ON RECALL LAPSE IN INFANT DEATH REPORTING[1]

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SUMMARY. Recall lapse as a distorting factor in infant death (and sex ratio at birth) reporting in historical studies, based on the interview method at a current moment, was introduced in the Indian demographic situation by Mahalanobis and Das Gupta (1954) and elaborated by Das Gupta, Som, Majumdar, and Mitra (1955) in *Couple Fertility*; the approach in these two studies, based on the National Sample Survey data, was through the marriage cohorts where time entered as a distinct component. The trend of the observed proportions over time was seen to get substantially distorted from that of the true proportions, obtained from external evidences, establishing thus the existence of a definite, progressively decreasing recall lapse in infant death reporting.

Poti, Raman, Biswas, and Chakravarty (1959), analyzing the data on infant death of the West Bengal Household Comparative Study and Health and Employment Study 1955, by order of birth concluded that recall lapse in infant death reporting was not statistically significant. The present paper seeks to establish the theoretical validity of the study of the recall lapse in infant death reporting by the marriage cohort differential vis-a-vis that by the order of birth differential and analyzing the same data as that utilized by Poti etc., by marriage cohorts, confirms the findings of the previous two studies.

1. Recall lapse as a constituent, distorting factor in infant death (and sex ratio at birth) reporting in historical studies based on the interview method at a current moment was first introduced by Mahalanobis and Das Gupta (1954) for the Indian demographic situation, obtained from the National Sample Survey (NSS). In *Couple Fertility* by Das Gupta, Som, Majumdar, and Mitra (1955), based also on the same NSS data, this problem was studied in greater details and tentative exponential curves fitted, with good agreement, for the percentages under-reporting of infant deaths by marriage cohorts.

2. Let m_t mothers married at calendar year t have b_{it} i-th order of births, of which d_{it} die in their first year of life; then p_{it}, the infant death proportion (IDP) of the i-th order of birth to such mothers is

$$p_{it} = d_{it}/b_{it}.$$

In a survey, where the past fertility history is collected through interview at a current moment, defective number of births and infant deaths b'_{it} and d'_{it} respectively are reported, giving the corresponding IDP

$$p'_{it} = d'_{it}/b'_{it}.$$

The problem is to find out if recall lapse operates in infant death reporting so that the trend of the observed proportions (p') over time might get substantially distorted from that of the true proportions (p).

3. In the study by Mahalanobis and Das Gupta and also in *Couple Fertility*, this topic was studied by the marriage cohort differential. The observed IDP for the m_t mothers over all birth orders is

$$\sum_i d'_{it} / \sum_i b'_{it} = \sum_i b'_{it}\, p'_{it} / \sum_i b'_{it} = \bar{p}'_t, \text{ say.}$$

A comparison of $\bar{p}'_t$, with $\bar{p}'_\tau$ (τ being more recent than t) was then made to show that significant recall lapse existed in infant death reporting, since the observed proportions gave the relation $\bar{p}'_\tau > \bar{p}'_t$, while from external evidence it could be stated that $\bar{p}_\tau < \bar{p}_t$. (In the above two studies, the IDP was analyzed for marriage cohort groups and not for any

[1] A rejoinder to "A pilot health survey in West Bengal", by Poti, Raman, Biswas and Chakravarti (1959), *Sankhyā*, 21, 141-204.

particular marriage cohorts; we can, however, assume without any loss in generality that t and τ are the central points of two marriage cohort groups).

4. The problem of recall lapse in infant death reporting has recently been referred to by Poti, Raman, Biswas, and Chakravarti (1959) in "A pilot health survey in West Bengal, 1955", based on the data of the West Bengal Household Comparative Study and Health and Employment Study, 1955[1] published in this issue on p. 141-204. Here the study of the recall lapse in infant death reporting was limited to the different birth orders from mothers having five or more terminations. The observed IDP for the i-th birth order over all mothers (and marriage cohorts) is

$$\sum_t d'_{it} / \sum_t b'_{it} = \sum_t b'_{it}\, p'_{it} / \sum_t b'_{it} = \bar{p}'_{i\cdot}, \text{ say.}$$

Thus, a comparison between the IDP's $\bar{p}'_{i\cdot}$ and $\bar{p}'_{\cdot\iota}$ for two birth orders i and ι would not reflect the effect of recall lapse over time (apart from the small interval between successive births which is of the order of only 2-3 years). The observed IDPs by orders of birth for the West Bengal Health Survey can not then, as the authors made them out on the basis of their Table 4.1, contradict the existence of a substantial recall lapse over time between marriage cohorts, observed in the previous two studies on a national scale.

5. From the same data as that of Table 4.1 of "A pilot health survey in West Bengal", the IDPs for the different marriage cohort groups calculated by us are presented in Table 1. This table, which has a counterpart in Table 8 of Mahalanobis and Das Gupta (1954) and Table 8.1 of *Couple Fertility* (Das Gupta, Som, Majumdar, and Mitra, 1955), on the other hand shows clearly the existence of similar recall lapse over time in infant death reporting except for small kinks (occasioned perhaps by the small sample sizes), and confirms the findings of Mahalanobis and Das Gupta (1954) as also of Das Gupta, Som, Majumdar, and Mitra (1955).

TABLE 1. INFANT DEATH PROPORTION (PER 1000 LIVE BIRTHS) FOR EVER-MARRIED WOMEN HAVING FIVE OR MORE TERMINATIONS BY MARRIAGE COHORT GROUPS: WEST BENGAL HOUSEHOLD COMPARATIVE STUDY AND HEALTH & EMPLOYMENT STUDY, 1955

marriage cohort	rural	urban
(1)	(2)	(3)
1. before 1910	147	99
2. 1910–19	155	158
3. 1920–29	200	160
4. 1930–39	183	115
5. 1940–45	188	221
6. all marriage cohorts	160	140
(*no. of mothers*)	(*522*)	(*165*)

[1] In this survey the approach was through the living married women which would, on the basis of the findings of *Couple Fertility*, miss about 12 per cent of the broken couples with wife dead. The effect of the differing approach adopted on the recall lapse in infant death reporting is, however, not being discussed here.

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6. In "A pilot health survey in West Bengal", the recall lapse in infant death reporting was also studied for mothers aged 43 years or over, the births to these mothers being divided into two groups—(i) births occurring within 15 years preceding the date of survey; and (ii) births occurring before 15 years preceding the date of survey. The IDP was seen to be greater for birth group (ii) than that for (i), from which also the authors concluded that recall lapse was not statistically significant.

7. The same data on which the above finding was based (Table 4.2 of "A pilot health survey in West Bengal") were analyzed in this note by marriage cohorts. For births occurring within 15 years preceding the date of survey, the sample sizes were inadequate for the individual marriage cohort groups. For births occurring 15 years or earlier preceding the date of survey, the IDPs are presented in Table 2 by marriage cohort groups. From this table, it will be seen that the analysis by marriage cohort shows up the existence of recall lapse for these mothers also. The division of the births for mothers aged 43 years or over into two groups by birth period and analysis over all marriage cohorts within each birth period group is not expected to show up the effect of recall lapse in infant death reporting as for the first group, i.e., for births occurring within 15 years preceding the date of survey, about 9 per cent in rural areas and 12 per cent in the urban relate to the first four births : the corresponding proportion for births occurring 15 years or earlier preceding the date of survey is 63 per cent in rural areas and 71 per cent in the urban. Thus the second group, being loaded heavily in favour of the earlier orders of births, just presents again the finding that the observed IDPs for the earlier orders of birth in this particular study were higher than those for the later orders; this was, in fact, a general feature which ran through all marriage cohorts for all mothers.

TABLE 2. INFANT DEATH PROPORTION (PER 1000 LIVE BIRTHS) FOR BIRTHS OCCURRING 15 YEARS OR EARLIER PRECEDING THE DATE OF SURVEY TO EVER-MARRIED WOMEN AGED 43 YEARS OR OVER, BY MARRIAGE STUDY COHORT GROUPS : WEST BENGAL HOUSEHOLD COMPARATIVE & HEALTH AND EMPLOYMENT STUDY, 1955

marriage cohort	rural	urban
(1)	(2)	(3)
1. before 1910	140	106
2. 1910–19	173	175
3. 1920–29	180	145
4. all marriage cohorts[1]	160	137
(*no. of mothers*)	(*359*)	(*153*)

[1] Including the marriage period 1930–39 with a very small sample size.

8. The fallacy which crept in the arguments by the authors of "A pilot health survey of West Bengal" was inherent in the assumption that recall lapse in infant death reporting was order of birth-specific, and not mother-(or marriage cohort-) specific. In the previous two studies, the same group of mothers did not appear more than once in the differentials studied whereas in this particular study they do and vitiate the homogeneity of data. For either substantiation or invalidation of the phenomenon of recall lapse observed in the former studies, the same line of analysis should have been followed here also ; even then, a regional survey cannot always show up the same features as may be observed in a study on a national scale, which is expected to smooth out regional peculiarities if they exist.

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