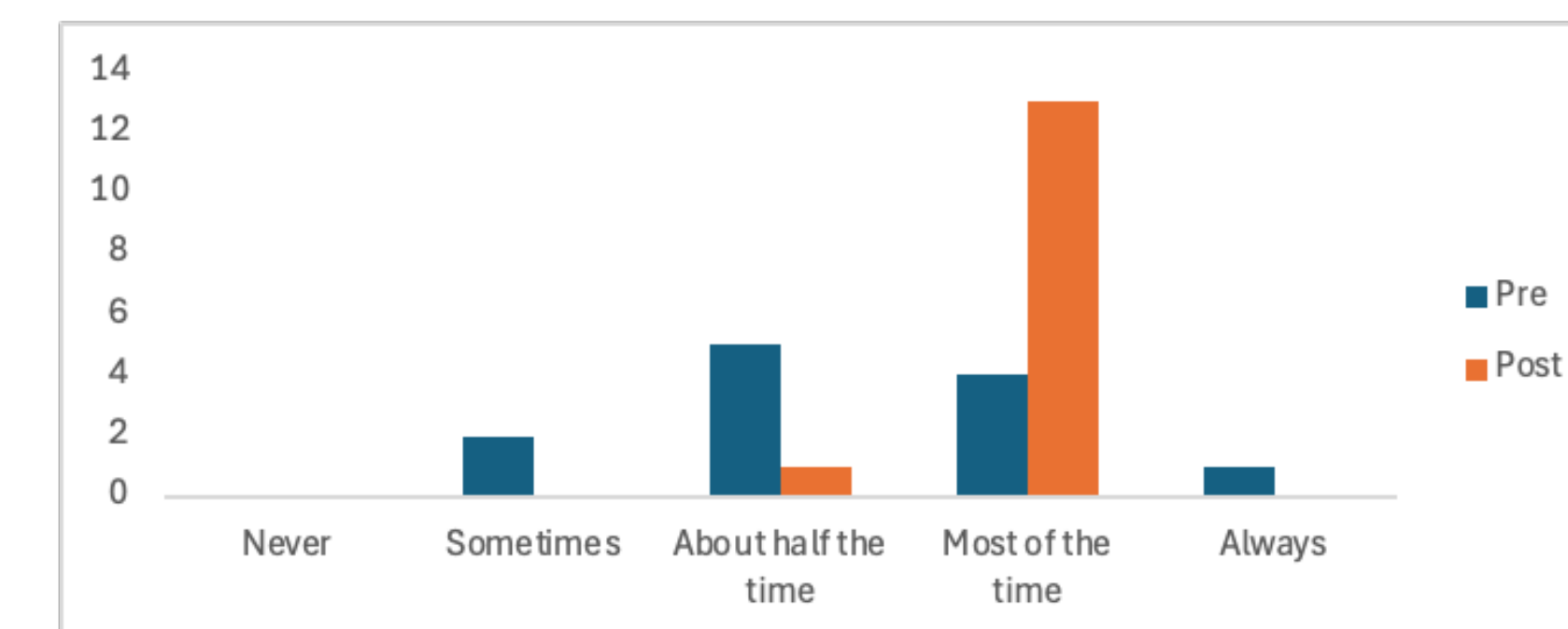
#### Day 7:

- Guided discussion about experience
- Brief lecture on medication adherence
- Roleplay physician-patient interaction
- Take post-intervention survey

## Results



**Figure 3: Comfort of participants regarding working with patients struggling with medication adherence.** N<sub>pre</sub> =20, N<sub>post</sub>=17. Survey utilized a 5 point Likert scale. Pre- and post-survey responses showed significant improvement in participant comfort. df(16), p<0.001.



**Figure 4: Frequency with which participants could devise solutions to challenges patients might have taking medications.** N<sub>pre</sub> =20, N<sub>post</sub>=17. Survey utilized a 5 point Likert scale. Pre- and post- survey responses showed significant improvement in frequency of identifying challenges. df(16), p=0.005.

## Conclusions

The results of this pilot program suggest that this medication adherence simulation significantly improved student’s confidence and ability to support patients struggling with medication adherence. It also increased their empathy for these patients.

After the intervention, students had:

- Increased comfort in working with patients struggling with medication adherence (df(16), p<0.001)
- Increased comfort discussing medication adherence with patients (df(16), p<0.001)
- Greater ability to identify challenges patients might have taking their medications as prescribed (p=0.009),
- Improved ability to and devise solutions to those challenges (df(16),p=0.005)
- 82% (14 out of 17) of students “strongly agreed” that the intervention helped them feel more comfortable supporting patients struggling with medication adherence
- 76% of participants “strongly agreed” that they felt more empathy for patients struggling with medication adherence

## Limitations

- Small sample of only Rural Track students, which represents only a subsection of medical students
- Did not use validated empathy scale
- Simulation cannot truly simulate the patient experience as it does not fully encapsulate the psychological, emotional, and financial burden of complex medication regimens on our patients

## Future Directions

- Expansion to broader medical school, possibly as part of Health and Society curriculum
- Further evaluation of influence of participant’s personal experiences with disability on outcomes
- Include validated empathy scale

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