

## ORIGINAL ARTICLE

# USAGE OF TRADITIONAL MEDICINES AMONG ELDERLY AND THE PREVALENCE OF PREDNISOLONE CONTAMINATION

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The elderly consume many medications including traditional medicines. In 1986, it was found that 29% of elderly took traditional medicines although in 1996, the National Health Morbidity survey reported a 2.3% prevalence. However, studies from other countries showed much higher percentages. The Ministry of Health in Malaysia is concerned that some of these preparations maybe contaminated with steroids, antihistamines, hormones and other poisons. The aims of the study were to determine a). the health seeking behaviour of elderly Malays living in rural areas, b). the utilization of both modern and traditional medicines and c). the steroid content of the traditional medicines used. Methodology included interviews using structured questionnaires of elderly Malays living in rural areas of Kelantan, aged above 60 years. Samples of traditional medications collected were sent to the Pharmacology Department, School of Medical Sciences, Universiti Sains Malaysia, for steroid content analysis using Thin Layer Chromatography. A total of 599 elderly respondents were interviewed comprising 62.4% females and 37.6% males. The 60-69 years cohort group made up 48.7%, followed by 70-79 years at 36.1% and the remainder 15.2% were more than 80 years. There were 82% of elderly taking medicines. The trends of utilization of modern and traditional medicine in the last two weeks among elderly were 59.3% and 40.9% respectively. The utilization of traditional medicine by rural elderly Malays was therefore much higher than that reported in the previous study and nearly similar to that of France and Australian studies. There were 102 samples of traditional medications collected and analysed for steroid content. Results showed that 27.5% were positive for prednisolone, 34.3% positive for unknown steroids (a total of 61.8%) and 38.2% were negative for both steroids. The present study therefore once again confirmed the high usage of traditional medicines where some of which are contaminated with steroids.

*Key words* : Rural elderly, traditional medicines, steroids, prednisolone

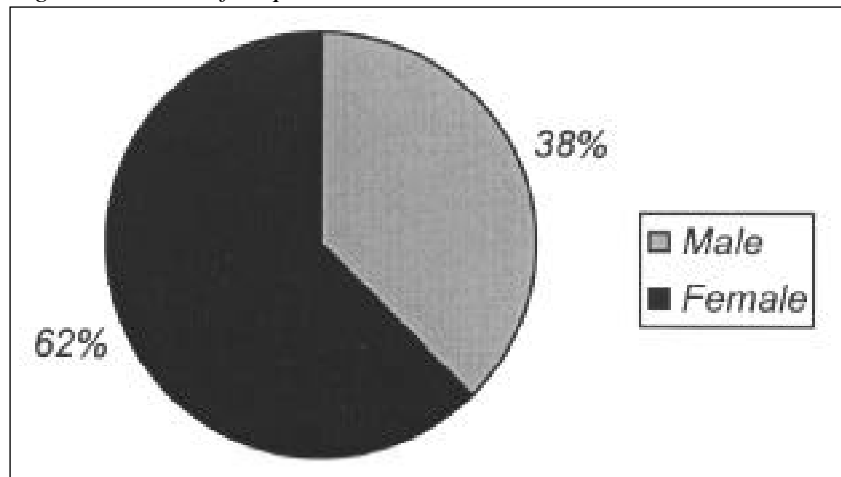
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## Introduction

Aging is usually seen as a progressive, generalized impairment of functions resulting in a loss of adaptive response to stress and in growing risk of age associated disease (1). In Malaysia, the population of elderly is increasing due to an increase in life expectancy, and improved health care services.

Elderly is defined as those aged 60 years and above, as recommended by Malaysian Medical Association (MMA). Data from Lembaga Penduduk dan Pembangunan Keluarga Negara (LPKKN) estimated that the number of elderly, which exceeded 65 years of age will increase from 3.9% in the year 2000 to 6.1% by the year 2020 (2). The 2nd National Health Morbidity survey in the year 1996 showed that

Figure 1: Sex of respondents



females lived longer than males and that the ratio between them was two females for every one male (4). In 1999, the life expectancy at birth for males in Malaysia was 69.6 years; meanwhile for females it was 74.6 years (3). This disparity in life expectancy is expected to result in further demographic changes whereby the female elderly population will increase further and thus feminization the elderly population.

A study was sponsored by the World Health Organization (WHO) on the Topic of "Health and Aging in Malaysia" in 1986 (5) with the aim to assist the authorities in identifying health and social problems pertaining to the elderly. It focused on demographic profile of the aged, examined the health and functional ability, mental health, uses of health services, living conditions and social participation of the elderly in Malaysia. The study found that 29% of the elderly took traditional medications, which were either Malay or Chinese herbal medicines (5).

Ten years later in 1996 the National Health Morbidity survey reported that 2.3% of the elderly population utilized traditional medicines during a two week recall (4). However, data from other countries have shown a much higher percentage of the population using traditional medications, e.g. 49% in France, 33% in USA, 24% in Denmark, 60% in Hong Kong and 48.5% in Australia admitted to using traditional medications. It is assumed that the utilization of traditional medicine in Malaysia is much higher than that reported in the previous study. Apart from the widespread usage of traditional medicines, there is a constant worry that some of traditional medicines available in the market may contain contaminants such as steroids, local anaesthetics, hormones and other poisons.

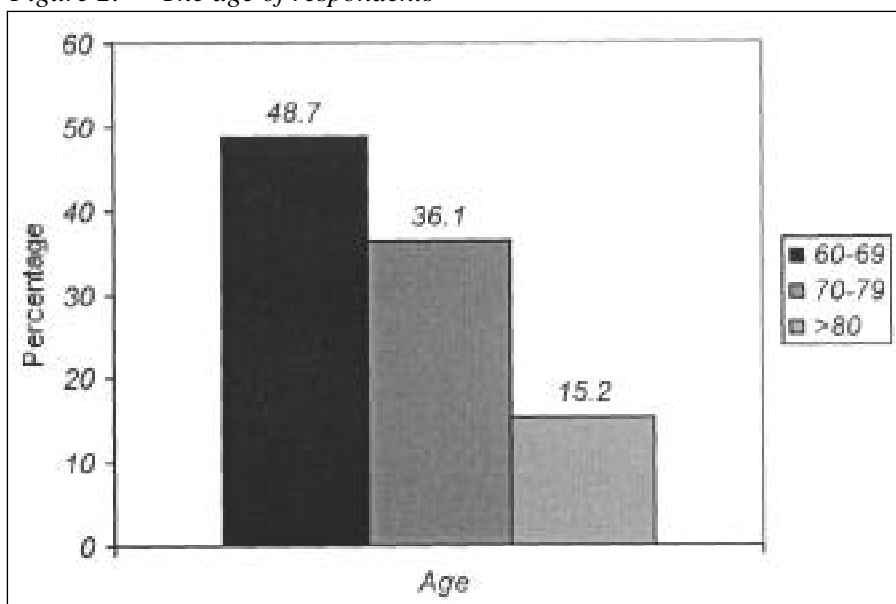
In developing countries like Malaysia, there is a lack of attention given to issues and problems related to the elderly. However, the stakeholders in

health care such as the government, private doctors, pharmacists and researchers should be aware of the issues faced by elderly people (6). The utilization of traditional medicines is still questionable, and among experts, questions arise regarding the quality, efficacy, contents and safety of its usage. There are many unregistered traditional medicines sold widely in this country. At the same time, the problem becomes more serious because the society is using traditional medicines consisting of either those that are produced locally or those that are imported.

Traditional medicine is defined as non-prescription drugs bought over the counter or by direct selling. It contains herbal/natural products, which are consumed orally either as powder, tablet, capsule, caplet, emulsion, suspension, mixtures or boiled preparations. These include Pharmaton, Zinaxin, Remifemin or other herbal containing products. On the other hand, modern medicines are defined as prescription drugs obtained from physicians or over the counter that do not contain herbal/natural ingredients in them.

Ministry of Health is very concerned with the utilization of traditional medicines by consumers in Malaysia because these drugs do not only contain herbs but may also contain contaminants such as steroids, antihistamines, local anaesthetics, hormones and other poisons (7, 8). Some unregistered traditional drugs are contaminated with high contents of heavy metals such as lead, mercury, and arsenic (7). Mercury can cause vomiting, bleeding, diarrhea, disturbance of nervous and renal functions, while lead can cause anaemia and lead to disturbances of nervous and mental functions. Traditional drugs containing dexamethasone can cause swelling of the face, brittle bones and renal failure, as well as delay the healing process from diseases (7).

Figure 2: The age of respondents



Traditional medications that are contaminated with steroids raise a lot of concerns especially if taken over a long-term (9). Chronic use of contaminated traditional medications that contain prednisolone for example, will cause problems. Prednisolone is one of the steroids that can reduce swelling and decrease the body's immune response (10). However, long-term usage will weaken the body's immune response and reduce the ability to fight infection, increase blood pressure, bruising, acne, swollen hand, sore or weak muscles. Other side effects include insomnia, nausea, vomiting or stomach upset, muscle weakness or joint pain, increased hair growth and osteoporosis.

The aims of the study therefore were to determine a). the health seeking behaviour of elderly Malays living in rural areas, b). the utilization of both modern and traditional medicines and c). the steroid content of the traditional medicines used.

## Methodology

The study was conducted from December 2000 to December 2002, which involved elderly Malays aged above 60 years and living in rural areas of Kelantan. The study was approved by the Research and Ethics Committee of the School of Medical Sciences, Universiti Sains Malaysia.

Based on previous studies, and taking the prevalence rate of usage of traditional medicine of 30% and the margin of error at 5%, a minimum sample size of 323 participants was calculated. However, in this study a sample size of 599 people was used so that the margin of error can be reduced

to 4%.

Medical students in years two and three, who were involved in "Community Family Case Studies" in Wakaf Bharu and Tumpat areas together with the help of research officers conducted the interviews. With the cooperation of Penggawa and the use of voting list, only houses with elderly were chosen for the study.

Pretesting of the questionnaire was done using 40 elderly participants in Kampung Laut, Tumpat and the results were encouraging.

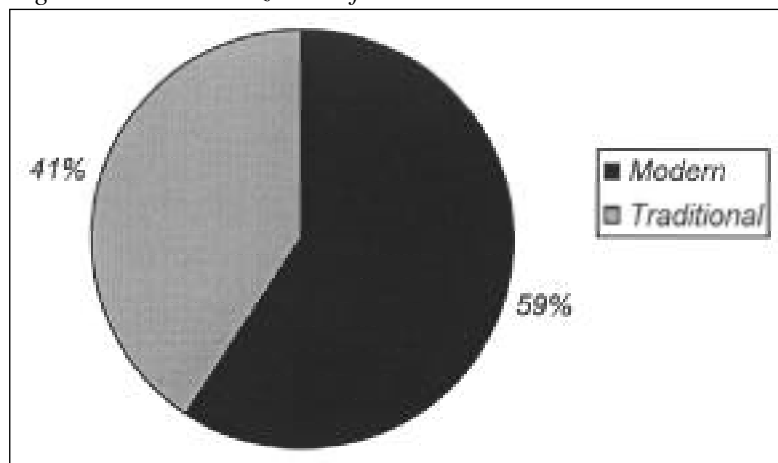
The elderly were interviewed by either a medical student or a research officer and the data were collected using a structured questionnaire (Appendix A). The questionnaire consisted of two sections. Section A included a personal profile and socio-demographic data (name, age, sex etc). Meanwhile section B contained questions pertaining to their health-seeking behaviour during the last 2 weeks and record of medications taken during the last two weeks (types of drug, source and name of drug etc).

Those who took traditional medicines were requested to hand over the said medications and were compensated for their time and cost of traditional medicines. All samples of traditional medicines were labeled accordingly and kept in the filing cabinets for analysis of steroids.

### Analysis of steroid.

Samples of traditional medicines collected from the elderly were tested for steroid content using Thin Layer Chromatography (TLC), which was based on a multistage distribution process (11, 12).

Figure 3: The utilization of modern and traditional medicine



The process involved a suitable adsorbent (stationary phase), solvent or solvent mixtures (mobile phase or eluent) and the sample molecule, in this case the steroid. Prednisolone was used as a standard. The adsorbent of TLC was coated as a thin layer onto a suitable support (e.g. glass plate or polyester or aluminium sheet). The substances were separated by elution with a suitable solvent on this layer.

Traditional medicine samples were initially pretreated by mechanical crushing, extraction, filtration or cleaning up to remove undesired impurities. The extracted product was then spotted on a TLC plate. In our laboratory we use aluminium sheet with silica layer of 0.25 mm in thickness and the particle size of silica was between 5 to 17 mm.

The chromatograms were developed by putting the plates into a glass TLC development tank with mobile phase consisting of chloroform: methanol: water at a ratio of 64:50:10 respectively. The mobile phase was prepared daily because its composition changes due to chemical reaction and evaporation.

Chromatograms were normally developed to 10 cm from the origin and left to dry. The developed and dried TLC plates were then sprayed with reagents for easy spotting of the compound. The reagent used was 5% sulphuric acid in ethanol, followed by 1% vanillin in ethanol. TLC plates were left to dry in the oven at a temperature of 110° C for 5 to 10 minutes. Using UV scanner the spot was identified as blue or yellow for prednisolone and that of standard.

## Results

A total of 599 elderly respondents were personally interviewed by the medical students or research officers in the villages of Wakaf Baru and

Tumpat in Kelantan. The elderly respondents interviewed consisted of 62.4% females and 37.6% males (Figure 1).

The elderly were subdivided into three age groups, i.e. 60-69, 70-79 and more than 80 years. The respondents aged 60-69 years made up the highest percentage of respondents with 48.7%, followed by 36.1% aged 70-79 years and 15.2% were above 80 years of age (Figure 2).

### a. Health seeking behaviour

Majority of the elderly (82%) were currently taking many different types of medications, including modern medicines obtained from the hospitals, clinics or pharmacy and or traditional medicines obtained from shops, friends, pharmacy or prepared personally.

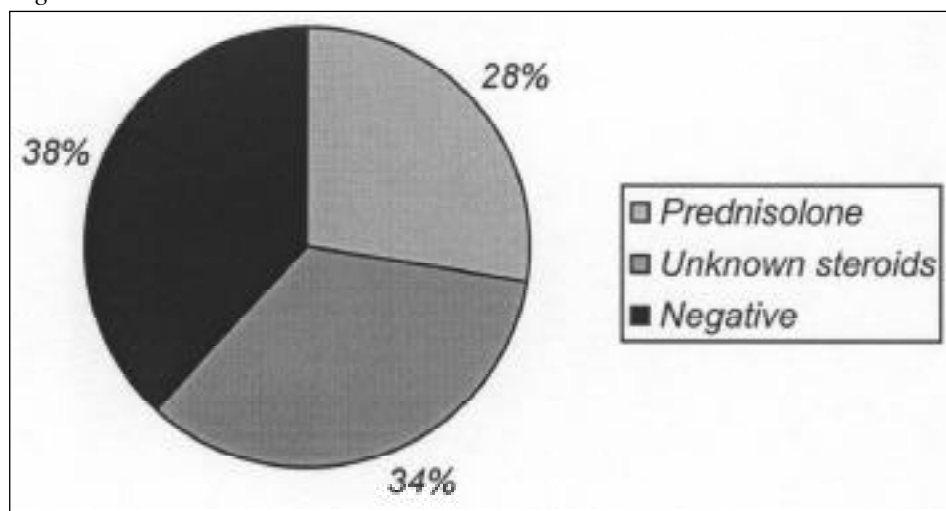
### b. Utilization of modern and traditional medicines

The trends of utilization of medicines in the last two weeks among elderly Malays in the villages studied in Kelantan showed that 59.3% took modern and 40.9% took traditional medicines (Figure 3).

For the 60-69-year old group, 28.4% took modern and 22.5% took traditional medicines. Meanwhile, the elderly aged above 70 and 80 years, considered as middle and late elderly respectively, took 30.9% modern and 18.4% of traditional medicines respectively.

However, there were 18% of elderly who did not consume any type of medicine. Overall, the present study showed that the utilization of traditional medicine among elderly Malays aged, between 60 and 90 years was 40.9%.

Figure 4: The steroid contents



**c. Steroid content of traditional medicines**

There were 102 traditional medicine samples collected from the participants. These traditional medicines were willingly given to the researchers and kept in filing cabinets or mini refrigerator for analysis at a later date. The samples came in the form of powder, tablets, capsules, emulsion, suspension or mixtures. Samples were analysed for steroids using TLC, with 5 samples at a time to save cost and time. The results showed that 27.5% of the collected traditional medications were positive for prednisolone, a standard that is available in the Pharmacology Department, 34.3% were positive for unknown steroids and 38.2% were negative for both steroids (Figure 4). Thus a large number of samples collected (61.8%) contained steroids.

**Discussion**

Most respondents were not able to read and write, thus most of the questionnaires were filled up by the interviewers. The result of the survey showed that the proportion of females in the sample was higher when compared to the males (Fig 1).

This is somewhat expected as life expectancy of females is somewhat higher than males i.e. 69.6 years for males and 74.6 years for females (3), which would naturally result in a larger female group in a population of that age range. Majority of elderly surveyed took medications. Physiological changes taking place in the elderly will affect the pharmacology of medications taken especially the pharmacokinetics and pharmacodynamics (14). Polypharmacy is common in the elderly (15).

This percentage of 82% of elderly taking different medications is high and it showed that drugs were an important aspect of their life. The

study revealed that modern medicine is still the drug of choice among elderly to cure their diseases compared to traditional medicine (Fig 3). Thus overall, our community still believed in modern medicines to prevent their diseases than traditional medicines.

The modernization and efficient health care system in Malaysia, such as hospital facilities and rural health centres, encouraged them to seek treatment at these facilities and consume prescribed medicines. However, there were 18% of elderly who did not consume any types of medicines. The reason might be that they do not have any diseases during the last 2 weeks recall or might be seeking other non-drug alternative treatments such as homeopathy, wave treatment, colour therapy, vibrotherapy and aromatherapy.

The result showed that this percentage of participants (41%) using traditional medicines was much higher than previous two studies in the Malaysian population (4, 5) but was somewhat similar to the percentages reported in France (49%) and Australia (48.5%). The traditional medication was an alternative treatment to the elderly Malays to cure their diseases.

Some of them utilized traditional medicine because of the Malay cultural beliefs that traditional medicine is more effective and do not harm their bodies as they were obtained from plants and thus contained natural materials. The traditional medicines are cheaper and easily available in every shop and through friends in their areas. Also, some of the elderly may be attracted by the persuasion of the sellers who claim that their drugs had a miracle power to cure diseases.

Steroid analysis of the medications revealed that 27.5% were positive for prednisolone while

34.3% were positive for unknown steroids (Fig 4). The results showed that 3 out of 10 traditional medicine samples collected from the elderly in Wakaf Baru and Tumpat, Kelantan contained prednisolone. Prednisolone was used as a control (standard steroid) in this steroid assay. Prednisolone has many side effects, which are detrimental to the health of the elderly.

The precise nature of the other unknown steroids detected in the analyzed traditional medicines is unclear but may consist of dexamethasone or natural steroids, which exist in plants.

### Conclusion

Our study concluded that the health seeking behaviour of the elderly living in rural areas of Kelantan is high. The elderly studied used more modern medicines in comparison to traditional medicines. Overall, the present study showed that the utilization of traditional medicine was 40.9% in this age group. The study also found that some traditional medicines contained prednisolone and other unknown steroids. This study therefore also confirms reports that some traditional medicines are contaminated with steroids, which are harmful to elderly who consumed them for long term.

### Acknowledgements

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