

The Year in Ramadan Fasting and Health: Changing Perspectives and a Slow Pace!

In the current issue of the *Journal*, Beshyah *et al.* review the global literature production on Ramadan fasting in health and disease over the past year (2018).^[1] The article is a narrative, nonsystemic review on the interplay between the fasting of Ramadan and the various aspects of health and disease including physiology, psychology, clinical practice, professionalism, ethics, and advocacy.

A similar article was published last year on the literature production during the previous year (2017).^[2] At the time of preparation of this commentary, it is the most viewed article in the journal (4149 reads). Despite the perceived relative increase in the medical profession's interest in the health implications of Ramadan fasting,^[3] only 106, 93, and 82 records could be retrieved from the major three databases namely Scopus, PubMed, and Google Scholar, respectively. Inclusion of the Google Scholar this year was expected to bring more journals and articles not currently indexed in Scopus and PubMed into the net. However, this does not seem to be the case. Many are very excited on the much-celebrated increase in the literature production on the various aspects of health concerns in Ramadan. However, the volume of the global literature production remains remarkably small when compared with the volume of publications on many issues and concepts that may not have the same clinical and public health implications of the fast of Ramadan.

Doctors' interest has undoubtedly recently increased significantly on fasting and its consequences on health in general. Beshyah *et al.* in their article addressed an impressively comprehensive list of published areas relevant to fasting and the human body. In their review, the authors included articles covering the impact of Ramadan fast on nutrition, body composition and energy homeostasis, diabetes care, endocrinology and metabolism, pregnancy and neonates, respiratory function, liver and gut, kidney disease, neurology and neurosurgery, ocular structures and function, vascular disease and risk factors, sport and athletes' well-being, medical emergencies during fasting, and finally advocacy and patients' perspectives and finishing with history, music, and law.

Most studies investigated patients at single-center settings, covering variable sample size but mostly small. The study by Ali and Abizari is impressive exploring cultural dietary interactions with Ramadan fast in a good sample of 399 adolescents in Ghana, recording positive changes in weight loss though transient.^[4]

Diabetes care and fasting had the largest share of recent research interest as expected, addressing relevant areas in

a systematic manner. Reassuringly, fasting in general has a positive effect on Type 2 diabetes mellitus (T2DM) patients as it reduces their blood pressure, blood glucose, HbA1c, and body mass index in addition to providing better duration of sleep and physical activity.^[5] The study by Tan *et al.* highlighted a timely needed area of research namely fasting activities and knowledge and practice in relation to diabetes control during Ramadan, reinforcing diabetes education and early treatment adjustment, especially before and during the month of Ramadan. This is essential to minimize the hypoglycemic risks and frequency of diabetes complications.^[6] Several studies addressed self-management education for patients and health-care professionals demonstrated a need for improved educational curriculum to address diabetes during Ramadan.^[7] The involvement of pharmacists to improve pharmacologic management of diabetes during the fasting month is wise and thoughtful.^[8]

Themes emerging from this analysis included issues relating to sociocultural pressure for T2DM patients to fast; lack of awareness about the role of pharmacists; and, most importantly, the need to train pharmacists in cultural sensitivity and clinical implications aiming for a safe practice. Hypoglycemia, the most serious complication during fasting hours on insulin or insulin secretagogues, was covered in detail by many researches, correctly highlighting the need to monitor blood glucose during fasting hours and take appropriate action.

This year witnessed an increased number of studies on pregnancy during Ramadan fasting including epidemiological, observational, and experimental designs. Bearing in mind that despite pregnant women are exempt from Ramadan fasting, many pregnant Muslim women do observe the Ramadan fast. Some studies investigated the impact of Ramadan fasting during pregnancy on pregnancy and neonatal outcomes and even long-term outcomes in adulthood for children who were prenatally exposed to Ramadan. In this respect, the epidemiologic study from Burkina Faso is impressive studying in a retrospective manner data from 41,025 children born between 1993 and 2012, of which 25,093 were born to Muslim mothers using a specific analysis to estimate the association between Ramadan exposure at different gestational ages and mortality rate among children <5 years of age. The study concluded that the observance of Ramadan during early pregnancy can have detrimental consequences for the future health of the unborn child.^[9] A study from an Indonesian family life survey analyzed a sample of 45,246 observations of 21,723 children born to 9771 mothers and examined the

effects on stature.^[10] The authors claimed a negative effect on stature for children born to religious Muslim mothers who will likely tend to observe fasting. This is an area of important future research interest.

Athletes' well-being and performance in sport during Ramadan fast attracted increased recent interest among investigators, which has been highlighted in a number of publications addressed in this review by Beshyah *et al.* Findings from these studies may help inform decisions on the scheduling of competitive games for fasting players.

This review highlights a recent increased academic interest in the health implications of Ramadan fasting, which is likely the result of rising development in health care and research in Muslim-majority regions.

Finally, as an invited submission, perhaps the review should have been prepared and published earlier in the year rather than in the last issue of 2019. Also, the authors should exercise more critical appraisal of the published work rather than simply providing a descriptive narration. These two points should be taken on board next years assuming, the journal will commission a similar work next year.

Author's contribution

This is a single-author article.

Conflicts of interest

Nil

Funding and sponsorship

Nil

Compliance with ethical principles

Not applicable as it is an editorial commentary.

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Received: 12-12-2019 **Revised:** 12-12-2019 **Accepted:** 13-12-2019

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Website:

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DOI:

10.4103/ijmbs.ijmbs_81_19

How to cite this article: Lakhdar AA. The year in ramadan fasting and health: Changing perspectives and a slow pace! *Ibnosina J Med Biomed Sci* 2019;11:140-1.

Reviewers:

NA.

Editors:

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