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Self-reported and objectively assessed knowledge of evidence-based practice terminology

- a survey among healthcare students

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9th EBHC International Conference, 2019

Background

- › Self-reported scales¹⁻⁴ and objective measurement tools⁵⁻¹¹ are used to examine self-perceived and objective knowledge of evidence-based practice (EBP)
- › Self-report of skills and abilities correspond poorly to objective performance^{12,13}
- › Few studies report correlations between self-reported and objectively measured competence in EBP¹⁴⁻¹⁷
- › Agreement between self-perceived and objective knowledge of EBP terminology has not been widely investigated

¹ Johnston et al. 2003; ² McEvoy et al. 2010; ³ Ruzafa-Martinez et al. 2013; ⁴ Upton et al. 2016;

⁵ Fritsche et al. 2002; ⁶ Tilson et al. 2010; ⁷ Hendricson et al. 2011; ⁸ Lewis et al. 2011; ⁹ Spek et al. 2013; ¹⁰ Ilic et al. 2014; ¹¹ Spurlock et al. 2015

¹² Prince et al. 2008; ¹³ Zell et al. 2014

¹⁴ Khan et al. 2001; ¹⁵ Lai et al. 2011; ¹⁶ Aguirre-Raya et al. 2016; ¹⁷ Hagedorm Wonder et al. 2017

Aims

The aim of this study was to

- 1) examine agreement between self-reported and objectively assessed knowledge of EBP terminology among healthcare students
- 2) explore this agreement between students with different levels of EBP exposure

Setting

NORWAY

- › EBP national priority in educational healthcare programs¹
- › Increase in EBP teaching past decade
- › Bachelor (3 yrs): EBP not fully integrated in curricula
- › Master: Stand-alone course in EBP and research methodology, level varied between programs

CANADA

- › EBP increasingly part of individual standards of practice²
- › EBP teaching in curricula for two decades
- › Bachelor (4 yrs): EBP integrated in theory and clinical courses, supported with e-learning and summative assessments
- › Master: Stand-alone course in EBP and research methodology in first semester, with reinforcement in subsequent courses

EBP exposure was considered higher among all Canadian students and Norwegian master's students than among Norwegian bachelor's students

¹Norwegian Ministry of Health and Care Services. Health&Care21, 2015.

²Canadian Nurses Association. Position statement: Evidence-informed decision-making and nursing practice, 2010.

Methods

Design

- › Cross-sectional study

Sample

- › Bachelors and Masters students from Norway (n=336) and Canada (n=154)

Measurement

- › Questionnaire with 18 self-reported and 6 open-ended questions

Analysis

- › Intraclass correlation coefficient (ICC) for absolute agreement
- › Weighted quadratic kappa

Measurement

Measurement with three parts:

1. Demographic characteristics
2. Self-reported knowledge
 - > 17 items from the Terminology domain of the EBP Profile questionnaire¹
 - > 1 self-reported item on EBP
3. Objective knowledge
 - > 6 open-ended questions

Evidence Based Practice Profile

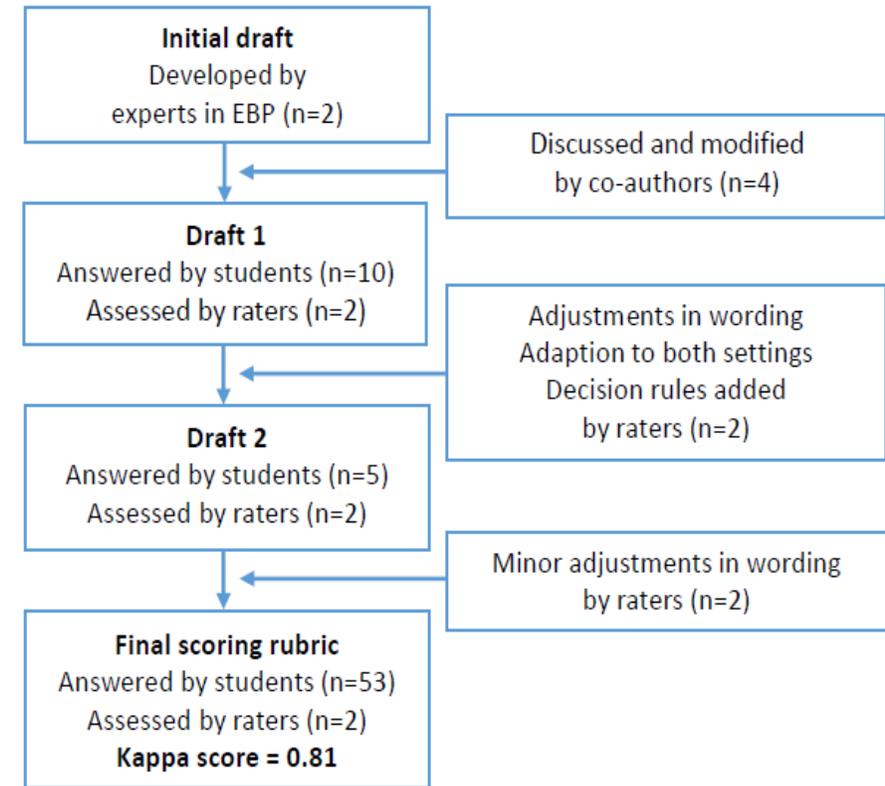
Domains	Items	Refers to:
Relevance	14	value, emphasis and importance participants place on EBP
Terminology	17	understanding of common research terms
Confidence	11	perception of ability with EBP skills
Practice	9	the use of EBP in clinical situations
Sympathy	7	perception of compatibility of EBP with professional work

¹ McEvoy et al. Development and psychometric testing of a trans-professional evidence-based practice profile questionnaire. Med Teach. 2010

Scoring rubric

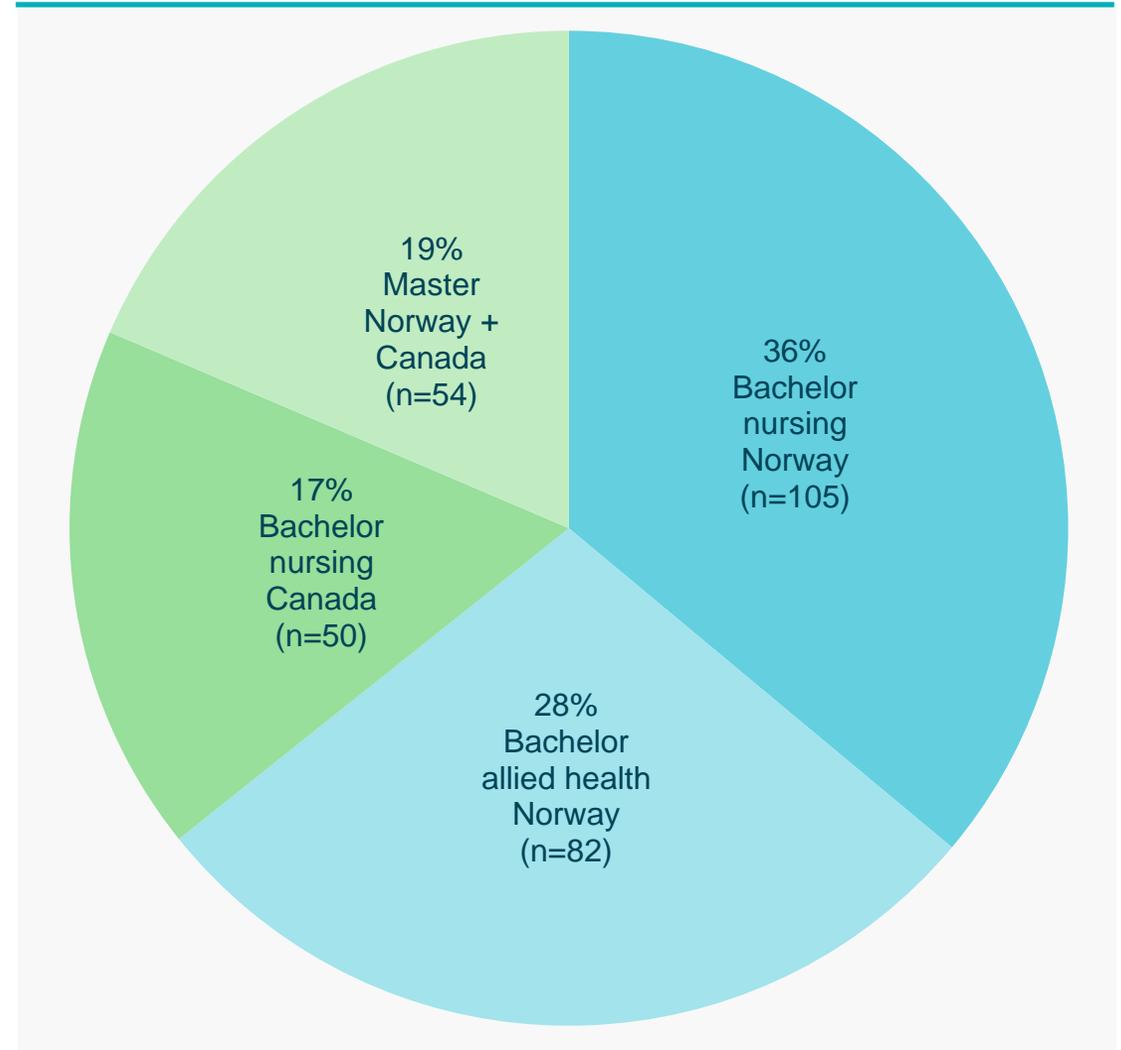
Five-level scoring rubric

- › Developed by experts in EBP teaching
- › Values from 1 «never heard the term» to 5 «understand and could explain to others»
- › Consistency explored by two raters



Results

- › Of all eligible, 291 (59%) answered
- › Higher response rate in Norway (70%) than in Canada (37%)
- › Mean age 26.4 years (range 19–51)
- › Most females (87%)
- › Higher proportion of Norwegians (80%)
- › Higher proportion of students with low exposure to EBP and research methodology (64%)



Results_agreement

- > Low overall agreement between self-reported and objectively assessed open-ended items of EBP² Terminology domain (ICC = 0,29)
- > Self-reported knowledge higher than assessed (p < 0,001)
- > Large variations in agreement values between self-reported and assessed open-ended items
- > Substantial agreement for two items
- > Slight agreement for nine items

Items	Weighted quadratic kappa (95% CI)
EBP² Terminology domain	
Forest plot	0.69 (0.55 – 0.83)
Dichotomous outcome	0.67 (0.55 – 0.79)
Numbers needed to treat	0.60 (0.46 – 0.73)
Confidence interval	0.50 (0.39 – 0.62)
Continuous outcome	0.39 (0.26 – 0.52)
Meta-analysis	0.30 (0.17 – 0.43)
Treatment effect size	0.29 (0.17 – 0.41)
Relative risk	0.22 (0.12 – 0.32)
Statistical significance	0.21 (0.09 – 0.33)
Intention to treat	0.18 (0.07 – 0.30)
Odds ratio	0.17 (0.07 – 0.27)
Randomized controlled trial	0.16 (0.08 – 0.24)
Publication bias	0.09 (0.02 – 0.17)
Systematic review	0.08 (0.03 – 0.12)
Minimal clinically worthwhile effect	0.07 (-0.02 – 0.17)
Clinical importance	0.06 (0.01 – 0.11)
Absolute risk	0.04 (-0.03 – 0.11)
Evidence-based practice	0.13 (0.04 – 0.22)

Results_EBP exposure

Agreement measures were equal for high (ICC = 0.11) and low (ICC = 0.11) EBP exposure

Limits

- › Open-ended questions and scoring rubric were not evaluated for reliability and validity
- › EBP terminology is only one facet of EBP knowledge
- › Convenience sample of students from two educational institutions in two different countries
- › Small sample size of high EBP exposed students

Bottom line

- › We found low overall agreement between healthcare students' self-reported and objectively assessed knowledge of EBP terminology
- › As a discriminatory tool, for the purpose of educational assessment, academic promotion or clinical certification, users should be aware that self-ratings would be higher than objectively assessed knowledge