MedEd DxTx

This app provides literature-based recommendations from the results of a BEME review (Lacasse, 2018 - see abstract below) which identified remediation interventions for undergraduate and postgraduate medical learners with academic difficulties. These interventions are classified according to the Behaviour Change Techniques taxonomy (Michie, 2015) and mapped to the relevant educational diagnoses using the Educational Diagnosis Wheel (adapted from Lacasse, 2009).

This educational diagnosis wheel refers to a socioconstructivist approach to learning, where the learner interacts with a teacher in a learning environment or system. Learner issues involve academic difficulties (fundamental, clinical, procedural or work setting knowledge; cognitive, interpersonal, structural or procedural skills; and personal, interpersonal or professional attitudes) as well as personal life issues (health, spouse/family, financial issues, cultural adaptation and social life). These personal life issues, together with difficulties at the teacher level (personal life issues or lacks in faculty development) or environment/system level (learning climate or learning conditions) often have an impact (blue arrows) on competency development and resulting academic success. However, such underlying problems should not excuse competence issues but help to explain the educational diagnosis and plan remediation accordingly.

Remediation interventions for undergraduate and postgraduate medical learners with academic difficulties: a BEME systematic review

Authors

- Miriam Lacasse, MD MSc CCFP (lead reviewer), associate professor, Université Laval (Quebec City, Canada): miriam.lacasse@fmed.ulaval.ca
- Marie-Claude Audétat, MPs, Ma (Ed), PhD, associate professor at Université de Montréal and associate professor at the University of Geneva (Geneva, Switzerland)
- Élisabeth Boileau, MD MSc CCFP(EM), assistant professor, Université de Sherbrooke (Sherbrooke, Canada)
- Nathalie Caire Fon, MD CCFP, assistant professor, Université de Montréal (Montreal, Canada)
- Marie-Hélène Dufour, MD CCFP, assistant professor, Université Laval (Quebec City, Canada)
- Marie-Claude Laferrière, MSI, Université Laval (Quebec City, Canada).
- Alexandre Lafleur, MD, MSc(Ed.), FRCPC, associate clinical professor, Université Laval (Quebec City, Canada)
- Ève La Rue, M.Ps.Éd., Université Laval (Quebec City, Canada)
- Shirley Lee, CCFP(EM) MHSc(Ed) FCFP, associate professor, University of Toronto (Toronto, Canada)
- Mathieu Nendaz, MD MHPE, professor, University of Geneva (Geneva, Switzerland)
- Emmanuelle Paquette Raynard, MSI, Université Laval (Quebec City, Canada)
- Caroline Simard, PhD, Université Laval (Quebec City, Canada)
- Yvonne Steinert, PhD, professor, Mc Gill University (Montreal, Canada)
- Johanne Théorêt, MD MA FCFP, professor, Université Laval (Quebec City, Canada)

Abstract

Background: Ten to fifteen percent of learners will experience difficulties during their medical training. Deplorably, most remediation interventions do not appear to be based on explicit conceptual frameworks. Clinical teachers struggle to report unsatisfactory trainee performance, in part because they are not familiar with evidence-based remediation options for trainees.

Objective: To identify remediation interventions for undergraduate and postgraduate medical learners with academic difficulties, to link them to a theory-based conceptual framework and to provide literature-based recommendations around their use.

Methods: This systematic review searched MEDLINE, CINAHL, EMBASE, ERIC, Education Source and PsycINFO based on the following concepts: 1) medical education, 2) professional competence or difficulty and 3) educational support, from January 1st 1990 to December 31st 2016. Relevant non-indexed journals were hand searched and experts in the field were

contacted to ensure a comprehensive search. Studies were included if they met the following criteria: primary research studies and innovation reports describing at least one remediation intervention (individualized additional teaching) for undergraduate or postgraduate medical learners in difficulty. The reference lists of selected articles were also reviewed to ensure all key articles were included. Data extraction employed Michie's Behaviour Change Techniques Taxonomy and program evaluation models from Stufflebeam and Kirkpatrick. The quality of each included study was assessed using the Mixed Methods Appraisal Tool. An adaptation of the GRADE approach to grading quality of evidence and strength of recommendations synthesised the extracted evidence (pooled number of study participants, quality of supporting evidence, the relative importance of outcomes (based on Kirkpatrick levels) and the clarity or risk/benefit (effectiveness score for each intervention) to establish recommendations for each intervention (weak, moderate or strong).

Results: Of the 16,692 screened titles, 65 met the inclusion criteria. Most articles identified more than one educational diagnosis, for a total of 46911 learners. The 117 types of remediation interventions we identified (undergraduate: n= 94; postgraduate: n=54) involved at least one behaviour change technique, most commonly the following: Shaping knowledge (30.8% of interventions), Feedback and monitoring (25.6%), Social support (23.9%) and Repetition and substitution (20.5%). Program evaluation reported in the articles assessed context (18% of articles), input (22%), process (23%) and products/outcomes (97%). 26 met initial criteria for "Strong" recommendations, 82 graded as recommendations "Moderate" and 9 "Weak" interventions.

Conclusion: This review provides clinical teachers and educators with a repertoire of literature-based interventions to support medical learners and for faculty development purposes. Further remediation interventions should build upon effective behaviour change techniques (or test the unexplored ones), use their associated theories, and undergo thorough program evaluation.

References

- Lacasse M. 2009. Educational diagnosis and management of challenging learning situations in medical education. Québec: Université Laval, Faculté de médecine.
- Lacasse M. et al. 2018. Remediation interventions for undergraduate and postgraduate medical learners with academic difficulties: a BEME systematic review. Manuscript in preparation. Protocol available at https://bemecollaboration.org/Reviews+In+Progress/Remediation+interventions/
- Michie S, Wood CE, Johnston M, Abraham C, Francis JJ, Hardeman W. 2015. Behaviour change techniques: the development and evaluation of a taxonomic method for reporting and describing behaviour change interventions (a suite of five studies involving consensus methods, randomised controlled trials and analysis of qualitative data). Health technology assessment (Winchester, England). 19(99):1-188.