

The Impact of the Learning Environment on Learner Well-Being: A Systematic Review of the Literature

David J. Cipriano, Ph.D.¹, Susan Cox, M.D.², Catherine Ferguson, M.D.¹, Amy Fleming, M.D., MHPE³,
Cooper March³, Stephen Smith, Ph.D.², Sandrijn Van Schaik, M.D., Ph.D.⁴, Danielle Yancey, M.S.⁵

Kern National Network for Caring and Character in Medicine

1. Medical College of Wisconsin, Milwaukee, WI 2. University of Texas at Austin, Dell Medical School 3. Vanderbilt University School of Medicine, Nashville, TN
4. University of California San Francisco School of Medicine, San Francisco, CA 5. University of Wisconsin-Madison School of Medicine and Public Health, Madison, WI

Background and Procedures

Learning environment influences engagement, motivation and success (Schonrock-Adema et al., 2012) as well as professional identity formation and wellness (Pololi et al, 2017). Facing alarming rates of depression and burnout among students, many medical schools are looking to learning environment interventions to address medical student wellbeing (Wasson et al., 2016). Our purpose was to update and expand upon recent reviews (Gruppen et al, 2018, Wasson et al., 2016) by including non-intervention studies, international papers and interdisciplinary populations. The initial search in PubMed and PsychINFO resulted in approximately 5,000 hits. Review by title and scanning for duplicates resulted in a list of 290 papers. Abstract review narrowed the list down to 154. Full article reviews resulted in 71 papers. A snowball technique resulted in the addition of 35 papers for a final count of 106 articles in the current review. Results are presented in a box-score format which demonstrates robustness of findings through replicated effects.

Results

Stressors in Learning Environment	Personal Stress: 2 studies showed negative impact on wellbeing (WB), 1 did not Academic Stress (workload, exams): 8 studies showed negative impact on WB
Inclusion	Minority Status: 3 studies showed association with worse WB Female Gender: 2 studies showed association with worse WB
Relationships	Faculty Relationships (Mentor, role-model, advisor): 7 studies positively associated with WB, 1 associated with negative or neutral impact on WB Peer Relationships (general, small group meetings, mentoring): 8 studies showed positive association with WB
Professionalism	Attending/Resident Behavior (unhappy, cynical, negative): 7 studies demonstrated a relationship between negativity and worse student WB Derogatory comments about patients: 2 studies showed negative impact on student WB
Mental Health / Well-Being Curriculum	Course on CBT/Resilience: 4 studies positively associated with WB, 2 not associated Course on relaxation/mindfulness: 12 studies showed positive association with WB, 1 did not Group: 2 studies showed positive association with WB Efforts to decrease stigma/increase accessibility: 2 studies showed positive association with WB

Results (cont.)

Hours/Shifts	Hours per week: 6 studies positive correlation between number of hours and worse WB, 1 did not Consecutive days: 2 studies showed positive correlation between number of consecutive days and worse WB
Feedback Systems	Pass/Fail Grading: 4 studies showed positive association with WB Timely/Appropriate: 1 study showed positive association with WB
Pedagogies	Clinical Integration (During pre-clinical, transition into): 2 studies positively associated with WB, 2 studies with negative relationship with WB Small Group (Instruction, Learning Communities): 4 studies showing positive association with WB Active Learning (Problem-Based, Case-Based, Flipped Classroom): 2 studies positively associated with WB, 3 studies with negative or no association with WB Academic Support (Study resources, remediation): 2 studies showing positive association with WB Revised Curriculum (Reduced lecture-based, less time in class): 6 studies showing positive association with WB

Summary

The most robust findings in the present review have to do with academic stressors, relationships, professionalism and wellbeing curriculum. Regarding stressors, while pedagogy may impact motivation and performance, it seems that workload, time spent in lecture and on tests, as well as frequency of testing have a larger impact on learner wellbeing. Promoting faculty-student relationships and creating a sense of community among students may be the simplest way to improve learner wellbeing. This is especially important for under represented and traditionally marginalized groups. Addressing faculty and resident negativity, which of course has its roots in their own wellbeing, is a promising avenue for addressing learner wellbeing. Including wellbeing didactics in curriculum has positive effects. The benefits of pas/fail grading have been reviewed elsewhere (Wasson et al., 2016) and limits on hours are related to wellbeing for most learners.