

Volume of Household Measures

A Matter of Concern

by CESAR G. VICTORA and
VICTOR HUGO COELHO

Department of Social Medicine, School of Medicine, Universidade Federal de Pelotas, C. P. 464, Pelotas, RS, Brazil.

Whenever prescribing a syrup or suspension, or when writing a feeding formula, the careful health worker calculates precisely the adequate amount of each substance being prescribed so that for each patient the desired therapeutic or preventive benefit will be achieved. These substances are commonly measured in terms of teaspoonfuls, dessertspoonfuls and tablespoonfuls.

There is little reference among medical textbooks—even among the ones dealing specially with therapeutics—about the volumes each of these measures. After going through standard textbooks available to the authors, only four sets of values were obtained (1,2,3,4). These are shown in Table 1.

Of these four measures, the first viz. teaspoon seems to be most popular among physicians and medical students (5). In order to ascertain that the medications and formulae referred to were being taken by the patients in the intended dosages, this study was designed.

Materials and Methods

The three different sizes of spoons were measured in 100 middle-class homes in the city of Pelotas. As the interviewer was received he explained the nature of the project and asked the housewife to show him one of each of the spoons mentioned. With the aid of a graduated pipette, water was poured into the spoon

until it was completely full and then measured to the nearest decimal. The observer had been trained in measuring volumes of standard spoons.

Results

The results obtained are shown in Table 1. The average volumes observed were consistently lower—from 56 per cent to 81 per cent—than those expected from descriptions in text books. It is also important to notice the extremely low values observed in some homes, such as the case of a dessertspoon which held only 1.2 ml, or about 15 per cent of what it was supposed to. Besides, there were no teaspoons in seven homes, and no tablespoons in ten.

Discussion

It is hardly necessary to emphasize the importance of having the patient follow precisely the health worker's prescription. This is particularly true in the poor countries, in which many medicines and special foodstuffs are sold without standard measures. In a sample of 200 suspensions examined in a local pharmacy, for instance, only 65 included a measure in the package (6).

The results shown above suggest that patients—particularly children—may be receiving inadequate amounts of prescribed drugs and other liquid or

TABLE I
Expected and observed volumes of household spoons, Pelotas, Brazil

Spoon size	Expected*	Volume in ml			O/E ratio
		Observed			
		Average	Range		
Teaspoons	4-5	2.8	1-7	0.7-0.56	
Dessertspoons	8-10	5.6	1.2-10	0.7-0.56	
Tablespoons	15	12.1	9-17.5	0.81	

* From medical textbooks

powdered substances. However, since this was not a representative sample, the data cannot be extrapolated to the whole city or region. The authors believe that the situation may be even worse in the poor homes. The results of our study show that lack of standard household measures imposes serious limitations on the administration of correct dose of liquid medicines in some countries.

Summary

One-hundred middle-class homes in the city of Pelotas were visited in order to measure the volumes of teaspoons, dessertspoons and tablespoons. The data obtained show that spoons are consistently

smaller than expected from reading medical textbooks. The importance of these findings to careful prescribing are discussed.

References

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