

## MORTALITY AMONG PSYCHIATRIC INPATIENTS IN SINGAPORE

Dear Sir,

I would like to make a general comment on the analysis of several of the tables, using table II as an example. The conclusions drawn by Lim et al<sup>(1)</sup>, (statement on page 131, paragraph 2) that "The SMR decreased with age and the SMR in those 70 years and above was lower than those reported in Western literature", may not be entirely accurate. I noted that Lim et al have used the expected values based on the National Vital Statistics of Singapore. This method of comparison can be inappropriate at most times. One is therefore not surprised to note that there are wide differences between the expected and observed values, when two different populations are compared viz national versus hospital-based. It would have been better for Lim et al to compute the expected values based on the hospital sample itself. This can be done by using the method of Habermann (1978)<sup>(2)</sup>.

We reanalysed the data of Table II, with the adjusted residual values, which shows that the mortality rates do increase with age.

Observed No.	No. of Patients	Estimated Values	Residual	Estimated Standard Deviation	Adjusted Residual
1.00	58.00	1.7	0.747	1.00	0.57
21.00	1570.00	47.3	-26.289	5.00	-4.91
38.00	1512.00	45.3	-7.592	5.00	-4.2
23.00	456.00	13.7	-9.265	3.00	2.66
37.00	388.00	11.7	-25.313	3.00	7.7
120.00	3984.00	120.00			

Chi Square = 72.26

Maximum Estimate likelihood = 60.03

Using this method, when several of the appropriate tables were reanalysed, the answers of course differed from the published results. The analysis was calculated from a special programme written by our Artificial Intelligence Research team. The Algorithm was based on Newton-Raphson as described by Habermann.

We hope this comment will be of some use, and we welcome further discussion on the matter.

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### REFERENCES

1. Lim LCC, Sim LP, Chiam PC: Mortality among psychiatric inpatients in Singapore. Singapore Med J 1991; 32(3): 130-2
2. Haberman KC. Analysis of Qualitative Data - Vol. I, Introductory Topics. NY, SF, Lon: Academic Press 1978

### AUTHORS' REPLY

We were greatly puzzled by the writer's comment that our method of calculating expected values based on the National Vital Statistics of Singapore was "inappropriate" and "it is better to compute the expected values based on the hospital sample itself". Unfortunately he did not state the reason why he thought that it was inappropriate to use the general population statistics. Neither did he provide the formula that was used in his calculation but presumably the estimated values were computed from the hospital sample. He then went on to show that from his calculation the expected values were different from ours and commented that our conclusion was inaccurate.

The purpose of our study was find out if there was a difference in mortality between psychiatric inpatients and the general population in Singapore. Therefore the expected values were calculated from the general population statistics and this is an established method used in many published studies. From the results that we have obtained, it was reasonable to conclude that "the SMR decreased with age and the SMR in those 70 years and above was lower than those reported in Western literature" (page 131, paragraph 2).

The alternative method suggested by the writer only answers the question: "Does mortality vary with age in our hospital sample?" and not the question that we had examined in our study which was of greater importance. If he was addressing the same question ie "Is there a difference in mortality between psychiatric inpatients and the general population?", then the proposed method was conceptually incorrect because the expected values were computed from the same hospital population that the observed values were derived from. We are unable to comment on the computer programme developed by his Artificial Intelligence Research team as there were no published references available.

From the points mentioned above, we can only conclude that the writer has not understood the purpose of our study. His criticisms were thus totally unjustified.

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