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# Perceptions of the Profession of Biomedical Science

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# Introduction

“What are  
you  
studying?”

“What type of  
job will you do  
after university?”

“What is Biomedical  
Science?”

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# Hypothesis

“The profession of Biomedical Science is underappreciated due to a lack of knowledge of the profession amongst the public”

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# Background Research

## Nursing based literature

- British Social Attitudes Survey

- Nursing profession most trusted over 12 year period (2002-2014)
- Trust for Doctors and Healthcare Managers also surveyed

- Gallup

- Respect, admiration, and likelihood to recommend nursing as a career uniform throughout several participant groups

- Ipsos MORI Social Research Institute

- Public perceptions of the NHS and Social Care (2002-2012)
- “Key Perceptions of the NHS” focussed on the work of doctors, nurses and healthcare support workers

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# Need for Study

1. Abundance of surveys and reports on the public's opinion of nurses;

Advocate need for continued public, academic and professional support

2. Comparison of nurses to other healthcare workers;

Include doctors, managers, healthcare support workers

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**Biomedical Science excluded from surveys regarding the NHS, potentially causing indirect damage to the profession, in terms of publicity and support.**

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# Background Research

## Biomedical Science based literature (I)

- Interprofessional Education (IPE)
  - Robert Gordon University, University of Aberdeen, NHS Education for Scotland
  - Programme includes students of Medicine, Dentistry, Pharmacy, Nursing Midwifery, and Biomedical Science
  - Positive feedback from students

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# Background Research

## Biomedical Science based literature (II)

- Wellcome Trust two-wave Survey
  - Public opinions on Biomedical Science related **research** and **education**
  - Young people (14-18 years) surveyed;
    - 82%** said a career in science would be interesting and diverse
    - 4%** said they 'knew a great deal' about science careers
    - 63%** said they knew 'little or nothing' about science careers

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# Evidence Supporting the Need for Study

Literature includes:

Public Opinions  
of the Biomedical  
Science related  
research &  
education

Public Opinions  
of the NHS

Public Perceptions  
of Healthcare  
Workers (nurses)

Healthcare  
Worker/Student  
perceptions of  
Biomedical  
Science

**No studies focus on public  
perceptions of the profession of  
Biomedical Science in the NHS**



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# Approach to Project

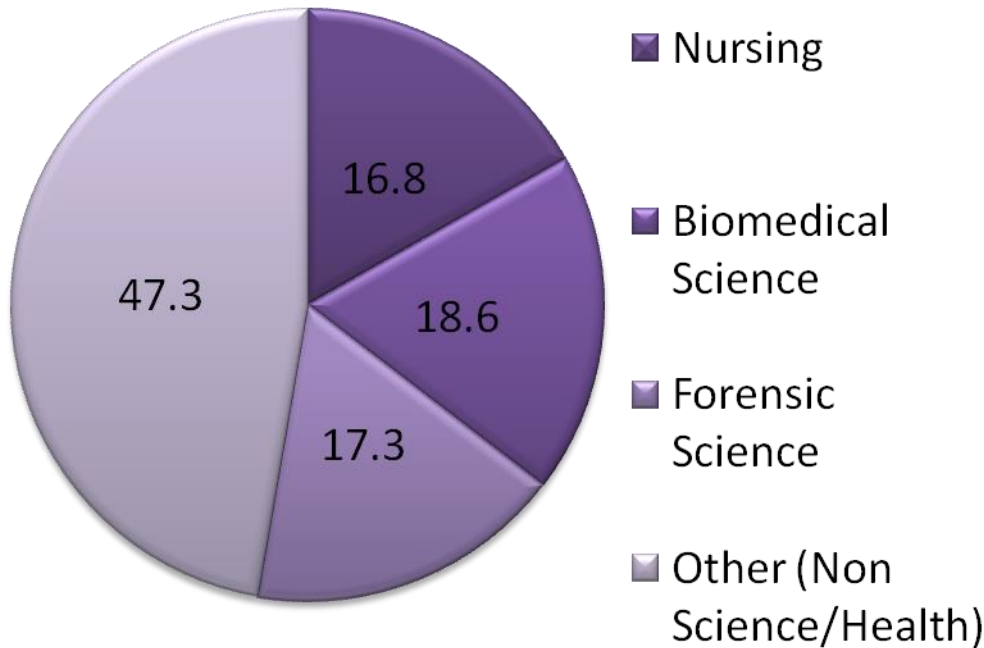
## Questionnaire design;

- Sample analysis roles
- Other roles (e.g. treatment decisions)
- Proportions (staff, diagnoses)
- Awareness of the profession
- Consideration of studying Biomedical Science

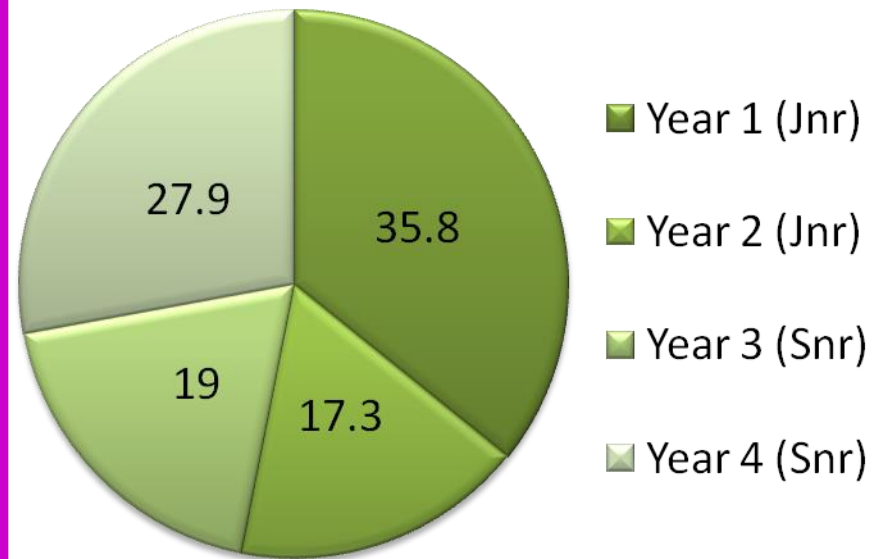
# Results

## Descriptive analysis (n=226)

Proportion of Participants (%) -  
Course Type



Proportion of Participants (%) -  
Year of Study



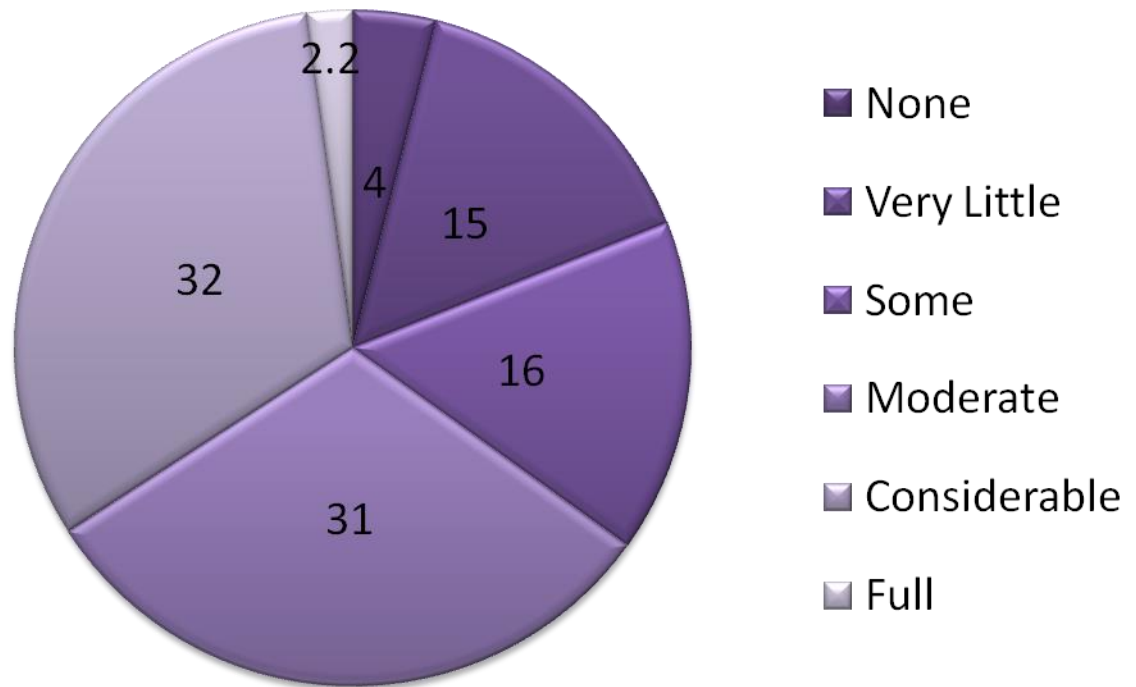
# Degrees of Level of Knowledge (all)

## Sample Analysis Roles;

- Blood
- Urine & Stool
- Tissue Biopsy
- Post Mortem

(SCORE /5)

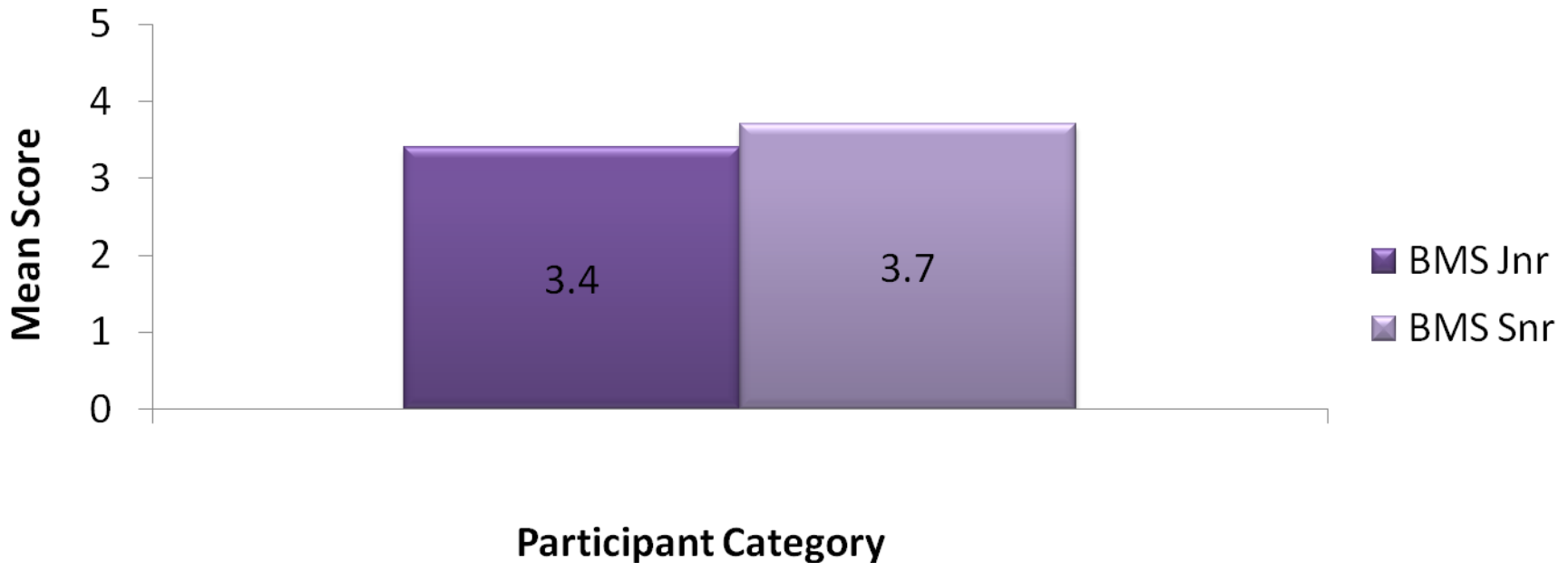
Degrees of Level of Knowledge  
(% Participants)



(n=226)

# Degrees of Level of Knowledge (BMS)

Mean Score of Knowledge and Understanding of the Roles of a BMS



**Mann-Whitney U test: NO SIGNIFICANT DIFFERENCE IN THE KNOWLEDGE OF THE ROLES OF A BMS BETWEEN BMS JNR AND BMS SNR PARTICIPANTS ( $P=0.185$ )**

# Interpretation - Knowledge

## ALL

- 2.2% have 'full' knowledge (5/5)
- 35% have none, very little or some knowledge (0/5, 1/5, 2/5)

## BMS

- Mean Score Jnr: 3.4/5
- Mean Score Snr: 3.7/5

No significant improvement in knowledge throughout BMS course

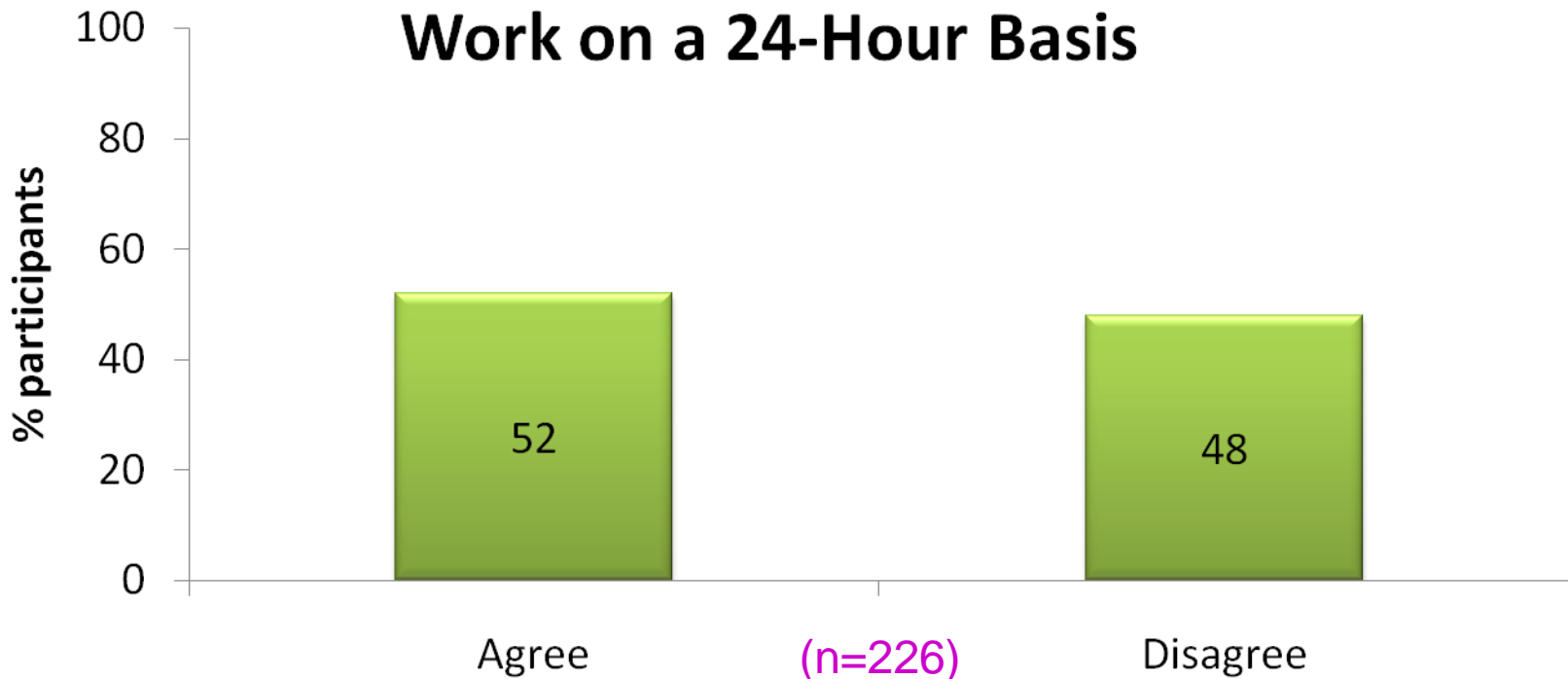
### **Snr BMS completed modules;**

- Professional Studies
- Haematology & Transfusion Science
- Clinical Biochemistry & Cellular Pathology

*\*Standard Route Students*

# Working Hours (all)

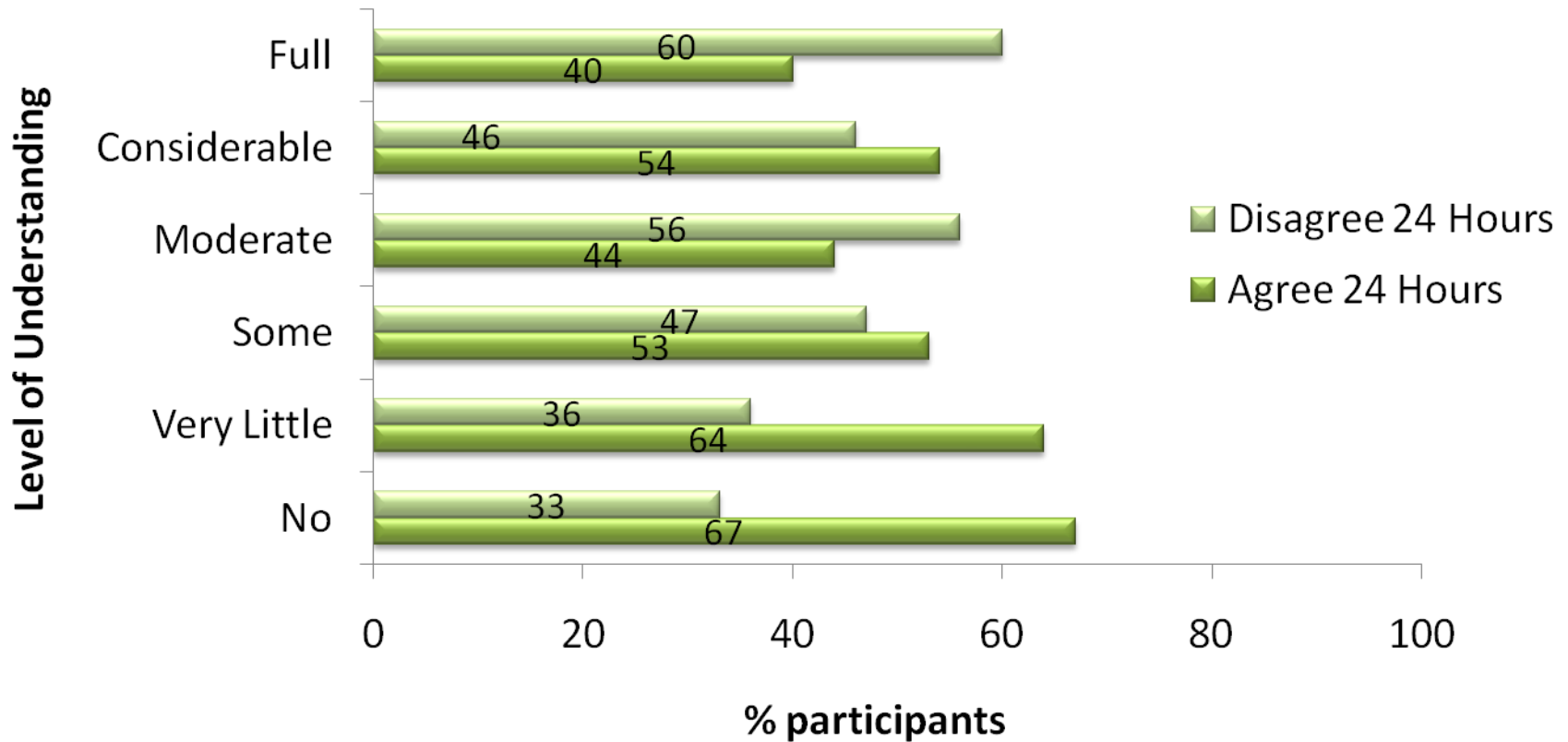
**Biomedical Scientists are Required to Work on a 24-Hour Basis**



**T-Test: NO SIGNIFICANT DIFFERENCE BETWEEN % OF THOSE WHO AGREED BMS ARE REQUIRED ON 24-HOUR BASIS AND THOSE WHO DISAGREED ( $P=0.589$ )**

# Working Hours

## Level of Understanding & Perception of BMS Working Hours



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# Interpretation - Working Hours

60% with “full”  
knowledge of BMS  
roles **DISAGREED** that  
a BMS is required on a  
24 hour basis

(n=5)

67% with “no”  
knowledge of BMS  
roles **AGREED** that  
a BMS is required  
on a 24 hour basis

(n=9)

44% Moderate & 54%  
Considerable **AGREED**

(n=71 & 72)



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# Interpretation - Working Hours

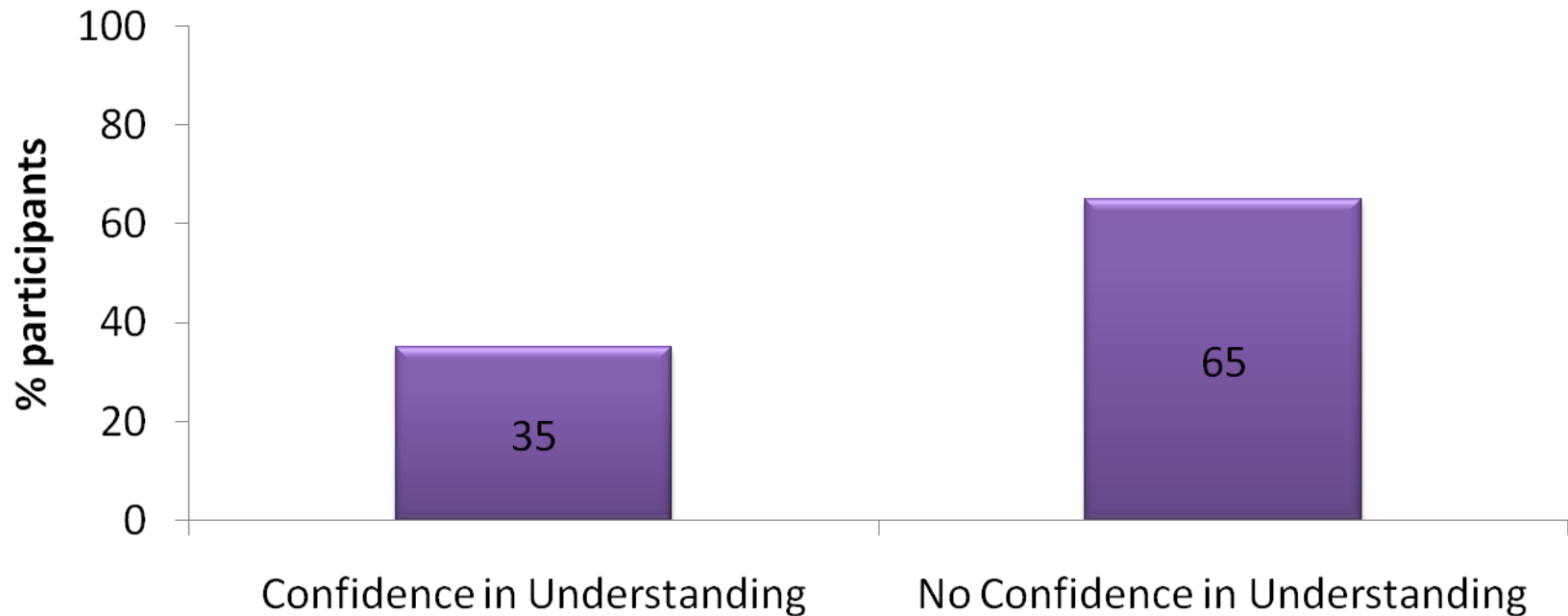
T-Test: NO significant difference between those who agreed and disagreed that a BMS is required on a 24-hour basis amongst respondents with a “considerable” (4/5) understanding of BMS roles ( $P=0.576$ )

- Lack of consideration of question?
- Highlights under appreciation for the importance of the work carried out by a BMS

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# Confidence in Understanding of the Roles of a BMS (all)

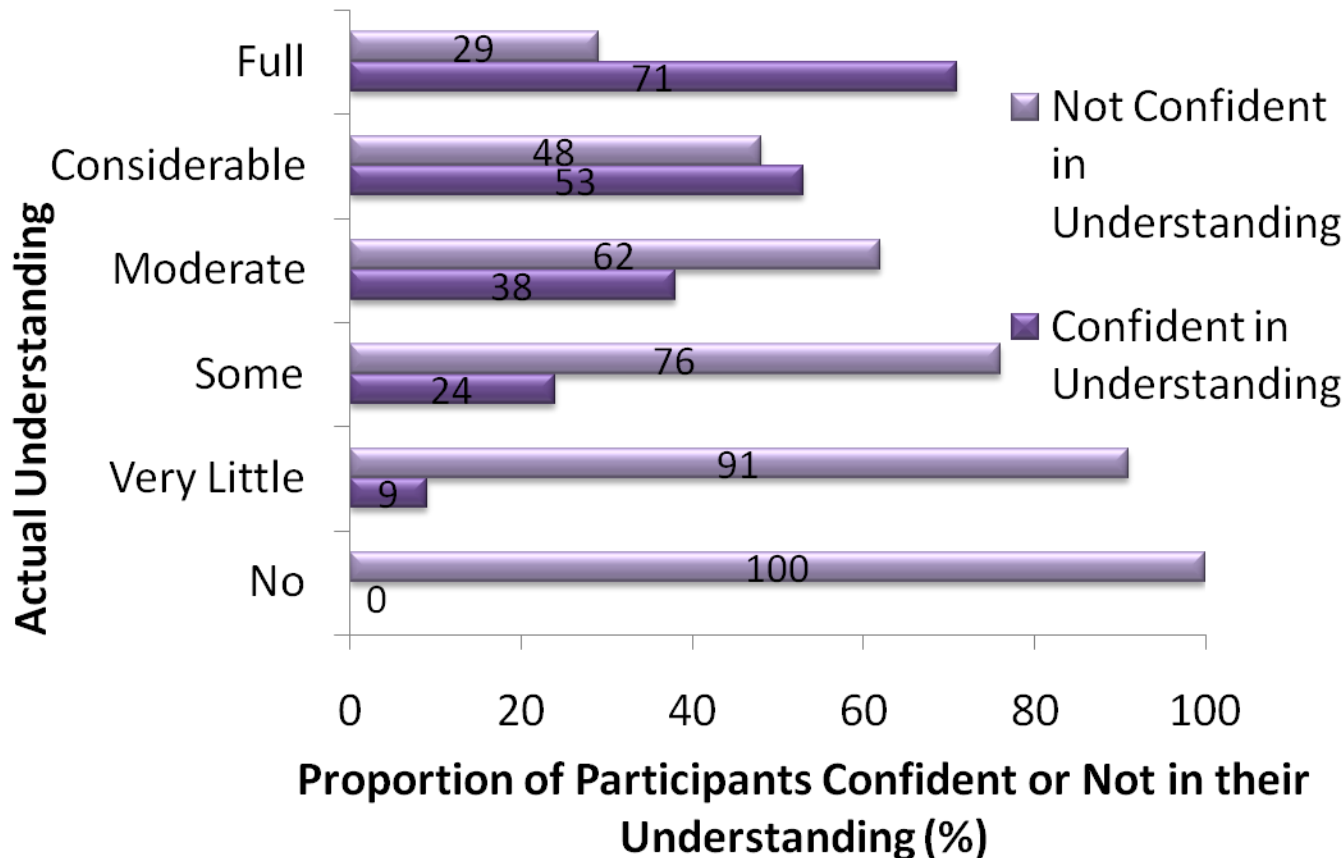
I believe I have a Good Understanding of the Roles and Responsibilities of a BMS



(n=226)

# Confidence in Understanding of the Roles of a BMS

## Actual Understanding & Confidence in Understanding



•24% with “some” (2/5) knowledge believe they have a good understanding

•48% with “considerable” (4/5) knowledge do not believe they have a good understanding

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# Interpretation - Confidence in Understanding of Roles of a BMS

Understanding/Respect for other professions partly due to frontline nature of work

BMS – “behind the scenes” nature of work

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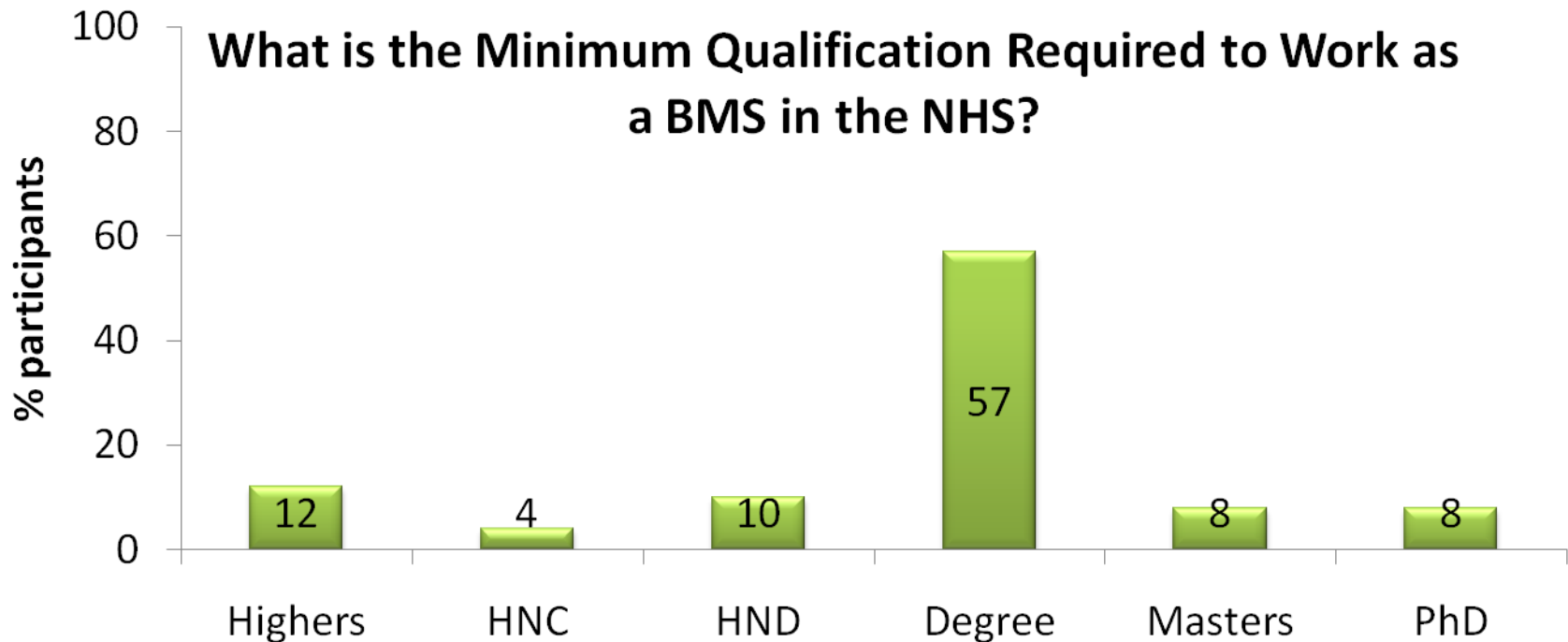
**Misconception potentially detrimental to BMS profession;**

- **Public support**
- **Consideration of career**

*Nursing Economics 2010: profession held in high regard likely to be recommended as a career*

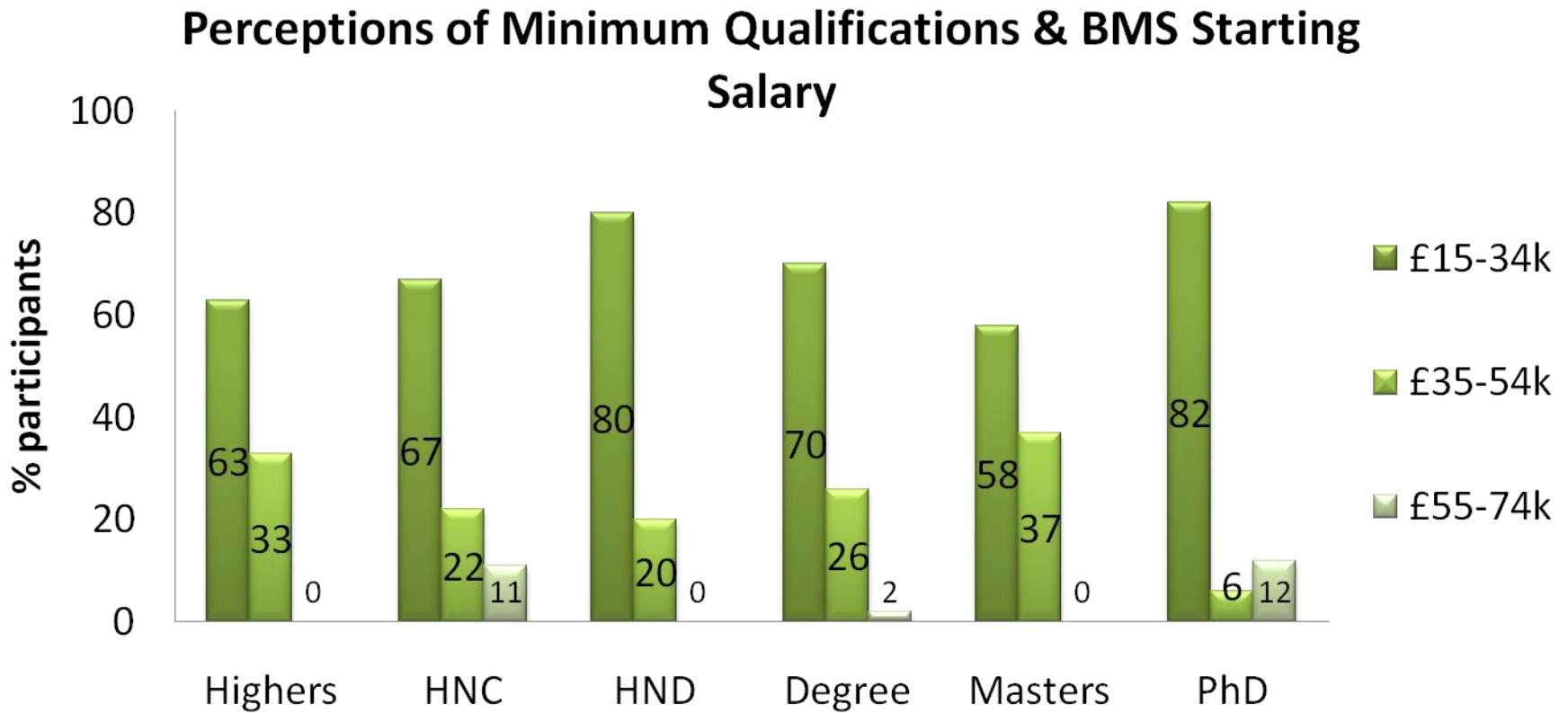
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# Qualifications Required to Practise as a BMS



26% believe a qualification below degree level is required to work as a BMS in the NHS

# Salary & Qualifications



-Highers + £35-54k pa = 33.3%

-Degree + £35-54k pa = 26%

-PhD + £15-34k pa = 82.4%

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# Interpretation - Salary & Qualifications

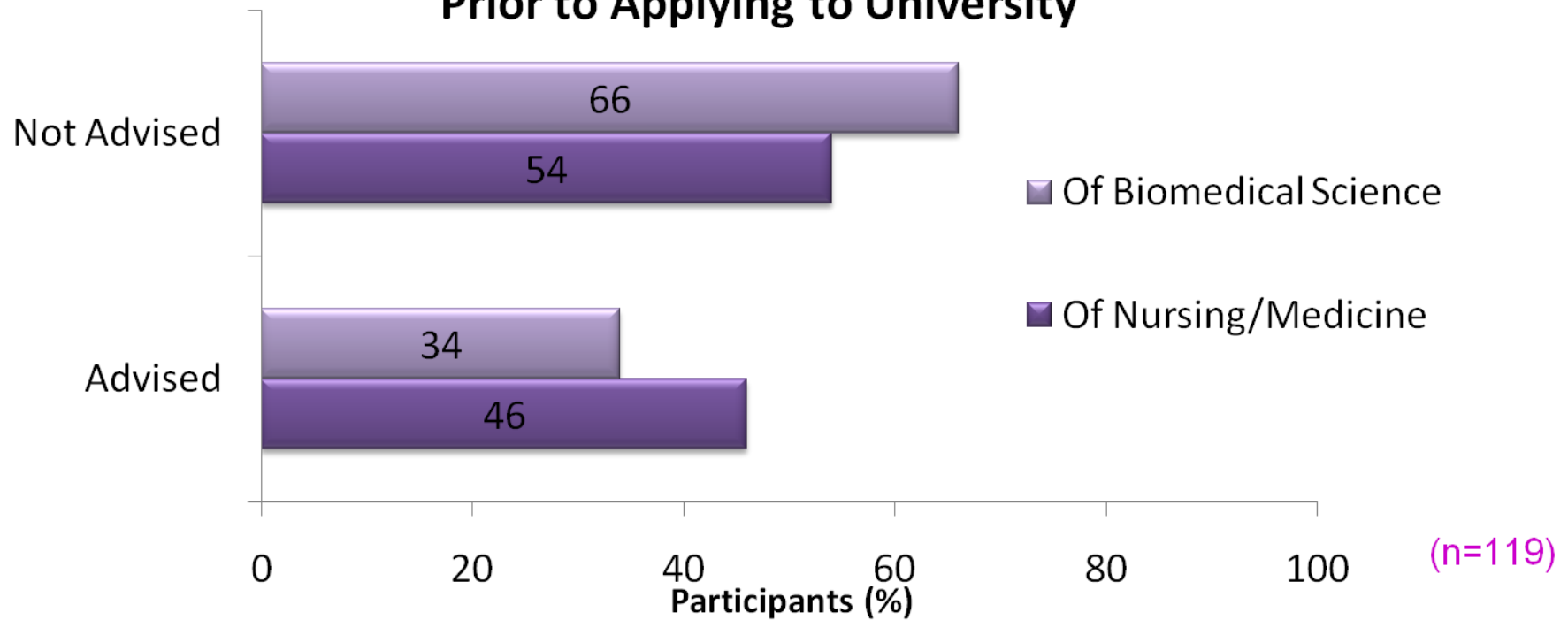
Question misinterpreted?

Would university students truly believe a starting salary of £35-54k would be offered to an individual educated to Higher level?

(33%)

# Advice & Information on Study/Degree Opportunities (Science/Health Students)

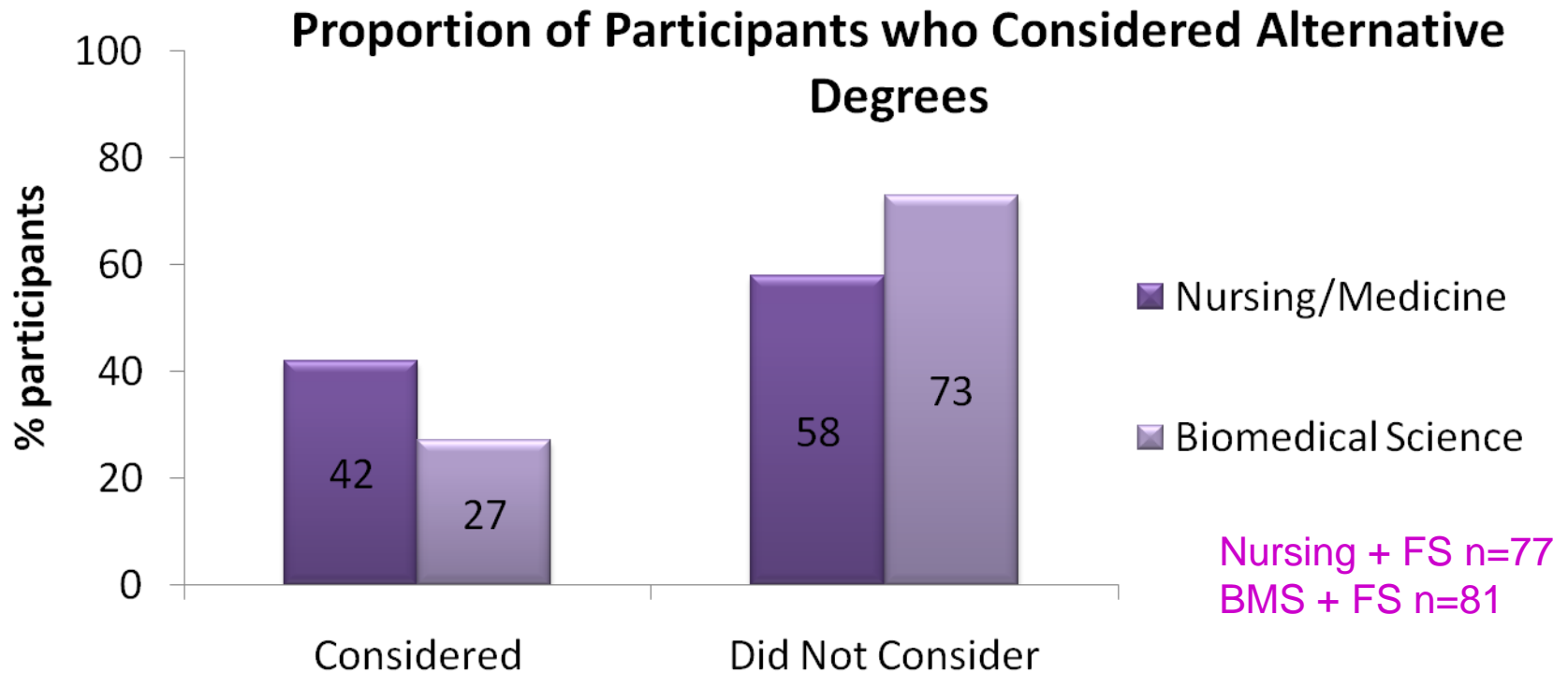
Proportion of Participants Advised of Degree Opportunities Prior to Applying to University



**T-Test: STATISTICALLY SIGNIFICANT DIFFERENCE BETWEEN THE PROPORTION OF STUDENTS ADVISED AND NOT ADVISED OF BIOMEDICAL SCIENCE (P=0.000)**



# Consideration of Applying to Alternative Science/Health Degrees (Science/Health Students)



**Z-Test: STATISTICALLY SIGNIFICANTLY LOWER PROPORTION OF PARTICIPANTS CONSIDERED APPLYING FOR BIOMEDICAL SCIENCE THAN NURSING/MEDICINE ( $P=0.026$ )**

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# Interpretation – Advised of/Considered Alternative Degrees

Low proportions of students who considered applying for Biomedical Science (27%) are consistent with the low proportions who were advised of Biomedical Science degree (34%)

Not adequately advised?

Wellcome Trust Monitor 2013 identified strong association between young people's understanding of science and their parents' level of interest

(Wellcome Trust 2013)

Current staff figures:

- Nurses (general, acute, elderly) – 195,370
- Managers – 37,078
- Healthcare Scientists (inc. BMS) – 27,368

(NHS Workforce 2015)

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# Limitations to Study

Data based on responses from university students only

- Likelihood of general public having more knowledge of BMS than students of relative subjects is low

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Participant Group numbers low

- BMS Snr: n=24, BMS Jnr: n=18

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# Recommendations for Future Work

## Expand questionnaire beyond university

- Include some questions in survey such as Ipsos MORI Research Institute
- Include diagnostic/NHS Biomedical Science in Wellcome Trust Monitor
- Honours student to continue project

## Clarify reasons for not considering BMS as a degree

- Not possible due to time constraints
- Would allow identification of work required to promote BMS

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## Design Questionnaire for Careers Advisors

- Identify level of knowledge & understanding

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# Concluding Remarks

- Disappointing degree of knowledge, understanding and appreciation of the profession of Biomedical Science
- Disappointing level of study/career information available
- Profession of Biomedical Science omitted from all related surveys

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# Concluding Remarks

**Project has  
created a platform  
for future research**

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# Any Questions?

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## Further Information:

Full paper available in the  
October 2016 issue of The  
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