PRUDENTIAL MORTALITY EXPERIENCE BY SEX

E. A. RODE

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J. R. MCDONNELL:

In the opening paragraph of his informative paper, Mr. Rode expressed the thought that members of the Society might be interested in the results of a study made by the Prudential for the purpose of obtaining their mortality experience by sex. The results of that study were of considerable interest to us at the New York Life.

TABLE 1

POLICY YEARS	ISSUES AGES 10-64					
	MEDICAL		NONMEDICAL		MEDICAL AND NONMEDICAL	
	Actual Claims (in 1,000's)	Ratio of Actual to Expected	Actual Claims (in 1,000's)	Ratio of Actual to Expected	Actual Claims (in 1,000's)	Ratio of Actual to Expected
	Male Lives					
1- 2........	$ 1,515	105%	$ 352	107%	$ 1,867	105%
3- 5........	2,477	101	396	118	2,873	103
6-10........	6,153	107	511	114	6,664	107
1-10.....	$10,145	105%	$1,259	113%	$11,404	106%
	Female Lives					
1- 2........	$ 109	62%	$ 67	74%	$ 176	66%
3- 5........	304	93	50	45	354	81
6-10........	419	51	152	71	571	56
1-10......	$ 832	63%	$ 269	65%	$ 1,101	64%

Earlier this year, we made an analysis of our current mortality experience by sex. The scope of our study, however, was not as extensive as that described in Mr. Rode's paper. Briefly, our results were based on an analysis of the experience between 1952 and 1953 policy anniversaries by

amount of insurance. The study covered issue ages 10 to 64, inclusive, under our standard issues of 1943 through 1952. War deaths were excluded.

In our study, expected deaths were based on crude mortality rates developed, for medical and nonmedical business separately, from the corresponding actual combined male and female experience. Ratios of actual to expected claims for male and female lives separately were then ob-

TABLE 2

AGES AT ISSUE	POLICY YEARS 1-10					
	MEDICAL		NONMEDICAL*		MEDICAL AND NONMEDICAL	
	Actual Claims (in 1,000's)	Ratio of Actual to Expected	Actual Claim (in 1,000's)	Ratio of Actual to Expected	Actual Claims (in 1,000's)	Ratio of Actual to Expected
Male Lives						
10-29	$ 1,098	105%	$ 841	117%	$ 1,939	110%
30-39	2,551	103	369	105	2,920	103
40-49	3,869	105	49	120	3,918	105
50-64	2,627	108	....	....	2,627	108
10-64	$10,145	105%	$1,259	113%	$11,404	106%
Female Lives						
10-29	$ 126	70%	$ 161	58%	$ 287	62%
30-39	163	72	99	85	262	76
40-49	319	64	9	53	328	63
50-64	224	55	....	....	224	55
10-64	$ 832	63%	$ 269	65%	$ 1,101	64%

* Age 40 maximum issue age under nonmedical program.

tained for (1) medically examined business; (2) nonmedical business; and (3) medical and nonmedical business combined. Our results are summarized in the two tables above.

As shown in the tables, the over-all ratios of actual to expected claims for policy years 1 to 10 for medical and nonmedical business combined were 106% for males and 64% for females. Since the results of the Prudential's study were not given in exactly the same form as that which we had used in our study, it was not convenient to make a direct comparison of

results. However, it appears that if ratios of actual to expected claims for all amounts combined were to be determined from the Prudential data for policy years 1 to 10 only and for issue ages 10 to 64, inclusive, the overall results would be fairly close to those which we obtained from our experience.

The results of these two studies confirm the well recognized fact that mortality on female lives has been favorable in relation to that experienced on male lives. However, mortality is only one of several factors which must be taken into account in computing premium rates. Thus, favorable mortality on females may be offset by higher unit expenses resulting from smaller average size policies. This is particularly true at the younger ages where most of the business on women is written and where mortality rates are normally low so that mortality savings are small on a dollar and cents basis. The effect of the various factors involved was fully discussed this year in the "Informal Discussion" at the 1954 Eastern and Western Spring meetings.

With respect to average size policy on female lives, an analysis of our paid standard issues over a two months period in 1954 showed a figure of about $2,500 on females as compared with an average size policy of about $6,200 on male lives.

With respect to the relatively heavy concentration of new issues on female lives at the younger ages where the effect of favorable mortality is less important financially, the above mentioned analysis of 1954 paid issues showed that, for new issues on female lives, about 73% by number of policies and about 56% by amount were written at issue ages below 30. The corresponding figures for male lives were 56% and 41%, respectively.

Mr. Rode also mentioned in his paper that the Prudential had underwritten married women nonmedically since 1943 with an amount limit one-half of that for males and single females. We have been more liberal in that regard and, in our nonmedical programs, have always applied the same amount limits to male and female lives, regardless of marital status.

WALTER G. BOWERMAN:

In this report Mr. Rode has made a study of standard Ordinary issues of 1919 to 1951, exposed between 1948 and 1952. The death rate of females was 65% of that of males (much lower than in earlier reports!). At ages 10–24 the ratio of female to male mortality was lower than that of the general population. At older ages (25–70) it was higher. The only marked excess was at ages 30–39. Probably these Ordinary lives in the Prudential were a bit more on the industrial side than is true of the entire U.S. population. Seventy percent of the business was written by agents

who sell both Ordinary and Debit lines. Thus the hazards of child-birth would stand forth as a differentiating factor.

About 15% of the business was on female lives. Of the total amount *in force* in 1950 at issue ages 0–29, as much as 71% was written without medical examination (a high proportion!).

For *all* the present data the lowest nonselect mortality at any age was .35 per 1,000. This was at attained age 9 in each of the policy years 6 to 10 (a very low "ultimate" death rate). However, it was higher than the .25 per 1,000 at the same age for girls in a recent tabulation for the population of New Zealand!

<center>(AUTHOR'S REVIEW OF DISCUSSION)</center>

<center>E. A. RODE:</center>

I want to thank Mr. McDonnell and Mr. Bowerman for their discussions. The New York Life experience presented by Mr. McDonnell is a welcome addition to the paper, especially since it gives results for medical and nonmedical business separately.

We got the following ratios by summarizing our select data by amounts for issue ages 10–64 in the same age and duration classes as Mr. McDonnell's:

	Ratio of Actual to Expected	
	Male	Female
Policy Years		
1– 2	102%	72%
2– 5	100	70
6–10	103	57
1–10	102	63
Ages at Issue		
10–29	104%	64%
30–39	102	91
40–49	101	52
50–64	100	50
10–64	102	63

Whereas the over-all results of the two experiences are similar, our female mortality is higher at ages 30–39, and lower above age 40 than the New York Life's.