A Survey of Augmented Reality/Virtual Reality Interest in Medical Settings

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Introduction

With increasing adoption of Augmented Reality (AR) and Virtual Reality (VR) in the medical field, much of the literature to date has investigated the specific benefits these technologies can confer to patients, providers, and healthcare facilities. [1,2,3]

- Important to understand the relationship between these new and rapidly developing technologies
- Populations who must interface with them in order to deliver these benefits

Purpose: To identify the level of interest in adopting AR/VR technology in its current state, and the areas of disconnect that may be preventing wider adoption in medicine.

Image Source: https://visualise.com/virtual-reality/virtual-reality-healthcare

Methods

This study examined the overall level of interest in AR/VR usage in medicine, as well as modulating factors of that interest among UCHealth employees/affiliates.

- Participants were presented with 3 short videos demonstrating AR/VR use [4]
- REDCap survey was delivered by email and QR code to study population
- Questions surveyed demographic data, participant impressions of AR/VR in multiple choice/likert scale format, and free response

Following completion of the survey, participants were given an opportunity to provide contact information if they are interested in joining a future prospective study for AR/VR in medicine.
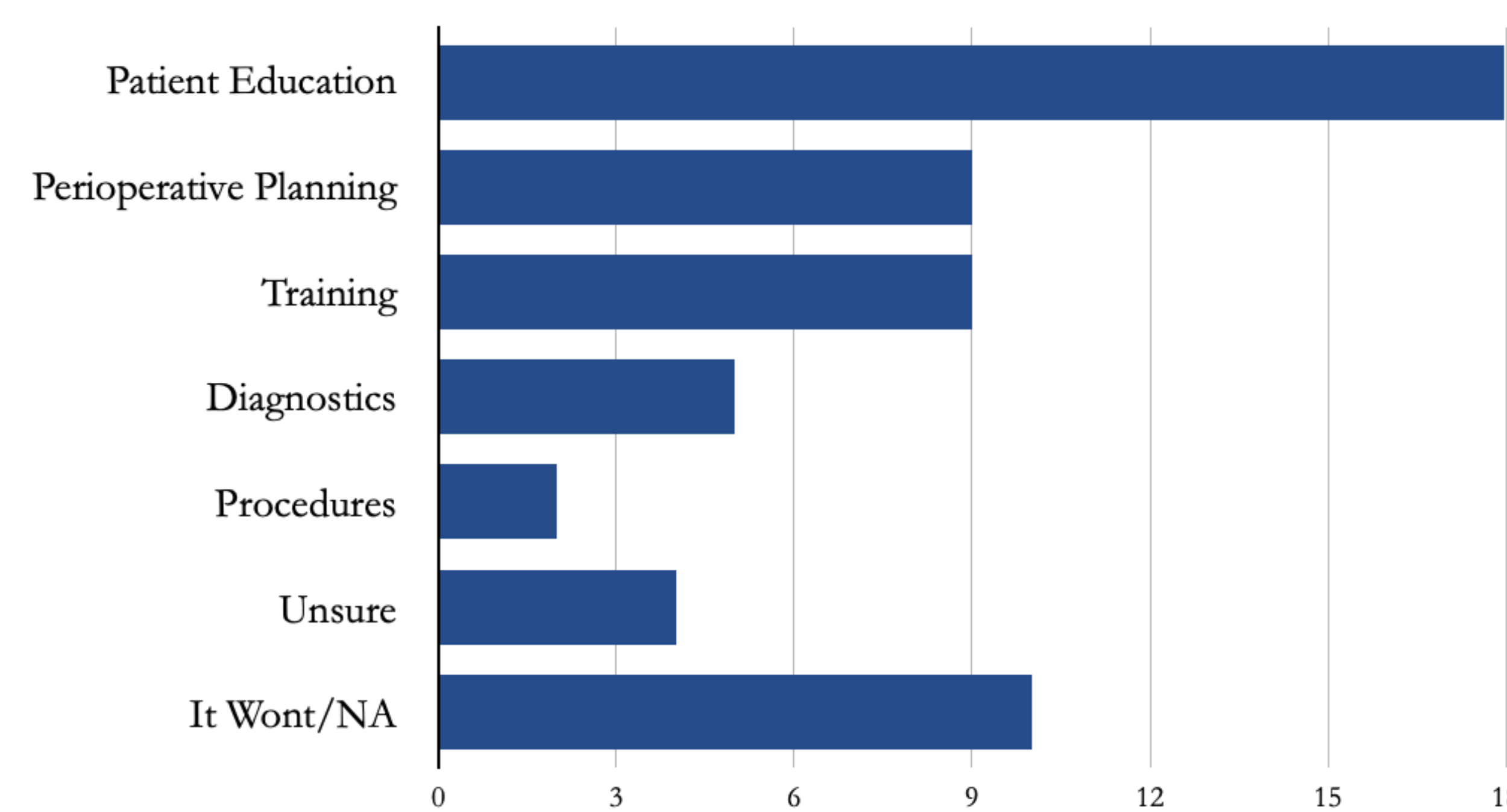
Results

Demographics

Category	Sub-Category	Frequency (N)	Percent (%)
Sex	Female	26	50
	Male	26	50
Age	20-35	19	36.5
	36-50	24	46.2
	>51	9	17.3
Years in Current Position	0-7	36	69.2
	8-14	10	19.2
	>15	6	11.5

Respondent Breakdown
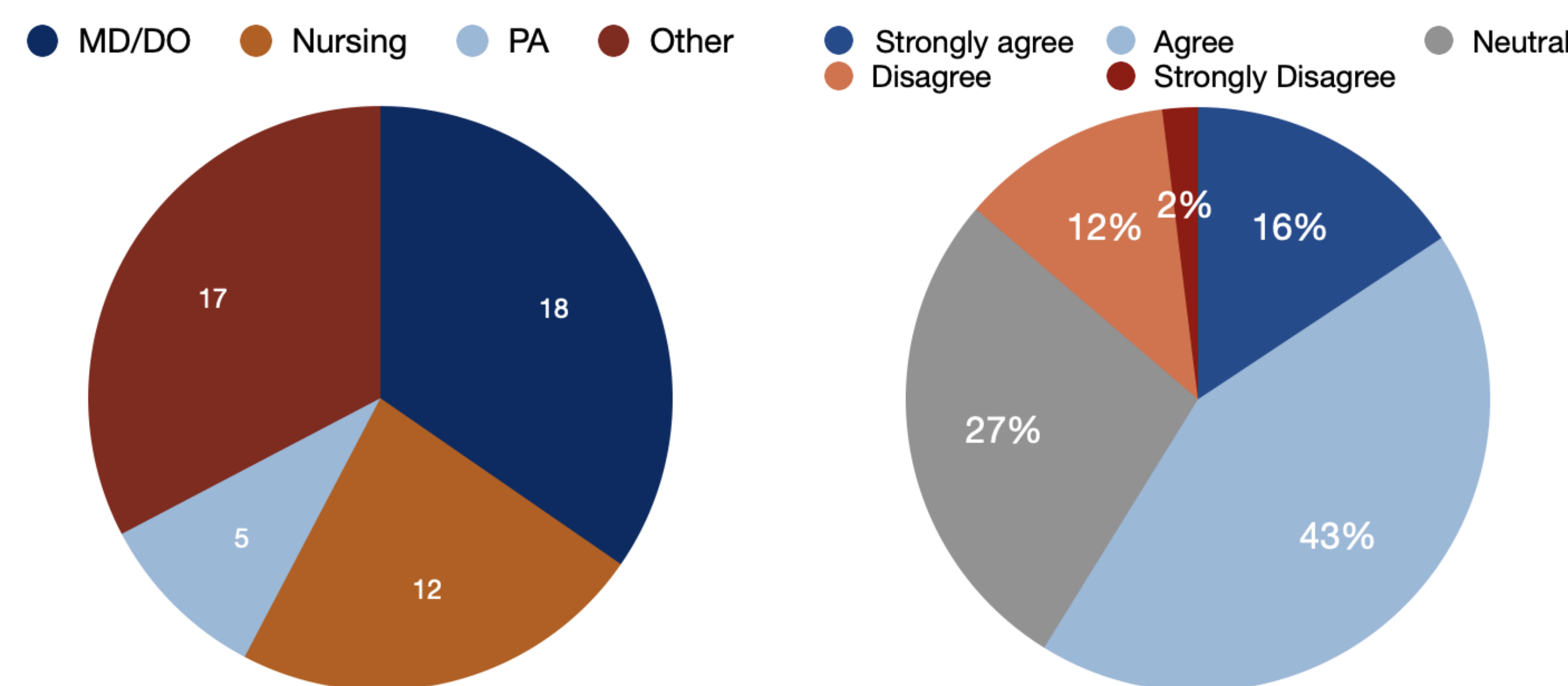
"I am interested in using AR/VR in my practice"

Free Response: "How would AR/VR change your practice?"

Likert Responses

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The visual display distracts from the understanding of spatial relationships	13 (25.5)	21 (41.2)	14 (27.5)	3 (5.9)	0 (0)
The ability to manipulate clinical scans in the virtual environment was compelling	0 (0)	1 (2.0)	9 (17.6)	22 (43.1)	19 (37.3)
The visual aspects of the virtual environment can provide better anatomical detail than conventional 2D models	0 (0)	1 (2.0)	10 (19.6)	19 (37.3)	21 (41.2)
I feel confident in my ability to learn to use the system	0 (0)	2 (3.9)	15 (29.4)	27 (52.9)	7 (13.7)
The virtual environment is impractical	12 (23.5)	20 (39.2)	13 (25.5)	5 (9.8)	1 (2.0)
The virtual environment is manageable	0 (0)	2 (3.9)	11 (21.6)	33 (64.7)	5 (9.8)
I believe this technology could benefit my practice more than Traditional 2D/3D imaging	1 (2.0)	6 (12.0)	18 (36.0)	21 (42.0)	4 (8.0)

Conclusion

Medical providers are interested in AR/VR in medicine and can predict ways in which this technology can be implanted today in practice to help patients and providers alike.

Based on the Technology Acceptance model [5], we would predict:
- this to correlate with a higher likelihood that if these technologies were to be implemented in practice
- they would be accepted by the community and confer their potential benefits to the field of medicine

Next Steps

In the course of this study, we have identified a number of participants who are interested in a prospective study analyzing outcomes of medical care involving the use of AR/VR. We hope to develop our follow up study and further elucidate any benefits that this new and exciting technology can contribute to the field of medicine.

References

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