

KING'S
College
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OZZAWA WORKSHOP

Medical Education Research

The State of the Art

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Medical Educational Research Literature Review

Background

Aim & objectives

Selection criteria for journals & papers

Key findings

Randomised Controlled Trial papers

Summary

Discussion points

Background

Medical education research has been criticised for lacking

- Methodological rigour
- Adequate funding
- Collaboration
- Generalisability

EDUCATION RESEARCH 2004-2005

1. How much is being published in the UK?
2. How much is in non-educational medical journals?
3. What research designs and tools are being used?
4. What are the principal research areas?
5. In which regions is this research taking place?
6. How is it being funded?
7. How much is collaborative?



Journals selected

On the basis of the Impact Factors in general medical journals and medical education journals in 2004 & 2005 ISI Journal Citation Reports

■ **Medicine:**

The Lancet	(Impact Factor 23.878)
British Medical Journal	(Impact Factor 9.052)

■ **Education:**

Medical Education	(Impact Factor 2.232)
Medical Teacher	(Impact Factor 0.823)

Selection criteria

Inclusion Criteria

- Primary research papers
- Secondary research papers: meta-analyses & systematic reviews

Exclusion criteria

- Editorials, comments, opinions, letters, ideas papers such as 'Really Good Stuff' in Medical Education, non-systematic reviews

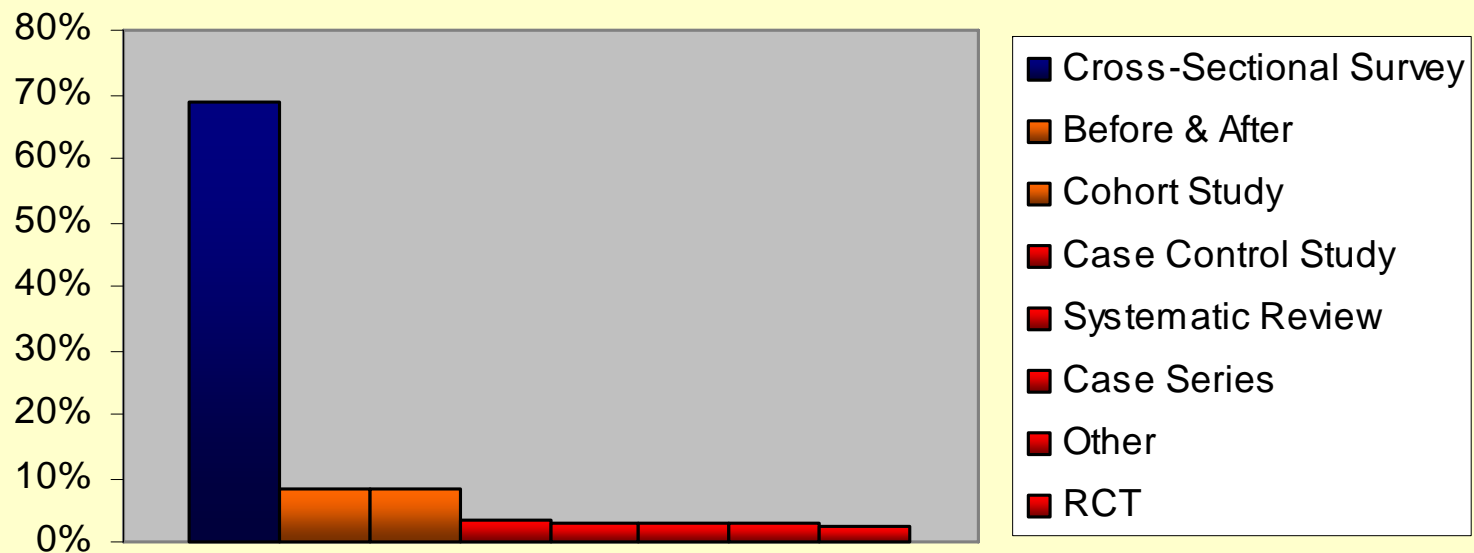
How much medical educational research is being published in the UK?

Number (**n=387**) of medical education research papers
2004 – 2005

The Lancet	0/390
British Medical Journal	11/399
Medical Education	207
Medical Teacher	169

What research designs are being used ?

Medical Education, Medical Teacher & BMJ
2005-2006 (n=387)



Use of validated questionnaires

BMJ

- Number of studies using questionnaires 18.2% (n=2/11)
- *Number of those stated to be validated* 0.0% (n= 0/11)

Medical Teacher

- Number of studies using questionnaires 69.2% (n=117/169)
- *Number of those stated to be validated* 31.6% (n= 37/117)

Medical Education

- Number of studies using questionnaires 52.7% (n=109/207)
- *Number of those stated to be validated* 38.5% (n=42/109)

What types of data are being collected?

(n=387)

Quantitative	239 (61.7%)
Qualitative	80 (20.7%)
Mixed	68 (17.6%)

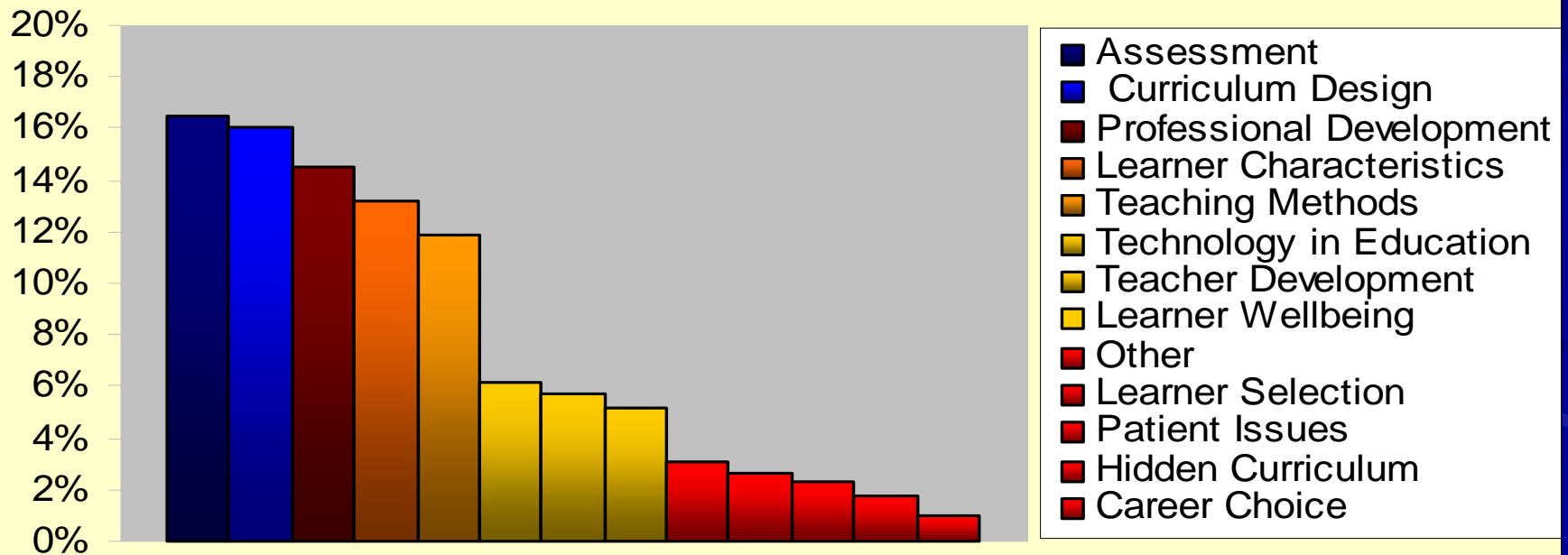
What educational stage is being researched?

(n=387)

Undergraduate	241 papers	(62.3%)
Continuing Medical Education	84 papers	(21.7%)
Post-graduate in training	44 papers	(11.4%)
Pre-undergraduate	10 papers	(2.6%)
Systematic Reviews	5 papers	(1.3%)
More than one stage	3 papers	(0.8%)

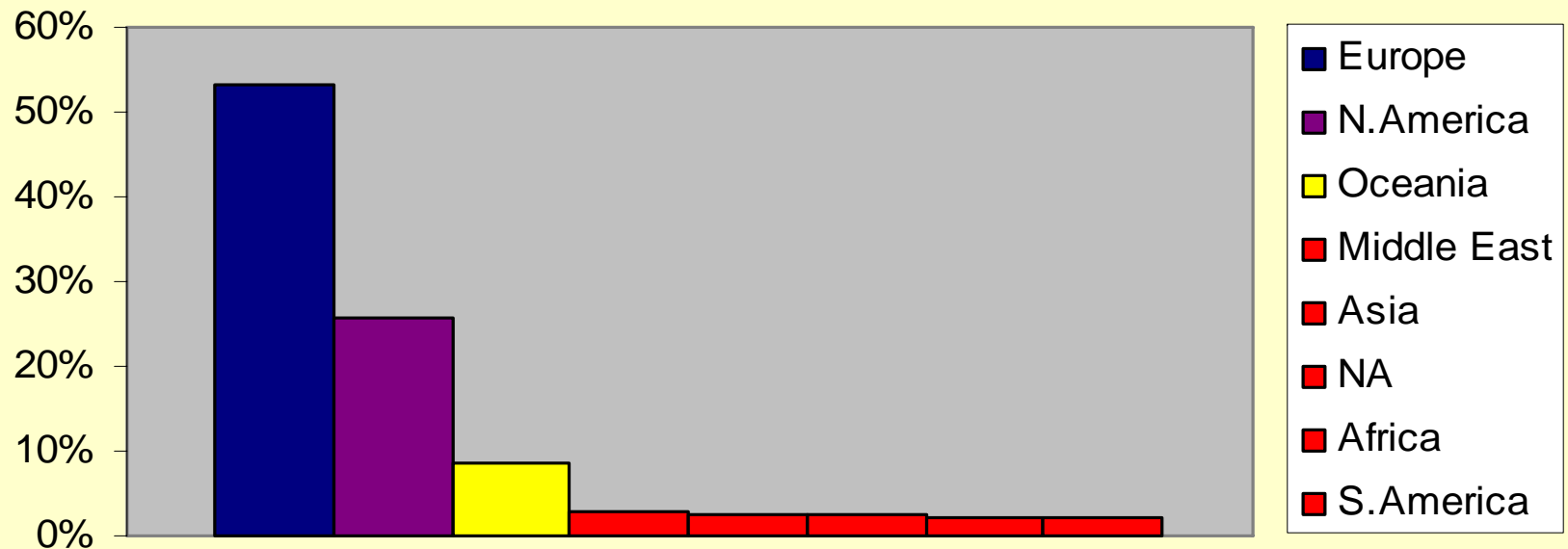
What are the top research areas?

Medical Education, Medical Teacher & BMJ
2005-2006 (n=387)



In which regions is this research taking place?

**Medical Education, Medical Teacher & BMJ
2005-2006 (n=387)**



How is educational research being funded?

Funding 2004-2005	Medical Education (n=207)	Medical Teacher (n=169)	Total (n=376)
External	80*	32*	112 (29.8%)
None/Internal	127	137	264 (70.2%)

*Papers published in *Medical Education* were more likely to be externally funded than those in *Medical Teacher* (39% v 20%, Chi squared = 17.85, p<0.001).

Collaborative research

Collaborative research (cross-institutional)

- BMJ 63.6% (n=7/11)
- Medical Teacher 39.6% (n=67/169)
- Medical Education 47.3% (n=98/207)

Collaborative studies more likely to receive external funding than
non-collaborative studies
(52.6% v 47.4%, Chi squared = 4.045, p=0.044)

Evidence based medical education?

RESEARCH DESIGNS

- (a) Qualitative:
 - Interviews (open/semi-structured)
 - Focus group/nominal group
 - Consensus building

- (b) Quantitative Surveys: Cross sectional, time series/ repeated observations
 - Cohort/comparative cohort studies
 - Case-controlled designs
 - Randomised Controlled Trials

RANDOMISED CONTROLLED TRIALS IN MEDICAL EDUCATION

Paper	Topic	Country	Journal	Clear a priori hypothesis	Appropriate end point		Sample size calculation	Consort diagram	Statistics OK
					Defined	Measures OK			
U/G	Pharmacology	Spain	MT	NO	NO	NO	NO	YES	NO
U/G	EBM programme	Norway	ME	NO	YES	YES	YES	YES	YES
U/G	Patient information before teaching	Sweden	ME	YES	YES	NO	NO	YES	NO
U/G	Basic clinical skills/OSCE	Germany	ME	+/-	NO	YES	NO	NO	TYPE II
U/G	Audio feed vs PowerPoint only	USA	ME	NO	YES	YES	YES	NO (Short report)	YES
U/G	Problem oriented vs traditional bedside teaching	Germany	ME	NO	YES	YES	NO	NO	TYPE II
U/G	CT/Text/CT+Text/control seminars	Japan	ME	YES	YES	YES	NO	NO	YES
P/G	GP training	Belgium	ME	NO	YES	+/-	NO	NO	YES
P/G	Paediatrics (CT vs traditional)	USA	ME	NO	NO	NO	NO	NO (Quotes)	NO
P/G	CPD to improve prevention in primary care	USA	BMJ	YES	YES	YES	NO	YES	YES

Key topics in RCTs in medical education

- Appropriateness of RCT design (cf evaluation, piloting, exploratory studies)
- Ethics: equipoise to justify randomisation
- Null hypothesis
- Identification of end point of greatest interest
- Accurate measurement of endpoint(s)
- Sample size calculation
- Appropriate statistics (e.g. Bonferroni correction, parametric vs non parametric)
- CONSORT flow chart of subjects and conventions
(International Committee of Medical Journal Editors)

Summary

The majority of educational research in our survey is:

- Cross sectional
- Quantitative (but often less than rigorous)
- Focused on the undergraduate curriculum
- Related to assessment, curriculum design, professional development, learner characteristics & teaching methods
- Mostly internally funded or unfunded
- European
- Non-collaborative

Discussion

- Topics?
- Methods?
- Collaborators?
- Funding sources?