

“The global distribution of unintentional acute pesticide poisoning: estimations based on a systematic review” – article published in BMC Public Health 2020
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Extended rebuttal by the authors of a retraction by the journal’s editor

The team manager of the journal informed us on 24.05.23 that they have “now received further advice from an Editorial Board Member on your rebuttal below in response to our announcement that we will be proceeding with the retraction of your study from *BMC Public Health*. The comments are pasted below.” In the following table we reply to these comments.

Comments of an Editorial Board Member	Reply by authors
<p>“The Tomenson & Matthews (2009) study cited in the response does indeed show that in Cameroon, there were an average of 9.2 events per person per year. However, this rate is among the highest of all presented (if not the highest). Across all countries, there was an average of 4.4 incidents per year in those users who experience symptoms. Regardless, I’m not sure of the significance of this argument, as this indicates that the same individuals are experiencing UAPP multiple times, and so each poisoning event is not a unique ‘case’ that can be extrapolated to the population.”</p>	<p>The Board member rightly admits that there can be multiple poisoning cases per person per year. This means that a lifetime prevalence cannot just be divided by the number of years of exposure to arrive at an annual prevalence as the critique seems to assume.</p> <p>We did not take the frequency of cases for a prevalence and none of the studies included did. Our extrapolations were not based on the frequency of cases. The Board Member might wish to consult the methods and discussion section of our paper.</p>
<p>“It is difficult to find information on the ratio of ‘ever’ to ‘annual’ poisoning, which would more usefully inform this argument. I was able to find one study which was published some 35 years ago (Jeyaratnam et al 1987) which showed that 13.8% of Indonesian pesticide applicators had ever experienced poisoning, but only 0.3% in the past year. The ratio was smaller in other countries (e.g. Malaysia, 14.5% ever versus 7.3% in the past year). This seems to suggest that using an ‘ever’ prevalence to denote annual frequency may result in an overestimation.”</p>	<p>The Board Member might wish to consult our paper where we provided more studies. The Jeyaratnam paper could not be included in our review as it is outdated analysing data 40 years old! However, the Board Member in citing the Indonesian data should have taken advice from the paper: “The low result from Indonesia (0.08 %) for poisoning in the preceding year is atypical, compared with the previous years, and is probably the result of an interview error.” (Jeyaratnam et al 1987)</p> <p>However, we never stated that an “ever” prevalence could not lead to an overestimation of annual prevalence of poisoning, see again our discussion section. The question here is if such an overestimation has taken place. We detailed above that for most countries mentioned as candidates for overestimation that the prevalence used in our extrapolation are not higher than strictly annual ones and therefore no overestimation has taken place. For the mentioned countries without a strict annual prevalence the effect on the extrapolations is negligible.</p> <p>Has the Board Member a comment on this?</p>
<p>“Further, another more recent study (Negatu et al, 2018, doi 10.1136/oemed-2017-104538) showed that of the 41 respondents who had ever experienced</p>	<p>We fail to see how the Board Member came to this conclusion. It is not based on the paper which states “Our study</p>

<p>poisoning, 71% had experienced it once, 22% twice, and 7% three times. Granted, this is a very small sample size, but it seems to suggest again that using 'ever' poisoned to represent 'annual' rates will overestimate (given that most applicators will presumably use pesticides for many years, and so three times ever does not translate into once a year)."</p>	<p>reported similar APP prevalence (16%) when compared with those reported in studies in low and middle-income countries in Asia (11.9% to 19.4% among pesticide users) despite differences in APP case definitions (ie, 'ever suffering from APP' ...)". (Negatu et al. 2018)</p>
<p>"Related to my specific concerns around the Cameroon and Tanzania estimates, I'm unclear as to why the authors used an average of studies when they had an annual estimate available. Regardless of whether this was higher or lower than the average, would it not be more defensible to use the annual estimate?"</p>	<p>No, it would not. The Board Member again could have got the idea from our paper. Poisonings results from exposure, exposure results from pesticides and pesticide use which in turn result from the kind of crops and the way how they are grown. This has tremendously changed in the last decades leading e.g. to an increase in global pesticide use. In order to arrive at an up-to-date picture we could not rely on data 20 years old.</p> <p>Again, our averaged prevalences of pesticide poisoning in Cameroon and Tanzania were not higher than strictly annual ones.</p>
<p>"There seems to be an argument being made by the authors around the year of data collection, in particular in response to the Nigeria comments. However, the year in which data were collected is of little consequence to this issue; instead, the question used to gather the data and whether a timeframe was specified in that question is of interest."</p>	<p>We did not emphasize the year of data collection but that the symptoms reportedly showed up during or after pesticide exposure. This is the classic definition of acute poisoning. When poisoning followed exposure and exposure happens regularly - even several time per year - this is the basis for an annual prevalence. Again, for Nigeria we used the overall mean prevalence of 61%, which is lower than that of studies strictly reporting cases occurring during use of pesticides.</p>