



Letter to the Editor

Monitoring of salt iodisation programme in Iran; Health outcomes, shortages and perspective



The incidence rate of iodine deficiency disorders (IDDs) in Iran is decreased and controlled very well. Iran is one of the most successful countries in IDDs control and shows overlay high degree of success of salt ionization program. However, several limitations might weaken the conclusions which should be drawn from the Iranian cross sectional study attempting to evaluate the salt iodisation programme reported in the Journal of Trace Elements in Medicine and Biology [1].

First, the authors do not provide the information on the use of iodised salt. Although the authors reported the mean salt iodine concentration and its distribution across provinces in Iran [1], this does not necessarily convey that the studied populations must have used iodised salt at their households. When the coverage of iodised salt by household is < 90%, this might indicate a low coverage of iodised salt in populations [2,3]. Most of the salt samples (80%) were of optimum value and mean of iodine concentration in salt across 30 provinces in Iran varies from 24 to 46 ppm. In addition, the authors also reported that only 57% of the 1450 salt samples matched the claimed iodine concentration [1], suggesting that there is an urgent need for the salt producers in Iran to ensure that the infrastructure for salt iodisation and packaging is well-supported by an implementation plan including ongoing quality assurance measures, standards and regulation. These monitoring and evaluation steps are important to sustain a successful Iranian salt iodisation programme in order to ensure that the iodine deficiency disorders (IDD) would not re-emerge in future.

Second, children living in some of inner and coastal areas in Iran (as shown in four provinces in Figure 3 of the article by the authors) [1] appeared to have above requirements or excessive iodine intake (i.e. median urinary iodine concentration (UIC) > 200 µg/L). However, no information is provided regarding the exact value of median UIC of Iranian children, which would have helped to determine the potential significance of the findings.

Third, the authors do not consider potential contributors including dietary iodine intake when assessing iodine status of Iranian children and pregnant women. No information is provided regarding the types of food rich in iodine consumed by Iranian children and pregnant women [1]. Although the authors did not report the use of iodine containing supplements by pregnant women, median UIC of pregnant women without the use of iodine supplement was 125 µg/L, which might indicate the presence of iodine deficiency (median UIC < 150 µg/L) in this group of pregnant women. Iodine sufficiency was reported in four provinces for pregnant women (i.e. median urinary iodine concentration (UIC) > 150 µg/L, respectively) (as shown in Figure 4 of the article by the authors) [1]. Although the authors claimed that median UIC of pregnant women without the use of iodine supplement was adequate in some provinces, it is less clear if pregnant women are able to maintain iodine sufficiency by only consuming food containing iodised salt. This

is because when taking into consideration that only 57% of the 1450 salt samples matched the claimed iodine concentration and there was a large variance in mean iodine concentration of salt samples as reported by the authors.

While the research questions are important and the findings reported by the authors contribute to the available body of evidence regarding the effectiveness of salt iodisation programme, we question the extent to which the findings by the authors as presented in providing evidence, especially to link the access to iodised salt as an important contributor to iodine sufficiency in pregnant women.

Funding

None.

Conflict of interest

The authors declare that they have no conflict of interests

References

- [1] H.R. Shamsollahi, M. Nadarloo, N. Rastkari, M. Sillanpää, M. Yousefi, H. Pasalari, R. Nabizadeh, Monitoring of salt iodisation programme in Iran; health outcomes, shortages and perspective, *J. Trace Elem. Med. Biol.* 52 (2018) 6–11, <https://doi.org/10.1016/j.jtemb.2018.11.004>.
- [2] Z.F. Ma, S. Skeaff, Assessment of population iodine status, in: E.N. Pearce (Ed.), *Iodine Deficiency Disorders and Their Elimination*, Springer, Cham, Switzerland, 2017, pp. 15–28.
- [3] Z.F. Ma, A comparative study of iodised salt programs: Shanghai and Switzerland, *Biol. Trace Elem. Res.* (2018), <https://doi.org/10.1007/s12011-018-1478-8>.

Zheng Fei Ma^{a,b,*}

^a Department of Health and Environmental Sciences, Xi'an Jiaotong-Liverpool University, Suzhou, China

^b School of Medical Sciences, Universiti Sains Malaysia, Kota Bharu, Kelantan, Malaysia

E-mail address: Zhengfei.Ma@xjtlu.edu.cn

Yutong Zhang

Jinzhou Medical University, Jinzhou, China

Hang Zhou

Department of Clinical Nutrition, Northern Jiangsu People's Hospital, Yangzhou, China

Binyu Pan

Department of Clinical Nutrition, The First People's Hospital of Wujiang District, Suzhou, China

* Corresponding author at: Department of Health and Environmental Sciences, Xi'an Jiaotong-Liverpool University, Suzhou, China.