Nutrition in 70-year-olds

Dietary habits and body composition
A report from the population study "70-year-old people in Gothenburg, Sweden"

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in fact the "analysis errors", inherent in all epidemiological works of such a magnitude as
the present study. They might be compared with "analysis errors" in other types of scient-
ific work such as in the field of clinical chemistry. Examples of weapons to minimize
such processing errors are to check the com-
pleted forms, the identification numbers and
numbers of forms and the transcription from
forms into code rings, to perform verification
key punching and listing of punch cards and
to repunch incorrect punch cards, all of which
was done in the present study.

A statistical problem often met in epidemiological work was also noticeable in
the present study, namely the problem of
mass significance; the problem of interpreting
significant results when a great many
differences and hypotheses are tested. A
possible way of performing the evaluation of
possible significant results, when the problem
of mass significance is applicable, is to con-
sider results significant only at the one per
cent level and to stress significant differences
between two groups of probands only if more
than one test of significance points in a similar
direction.

Results and discussion of the results
Observer variation
The problems of interobserver variation must
be considered in large-scale population studies
like the present one. This study showed that
some interobserver variation existed between
the two registered nurses engaged in the home
call part of the study, with regard to some of
the interview questions. Thus, answers to
questions regarding i.a. "standard of dwelling
unit" (males), "do not dare to go out in the
evening" (males) and "social contact"
(females) showed different proportions in the
codings by the two home call nurses. In spite
of thorough training before the study it was,
thus, not possible to eliminate this variation.
This fact must probably be accepted in most
studies with more than one observer, regar-
ding questions where the answers might be
given and/or interpreted subjectively. The use
of more than one observer in these parts
might, however, also help to reveal these
capabilities. There might be a greater risk for
undiscovered bias if only one observer is used.

There are also risks involved in the ex-
istence of intraobserver variation. As far as
this study was concerned and regarding the
parameters studied (e.g. determination of
heart volume and calculation of intakes of
energy and nutrients) no significant such
variation was observed.

Response
Practically all population studies suffer from
the existence of non-response. It is not the size
per se of the non-response group which is im-
portant but the extent to which this group
differs from the examined part of the sample.

In the Kilsyth survey of persons 65 years of
age and over, women were overrepresented in
the non-response group (6). The non-response
group in a study using a mailed questionnaire
sent to persons up to 70 years of age revealed
that the degree of response was correlated to
total number of visits and year of last visit to a
periodic health examination programme to
which the probands were subjected (30).
There was in that study nothing to suggest
that the non-responders had any different dis-
tribution of medical conditions from that of
the responders. The Edinburgh longitudinal
study of persons 62 years and upwards
showed that the proportion of women in the non-examined group was significantly higher than in the examined group. Furthermore, non-responders of both sexes seemed to have had significantly less hospital care than the responders (66).

The above-mentioned studies are examples of studies with a reported analysis of the non-response groups. However, in many cases results from population studies have been reported where it is not obvious for the reader to judge the degree of representativeness of the examined probands.

In the present study the non-response was relatively small (10 per cent in males and 14 per cent in females) in the home call part of the study and another 4 per cent (males) and 2 per cent (females) in the hospital part (Table 1—from Paper I). Furthermore, no significant differences were observed between the non-responders and the examined group of probands regarding sex, marital status, income, community rent allowances, proportion of probands registered in the Register of Temperance Board or occurrence of care at in-patient and out-patient psychiatric departments (among those probands who were examined by the psychiatrist and the psychologists). The only observed significant difference between the two groups was the proportion of 70-year-old females who had been subjected to somatic hospital care during the last five years, which was lower in the non-response group than in examined probands. This result is in agreement with those of Milne et al. (66) and Akhtar (6) concerning women.

It is a common experience (15, 42, 47, 68) that non-response is higher in higher age groups. In many population studies in these groups, therefore special attempts have to be made in order to minimize non-response due to refusal. In our opinion the principal factor in this respect is personal contact with the propositi, not only by letter, but also by telephone calls and personal home calls.

It is our opinion that the home calls should be made by registered nurses or other medical personnel. Frequent questions to our home calling nurses were “Does it hurt?” and “Will my health improve by participating in the study?”, etc. Furthermore, instructions of e.g. urinary sampling are made easier at a home call by medical personnel than by anybody else.

The dietary interviews and the body composition examinations in this study were in the form of “subsequent” studies on subsamples after the general examination. It probably has to be accepted that there will be a “secondary” non-response between the hospital examination and the subsequent investigation. Such non-response is, however, more easy to evaluate than a “primary” non-response, since there is already data available on these non-responders from the hospital examination, which will allow a thorough analysis of possible differences between responders and non-responders in that particular subsequent examination.

Concluding remarks

Nutritional factors are closely interrelated to the social and medical condition of an individual and of a group of individuals. Therefore, broad epidemiological studies also including social and medical data are suitable for answering questions related to nutrition factors. To study nutrition as an integrated part of the social and medical condition of 70-
year-olds was the main objective of the sub-
study within the population study "70-year-
old people in Gothenburg, Sweden" which is
reported in this presentation.

The validity of the nutritional data is par-
tially dependent on the degree of represen-
tativeness of all studied probands in the total
study compared with the population "70-
year-old people in Gothenburg". It is con-
cluded that the studied probands are, general-
ly speaking, representative of that population.
It is also concluded that the design and
procedure of the population study were ade-
quate and that observer variation—although it
existed for some social data—did not affect
generally the possibilities of drawing con-
clusions from the collected data.

70-Year-Olds in Gothenburg—Dietary Habits

Introduction

Knowledge of the nutritional situation of a
group of individuals is necessary when eval-
uating their present and future state of
health, in planning of social and health ac-
tivities and in tracing population subgroups in
the risk zone for malnutrition. The increasing
number of elderly people in industrial coun-
tries—in absolute as well as in relative
terms—makes the elderly population an es-
npecially interesting one in this respect. This is
so also because of the possibilities of changed
nutritional demands in old age due to altered
physical activity, ageing processes per se and
the frequent occurrence of disease—for discus-
sion see Paper II.

The dietary habits of a population (e.g. in-
take of energy and nutrients and meal hab-
ts) can be revealed by a number of
methods such as weighing methods, record
methods, and interview methods—for a review
see (77). The two interview methods used in
the present study have been used extensively
throughout the years—the 24-hour recall
method was described in 1942 (92) and the
dietary history method in 1947 (22). The
validity of these methods in the present
material is discussed later on.

There have been numerous studies
throughout the years concerning dietary
habits in elderly people—for a review see (31).

Paper II includes examples from U.K. In the
present review, however, the literature survey
will be limited to Swedish studies, since
dietary data is closely related to e.g.
geographic, socio-economic and ethnic fac-
tors. Also between countries so similar in
social structure and geography as Sweden and
U.K. comparisons have to be made with cau-
tion because of differences in the same age
group regarding factors like e.g. weight/height
ratios, examples of which are given in Paper II
and Paper III.

Surveys in Sweden in which studies of
dietary habits of elderly people were the only,
or a major, component comprise studies with
the 24-hour recall method (48, 85, 88). As dis-
cussed later on and in Paper II this method
tends to give lower values of intakes of energy
and nutrients than the dietary history method.

In one study of elderly people with dentures
in both jaws the 7-day dietary record method
was used (86) and in another in Dalby the
duplicate portion technique (1, 2, 3, 5, 20, 25,
64, 75) a technique which apparently gives
lower values than the interview methods—for a
discussion on this see (21, 51, 82). In three
studies meal habits have been studied without
calculating intakes of energy and nutrients (9,
53, 72).