



Mentorship in Biostatistics: An Educative Critique from Animal Sciences Perspective

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Abstract

This article aimed to underline the importance of mentorship quality in biostatistics education in animal sciences. This aim pursues optimization in designing sound animal experiments and rigorous data analysis out of farm and laboratory experiments. In some parts of the world including Iran, animal science students and mentees learn statistics mainly from instructors that are not specialized in animal biosciences. As such, statistical reasoning for animal science students mostly relies on mathematics-based formulas without or with very limited biological and animal related descriptions and illustrations. As a result, education becomes irrelevant and mystifying. Teaching of biostatistics even by agricultural or plant breeding professionals does not help either because the topics covered are mostly on non-animal trials. Consequently, prospectus animal scientists do not receive adequately profound biostatistical education, and thus, do not develop reasonably practical perceptions on animal based statistics. This situation may be exacerbated by the fact that mentees are not properly led to gain skills in using statistical softwares and programs. Therefore, the current mentorship strategies in biostatistics education in animal sciences in many parts of the world require contemplation for refinement.

Keywords: Animal Science; Biostatistics; Education; Mentorship

Discussion

This article aimed to constructively criticize the current mentorship programs in biostatistics education for animal science students and the need for training well-prepared professional biostatisticians in this important discipline. Animal science is a multidisciplinary discipline that includes and amalgamates biology, chemistry, physics, microbiology, mathematics and statistics. In the postmodern era, the borders of sciences appear to vanish. In other words, all branches of science are somehow interrelated. It is believed that this integration is needed for effective research towards quality life for humans and animals. For instance, animal nutrition/physiology/breeding researches gain ideas from human physiology and health sciences and vice versa. The discovery of some beneficial components in cow's milk such as conjugated linoleic acid (CLA) is one of the most remarkable examples confirming that sciences work together to improve postmodern human life [1]. Without sciences integration, researchers will be unable to meritoriously conclude from the results and to propose directions for future

experiments. Basically, statistics is a mediatory science and tool that translates biological outcomes into understandable commands and comments for comparisons. Unfortunately, biostatistics is poorly educated for students in animal sciences in many parts of the globe. In such parts, animal science graduates are not adequately capable to design and perform sound scientific experiments independently. This problem stems partly from inadequate association of biologists and statisticians. Consequently, biology and mathematics are not well coordinated into sound animal experiments, which leads to major difficulties in data acquisition and interpretation. Therefore, for optimal mentoring of prospective animal scientists, revising and refining educational programs in animal biostatistics is a necessity.

Raising students with professional biostatistical skills requires changes in instructional methods. Two main teaching approaches are used worldwide including teacher-centered and learner-centered approaches [2]. In teacher-centered approach, the lecture is mediated by the lecturer with no major contributions

of students to lecture debates and outcomes. However, in learner-centered approach, the students are encouraged to get involved in debates and discussions. As a result, influential interactions among mentees and mentors regarding their opinions and critiques occur. In case of biostatistics in animal sciences, the first approach (i.e., teacher-centered approach) is mainly used currently which is not appropriately workable. The importance of discussion and the art of mentorship in creative global science has been emphasized in the literature [3], with the criticism of educational policies. Teaching biostatistics in creative models needs effective practical policy-making [3]. For the first step, teacher-centered approaches in biostatistical education should be optimized into learner-centered systems to motivate students and mentees for greater participations in discussions related to animal biology and mathematics. Moreover, introducing 'animal biostatistics' as a new discipline into mentorship programs in higher animal science education may be advantageous to further improve biostatistical training and learning in animal sciences. The effectiveness of such programs has been demonstrated in social medicine and public health science disciplines [4].

Hence, biostatistical skills can be improved by adjusting and optimizing educational systems. Teaching biostatistics with solid and close mentor-mentee relationships and interactions provides an environment in which learners and instructors can critic each other to improve their understanding of pragmatic biostatistics. The importance of criticism and even auto-criticism has been emphasized recently and seems to be fully effective in inducing new advances in the postmodern life [5]. For easier accomplishments in productive mentorship in biostatistics, specialized mentors of biostatistics should be edified and generated in animal sciences to interactively manage mentees. Overall, biostatistics is a key science that should host major refinements in its teaching and learning methods. The significance of effective biostatistical

training is crucial in development of capable and independent animal science scientists.

Implication

Biostatistics is considered as an important field in animal bioscience with a pivotal role in problem-solver experiment designing and rigorous research data analysis. Novel and innovative approaches to teach biostatistics should be based on learner-centered methods to provide ample opportunities for mentees to interact with mentors and other mentees fueled by two-sided critiques. Generating specialized biostatisticians in animal sciences is another strategy that could further improve biostatistical understanding and competency for prospectus animal scientists.

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References

1. Yang B, Chen H, Stanton C, Ross RR, Zhang H, et al. (2015) Review of the role of conjugated linoleic acid in health and disease. *Journal of Functional Foods* 15: 314-325.
2. Willie D, Ferguson T, Tulloch-Rad, McCaw-Binns A (2012) Teaching epidemiology and biostatistics: medical students' views on the content and instructional strategies of an introductory course. *Caribbean Teaching Scholar* 2: 103-114.
3. Nikkhah A (2011) Science education of the new millennium: Mentorship arts for creative lives. *Creative Education* 4: 341-345.
4. Gruzieva TS, Stuchynska NV, Inshakoca H (2020) Research on the effectiveness of teaching biostatistics of future physician. *Wiadomosci Lekarskire* 73: 2227-2232.
5. Jalili Pandari Y, Nosrati M (2019) The importance of auto criticism in literary creativity. *Journal of Stylistic of Persian Poem and Prose* 12: 43-62.



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