DATE

ADDRESS

Dear Members of the [YEAR] Rackham Distinguished Dissertation Review Committee:

I wish to recommend, in the strongest terms, XX for a [YEAR] Rackham Distinguished Dissertation Award. You will probably hear also from the rest of his dissertation committee; we are unanimous in recommending him for this award. XX’s dissertation, part of a joint degree between Anthropology (XX, co-chair) and the School of Natural Resources & Environment (where I am co-chair), combines evolutionary theory, anthropology, physiology, and reproductive sciences in a cutting-edge scholarly work of both theoretical and (eventually) practical import.

XX chose a particularly challenging research topic: the effects of social stress on women’s reproduction. This is a difficult but important issue: we think that stress affects women’s ability to reproduce (e.g., Boston Marathon runners may become anovulatory), but it is extremely difficult to define stress, especially social rather than physical stress (what causes it? How should it be measured internally?). Further, it is difficult to measure reproductive outcomes with precision.

There is, first, the critical problem of finding a relatively homogeneous population. In the US, for example, not only are many women on contraceptives, but there are other confounding variables: profession, socioeconomic status, diet, and ethnicity (and more). XX chose a relatively isolated and homogeneous population in the highlands of [LOCATION], in a Mayan village. In this village, he worked for 14 months with non-pregnant women with sexual partners, between the ages of 26-36. His project required massive fieldwork, lab work, and statistical work to come to fruition.

Once a relatively homogeneous population was found, there remained numerous other challenges to this important interdisciplinary problem: measuring not only women’s perceptions of stress, but how perceptions relate to actual hormonal responses; teasing apart the myriad confounding factors; and discovering, when reproduction fails, just where in the process failure occurred. XX collected and analyzed more than 16,000 urine and saliva samples for hormonal profiles, and an equal number of temporally-matched interviews on the status of a woman’s social relationships. Within anthropological work, this is a stunningly large sample size. In medical research on fertility, sample sizes are sometimes large, but they are still plagued by all the confounding variables noted above—and we know of no large studies even attempting to link perception of stress to hormonal stress measures. XX’s research design has moved past the best that previous researchers in either medical anthropology or medicine in developed nations have been able to accomplish.
With his dissertation, XX has managed to achieve what few anthropologists and ecologists are able to do: he made a scientific contribution that inspires important changes in the theoretical body of his field and generates new knowledge essential in the search for solutions to highly important “real world” problems. His dissertation reflects an extraordinary education in, and ability to integrate, evolution, ecology and life history theory with endocrinology, survey research, and sophisticated statistical skills.

Before XX’s work, evolutionary ecologists analyzed adaptive abortive mechanisms only from the mother’s perspective. He was one of the first to notice that current models could not satisfactorily explain the chronologic pattern of spontaneous abortions in humans—which, he suggested, in fact argue a conflict of interest between mother and fetus in some conditions. XX successfully argued that a main shortcoming of this model was that it did not consider potential defense mechanisms of the fetus, which have evolved to counter maternally derived abortion mechanisms. His convincing argument, that as the placenta develops, the fetus gradually gains some degree of control of the pregnancy, is new—and can help explain why most early spontaneous abortions of healthy fetuses in humans take place during the placentation period. He then knew when in the cycle to look for hormonal aberrations that would predict fetal loss—and did so successfully. This has practical implications for medical practice.

XX’s dissertation is already partly published or under review. His first paper, published in the [JOURNAL] in YEAR, describes the association between the physiological stress marker cortisol and changes in the monthly profiles of women’s reproductive hormones—the crucial and previously missing link between stress and hormonal response. XX was first to report that naturally-occurring increases in urinary cortisol levels in women were associated with hormonal changes that may affect fecundability, without necessarily causing an interruption of the menstrual cycle.

His second paper, under review at the [hyper-prestigious JOURNAL], is also a first, providing the first physiological evidence that stress can lead to spontaneous abortion in humans. I note in passing that the reviewers were quite favorable; the paper remains “under review” rather than “in press” in my opinion largely because XX and his wife and infant son have just relocated to [LOCATION] to take up a Post Doctoral Fellowship with the [ORGANIZATION].

XX’s work is original, exceptionally interdisciplinary, and important in its scholarship. It will also find important applications in medicine and physiology. It is a truly exceptional dissertation, and well worthy of a YEAR Rackham Distinguished Dissertation Award.

Sincerely,

Bobbi S. Low
Professor, Resource Ecology