

## AYUSH advisory presents ominous outlook for research in traditional Indian healthcare systems

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A recent advisory (F. No. Z.25023-10912018-DCC (AYUSH) dated 2 April 2019) issued by the Ministry of Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homoeopathy (AYUSH), Government of India expresses concerns regarding the publication of research papers and scientific studies on AYUSH drugs and treatments 'by non-AYUSH scientists/researchers with unfounded statements and conclusions to damage the credibility and sanctity of the whole system' because 'qualified AYUSH experts were not involved/consulted in these studies and research publications'. This advisory further states: 'potential and scope of AYUSH in public healthcare cannot be jeopardized and the people may not be distracted or dissuaded from resorting to AYUSH from arbitrary statements and unfounded conclusions in the scientific studies and research publications related to AYUSH'. The advisory therefore states: 'all non-AYUSH researchers, scientists, institutions and editors of the medical/scientific journals are hereby advised to involve appropriate Expert/Institution/Research Council of AYUSH in conducting any scientific study/clinical trial/research intervention to explore AYUSH drug or treatment and for vetting of the publication of its outcomes and findings to prevent incorrect, arbitrary and ambiguous statements and conclusions about AYUSH'.

While we share the concerns of the AYUSH Ministry about possible damage to the image of traditional healthcare systems by unfounded, monocular and categorical conclusions presented in some research publications, we believe that the mechanisms recommended in this advisory to curb them are not appropriate.

The advisory issued by the AYUSH Ministry, which urges all to 'take note of the advisory for compliance by the respective researchers/scientists/investigators', is nearly impossible to be followed and implemented. However, more serious and worrying implications are that such steps would not only curb the much needed unbiased research in these traditional medicine systems but also limit the freedom to think, both of which are fun-

damental requirements for improving our understanding in any discipline.

We believe that actual disrepute to the traditional Indian healthcare systems, including Ayurveda, is caused by the mushrooming of low-quality journals which publish poor-quality research, often by AYUSH 'experts' themselves. The low-quality research derives from the unsubstantiated data being included in postgraduate/Ph D theses in the numerous colleges and universities that have mushroomed. It is also a known fact that many of these AYUSH colleges retain their recognition through 'ghost' patients, teachers and even students. Obviously, the pseudo-research conducted at these institutions not only brings a bad name to AYUSH, but also generates a workforce that can only do more damage to the system<sup>1,2</sup>. The low-quality medicines being marketed by spurious pharmacies also bring disrepute to AYUSH. The Ministry should be more concerned with these rather than placing a gag on studies and voices that report research findings that may not fully agree with the traditionally held views.

It is possible that there are non-AYUSH researchers who also generate and publish poor research output. However, just as there are good and quality-conscious AYUSH researchers, there are non-AYUSH researchers who have contributed and continue to do so positively and significantly to the understanding of the principles and mechanisms of actions of these treatment modalities. For example, the pioneering and extensive contributions of a few organic chemists to the chemistry of herbal products, widely used in Ayurveda, are well known. Likewise, many basic science studies on modes of actions of a large variety of herbal and Ayurvedic preparations unravelled their biological mechanisms and opened new and effective therapeutic applications<sup>3-14</sup>. Many such studies have also unravelled positive and negative interactions between herbal and modern medicines<sup>15,16</sup>. Several genomic and molecular biologists have made significant contributions to understanding the possible correlates of the *Tridosha/Prakriti*

concept of Ayurveda in terms of contemporary biology<sup>17-21</sup>. These are but a few examples of significant contributions by primarily non-AYUSH researchers which have truly enriched the field.

An unopposed faith in ancient knowledge and practices on account of their being traditional, without revalidation in the contemporary context, is indeed ominous. The AYUSH practices and formulations need to be substantiated by evidence-based understanding. Studies undertaken by AYUSH or non-AYUSH researchers that question a traditionally held belief and bring systematic evidences challenging its rationality, need to be taken seriously rather than being considered as a distraction or 'insult' to the ancient wisdom. Intellect and social order move forward only with knowledge and understanding that go beyond what our predecessors knew.

If this advisory by AYUSH is taken seriously, it would make only one opinion flourish and may throttle all others who dare to differ. Good science has to be open to the test of external validation. Actually, we need to foster more of unbiased multidisciplinary research, rather than making it a close-door system consisting of allies alone. The latter would spell doom for the AYUSH systems. Imagine, if biology researchers would have decided not to let non-biologists make inroads in life sciences during the 20th century, where would biology, and for that matter the modern science, be today?

AYUSH must not expect only confirmatory evidence from other researchers. If we differ in opinion, there are academic platforms and journals to keep the debate alive and put forth the counter arguments. It must be understood that much of the research output by AYUSH and non-AYUSH researchers that is published in good journals devoted to Ayurveda and other traditional medicine systems would have undergone good peer-review and thus, it is actually contributing to the growth of traditional healthcare systems. Asking the journal editors to ensure the inclusion of AYUSH experts as authors in a research paper is not only against the autonomy of

a researcher, but is also pejorative to the reputation of ‘science publishing’ being a level playing field that only screens if the science being communicated is sound rather than the formal academic qualifications of author/s. This advisory can potentially give rise to misgivings between AYUSH and non-AYUSH experts. It would be highly desirable to have AYUSH experts in research studies related to clinical trials, but this may not be essential in all studies that examine AYUSH effectiveness *in vivo* and/or *in vitro*. In any case, the AYUSH experts need to be collaborators rather than monitors or watchdogs.

The AYUSH Ministry and practitioners of Ayurveda should not forget the remarkable contributions of diverse researchers to Ayurveda through the ‘Ayurvedic Biology’ mission that was started a little more than a decade ago<sup>22–26</sup>. M. S. Valiathan, primarily a cardiac surgeon and innovator, and who was catalytic in initiating the ‘Ayurvedic Biology’ commented, ‘At this time there is no common ground where physicists, chemists, immunologists and molecular biologists can interact with Ayurvedic physicians. Ayurveda is not only the mother of medicine but also of all life sciences in India. In spite of it, science has been completely divorced from Ayurveda’<sup>27</sup>. Obviously there is a great need for true interdisciplinary studies, with free and unbiased participation of researchers in different domains, to achieve the much needed integration of traditional and modern medicine systems that would provide the required quality of healthcare to human societies<sup>28</sup>.

We believe that a better and rational approach for the AYUSH Ministry would be to actually curb poor-quality research journals in the field of traditional healthcare systems, rather than curbing involvement of researchers from diverse disciplines who can contribute to the required validation of Ayurvedic principles

and practices through contemporary scientific rigour. It is important to develop academically sound mechanisms, based upon robust scientific evidences, to promote the genuineness of AYUSH. The AYUSH Ministry could promote this by ensuring that the various AYUSH colleges and their educational programmes maintain high standards of teaching and research. Looking forward and moving ahead would be a more pragmatic way of earning dividends for AYUSH.

1. Rastogi, S., *Indian J. Gastroenterol.*, 2018, **37**, 374–375.
2. Patwardhan, K., Prasad, B. S., Aftab, A., Raghunath More, V. and Savrikar, S. S., *J. Ayurveda Int. Med.*, 2019, **10**, 45–49.
3. Thyagarajan, S. P., Subramanian, S., Thirunalasundari, T., Venkateswaran, P. S. and Blumberg, B. S., *Lancet*, 1988, **2**, 764–766.
4. Roy, P., *Indian J. Psychiatry*, 2018, **60**, S277.
5. Vaidya, A. B. *et al.*, *Neurol India*, 1978, **26**, 171–176.
6. Dwivedi, V. *et al.*, *PLoS ONE*, 2012, **7**, e37113.
7. Lakhotia, S. C., Mutsuddi, M., Dwivedi, V. and Tripathi, B. K., In *Exploring Traditional Medicine* (eds McGrath, P. F. and Tout, P.), Inter-Academy Panel for Health, Trieste, Italy, 2017, pp. 147–157.
8. Tiwari, V., Saba, K., Veeraiah, P., Jose, J., Lakhotia, S. C. and Patel, A. B., *J. Biosci.*, 2017, **42**, 363–371.
9. Saba, K. *et al.*, *Front. Mol. Neurosci.*, 2017, **10**, 323.
10. Swain, U. *et al.*, *Mech. Ageing Dev.*, 2012, **133**, 112–117.
11. Kumar, V. *et al.*, *Sci. Rep.*, 2017, **7**, 8588.
12. Mukhi, P. *et al.*, *J. Ayurveda Integr. Med.*, 2017, **8**, 93–98.
13. Ramanan, N. *et al.*, *J. Synchrotron Radiat.*, 2015, **22**, 1233–1241.
14. Lakhotia, S. C., *Aryavaidyan*, 2017, **XXXI**, 5–9.
15. Dandekar, U. P. *et al.*, *J. Ethnopharmacol.*, 1992, **35**, 285–288.
16. Atal, C., *IDMA Bull.*, 1979, **10**, 483–484.

17. Rastogi, S. and Chiappelli, F., In *Evidence-Based Practice Towards Optimizing Clinical Outcomes* (eds Caldeira Brant, X. M. *et al.*), Springer, Berlin, 2010, pp. 91–106.
18. Prasher, B. *et al.*, *J. Transl. Med.*, 2008, **6**, 48.
19. Sethi, T. P., Prasher, B. and Mukerji, M., *ACS Chem. Biol.*, 2011, **6**, 875–880.
20. Govindaraj, P. *et al.*, *Sci. Rep.*, 2015, **5**, 15786.
21. Patwardhan, B., Joshi, K. and Chopra, A., *J. Altern. Complement. Med.*, 2005, **11**, 349–353.
22. Valiathan, M. S., *Towards Ayurvedic Biology: A Decadal Vision Document*, Indian Academy of Sciences, Bengaluru, India, 2006.
23. Valiathan, M. S., *Proc. Indian Natl. Sci. Acad.*, 2016, **82**, 13–19.
24. Lakhotia, S. C., *Proc. Indian Natl. Sci. Acad.*, 2016, **82**, 1–3.
25. Valiathan, M. S., *Curr. Sci.*, 2006, **90**, 5–6.
26. Valiathan, M. S., *Curr. Sci.*, 2016, **110**, 2043–2044.
27. Yadugiri, V., *Curr. Sci.*, 2010, **99**, 875–881.
28. Lakhotia, S. C., *Proc. Indian Natl. Sci. Acad.*, 2019, **85**; doi:10.16943/ptinsa/12019/49588.

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