

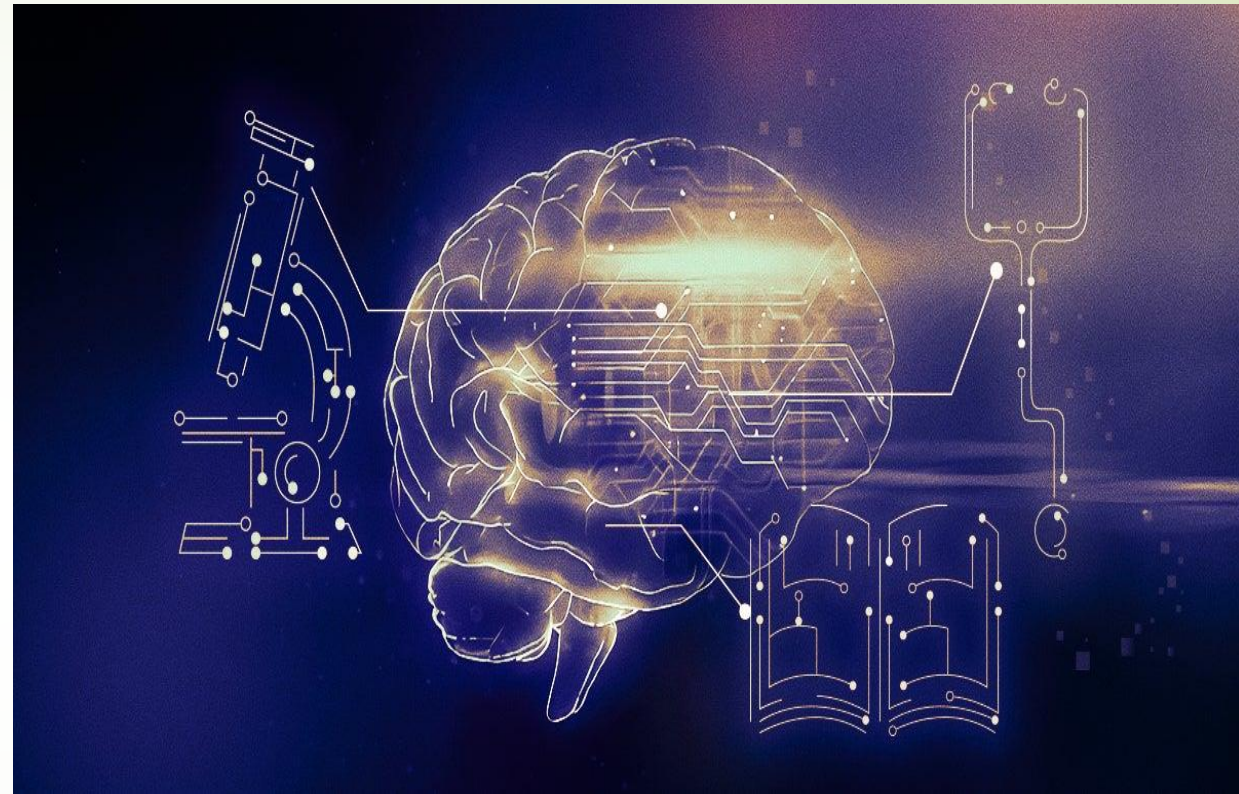
# ARTIFICIAL INTELLIGENCE IN MEDICAL IMAGING

## PRELIMINARY FINDINGS INTO THE GHANAIAN PATIENTS' PERSPECTIVES

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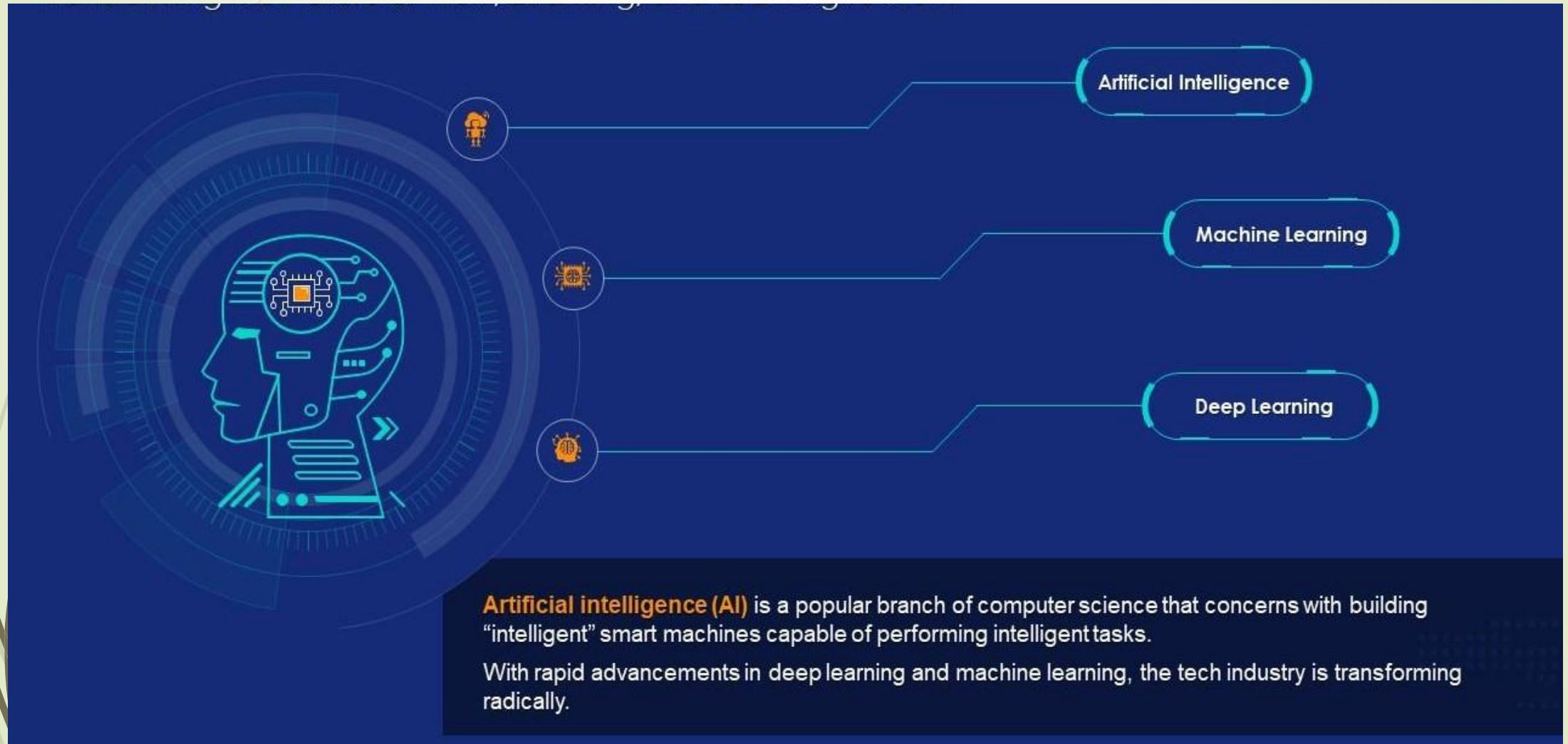




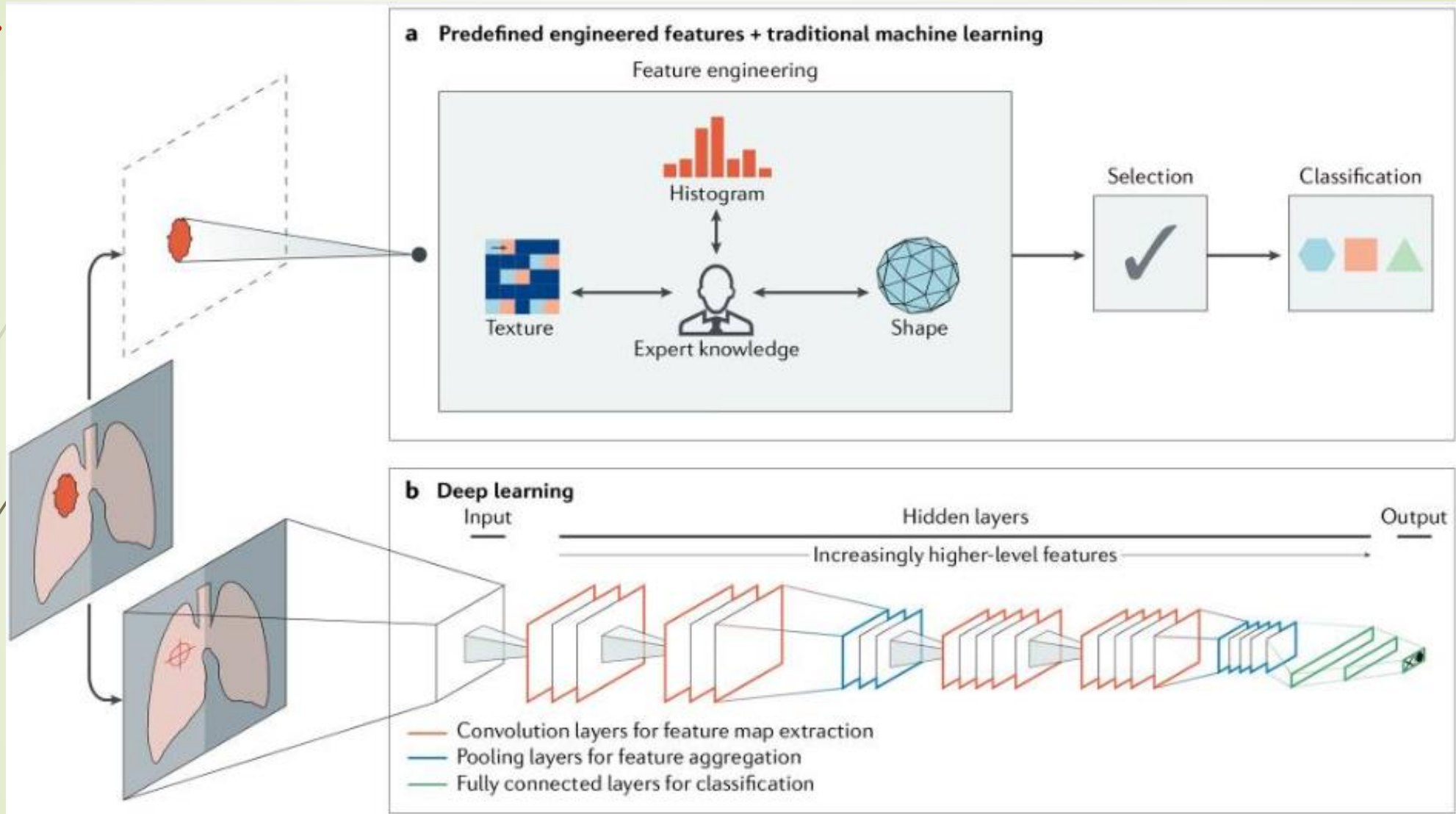
# PRESENTATION OUTLINE

- Background on Artificial intelligence in Medical Imaging
  - Researches on AI perspectives & Implementation in Ghana
  - Patient-centered care in Radiology
  - Ghanaian Patients' Perspective of AI implementation in Ghana
  - Conclusions & implication to practice/implementation and research
- 

# Artificial Intelligence (AI) ?



# AI in Medical Imaging



Source: Hosny A. et al. 2018. *Artificial intelligence in Radiology*

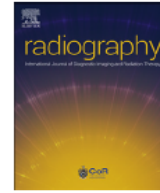
# Researches on AI perspectives & Implementation in Ghana



Contents lists available at ScienceDirect

Radiography

journal homepage: [www.elsevier.com/locate/radi](http://www.elsevier.com/locate/radi)



Impact of artificial intelligence  
Futuristic prospects in radiography

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Antwi et al. *Insights Imaging* (2021) 12:80  
<https://doi.org/10.1186/s13244-021-01028-z>

Insights into Imaging

ORIGINAL ARTICLE

Open Access

## Artificial intelligence in medical imaging practice in Africa: a qualitative content analysis study of radiographers' perspectives



William Kwadwo Antwi<sup>1</sup>, Theophilus N. Akudjedu, PhD<sup>2</sup>

Journal of Medical Radiation Sciences

Open Access

**Abstract**

**Purpose:** Studies have documented the impact of artificial intelligence (AI) on patient care. This study aims to explore the perspectives of radiographers on the emerging integration of AI into diagnostic imaging in Ghana.

ORIGINAL ARTICLE

## Radiographers' perspectives on the emerging integration of artificial intelligence into diagnostic imaging: The Ghana study

Benard O. Botwe, PhD,<sup>1</sup> William K. Antwi, PhD,<sup>1</sup> Samuel Arkoh, BSc,<sup>1</sup> & Theophilus N. Akudjedu, PhD<sup>2</sup>

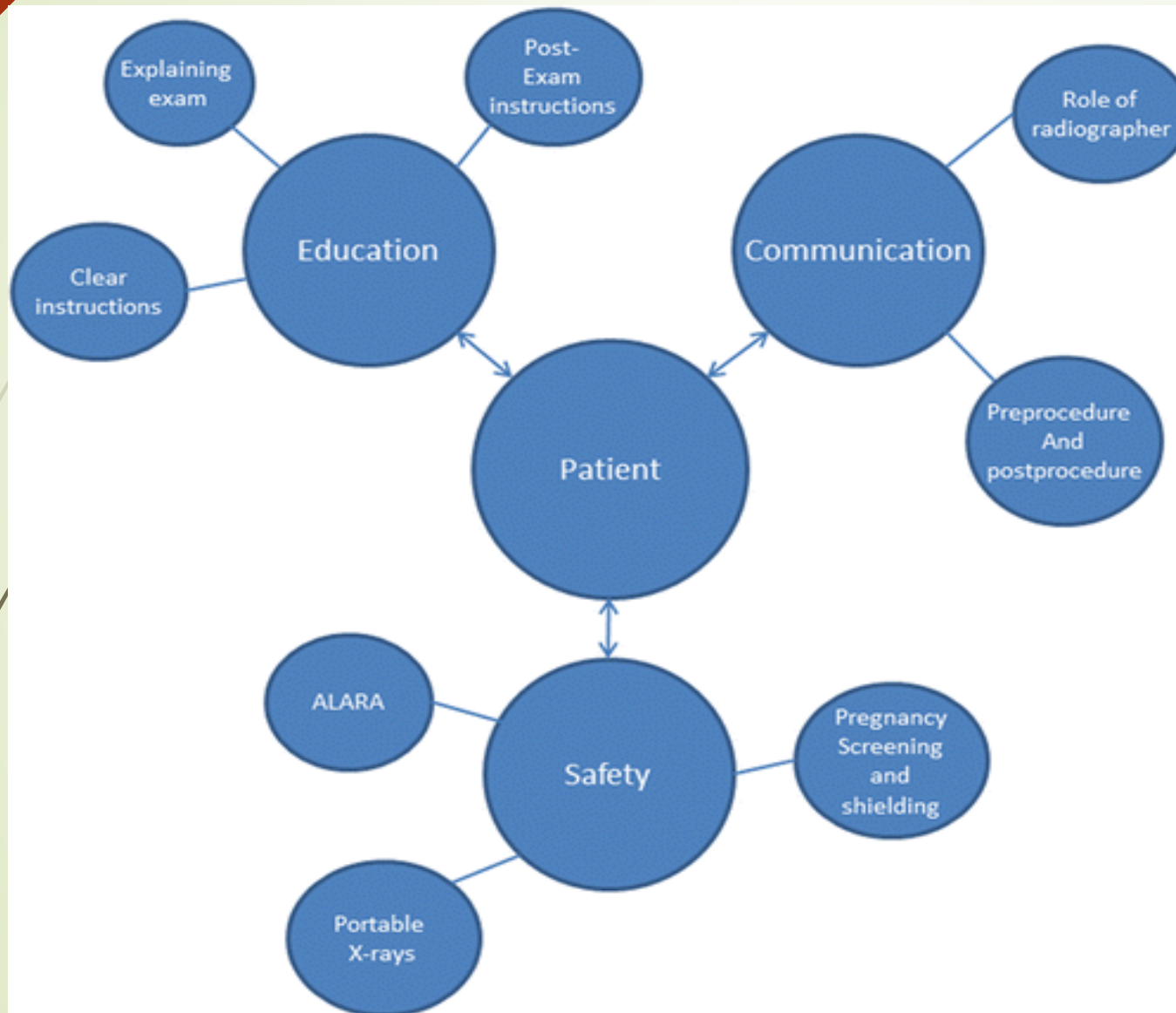
<sup>1</sup>Department of Radiography, School of Biomedical and Allied Health Sciences, College of Health Sciences, University of Ghana, Accra, Ghana

<sup>2</sup>Department of Medical Science & Public Health, Faculty of Health & Social Sciences, Institute of Medical Imaging & Visualisation, Bournemouth University, Poole, UK

# Conclusions drawn from AI Implementation research in Ghana

- The fast evolving technology will be widely accepted by imaging professionals due to its potential benefits in aiding diagnosis
- More training and collaborations will be needed for implementation (industry and academia consultations).
- Potential implementation bottlenecks - AI-related errors, cost, cyber threat, data protection and fear of job loss.

# Patient-centered Care – Radiology



Itri, J.N. (2015) 'Patient-centered Radiology',

## Patient-Centered Healthcare System



Source: WHO. 2015 Global Expert Consultation on the WHO Framework on Patient and Family Engagement





# Ghanaian Patients' Perspective of AI implementation in Ghana

## **OBJECTIVES OF STUDY:**

- To seek patients' knowledge on AI & create awareness of AI in medical imaging to a section of patients at University of Cape Coast Hospital.
- To seek patients' opinion on the implementation of AI in their routine care
- To identify potential concerns of patients in AI implementation



# METHODS

- ▶ Cross-sectional study design using a structured questionnaire
- ▶ A total of 50 patients presenting to the radiology department of the UCC Hospital for ultrasound scan were engaged by Simple random sampling after obtaining informed consent.
- ▶ Duration of data collection: 2 weeks

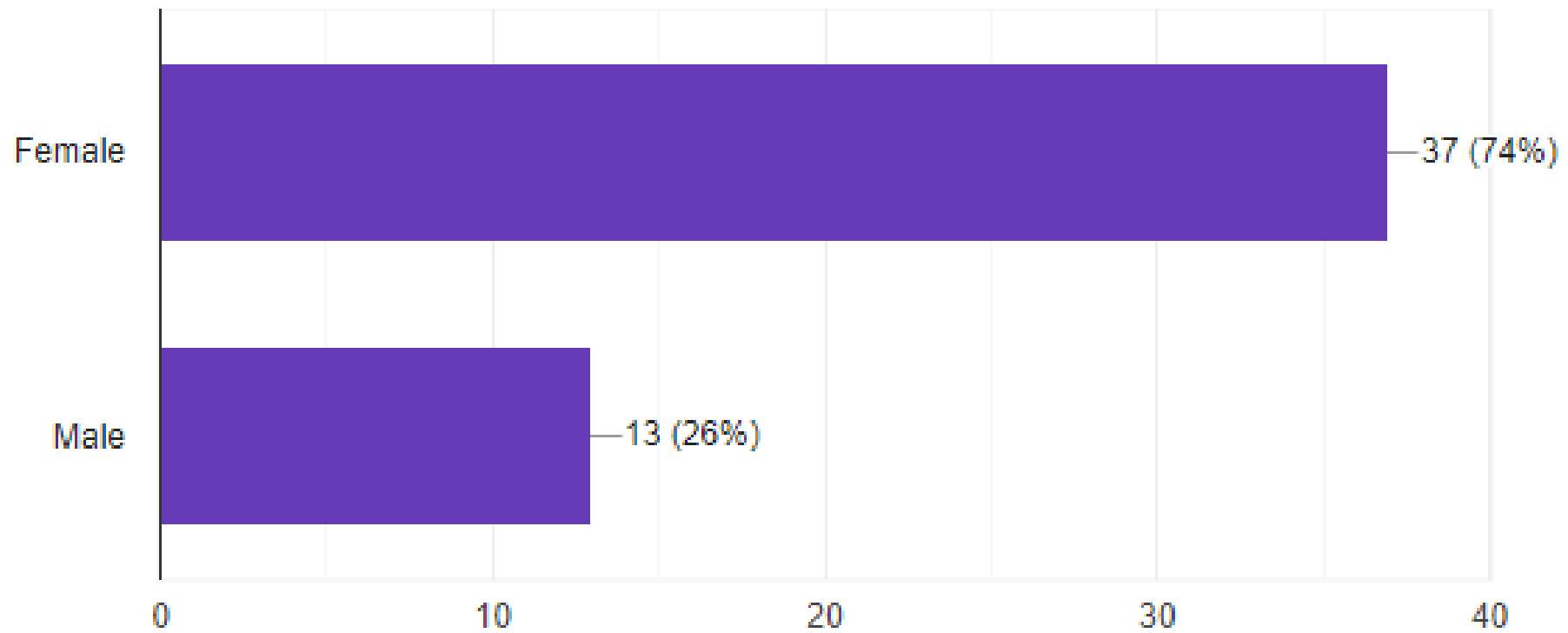
# METHODS – CONT'D

## Survey index questions:

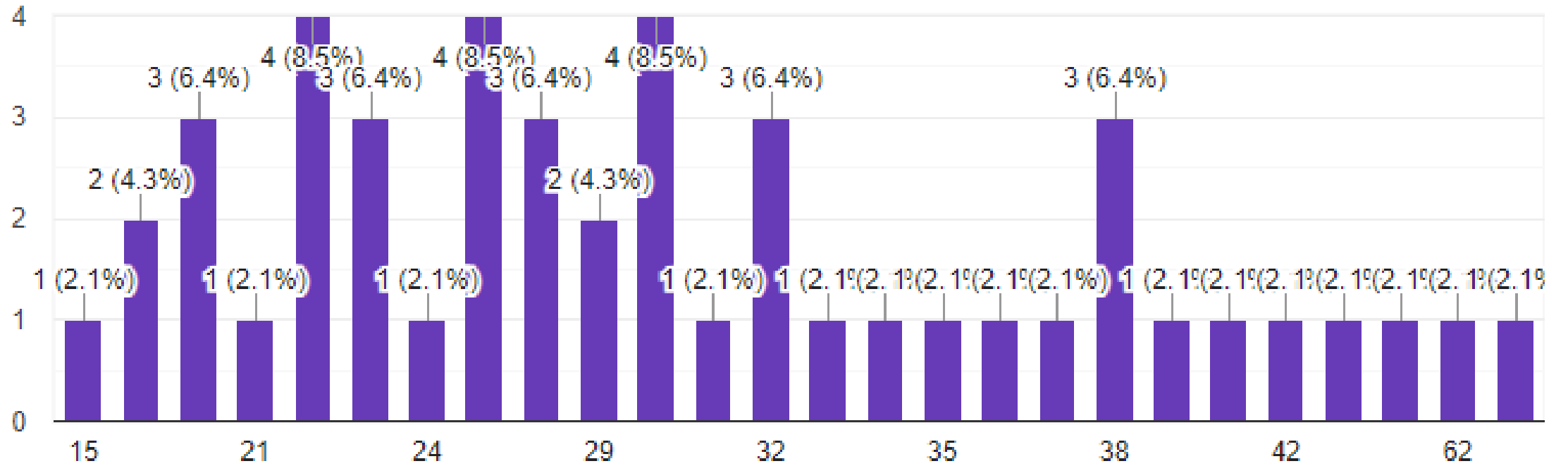
- a) How do you feel about an AI technology contributing to your diagnosis when you go for an ultrasound scan?
- b) Do you think AI technology should be solely used for ultrasound imaging or should complement the work of sonographers?
- c) Do you agree AI technology will provide better image interpretation and diagnosis as compared to a sonographer?
- d) Which of these do you feel can be a concern in the implementation of AI in ultrasound imaging in Ghana?

# RESULTS

## Gender distribution



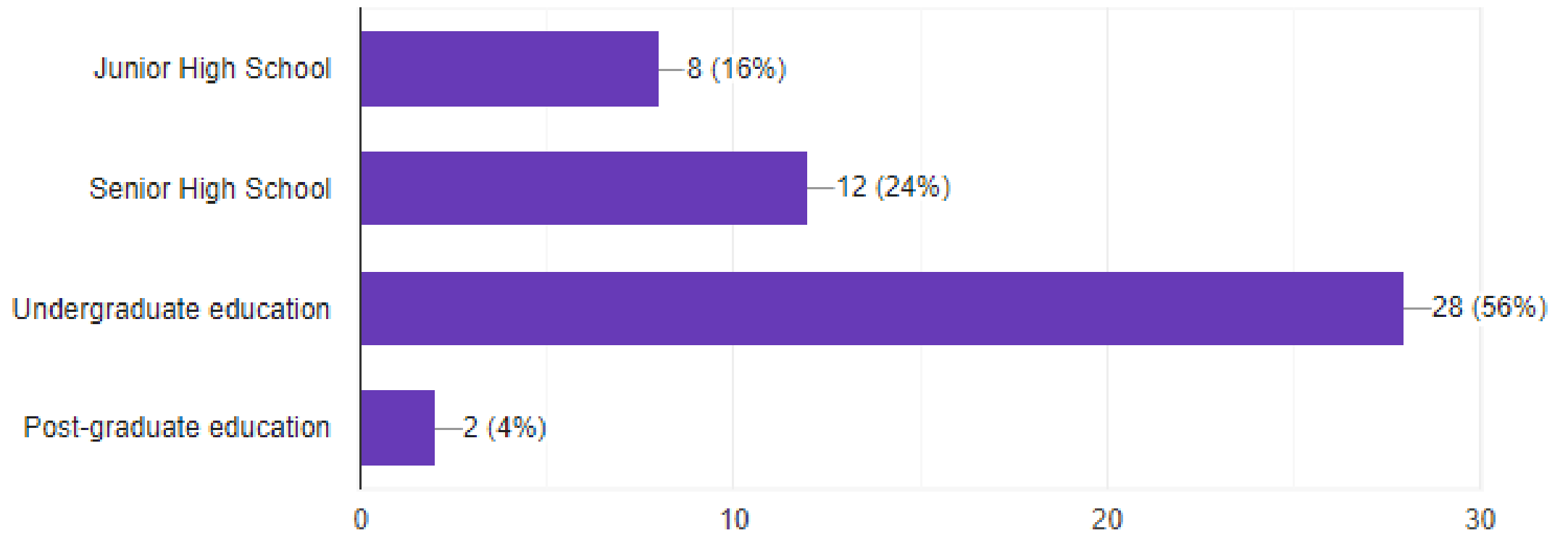
# Age Distribution



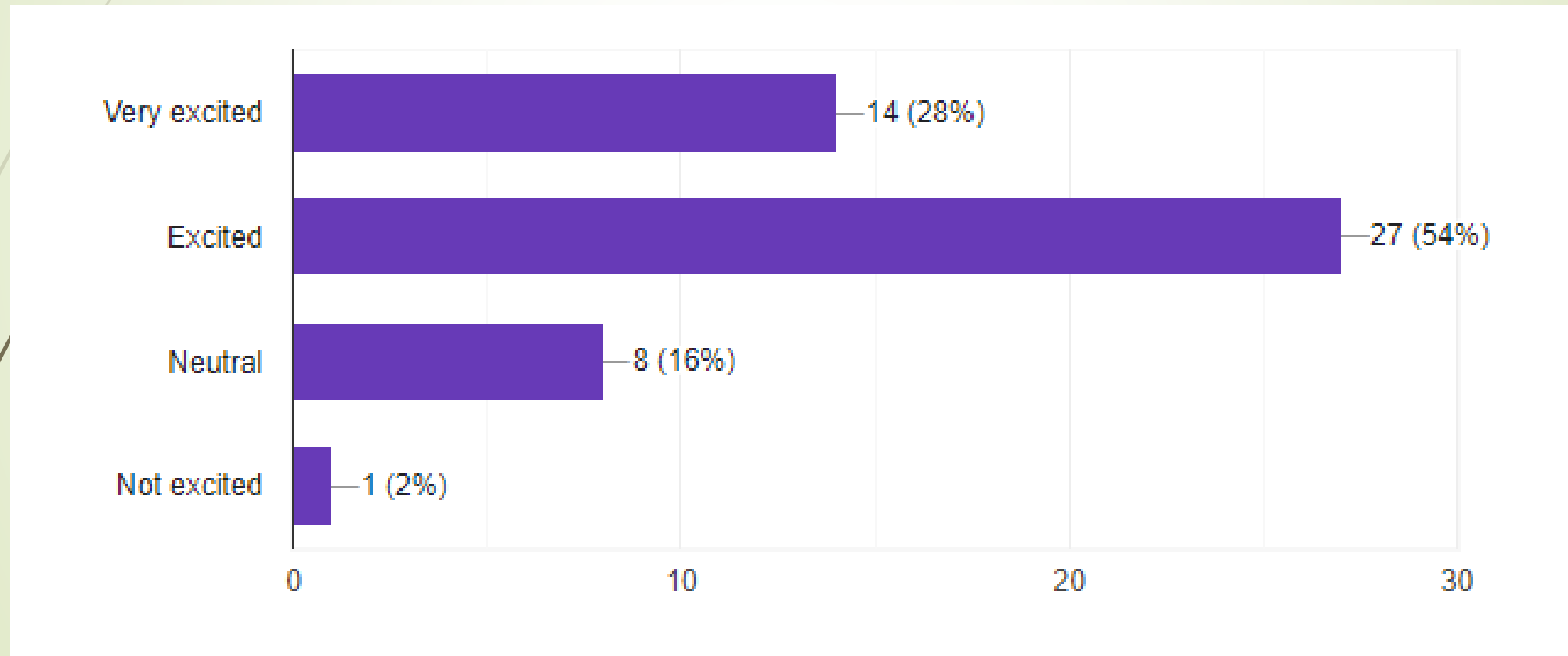
Mean = 30.688

SD = 10.938

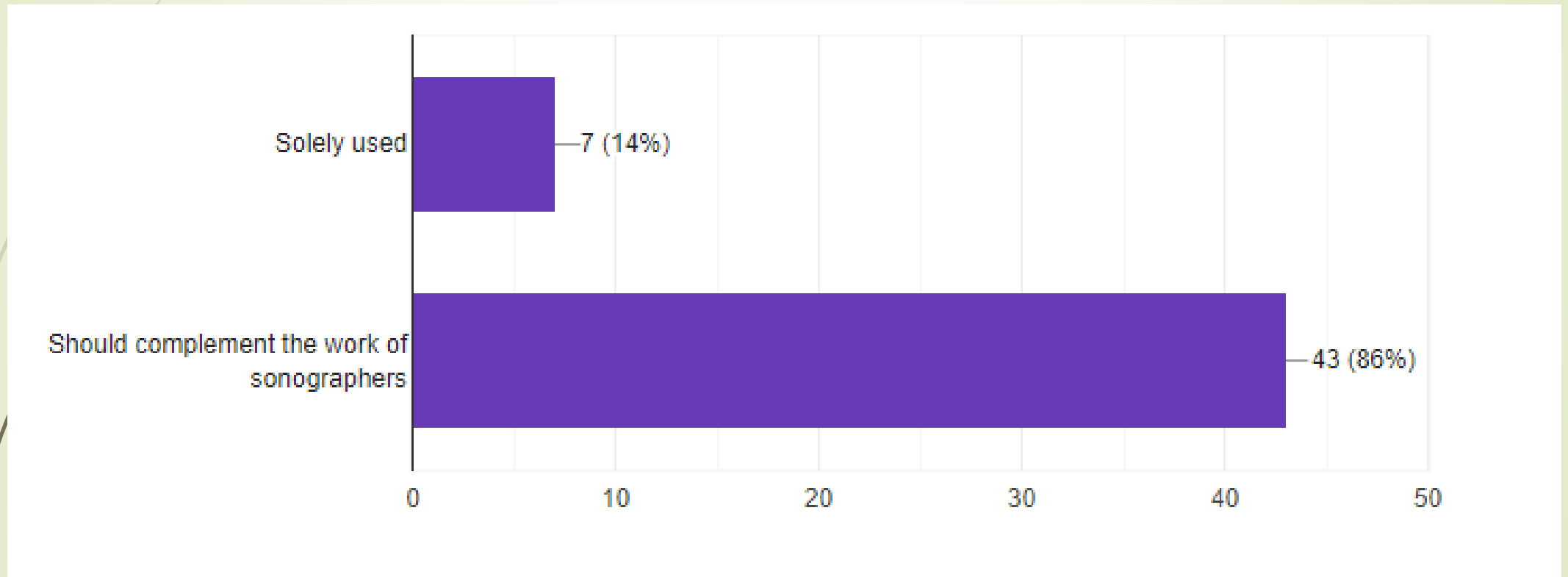
# Highest Educational Level



How do you feel about an AI technology contributing to your diagnosis when you go for an ultrasound scan?

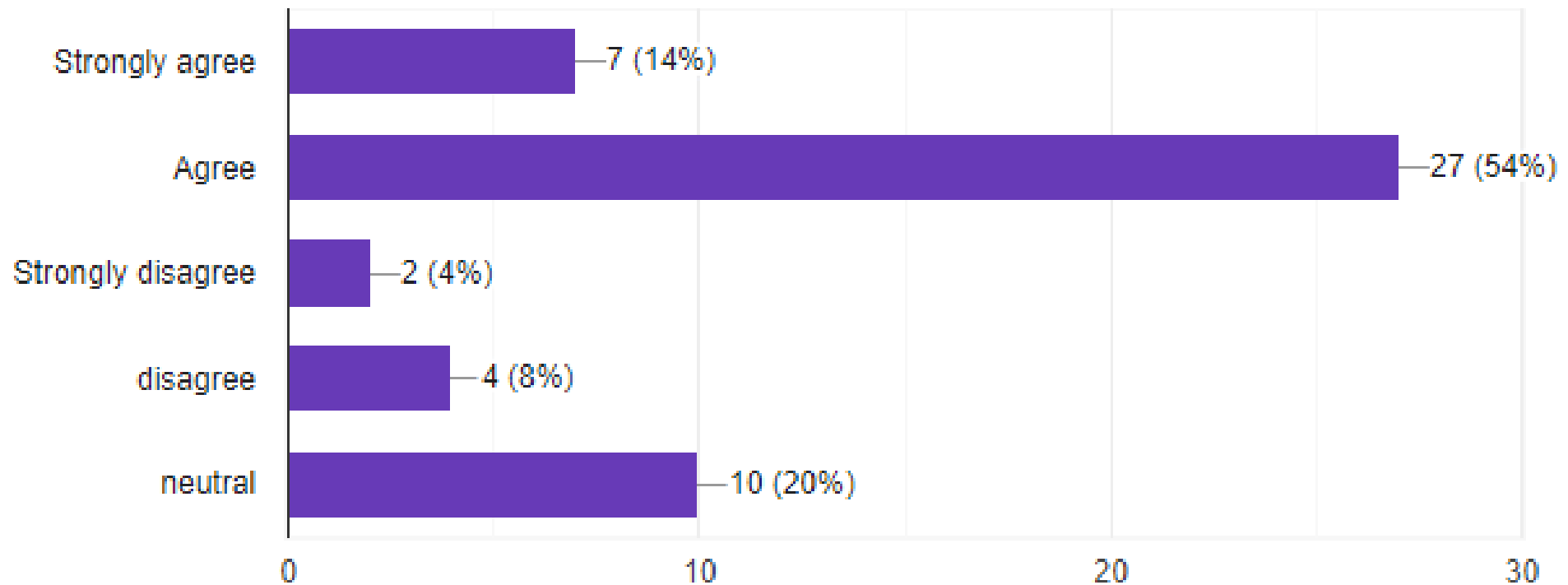


Do you think AI technology should be solely used for ultrasound imaging or should complement the work of sonographers?

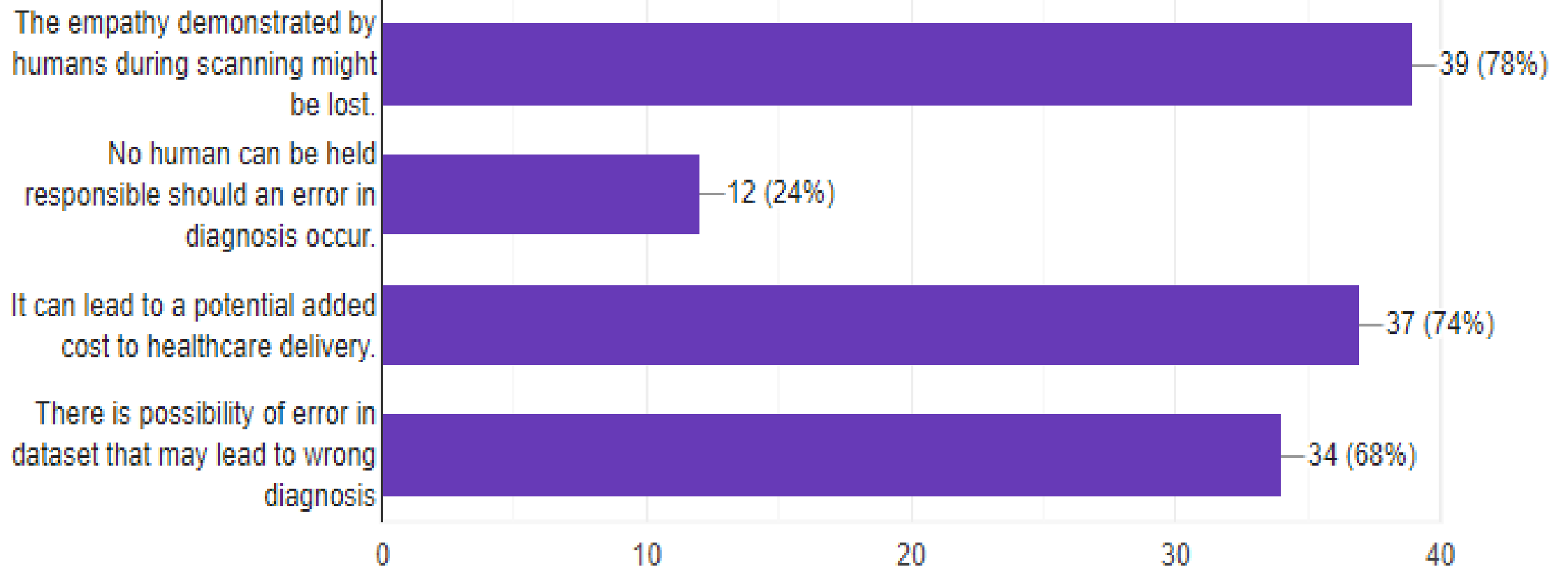




Do you agree AI technology will provide better image interpretation and diagnosis as compared to a sonographer?



# Which of these do you feel can be a concern in the implementation of AI in ultrasound imaging in Ghana?



# Any other information / contribution / issues / concerns

- **P22** - “It is a nice technology but a lot has to go into it before it should be implemented. And it would be very expensive in a developing country”
- **P06** – “The AI technology would be of great help to ultrasound imaging in Ghana because the world is advancing and Ghana has to meet with the advancement in the technology”
- **P34** - “AI technology in ultrasound imaging would be a nice initiative ,so further research must be carried out before it is implemented into the health care system”.
- **P16** - “I think humans would be held accountable for any error that comes with these technology because humans are responsible for the operation and creation and programming the technology”
- **P11** - “When the AI technology is implemented into the ultrasound scan room, we would be very concerned with the price increment in the current cost of scanning”

# CONCLUSIONS

► Positive insights from patients:

a) AI could better aid in their diagnosis and will embrace it.

► Potential concerns of the patient:

a) Fear of errors in data reading and diagnosis; hence it should be adjunct/ compliment the work of the imaging professional

b) Cost implication

c) Lack of empathy and the lack of holding any medical imaging professional responsible for errors in their diagnosis



# Implication for practice/implementation future research

- More education and engagement with patients before implementation of AI needed
- Multicenter research on patients' perspective should be carried out to seek the views from a larger population.
- Focused-group discussion (qualitative study design) recommended during implementation to seek for patients' experiences

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FOR YOUR  
ATTENTION**