CHAPTER II

LITERATURE REVIEW

The followings are concepts, theories, researches and academic articles which are related to the Hypertension of the elderly;

2.1 Theories of aging

2.2 Declaration on Thailand's older persons 1999.

2.3 Act on older persons 2003.

2.4 The functional disability measurement

2.5 Personal disease in elderly

2.6 Life style forces

2.7 Exercise in the elderly

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2.1 Theories of Aging

According to biological studies, aging has a broad definition. It is a process and a great number of factors which can affect the aging in several degrees of severity. This cannot be explained by a single theory but needs an integration of several theories. Aging theories are as follows;

2.1.1 Physical change in the elderly consists of 3 theories;

2.1.1.1 Genome-based theories

Evolution theory suggests aging is an adjustment to the evolution of the organism and it is about improving or creating something better to survive in changing environments. Every time a new life is born, there occurs a possibility of a biological change to make the life better through genetic mutation process. The lifespan of each species allows a balance between the adjustment to the evolution and advantages of long lives to facilitate breeding before passing away. Aging occurs in the lifespan, following the physical development and breeding phases. The lifespan could be shortened due to changes in living cultures and environments.

Biological watch theory believes aging is already determined and each gene has a code to assign the time when biological cells or biological systems in the body become old. This theory suggests organism has its own term of lifespan and has 2 sets of chromosomes. Biological chromosomes are included in the cell nuclei of the breeding cells which are sperms and eggs and it can be passed on from one generation to the next. Each species has its own specific lifespan and has biological mechanisms of aging. The mechanisms consist of the physical growing, development and the deterioration and finally the death.

Somatic mutation theory proposes aging is caused by an accumulation of mutated or abnormal cells, resulting in over-synthesizing of protein which could affect normal cells and organs in the body. Mutation of molecules is related to changes of base level in DNA, causing bad protein to produce new cells. The mutation concerns modifications of elements in permanent genes and this can be passed on to the next generation if it occurs to breeding cells. The mutation of the somatic cells is called "Somatic Mutation" which, is currently believed, could interact with some cells in the body. The incident of mutation could damage good biological systems, causing aging, deteriorating illnesses and cancers.

Errors theory assumes aging is a result of an accumulation of errors or deficiency of some elements in the molecule level in biological cells. This theory believes that new cells and tissues are constantly produced, replacing the dead ones and so are other essential biological parts; such as, enzyme, hormone and neuro-transmitters. In each biological production mechanism, some errors may occur and when more and more errors accumulate, and reach a certain level, cells and tissues may deteriorate and die in the end. Although some cells may be still alive, they can no longer function. This causes variations in the balance control system, especially if it happens to crucial cells in functioning biological systems; such as, brain cells. It is widely accepted that some changes in protein are found only in the brain of the elder.

2.1.1.2 Organ theories

Wear and tear theory believes physical structures and functioning of the body could deteriorate after being utilized for some time. If the body is heavily used, people tend to become old sooner. This theory assumes that when people grow old, their bodies become deteriorated at a different varying degree

in each person even though they are at the same age because it depends on how hard their body is functioned and the exposure to the environment. Degrees of the organ deterioration for each of the elderly are not at the same pace although they have lived in the same environment.

Neuro-endocrine theory believes that nerve cells and hormones are the most important in maintaining lives and balancing homeostasis of the body. Aging is the result from a slow down of the nervous system and endocrine glands. This theory suggests that symptoms occurring at the old age are directly controlled by the nervous system and hormones from endocrine glands; such as, memory loss, less responsive to any reaction, under-functioning hypophysis or pituitary gland, less hormones produced, etc. All of these cause other endocrine glands which are controlled by hormones from pituitary glands to become less functioning, as a result, the body lacks of some hormones, causing illnesses; such as, diabetes, frustration, stresses, etc.

Immunological theory proposes that the aging is the result from immunization deficiency, so the body fails to effectively combat diseases and foreign bodies and then people often get sick. Once people have illness, it becomes serious and could be fatal. This theory believes that the biological immunization consists of coordination and lifespan can be shortened due to changes of living cultures and environments.

2.1.1.3 Physiological theory

Stress and adaptation theory believes reaction of the body towards stresses could interfere the functioning of cells and kill them. Repeatedly facing stressful situations could result in aging sooner than anticipating which is in

accordance with this theory assumption that stress could stimulate sensory nerves in the brain which link to hypothalamus and pituitary glances. The glances then release ACTH hormone to stimulate adrenal gland to release stressor hormone named "Cortisol Aldosterone" and "Epinephrine" which activate the functioning of the nerve system, blood circulation system and metabolism and cause symptoms in each system of the body in response to stress.

Cross-linkage theory suggests that aging is the result of collagens overly accumulating and collagen fibers are shortened and become less flexible, toughened and easily torn. This theory believes that collagens are about 25-30% of protein in the body and are the main component of molecule tissues. Collagens consist of 3 cross linking Polypeptide fibers, called "Triplehelix". Inside the molecules of the collagen are a pair of ester-bonds being linked together. When people get older, these bonds will be broken and move to pair with nearby molecules and cross linkages among collagen's molecules will then occur, making collagens less flexible, tougher and easily torn.

Waste-product accumulation theory believes aging of cells is a reflection of a long overdue accumulation of biological wastes in the body. This causes a constant transformation of chemical reaction in order to produce energy in metabolism process in the body, organs and cells. The accumulation of the wastes in and out of cells from such process could be a part of the aging process, especially those cells in the body which cannot be replicated, especially those cells which cannot be re-produced.

Free radical theory believes free radicals in the body are the cause of aging and they are so very active to chemical reactions that they can cause

malfunctioning of genes and damage tissues and organs. This theory suggests that free radicals are a chemical component of cells and they are originated from a chemical reaction of oxygen and other substances; such as, protein, carbohydrate, fatty acid, especially unsaturated fatty acid like ammonia (NH4), hydroxyl (OH), bicarbonate (HCO3). When more and more free radicals accumulate, it could endanger the functioning of cells. When molecules of free radicals spilt, they will move to pair with nearby molecules. Such reaction does not cause any change but will be accelerated if oxygen is involved.

2.1.2 Psycho-social theory for the elderly

Psycho-social is an important aspect in supporting the elderly to continue their long lives with quality. Both psycho and social changes often occur in the lives of the elderly at the same time and can affect each other in terms of physical and characteristics of the elderly. The followings are psycho-social related theories;

2.1.2.1 Disengagement theory suggests that most of the elderly gradually separate themselves from their peers and people in other age groups in order to reduce some social pressures. This theory believes that the elderly have to give up some of their roles; for instance, retirement from work discontinues their relationships with colleagues, their children move out with their own families, their spouse passes away or the fact that they are no longer the head of the family. All of these can cause the elderly to disengage from the society.

2.1.2.2 Activity theory suggests the elderly will physically and psycho-socially enjoy performing activities in which they can move around and it makes them feel active in leading their lives. In addition, they feel they can make contributions to the society and believe that health status can significantly affect their

participation in social activities. When the number of activities in a community is going down, the number of activities in other communities will decrease as well. If the elderly who are still healthy can make a contribution to the society, they feel they have to constantly improve themselves to keep pace with new roles and responsibilities. This theory also suggests that most of the elderly adopt the lifestyle of the middle aged people and deny living like the elderly as long as they could. Such social need of the elderly should be supported, so they could maintain their lifestyle like the middle-aged. They would like to be supported to continue doing their activities and still keen to associate with their peers. It is believed that the elderly will be physically and psycho-socially healthy if they are allowed to perform some activities.

2.1.2.3 Continuity theory believes the elderly will be happy if they are allowed to perform some activities like they used to do. Older persons who are familiar with living with a lot of people should be permitted to do so while those who prefer to live in peace, should be separated to live on their own.

2.1.2.4 Erickson's theory suggests that the psycho-social development of the elderly can be classified as feeling valued and secure or feeling in despair. For those who feel their lives are worth and secure, it shows that they are satisfied with their achievements in the past, have inner peace and can accept that death is a part of life. On the other hand, those who are in despair, they feel that they have just a few opportunities in life and do not want to live any longer. In addition, they lose hope, are in the depths of despair and perceive themselves as valueless. They are unable to face the challenge of becoming the elderly.

2.1.2.5 Peck's development theory believes that the elderly achieved three issues of development progress; 1) ability to differentiate themselves at the moment and his/herself in the past, 2) physical ability which will be changed naturally from when they were capable of working and 3) acceptance that their body has naturally deteriorated.

These aforementioned theories concerning the aging still have restrictions and it is not possible to rely on a single theory to explain the aging of individuals in more details. Such restriction exists because physical, mental and social changes can be varied for each individual, depending on factors; such as, environments (organic and non-organic) and economic status of the individual.

2.2 Declaration on Thailand's Older Persons 1999

Article 1: Older persons shall be provided with the basic necessities for living in a meaningful and dignified manner. Older persons especially those who cannot depend on themselves nor their families as well as disabled older persons, without any discrimination, shall be protected from neglect and violation of their rights.

Article 2: Older persons should stay with their families and be accorded with due respect, love, understanding, care and attention, with proper recognition for each family member's role and a view to creating a cordial and harmonious relationship.

Article 3: Older persons should have opportunity for continuous pursuit of education, learning and development of their potential. They shall have access to information and social services necessary for their

living and for understanding of social changes to adjust their roles accordingly.

Article 4: Older persons should have opportunity to pass on their knowledge and experiences to society, and shall have the opportunity to be employed with appropriate responsibilities for their age on their own will, with fair wages, to maintain their pride and realization of their own value.

Article 5: Older persons should be informed on how to take care of their own health. An equal access to comprehensive health care services should be ensured for older persons. They should also be provided with due care till the end of their lives when they may rest in peace according to their beliefs.

Article 6: Older persons should be allowed to play active roles in their families, communities and societies especially through associations, with a view to sharing, learning and understanding among older persons and persons of different ages.

Article 7: The state, with participation of non-governmental organizations, the public, and social institutions, shall formulate policies and master plans relating to older persons and shall, in order to attain their objectives, ensure that their implementation be undertaken by relevant agencies on continuous basis.

Article 8: The state, with participation of non-governmental organizations, the public and social institutions, shall enact legislations concerning older persons in order to ensure and enforce the protection of the

rights and well-being of older persons and the provision of their social welfare.

Article 9: The state, with collaboration of non-governmental organizations, the public and social institutions, shall, in accordance with Thai culture which attaches great importance to gratitude, care and compassion, campaign to instill a social value that recognizes the worth of older persons.

2.3 Act on Older Persons 2003

Origin of concepts and philosophy

1. The Constitution of the Kingdom of Thailand contains provisions on the rights of older persons who have attained the age of 60 years and do not have sufficient income for maintenance of life as having the right to receive aid from the state.
2. The second national plan on older persons 2002- 2021.
3. Declaration on Thailand's older persons 1999.

The older persons refer to people who have attained the age of 60 years and are of Thai nationality.

Measures of protection, promotion and empowerment for older persons

Section 1: There shall be a National Older Persons Commission, abbreviated as "NOPC" (or Kor-Por-Sor in Thai) consisting of the Prime Minister as Chairman, the Director-General of the Bureau of Welfare Promotion and Protection of Children, Youth, the Disadvantaged, Persons with

Disabilities and Older Persons as a member and secretary and the Director of the Office of Empowerment for Older Persons and the Director of the Institute of Geriatric Medicine as assistant-secretaries.

Section 2: The Commission shall have the powers and duties; such as,

- To determine policies and principal plans with approval of the Council of Ministers;
- To determine practice directions under the policies and principal plans;
- To consider the support and assistance of the elder-related activities organized by state and private organizations;
- To prescribe rules in connection with the administration of the fund, investment of the fund and management of the fund;
- To prescribe rules in connection with the deliberation for approval of payment of money;
- To prescribe rules in connection with the preparation of reports on financial status;
- To prescribe rules in connection with the receipts of money, the payment of money and the safekeeping of money of the fund, etc.

Section 3: The Office of Empowerment for Older Persons shall have power and duties in connection with the protection, promotion and support in relation to older persons and shall be responsible for the following tasks; such as, to prepare practice directions under the policies and principal plans, to gather data, study, analyze and undertake developments, to act as a center for the coordination, dissemination and advertisement of work

or activities, to monitor and evaluate performance under the principal plans and to consider the proposal of opinions to the Commission, etc.

Section 4: An older person shall be entitled to protection, promotion and support in various ways; such as, convenient and expedient medical and public health services; education, religion and news; appropriate occupation or occupational training; self-development and participation in social activities and the network formation in communities; direct provision of facilities and maintenance of safety in buildings, places and vehicles; appropriate subsidies for transport fares; the exemption of entry fees to state places; the aid of older persons facing the dangers of torture or unlawful exploitation of abandonment; the giving of advice and consultation on other proceedings in connection with a case or the remedy of family problems; the extensive provision of accommodation, food and clothing where necessary; extensive and fair relief in the form of maintenance allowances where necessary; and relief for holding traditional funerals, etc.

Section 5: The claim of rights or obtaining of rights or benefits of older persons under this Act shall not constitute a disentitlement to rights or benefits obtainable by older persons under the provisions of other laws.

Section 6: There shall be established a fund called "Older Persons Fund" as capital for the protection, promotion and support of older persons under this act. The fund shall consist of the initial funds appropriated by the government; money received from annual budgetary appropriations; money or properties donated or given by persons, sponsorship from

foreign countries or international organizations; money or properties which have reverted to the fund or been received by the fund under the law or through other juristic acts; and interests accruing from the money or properties of the fund. In addition, the money and interests shall not be remitted to the Ministry of Finance.

Section 7: Donors of money or properties to the fund have the right to apply such donations as a deduction in the assessment of income tax or be exempt from tax on properties.

Section 8: A caregiver of parents who are older persons that do not have sufficient income for maintenance of life shall have tight to receive tax deductions.

Section 9: There shall be a Fund Executive Committee consisting of the Permanent-Secretary for Social Development and Human Security as Chairman and the Director of Office of Empowerment for Older Persons shall be a member and secretary. The Fund Executive Committee shall have the powers and duties; such as, to administer the fund as well as carry out matters relating to the investment and management of the fund, to consider the approval of payment and to report the financial status of the fund, etc.

Section 10: The Fund Executive Committee shall prepare a balance sheet and operating accounts which hall be submitted to an auditor for auditing within 120 days as from the last day of each accounting year.

2.4 The Functional Disability Measurement

The tool that using can be divided into 2 types. The first type was used as measuring the level of activity that actually do in order to assess the level of ability in performing of population. The second type was used as measuring the speed in finding out population whom are the functional disability that combine with a set of questionnaire that would find out an individual's limit ability to perform one normal life.

The functional disability measurement method refers to method that measure whether "the individual can perform the activity" or "by measuring time that use for performing the activity." The measurement method that popular in use with the elderly and patient generally is to measure whether the individual can perform the activity and that the activity that chosen using would be the activity that perform generally and also who is a normal health can do it , so the activity that use in the functional disability measurement would be the activity of daily living in society by categorizing as basic activity of daily living; such as eating, dressing, using toilet or taking a shower, moving in the house, moving from one place to another place, climbing up and down the ladder and pausing excrement and urine and another level is the extended or instrumental activity of daily living that is the activity for living in society freely, such as shopping, cleaning the house, cooking, money exchange and changing etc. To make the testing model or measuring scale has to rely on the suitable activity closing and combination as a group of activity by using the total score of activity that able to do or using the position of last important activity as score and that as this functional measurement method if it were used in the different culture country, it might effect on outcome score incorrectly or not good enough to be the functional

disability index. So the testing model that con be tested for value and redeveloped properly for Thai elderly in the present are Barthell ADL index and Chula ADL index that both testing models are suitable for the assessment of the functional disability.

2.5 Personal Disease in Elderly

Diabetes

Diabetes causes by two characterized disordered of Insulin:

Insulin deficiency: Insulin plays an important part as profound effects on controlling the level of blood sugar (glucose) and metabolism. Once the Pancreas is damaged, the secretion of Insulin reduces.

Insulin resistance: a decreased ability to respond to the effects of insulin to bring glucose into the cells to be used as a source of energy, especially by liver and muscle cells.

There are 2 major types of Diabetes:

Type 1 Diabetes Results from the body's completely failure to produce insulin leading to a deficiency of insulin. The principal treatment of type 1 diabetes is replacement of insulin. Type 1 diabetes can represents a majority case of diabetes affecting young aged.

Type 2 Diabetes Results from insulin resistance, combined with relative insulin deficiency. It represents 95% of Thai cases diagnosed with diabetes at the aged over 30. In respect to these malfunctions cause the high blood glucose levels which may lead to Hypertension, high cholesterol, blood coagulation disorder for the blood vessel system. It leads to damage and function impairment of many organs such as

heart, brain, arms, legs, eyes, kidneys or nerves. Type 2 Diabetes could be deadly, if the patient has not received the proper treatment.

Treatment goals for Diabetic patients are related to effective diagnostic and treatment in order to prevent, inhibit and minimize the risk of diabetic complications. Therefore, the patients can live their best. The study, therein, refers to Medical treatment Diabetes pills. At this present, due to advanced medical science, the numbers of Diabetes pills have been developed as new family or class of drugs which could be adopted properly for each Diabetic case. (Wongsathavarawat, W. 2004)

2.6 Life-Style Forces

2.6.1 The dietary of the elderly

According to the food preparation for the elderly concerns that the food should be easy to chew and digest, reduce the amount of the food in each meal but increase the number of meals per day.

The elderly should avoid intake liquor, beer, energy drink, tea, coffee, soda, syrup juice, salty, or sweet.

Table 2.1: Sample of the food prepared for elderly in a day

Meal	Menu 1	Menu 2	Menu 3
Breakfast	Rice Porridge with (Snakehead) fish	Rice Porridge Omelet, Quick-fried morning's glory seasoned with soya sauce	Rice congee with egg
Snack	Soybean milk Banana pie	Orange Juice Coconut custard squares	Soybean milk Pumpkin pie
Lunch	Noodles with chicken Ripe papaya	Fried rice with prawns Ripe mango	Wide Noodles in a Creamy Sauce with meat
Snack	Green bean in syrup	Hot Cocoa Coconut custard squares	Mandarin Orange Soybean milk Pumpkin pie
Dinner	Steamed rice Fried mackerel Spicy Shrimp-paste dip Spicy vegetable and prawn soup	Steamed rice Sour soup with mixed vegetables Steamed egg	Steamed rice Soya bean stew Fresh vegetables Deep-Fried fish
Before Bed	Cultivated banana Hot milk	Mandarin Orange Hot milk	Apple Hot milk

The menus can be rotated.

From the above menus, the elderly can select from menu 1, 2, or 3 or rotate among them such as:

1. Rice and Noodle

- A bowl of rice porridge with pork/chicken/fish can be changed to a bowl of rice congee with pork/chicken or a dish of macaroni soup with pork/chicken.

- A dish of wide noodles in a creamy sauce can be changed to a dish of rice noodles in fish curry or a bowl of rice noodles in sweet chili curry.

- A dish of fried rice with pork can be changed to a dish of sweet basil fried rice with pork/chicken or a dish of steamed chicken with rice or barbecued red pork in sauce with rice.

2. Soup

- A bowl of tofu clear soup can be changed to clear soup with ivy gourd and minced pork or clear soup with Chinese cabbage or sour soup with mixed vegetables or spicy lemongrass soup with fish / chicken.

- A dish of spicy curry with pork/chicken can be changed to a dish of green curry fish or cassod tree curry.

3. Dessert

- A bowl of bananas in coconut sauce can be changed to a bowl of pumpkin in coconut cream or taro – yam in coconut cream.

- A bow of green bean in syrup can be changed to a bowl of toddy palm in syrup or yam in syrup.

4. Fruit

- Mandarin orange can be change to 10 grapes or 6 small pieces of ripe papaya or 6 small pieces of pineapple or 8 small pieces of watermelon or one apple or 2 cultivated bananas.

5. Beverage

- A glass of soybean milk with 2 teaspoons of sugar of 240cc can be changed to a glass of low-fat milk or hot chocolate.

- Fruit juice such as a glass of bale fruit juice can be changed to a glass of longan juice, Ginger juice) or Roselle juice (240cc).

The elderly should avoid the consumption of:

1. Rice, Flour and Sugar should be avoided from elderly dietary which may lead to ingestion of excessive calories and cause weight gain. The elderly should also avoid polished rice and rice cooked with coconut milk or fat food such as stewed pork leg on rice, steamed chicken with rice, sweet sticky rice with durian in coconut milk, sweet sticky rice with mango or sweet rice in bamboo.
    - Sweet Dessert cooked with sugar or syrup such as Golden threads made of egg yolk and rice with sweet sugar palm, Gra ya sart (sweet rice with peanut and sesame), syrup-snack, and Sugar-boiled durian puree.
2. Meat such as fatty meat, animal skin, and difficulty to digest meat likes pork leg with soya sauce, pork belly, yolk.
3. High fat-food such as pork fat, chicken oil, coconut or palm oil, fried food likes deep fried banana, Chinese fried dough, tempura, food cooked with coconut milk such as Spicy curry, Banana in coconut cream.

4. Very sweet fruit such as Durian, ripe mango, sapodilla, banana, longan, custard apple, jackfruit.

2.7 Exercise in the Elderly

As we age, physical fitness of the body seems to decline with time and become more susceptible to chronic disease and illnesses. According to Medical record, the performance of a proper and regular exercise routine is very important in preventing us from sickness and also improving one's overall health. Benefits from exercise are:

1. Feel better physically and emotionally, improve blood circular, boost immune system function, sharpen the memory faculties, and slow down the aging process.
2. Increase the physical fitness, strengthen muscle, reduce fatigue, mayalgia and arthralgia, and improve the motor functions.
3. Help in healthy weight control and maintain shape.
4. Prevent many diseases that accompany aging and rehabilitate health such diseases referred as Stenosis of the myocardial arterial, Diabetes, Hypercholesterolemia, Degenerative joint disease.
5. Reduce stress, improve concentration and focus, and increase sense of well being.
6. Increase joint range of motion or flexibility of bones, joints and intestine and reduce stiffness. It also helps in preventing constipation.

Exercise Precautions in Elderly

1. For the first time exercise in the elderly aged over 40, the following precautions are concerned:

    a. The elderly who does not have congenital illnesses or any disability, should start with walking, then, increase the walking time and speed. If it becomes sustain, jogging can be developed.

    b. The elderly who experience congenital illnesses or any disability such as Diabetes, Hypertension, chest pain, faint, dizziness, Arthritis or Osteoporosis, obesity level is higher than the standard of 10 kilograms, and discover the cardiovascular disease in a family history, should obtain recommendations from your physician before beginning a fitness program.

2. It is recommended that exercise requires a minimum of 20-40 minutes each session.

Warm up	5-10	minutes
Primary Activity	10-20	minutes
Cool-down	5-10	minutes

The elderly should not exercise more than 40 minutes of each session because it will be too intensity. Consistency is the key to success in health exercise program. The elderly should exercise everyday or at least 3-5 times per week.

3. Stop the exercise till the doctor allows if there is the symptom such as vertigo, dizziness, blurred vision, black out, agitation, palpitation, fatigue, trouble breathing or excessive shortness of breath, chest tightness, Nausea, Diaphoresis, the body's temperature reduces, weakness of extremities, dysarthria, myoclonus, and convulsions during the exercise.

4. What to consider during the exercise?
    i. Place: Exercise gym should be located in an uncrowned area, with air circulation, and not too warm.
    ii. Outfit: The elderly should wear loose, comfortable clothing and well-fitting and keep warm during winter.
    iii. Time: Morning, afternoon, evening or before bed is acceptable. However, it is recommended for one hour before meal or two hours after meal.

5. Aerobic is considered for elderly. It is the activity that is rhythmic, repeated, and continuous movements of the same large muscles of the body. Aerobic activities include walking, jogging, running, swimming, biking, stationary bike, and Aerobic dancing

6. Exercise for the health benefits should concern the capacity and physical condition. However, it should not be considered as a competition which creates high intensity to the body and cause injury or harmful.

7. Avoid exercising when you are acutely ill, including when suffering from a cold or flu.

2.8 Hypertension

What is Hypertension?

Hypertension means the systolic blood pressure measured over 140 mmHg As the Diastolic blood pressure of level is over 90 mmHg.

Hypertension means the pressure in the blood stream causing the wall of blood vessel to blood increase when blood being pumped into the cell of body. Blood

pressure's measurement will be shown as in upper / lower number as 160/95, 140/85mmHg.,etc.

Upper blood pressure is measure when the heart being contracted.

Lower blood pressure is measure when the heart being contracted.

The standard blood pressure for these whose age are over is years old and above are the Systolic blood pressure which not exceeding 120 mmHg., and the Diastolic blood pressure of which not over 80 mmHg. medical language 120/80 mmHg.

Table 2.2: The level of classification of several blood pressure

Classification	**Systolic (mmHg.)**	**Diastolic (mmHg.)**
Appropriate blood pressure	Less than 120	Less than 80
Normal blood pressure	Less than 130	Less than 85
Slightly high blood pressure, but still normal	130 to 139	85 to 89
The first stage of high blood pressure (initiate)	140 to 159	90 to 99
The second stage of high blood pressure (medium)	160 to 179	100 to 109
The third stage of high blood pressure (severely)	More than 180	More than 110
Systolic only	More than 140	More than 90

The False high blood pressure happened when patients being measured blood pressure at either clinic or hospital and added up a high blood pressure victim, but when the so call out cast do it at their home they found out that their blood pressure were normal yet at the same time being die by the doctor's misreading, because of these to be this might be add stress and excitement to the patients after the checkup probably misread stress and nervousness for medical examination, so to take blood

pressure. The doctor only beings after the patients have at least a rest for 10 minute's blood checking the blood pressure any body with (Sphygmomanometer) medical instrument from their homes can bring along with them to the hospital and let the doctor check the device's every now and then.

How to find out if ones suffer from Hypertension?

By measuring the blood pressure if either level is higher than normal or higher than both upper blood pressure and lower blood pressure that means ones suffering hypertension blood pressure must be measure with extra case and correctly.

1. More than 90 percent of the patients suffering from hypertension do not know what causing and therefore these groups have to receive treatment throughout their live regularly.
2. Less than 10 percent of the cause's as follow: -
    2.1 medicines birth control medicine, steroid
    2.2 pregnancy poisoning
    2.3 Kidney diseases—blood vessel for kidney failed, septic kidney
    2.4 Large artery failed
    2.5 diseases of endocrine giand—krousing, goiter poisoning, cancer in adrenal gland
    2.6 wall of large arteriosclerosis

In the second group, when cause is known, patients do not have to take any me diction to relieve hypertension any more. (Krittiyanant, 2000)

Hypertension among elderly

Hypertension among elderly are called, (The silent killer) because the symptom of hypertension might not appeared or visible (Lueckenotte, 1996) estimated that about 50 percent of the hypertension patients do not know that they are hypertension until the complication condition's destroyed the body organs only than the sign of dangerous threats in live naming the "Silent Disease", so to find whether the's suffering from hypertension, They can be use the chart's reading of blood pressure that differ from the value of normal blood pressure, Low blood pressure or high blood pressure is the reading of blood pressure is over 140/90 mmHg. reading Chobanian et al. (2003) that classifies the categories of several level of high blood pressure level as in table level.

Table 2.3: Several levels of pressure level.

	WHO/ISH		JNC VII (Joint National Committee)		
	Systolic (mmHg.)	Diastolic (mmHg.)		Systolic (mmHg.)	Diastolic (mmHg.)
Normal	<140 and	<90	Normal	<120	<80
Slightly high blood pressure	140-180 and/	Or 90-105	Prehypertension	120-139	Or 80-89
Medium	140-160 and/	Or 90-95	High blood pressure		
Medium high blood pressure			HT: Stage 1	140-159	90-99
And severely	>180 and/	Or >105			
Systolic	>140	>90	HT: Stage 2	≥160	Or ≥100
medium	140-160	>90			

2. Cause and Factor relating hypertension. (Krittiyanant, 2000)

People suffering from these cause is most likely the risk factor of hypertension than those who does not falls into categories.

1. Personal disorder
2. Stout/fat
3. High cholesterol level in the blood
4. Cigarette
5. Alcohol
6. Diabetes
7. Strain

Cause of hypertension

Most hypertension patients whom realized the cause of hypertension are categories as Primary or Essential hypertension ; even if this disease can not be fully cure, however it can be controlled. And an the type of known hypertension is categories as Secondary hypertension ; That we can treat as cancer of adrenal and birth control medicine, if so it can be fully cure.

Primary hypertension

Primary hypertension or essential hypertension means high blood pressure that is most commonly found and mostly did not understand the cause of the hypertension ; however these group of patient is connected with the behavior of eating pickled, salted food, fatty, congenital, old age, radical and no exercise.

Secondary hypertension

Secondary hypertension means the high blood pressure that we know the cause and that about 5 percent of the hypertension patient usually derives from these disease's as follow:

- Kidney disease, patients whose artery serving the kidney being constricted while suffering from hypertension.

- The cancer in adrenal is categories as 2 types ;

Hormone aldosterone this group of hypertension is suffering from low potassium mineral in blood, and another type is the cancer which produce catecholamines namely Pheochromocytoma which the hypertension patient will also trembles.

- Coarctation of the arota is uncommon. This cause the constriction of large artery causing high blood pressure and hypertension.

Types of hypertension and cause

1. Primary Hypertension or unknown hypertension' type

Most patients who suffer from hypertension (more 90 percent) often unable to examine and to find out the cause of hypertension on their bodies, however it is always discovered that the factors relating to congenital that might involve in the existent of this disease, in addition ageing speed up, stout/fat, salted food, alcohol and smoking might be added those factors that increase the risk for this disease too, most patients who contacted this disease might be started from 25 to 55 years of ageing, the ageing process speed up from 40's.

2. Secondary hypertension or known hypertension type

Less than 10 percent of the hypertension known the cause of the disease as follow :

- received some type of medicates as such as Hormone estrogen, steroid and diabetes remedy medicine., etc.

- hypertension in pregnant woman

- kidney disease as septic kidney unit, septic kidney cone, chronic died kidney, arteriosclerosis of Kidney, cancer of kidney, Kidney tuberculosis and gall bladder of kidney disease since birth.

- pheochromocytoma, Leaked of aortic valves that cause high systolic

- diseases of endocrine gland as diabetes mellitus and goiter poisoning that cause high systolic.

- Krouching disease, cancer of adrenal glands calling peocromozo, etc.

- condition's that the heart has to work harder during fever, after exercising, strain., etc and that always cause high systolic

- condition of the wall of large artery constriction (arteriosclerosis)

- other systems of high pressure in the skull, Lead poisoning and condition of high calcium lever in the blood stream., etc.

Majority of the unknown cause of hypertension ; so nobody knows when he / she gets it, however the risk factors are from these people as follow :

1. Personal
2. Fat/overweight people
3. Smoker
4. Diabetes patients
5. Salted food
6. Ageing process speed up

Those people who are fall into the categories of such as above hypertension is most likely to suffer from than normal people ; not only that they are never likely to suffer more sever hypertension, but also heart hypertension, but also affect as well the blood vessel than healthy people cause cardiac muscle diseases, heart attack and heart failure., etc.

What cause the hypertension and what are the symptoms?

Until now most cause of hypertension are unknown, there are many factors involve relating to congenital, environment unhealthy and, salted food and nationality. The minority of cause (Lesser 5 percent) are abnormal blood vessel, kidney failure or

some types of cancer. Hypertension is also called (the silent killer) because most patients do not suffer from any abnormal symptom or even if they are suffering from hypertension or if they are aware of but neglect to treatment because they are feeling normal and so these may the symptoms and endage is only a minority of patients found of headache and feeling dizzy (Koonchon na ayudhya, 2004).

Blood pressure is defined the force of blood exerted on the inside walls of blood vessels.

Get to know Blood pressure

Blood pressure level which is recorded by blood pressure meter, measures the pressure of blood vessels as the heart beats and as the heart relaxes between beats. The measurement is written with "Millimeters of Mercury". The blood pressure is the combination of these two numbers:

- The systolic arterial pressure is the top number, defined as the peak pressure in the arteries.
- The diastolic arterial pressure is the bottom number, is the pressure when the heart is in the resting phase. It was found that average blood pressure of Thai people aged over 15, is 115+/- 18.54 mmHg systolic and 74.6+/- 12.76 mmHg diastolic. Besides, it was also found that blood pressure increases with age.

The abnormal blood pressure which effects health can be both high and low blood pressure. The most common problem has been found now and then, is high blood pressure which is also known as "Hypertension". Especially during the working age, who seriously needs to study and understand the causes of high blood pressure?

The Nature of Blood Pressure

The blood pressure levels can change every minute with everyday activity. Defining the blood pressure level for each person is not always clear-cut, especially for the patient with moderate Hypertension (Rosner & Polk, 1979). The causes of Hypertension in everyday life are:

- Stress.
- Smoking cigarettes or using any tobacco product, alcohol and caffeine consumption.
- The exercise, impelled to urinate, and talking during the blood pressure measurement.
- Drugs: some kind of drugs, such as nasal spray, some pills used for cold and allergy symptoms, diet pills, Estrogen etc.
- Season: cold temperatures cause the blood vessels to narrow (constrict) which increases blood pressure.

Blood Pressure Measurement

High blood pressure or Hypertension usually has no signs or symptoms. The only way to find out how the person has this disease is to have the blood pressure checked. A blood pressure test is quick and easy. However, it is emphasized to know how to measure the blood pressure for accurate readings. It's also important to know the blood pressure monitors or methods to measure blood pressure to be able to make the decision on selecting the right device which is suitable to the need.

Standard Blood Pressure Machine

Mercury sphygmomanometer is the blood pressure machine using mercury manometer. It is still widely used as the standard blood pressure device at this present. The reading of blood pressure level is from listening to the sound of the blood pressure of the brachial artery combining with the level of mercury. This way will help to read the force of blood exerted on the inside walls of blood vessels.

There is a wide range of blood pressure monitors available to buy. Mostly is the automatic machine which is easy to use. However, it is less accurate than Mercury sphygmomanometer, more expensive, and limited standard in some factory lines. If there is a need to use the automatic machine, choose a machine that measure from the top of the arm rather than the wrist or the finger to give an accurate reading.

What is high blood pressure or Hypertension?

"Hypertension" is the elevation of arterial blood pressure above average. This high blood pressure puts mechanical stress on the arterial walls which affects the end-organs such as brain, heart, kidney and retina. High blood pressure is defined as a blood pressure greater than or equal to 140 mm Hg systolic pressure or greater than and/or equal to 90 mm Hg diastolic pressure.

Not only the Systolic arterial pressure but also both the Systolic arterial pressure and the Diastolic arterial pressure cause the hypertension. Both arterial pressures should be monitored. They can damage the blood vessels which are responsible for the transportation of blood to the end-organs.

Hypertension usually has no signs or symptoms. One should aware of the level of one's blood pressure, especially who is in risk. The blood pressure measurement should taken accurately by doctor or nurse.

Hypertension is preventable and controllable even it is life time disease.

What causes Hypertension?

The study of Hypertension in Thai population aged 15 and over found that more than six millions people who live in slum or in the city have the potential to have Hypertension. It brings to attention that less than 20% of the people, who has Hypertension, are able to maintain and control the blood pressure level. Inconsequence of Hypertension, it is 2-4 times higher for the patients to face the risk of stroke and Angina pectoris.

Most of Hypertension cases frequently found in Thai people, the cause is unknown. However, the following risk factors are related to the causes of Hypertension.

1. Age is one of the risk factors for Hypertension, especially for those over 40.
2. Changing of environment and city lifestyle are thought to be major contributors to the development of essential hypertension.
   - Eat foods high in salt (sodium chloride) more than 6 grams each day or about one teaspoon. Lack of enough fruit and vegetable intake.
   - Drink alcohol regularly more than 30cc in man and 15cc in woman.
   - Do not get regular exercise.
   - Increase in Chronic stress.

3. Obesity or BMI over 27 kilograms/M^2. Obesity generally is determined by calculating body mass index (BMI), which is calculated by the weight in kilograms divided by height in meters squared.
4. People with a family history of high blood pressure.
5. The secondary Hypertension which can be both cured or treated, causes by Adrenal gland tumors, chronic kidney disease, and Coarctation of the aorta. (Ministry of Public Health, Department of Disease Control, 2003)

Health Problems of the Elderly

Even many elderly seem to have the same kind of disease, the symptoms are various with age. Most symptoms proceed gradually, non- specifically, and disguisedly which cause the confusion to the care taker. The most common symptoms frequently found are:

1. Anorexia causes by medication-related taking for congenital disease, cancer, infectious diseases, psychological and emotional aspect, and depression from the feeling of isolation, abandoned, worthless.
2. Nutrient Problem: due to the long term loss of appetite causes subsequent weight loss and lacks of nutrition including Protein, Calcium, Mineral, and Vitamin which affects immune system. Calcium is one ingredient that most female simply are not getting enough of which causing Osteoporosis and Cramp. Iron deficiency causes Anemia. Low food intake of meat, poultry, and fish causes Zinc Mineral deficiency. A, B, B1, B2, C, Folic acid Vitamins are the most common vitamin deficiency in elderly. Milk, vegetable and sour fruit are often neglected from the meal.

Furthermore, the elderly tends to have hypercholesterolemia. The consumption of high Saturated fat dietary and alcohol together with lack of exercise increase the level of cholesterol and Triglycerides.

3. Constipation and diarrhea: constipation is more common in elderly because Peristalsis of the intestine in the elderly is usually weakened with age, along with lack of fiber in food, inadequate water or less exercise. Using of laxatives is the mainstay of constipation treatment which helps inducing catharsis. However, laxatives have side-effects. The elderly normally take antidiarrhoeal pills right after laxatives consumption which causes repeatedly Constipation.
4. Neurogenic Bladder causes by Prostate gland hyperplasia, diabetes, urinary tract infection, Neurological disorders which leads to Incontinence of urine and Polyuria & Dysuria.
5. Back or leg pain from Osteoarthritis, Lumbar degenerative disc disease or Osteoporosis, leg or feet pain from Atherosclerosis, vein thrombosis, and muscle spasm.
6. Dizziness and black out from abnormal of internal ear, brain, eyesight, or heart rate and blood pressure.
7. Chest pain from heart disease, and lung. Joint inflammation between Costa and Breastbone is often misconceived as heart disease.
8. Dementia such as Alzheimer's disease, forgetfulness, disremember, irrelevant conversation, impossibility of independence, lose the ability to control excrete functioning. (Mormonchon Company Limited:Printed first time: Part 2: 1998)

2.9 Related Research

Siripanit (1999) studied the Physiological changes of Senior citizens as followed:

Every species ages, undergoing noticeable changes from birth to death. Scientists have developed theories for why people age, although no theory has been proven. Ultimately, parts of each theory may explain why people grow old and die.

With the programmed senescence theory, the rate at which a species grows old is predetermined by its genes. Genes determine how long cells live. As cells die, organs being to malfunction and eventually cannot maintain the biologic functions necessary to sustain life. Programmed senescence helps preserve a species; older members die at a rate that allows room for the young.

The free-radical theory says that cells age as a result of accumulated harm from on-going chemical reactions within cells. During these ongoing chemical reactions, toxins called free radicals are produced. The free radicals ultimately damage the cells and cause a person to age. With age, more and more damage is done until many cells cannot function normally or depending on how cells produce and respond to free radicals.

Physiological Change

The human body changes in many noticeable ways with age. Perhaps the first sign of ageing occurs when the eye cannot focus easily on closed objects [presbyopia]. Often by age 40 or so, many people find it difficult to read without using glasses. Hearing also changes with age people tend to lose some ability to hear the highest pitched tones (presbycusis). Therefore, older people may find that violin music no

longer sounds as exciting as it did when they were younger. Also, because most of the closed consonants of speech are high tones [sounds such as k,t,s,p, and ch], older people many think that others are mumbling.

In most people, the proportion of body fat increases by more than 30 % with age. The distribution of fat also change: There is less fat under the skin and more in the abdominal area. Thus, skin becomes thinner, wrinkled, and more fragile, and the shape of the torso changes.

Identification of changes accompanying aging

Aging is not disease but the normal cause of the human condition. Prevention of aging is neither desirable nor realistic. However, promotion of health and prevention of chronic illness and disability are significant goals for older people. Our entire view of aging has been distorted by equating it with disease and disuse. In the current times, virtually no one live long enough to die of "natural causes." Rather, people die from conditions that are largely preventable given available knowledge. It is important to recognize that aging process are gradual and continuous and from a progression of changes.

Integumentary System

The most salient and visible aspect of the aging body is the skin .Thus, changes is the skin are perhaps the most obvious reflection of aging process. Although overall epidermal thinning is noted in aging skin, areas of the epidermis may thicken in response to extrinsic factors, such as chronic exposure to sunlight.

Gastrointestinal System

Normal age-related changes in the gastrointestinal system are difficult to identify. Diminished functional capacity may be associated with normal aging; however, decreased functioning is more often due disease states. Some age-related changes include mucosal changes, decreased blood flow to the organs, and changes in organ size and motility. Changes in stomach with aging reflect atrophy of the gastric mucosa and a decreased production of hydrochloric acid. Alteration in surface area and function of the small intestine is thought to decrease absorption of certain essential nutrients, including vitamin D and calcium. Diminished motility of the colon and compromised blood flow to the large intestine characterize changes in the large intestine with age. Decreases in organ size and weight have been noted in the pancreas and liver with age. Fibrotic changes have been noted in pancreatic blood vessels with distention of the pancreatic ducts. Hepatic function is compromised, notably synthesis of cholesterol and total bile acid.

Genito-urinary System

Anatomical and physiological changes occur in the genitourinary system with advanced age. Anatomical and physiological change includes loss of nephrons, progressive decrease in renal mass, and a decrease in the number of glomeruli. Sclerotic changes in renal blood vessels, particularly in hypertensive elderly people, lead to diminished renal blood flow and decreased creatinine clearance. Decreases in renal blood flow and glomerular filtration rate have been noted in response to age-related change in cardiac output, renal mass, and decreased renal filtering surface. Creatinine clearance also decreases with age. A decline in endocrine Functions of the kidney may be associated with a decrease in calcium absorption and anemia.

Bladder changes in older people include replacement of the smooth muscle and elastic tissue with fibrous connective tissue as well as a progressive weakening of bladder muscles and incomplete emptying. Bladder capacity is decreased in older people, with an associated increase in frequency of urination. Bladder contracticity and the ability to postpone voiding appear to decline in both genders, whereas urethral length and closure pressure probably decline with age in women. The prostate enlarges in most men and appears to cause urodynamic obstruction in approximately 50 of elderly men.

Musculoskeletal System

Musculoskeletal systems changes with aging with aging include a progressive decrease in stature, particularly among older people women. This decrease is attributed to compression of the spinal column, narrowing of the inter-vertebral discs and loss of height of spinal vertebrae. The structure of the aging musculoskeletal system also is affected by changes in lean and fat mass distribution. As individuals age, the among of lean body mass decreases, and subcutaneous fat increases and is redistributed. There is fat loss from the face and extremities and fat gain in abdomen and hips. There is loss of skeletal calcium that accompanies normal aging. Following skeletal maturity, bone absorption begins to exceed bone formation. Age-related changes include reductions in gonadal hormone status, calcium intake, vitamin D status, physical activity, and other endocrine influences that negatively affect bone mass and metabolism. The progressive bone loss results in a loss of bone strength, estimated at 5% to 12% per decade from age 20 through 90, due primarily to a loss of bone mineral content. Beginning at approximately age 40 to 50, a 10% to 20%

decrease in muscle strength is expected, with a 30% to 40% decrease by age 70 to 80. Muscle wasting is noted with increasing age to due to a decrease in the number of muscle fibers. Regeneration of muscle tissue slows with age, and atrophied muscle tissue is replaced with fibrous tissue. Alterations of posture and voluntary movement can be indicators of the health and biologic age of an individual. Age-associated limitations may affect quality of life by restricting mobility. Voluntary movement slows with increasing age of as a result of changes in the musculoskeletal and nervous systems. Postural changes may impair physical stability during movement and increase the risk for injury. Increased muscle rigidity and joint limitations also may impair movement. Age-related changes have been noted to occur in structural components of the joints, with decreases in function beginning after age 20 and accelerating after age 60.

Cardiovascular System

The change with aging in the cardiovascular system includes both structural and physiological changes, resulting in decreased cardiac reserve. This decrease in reserve is not usually pronounced in the healthy elderly. The overall size of the heart dose not increase with aging, but there is a small increase in the left ventricular wall and ventricular septum. The thickness of the left ventricular wall, ventricular septum, and overall weight of the heart increases with age, as do fat, collagen, and elastin, contributing to increased stiffness and decreased contractility.

The conduction system in the aging heart also demonstrates change. The number of pacemaker cells decreases significantly with age. There is loss of senatorial node cells; internodal tracts have an increase in fibrous tissue and fat, and calcification of the valve and conduction system occurs.

Changes in the peripheral vascular system underline the changes in blood pressure that accompany aging. There are changes in the vascular smooth muscle, including aortic and large artery thickness and vascular stiffness, which contribute to left ventricular ejection impedance and increased systolic pressure.

Pulmonary System

There are both structural and functional changes in the elderly individual that predispose to alternations in respiratory over time. These changes result in and increase in the work of breathing, decrease in reserve capacity, reduction in flow rates, and decrease in cough effectiveness in older people. There is a loss of pulmonary reserve with aging. Increased stiffness of the chest wall due to osteoporosis of the ribs and vertebrae, calcification of the costal cartilages, and diminished muscle strength contribute to reduced maximal inspiratory and expiratory force. The major effect of the aging process on the pulmonary system is the reduced quality of gas exchange. Total lung capacity remains essentially constant with age. The residual volume may increases with age, due to airway collapse at higher lung volumes secondary to loss of elastic recoil. Neurological System Changes in the neurological system are manifested in functional changes for the elderly individual. The generalized slowing and wasting of the nervous system accompanying ageing affects several functional areas. Functional changes that occur with ageing include a slowing of reaction time, loss of sensory cues, decline in function of muscle stretch receptors, and associated loss of muscle mass. There are decreases in visual acuity and accommodation, as well as often-marked changes in auditory function. Structural changes that occur with normal aging include loss of neurons, slowed synaptic transmissions, and loss of

peripheral nerve functions. Changes in prefrontal and sub cortical brain regions are thought to be part of the normal aging process that leads to many of the declines in cognitive functioning in older people. With advancing age, there is thought to be a slowing in central nervous system processing, which reduces cognitive speed and negatively affects cognitive function. The speed and potential to process auditory and visual information, particularly novel information, is diminished in older people. A change in memory is probably the most frequent concern of the older people. Empirical findings have shown that for the most part, shot-term memory is well preserved into old age. Endocrine System

Age-related changes in the endocrine system affect both the reception and the production of hormones. Alterations have been noted in the structure and function of the pituitary and thyroid glands, adrenal cortex, gonads, parathyroid glands, and pancreas. Additional changes that occur in the older man include decrease in testicular volume and spermatogenesis. Testosterone secretion declines, and there is in an increase in estrogen-to-testosterone ratio. Woman experience menopause and decreased serum estrogen production. Endocrine changes that occur with aging affect metabolic processes. In woman, cessation of menses accompanies reduced estrogen production and decreased follicular sensitivity to gonadotropins. Changes in pancreatic function result in a decreased glucose tolerance and a corresponding decline in insulin secretion.

Physical Functioning

Physical functioning refers to an individual's ability to perform life's daily activities physical demands, such as rising from a chair or walking, or purposeful

activities such as self-care. A major focus of the impact of chronic illness and their treatment on physical functioning is in terms of physical disability. There is no "gold standard"by which to define and assess disability, but the individual's ability to perform a task [difficulty], the degree of independence reported or recorded.

The National Statistic Bureau (1998) analyzed the status of the elderly concerning the following aspects; demographic, economic, social, employment and job characteristics. This study, using 5.1 million people as its sample size, revealed that the size estimation of the elderly increased in terms of the number and proportion and females outnumbered males. Concerning their employment and job characteristics, the elderly could be divided into 2 groups; 1) the elderly who were still in the workforce (employment, unemployment and seasonal unemployment) and 2) those who were not in the workforce (housekeepers, too old or not capable of working). This study found that the number of older people who were out of the workforce (almost 3 million) doubled those who were still in the workforce. For the elderly who continued working after the age of 60 years, if living in municipality areas, they usually worked as a vendor, and if they lived outside the municipality areas, they took up agricultural work. Their incomes were rather low, compared to other populations. Concerning their social status and living conditions, it was found that proportionately, the male elderly took charge as the leader in the family more than the female and most of the elderly responded living with their spouse, children and others, followed by living with children and others. However, it also found an increase of the elderly living on their own. Analytical results on relationships between demographic, geographic and social characteristics and workforce status of the elderly revealed that the demographic was significantly related to the working capacities of

the elderly. The male elderly were most likely to continue working and in terms of the relationship between the geographic and the workforce status, it was found that the region was the most influential factor for the elderly to continue working. The South region of Thailand had the highest number of the working elderly and the elderly living outside the municipality area were more likely to continue working than those in the municipality. The last one was the relationship between the social characteristics and the workforce status. The study found that education and types of family were the most influential factors. The elderly who graduated with primary educational level were likely to continue working while those without any education background were the least likely. In addition, the elderly living in a single family were most likely to continue working.

Chitaphankul (1998) studied health status of Thai elderly and the followings are the findings;

Death

Changes in social-economic structures of Thailand have caused the development in public health and technology, resulting in less importance of infected diseases (except HIV/AIDS, tuberculosis and malaria) but placing greater importance on chronic diseases, mental illnesses and accidents. Data on the death cause, based on death certificates, found that almost half of them died of aging. Such high number of the death cause among the elderly was probably due to the fact that a large number of those certificates were recorded by officers, not medical doctors. However, the on-hand data suggested that chronic illnesses; such as, heart diseases, cancers, brain blood vessels disease and accidents, etc. were the most important death cause of the

elderly. There was still a need to emphasize that infected diseases were still a crucial problem among the elderly. A cohort study among the elderly in Thailand revealed that independent factors of the death were functional disabilities and unemployment. In addition to the health status, this result showed that social status could be a factor of the death.

Illnesses

When people become older, the frequency of illness incidents will also increase and the elderly became sick by several causes in each month as high as 43.6%. Most of the sick elderly were female and lived in rural areas. However, the majority of diseases found or causes of illnesses were not serious; such as having a cold or joint-ache, etc. Reported chronic diseases were similar to those in developed countries which were high blood pressure, diabetes, coronary heart disease, cerebrovascular disease, high cholesterol in blood, dementia syndrome, osteoarthritis, urinary incontinence, pervasive depression and falling down, etc.

Functional disabilities

Approximately 1.7% of the Thai elderly suffered from functional disabilities at the moderate or very serious level. It showed in the Barthell ADL index value with the score less than 12 points. Such result implied a need to have a caregiver to assist regularly or at all times. The main cause of the functional disability at this level was the coronary heart disease. Studies revealed that second-thirds of the elderly with functional disabilities experienced eyesight difficulties (ametropia by several factors) and 1.7% of them were classified in the blind level. The ratio of the elderly who were

unable to walk in and out of their house when they became older and it was one of important problems of the female elderly and those living in urban areas. In addition, one–third of Thai elderly was unable to use the public transportation service without a companion or caregiver and this was also another crucial problem of the female elderly.

Chuprapawan (2000) conducted a survey on the health status of Thai elderly in 2000 and collected data from records of physical examination compiled by Thailand's Public Health Research Institute in 1998. It was found that 69.3% of the elderly in the age range of 60-69 years had chronic diseases and the number increased to 83.3 % among the elderly in the age group of 90 years or older and they suffered from multiple illnesses. This study revealed that 70.8% of the elderly aged 90 years or older were simultaneously suffering from 6 diseases. For accidents occurring within the last 2 weeks to the elderly prior to the survey, it was found that 6.8% had an accident; 32.7% of the accident happened in the house, followed by 22.3% from traveling, 21.8% from work. For the long-term functional disabilities, it revealed that 19% was the elderly suffering from the disabilities for more than 6 months and the severity of the disabilities at the serious and very serious level was related to older age. In addition, 5% of those aged more than 80 years was at the extremely serious level of disabilities and need constant care at all times. The followings are top ten causes of the long-term disabilities; accidents, hemiplegia, eye disease or blindness, knee ache and inflammable knees, high-blood pressure, less energy in arms and feet, deaf and difficulties in hearing and diabetes.

The Research Institute of Public Health Systems (Sor-War-Ror-Sor), 1995, investigated situations of illnesses among the elderly and made some conclusions as follows;

1. Frequency of acute illnesses among Thai elderly within 2 weeks prior to this study was similar to those of other population groups. Twenty eight percent of the elderly aged 60-89 years experienced such illnesses, and the figure increased to 31% among the elderly aged more than 90 years. Symptoms found were common cold, headache, joint ache, backache, high blood pressure and fever.

2. This study revealed that 6.8% of the elderly had suffered an accident within 2 weeks prior to the study; 32.7% of the accident occurred in house, 22.3 % from traveling and 21.8% from working. Considering the accident rate against the total populations, the percentage of the accident in the house fell to 1.8 % and for the accident from traveling and working equaling at the rate 1.2%. Based from this result, the domestic accident was one of very serious problems for the elderly and it reflected the fact that living conditions of many Thai elderly people were not adequately safe. Regarding mistakes in taking wrong medicines or picking the wrong ones, this probably was related to difficulties in reading labels because a great number of the Thai elderly could not read. Also, this could be implied that pharmacists or heath service providers might not explain to the elderly clear enough about how to use/take the medicines.

Hoysang (1998) studied the elderly needs and perceptions of care from their families in the rural of Trang province and found that regarding the needs of the elderly for care, love and acceptance as a part of society were rated the highest. For the perception of care that the elderly gained from their families, the highest score

went to the elderly self-worth, followed by love and acceptance as a part of society. The elderly rated their perceptions of care in aspects of safety and recreation in the moderate level. A comparison between the needs of the elderly to be looked after and their overall perceptions of care from their families revealed a significant statistical difference at level 0.10. If looking at each aspect, the means of their needs to be looked after and their perceptions of care from their families scored a significant statistical difference at level 0.01. In addition, the study found more significant statistical differences at level 0.05 concerning their physical, safety, love and being a part of society, self-value and self-value awareness. On the other hand, the means of needs and perceptions of care that the elderly received from their family yielded statistical indifference in the aspect of recreation.

Tienneprapas et al. (1997) investigated needs of the elderly for services and found the services the elderly needed the most from the elderly daycare program were; 1) health care services (81.5 %), 2) religious activities (12.5 %), 3) recreational activities (3.3%) and the last was activities for social services (2.7%)

According to a population survey conducted Chuprapawan (1995) on a case study of the elderly, it was found that the male elderly scored higher in the economic workforce than the female and the males in rural had to work to make a living more than those in the urban. Reasons for not working were health problems, requests from their families to stop working and retirement from work, etc. Regarding the income, Chayowan et al. (1989) found that the economic status of the elderly was poor. Most of then earned just 500 baht or nothing per month. However, they did not have any difficulties maintaining their lives as they received support from their children and relatives. In addition, if comparing monetary situation, the elderly living in the rural

were likely to experience more difficulties than those in the urban because they gained less support from children and relatives and job opportunities in the agriculture sector were very few. Moreover, they could not professionally compete with the younger generation. This study also explored the relationship in their family and found that their children or relatives took their position as the family leader, making them become just the house owner and opportunities for them to advise and guide their family members decreased. In addition, there were some changes in their roles in the house; such as, gardening, cooking, cleaning, buying food and caring for a baby, etc.

Nualjinda et al. (1991) summarized the physical and spiritual needs of the elderly which were different from other age group populations as follows;

Physical

- Food; besides carbohydrate, the elderly regularly needed, in order of importance, vegetable, fruit, beverage; such as, soft drink, tea, coffee, meat and seafood. Fat was rarely needed and most of the elderly did not drink alcohol.

- Accommodations; most of the elderly would like to have a private space for sleeping and rest and a bathroom. A safe and convenient toilet was also needed.

- Equipment; clothes and clothing; the majority of the elderly needed a bed, pillows, a clean and easy-to-use mosquitoes net and regular clothes.

- Caregivers; their needs for regular support and assistance from the caregivers were listed in order of importance starting from the highest to the lowest as follows; clothes, food, care for their space of sleeping and companion to the hospital for physical examinations.

Spiritual

- Intelligence and wisdom; most of the elderly needed to continue learning as much as passing on their knowledge and experiences to others.

- Relaxation and recreation; the majority of the elderly would like to; 1) listen to the ratio to catch up with news and religious programs, 2) go to temples to make a merit, 3) have visitors, 4) read, 5) have some hobbies and 6) travel which came up the last.

- Economic; the majority of the elderly still would like to work and earn some money for their personal spending.

- Socialization; the majority of the elderly would like to regularly participate in; 1) their families' activities, and 2) general activities. Only once in a while they would like to have outdoor activities.

The quality of life for the elderly refers to satisfactions when their needs are met physically and spiritually and also when they are able to participate in improving socio-economic environments, making them feel physically and mentally healthy.

Nualjinda et al. (1991) studied the satisfactory – the moderator variable of the improvement of quality of life for the elderly and summarized that fulfilling their physical and spiritual needs was the most important strategy in improving the quality of life for the elderly.

Sitthicharoenchai as refered in Visuttitum (1999) studied
the quality of life of Thai elderly in Nakhonsawan province and summarized main results as follows;

1. Regarding the economic situation, the elderly were still independent, especially those aged less than 70 years but they would need more support from

children and relatives as they grew older and their spending would be eventually higher than income. Socially, they usually turned to their children and relatives and community organizations still had a limited role in supporting and linking with them.

2. Time spending and activities is daily life; the majority of the elderly spent time on relaxation at home and needed assistance from others in their daily activities; both personal and in caring their own family. As the society had changed and many families had shifted to be single families, care and support for the elderly might decrease.

3. Health status of the elderly; the majority of the elderly were still healthy and did not experience any physical handicap. However, many of them showed had a sign of organ deterioration, especially those aged more than 71 years. They would have more needs to frequently turn to health service providers. Risk behaviors for the male elderly were smoking and drinking while the female often took analgesic (painkiller tablets) to relieve pain. The female elderly were more likely to suffer from chronic diseases than the male.

4. Satisfaction in life; it was found that the male elderly had a higher score of satisfaction in life than the female.