

The Family's Role in Assisting Hypercholesterolemia Individuals to Controlling Serum Cholesterol Level

Saryono bin Tujin Dimiyati

School of Nursing, Faculty of Medicine and Health Sciences, Jenderal Soedirman University, Purwokerto, Central Java, Indonesia.

**For reprint and all correspondence: Dr. Soeparno Street, Karangwangkal, Purwokerto, Central Java, Indonesia.*

ABSTRACT

Introduction	High serum cholesterol level increases the risk of stroke and coronary heart diseases. Family has an important role to maintain and to reach a normal cholesterol level in the blood. The aim of this research was to explore the role of family in monitoring and maintaining serum cholesterol level among hypercholesterolemia individuals.
Methods	Seven participants were involved in this study that determined based on saturated data. Sampling procedure used snowball sampling method. Data was collected by interview, participant observation, documentation study, and literature review. Data analysis was done with thematic analysis steps.
Results	The research results showed three themes. First, family role in controlling cholesterol level was memorized the routine check. Second, family had a role to limit the intake of high cholesterol food. Third, family could join the individuals to participate in exercise.
Conclusions	This study provided information about family's role in controlling hypercholesterolemia individual's serum cholesterol level. It also provided addition of knowledge to nurses in the care of individuals with hypercholesterolemia. This research confirmed that family's role in assisting hypercholesterolemia individuals is very important to increase the health level among community in developing countries.
Keywords	blood cholesterol level-husband-family role-hypercholesterolemia

INTRODUCTION

Human behavior plays an important role in preventing the occurrence of disease. Stroke and acute myocardial infarction occupies a prime position as the diseases that cause death in Indonesia. The increasing amount of junk food that goes into the Indonesian market causes a lot of obesity. The problem of obesity is also more commonly found among children. In obese patients, the heart must work harder in order to supply blood around the body. This can significantly increase the risk of heart disease.¹

Stroke is the third disease that causes death after heart disease and cancer. Stroke remains a major cause of disability. Data from NHLB's Framingham Heart Study, in the United States estimated there are 600,000 which consisted of 500,000 patients with new strokes and 100,000 relapse stroke patients. In Indonesia, there are no epidemiologic data on the full stroke, but the proportion of stroke patients from year to year is increasing. This can be seen from the Household Health Survey report in various hospitals in several provinces in Indonesia. The survey showed an increase between 1984 to 1986, (from 0.72 per 100 patient in 1984, be 0.89 per 100 patients in 1986). In Banyumas Hospital, in 1997, 1998, 1999 and 2000, stroke patients hospitalized as many as 255 people, 298 people, 393 people, and 459 people respectively.

Men who are overweight in the abdominal area (central obesity), is known to have higher levels of leptin, free fatty acids, apo B, and triglycerides while HDL cholesterol was lower than men who are not obese. The increase of triglycerides and apo B concentration correlated with the formation of LDL (low density lipoprotein) which is known as bad cholesterol, that triggered the coronary heart disease (CHD). The greater the person's abdominal circumference, the greater the risk of increased LDL.^{2, 3, 4, 5}

Obesity will lead to increased cholesterol levels that will accumulate in the blood vessels. This resulted in an increased risk of stroke and myocardial infarction. Stroke and acute myocardial infarction can be triggered by two factors, ie factors that can not be avoided and the factors that could have been avoided. Factors that can not be avoided such as older age and heredity, while the factors that can be avoided which is related to lifestyle, such as obesity and lack of exercise. In Indonesia, people who exercise continuously only 9 percent of the total, whereas the data from WHO showed 43 percent of diseases in the world due to one of them because of lack of movement.^{6, 7, 8}

The cost required for the treatment of stroke and heart disease and loss of livelihood is very high. In the United States, in 1981, the calculated cost incurred for the treatment of stroke patients, was achieve as 7 billion dollars and in

1996 increased to 40 billion dollars. Such costs consist of direct costs (hospital costs, physician, and rehabilitation) of 27 billion dollars and indirect costs (lost productivity) as much as 13 billion dollars. American Heart Association estimates the total cost to 51 billion dollars in 1999. Stroke is a serious problem because it can cause death, disability, and required a high cost. Therefore, there are need a necessary efforts for stroke prevention both primary and secondary stroke (relapse stroke).

Activity or exercise can help to maintain heart health.⁹ But free time and limited facilities become a classical reason why people are reluctant to perform the activity. Limitations of the facility was a challenge for us to continue to promote sports. In general, someone who is less active, have a risk two to three times more likely to suffer heart attacks than people who are active and exercise regularly. Continues stress makes your heart rate and blood pressure increase. This certainly makes the heart work harder and in turn will increase the risk of heart disease. Behavior which is too hasty, short-tempered and too ambitious can lead to the disease. Similarly with cigarettes, though aware that it is a bad habit, most smokers still do not want to eliminate this habit. For a heavy smoker, the risk of sudden death is five times greater than people who did not smoke at all. From the facts that have been presented, we raised the question: "How much blood cholesterol levels in hypercholesterolemic husband in the field of Baturaden Health Center, Banyumas?" How does a wife's role in the monitoring the husband with hypercholesterolemia in the field of Baturaden Health Center, Banyumas? "

METHODS

This research is a qualitative study. The researcher tried to explore in depth the data without having first prediction, so that opens the possibility to obtain the widest data from respondents. This research center located in the field of Baturaden Health Center, Banyumas, Central Java, Indonesia. Participants were selected by snowball sampling technique, with the inclusion criteria: male, aged 40-60 years, understanding of obesity through a process of enculturation, so something is not only unknown but also internalized, have adequate time to the information, and are not likely to convey information on the results "packaging" themselves.

The number of informants who participated were not limited by the quantity, but depended on the saturation data. If the informant did not provide additional new data, so that data has been saturated, the number of informants is considered sufficient.¹⁰ Researcher as an instrument needs to be validated through the self-evaluation on how much understanding of qualitative methods, control theory and insights into the studied area, as

well as the provision onto the field. Data collection was conducted in natural settings in the workspace and using primary data sources. Data collection techniques used were observation, laboratory tests, study documentation and in-depth interviews. The validity of test data is done with credibility (internal validity), transferability (external validity), dependability (reliability) and confirmability (objectivity).

Data obtained in qualitative research has a variety of data that obtained from various sources, with data collection techniques vary and done continuously until data saturation. Data analysis was performed using a step - step thematic analysis, by collecting all data from participant observation, depth interviews, field notes, journals and literature.¹¹ All data that were collected were made into a verbatim transcript and data code, then the data are identified through the process and conceptual patterns. Data obtained on the study of literature is added to the data that has been found in accordance with the coded data.

RESULTS

Characteristics of participants

This research has been done in field of Baturaden Health Center, Banyumas. The total participants were 7 people, they are wives of the patients with hypercholesterolemia. All the participants were local residents and Javanese. The youngest informant age was 30 years old and the oldest 58 years. Highest educational degree of participant was graduate degree and the lowest is primary school, with an average income of 3 million rupiahs per month.

Themes generated

The theme of this research produced is obtained based on analysis of respondents' answers. Researchers found three main themes, namely:

1. Remind routinely control

a. Signs in the calendar
Families (especially wives) always reminds a husbands to perform routine control after seeing the sign as scheduled in the calendar. The wife routinely makes circle marking the date of the visit on the calendar while performing control to health care. The use of signs in the calendar is quite important because these notes can remind families to maintain the health of a sick family member.

"My husband usually forget, so... I remind" (P1)

"I always look at a calendar for family planning and checking my husband schedule control,I remind his" ... (P2, P3)

b. Special Schedule

When the husband says a complaint with his wife, the wife asks her husband to immediately control with a special schedule. The great complaints of chest pain, palpitations, tingling or other complaints which need immediate treatment, makes her forced her husband to immediately seek healthcare treatment.

"if my husband complained of pain, yes I take it straight to the doctor" ... (P2)

"is not on schedule, if ya feel my pain between, all events were canceled, tomorrow there's still days away" ... (P4-P7)

2. Food Regulation

a. Providing healthy food

Wife in a family have a comparable roles with the husband and this role is complementary to achieve the family goals. Wives will provide favorite foods family members by adjusting the family's financial capabilities. The wife always provide healthy foods that support the healing of illnesses suffered by their husbands. Food taboos will not be provided by the wife because if the husband grew ill, it will burden the wife. A healthy diet according to the wife is the recommended food for consumption and not food that is prohibited to be avoided. However, the meaning of healthy food is heavily influenced by the level of wife's knowledge when receiving information.

Low-cholesterol foods is needed to maintain cholesterol husband's level to inhibit the increase. A high blood cholesterol can precipitate in blood vessels which in turn can lead to blockage. Blockage of the arteries will cause impaired of oxygenation on peripheral tissue that resulting in cell death (infarction).^{12,13}

"What became taboo... yes I avoid, I do not give the husband" ... (P1-P3)

"I am very busily when the husband was sick, should get well is" ... (P4-P6)

"Every hour meal, I serve a healthy food to speed up a recovery" ... (P7)

b. Self-catering

Food plays an important role in maintaining a healthy body. Nutritious foods will increasing the growth of cells and replace them if cells damaged. Food that enters the body needs to be controlled to ensure the rate of turnover and resting

cells. Nutrients that the body needed every day is influenced by various factors including exercise and disease. Wives as the housewife always provide good food in the morning, afternoon or evening. Food that will consumption is provided by a mother with cooking your own or buy at the foodstore. With the cooking himself, the mother can control what types of supplements are added, so the wife can be sure the food served is healthy food.

The use of spice flavorings, artificial sweeteners, dyes and preservatives can be avoided when the mother provides food to cook yourself. The wife can choose a quality cooking oil with low cholesterol levels and disposable. Cooking oils that contain unsaturated fatty acids if heating repeatedly can be turned into cooking oil with saturated fatty acids, which can lead to hypercholesterolemia.^{14,15}

"My husband prefers my cooking, I cook if not given a flavor" P1 ..

"I am more confident cook himself, uses a disposable oil, do not use flavorings" ... P3, P4

"I used to buy food, but since banned the doctor, my own cooking reduces fried" ... P6, P7

3. Participate in Exercise

a. Activities of daily routine

The family has a very important role in developing, identifying, and find health problems in anticipation of health care in the family. Wife as a family member plays an important role in maintaining the health of her husband. Daily routine activities undertaken wife, will be very meaningful when assisted by her husband as a form of togetherness. A positive relationship will give a good effect on health families. It is expected that a positive relationship to health services will change the behavior of each member of the health concepts.

"Yes I am a cook and wash,...but my husband sweeps and mops" ... P4

"It'll be a lot of activity to cholesterol down, so, I ordered my husband to help cleaning the house" ... P5, P6

"Clean up the garden..., let his body move" .. P7

b. Posyandu elderly

Physical activity affects blood cholesterol levels. Families who regularly perform physical activity have a stable blood

cholesterol levels. Husband and wife have role to remind each other and participate in maintaining health. There is a special container for social interaction and activity in the family who enter pension age in "Posyandu elderly". Posyandu elderly is an organization of an integrated service posts for elderly.

"I and my husband go to a neighborhood health center routinely for gymnastics and healthy way, since the husband has a cholesterol disease" ... P7

"my husband and I joined with posyandu elderly once a month" ... P5, P6, P7

"Yes.. join with gymnastics, health check up, and walk there" P4

c. Doing exercise in office

Physical activity can be done anytime and anywhere to keep them healthy. This activity can be scheduled with specific time or to meet other needs to perform physical activity such as walking or riding a bicycle.

"My husband always come every Friday at the office gym" ... P1

"Yes, sometimes I see my husband brought a tennis racket to the office that Friday" .. P3

DISCUSSION

The role is something that is expected to be a person who will provide fulfillment needs. If connecting the family role with an effort to fulfill the needs of the husband as an individual, the family is the first institution that can occupy those needs. The role is a set of expected behavior in accordance with a given social position in society. The position of individuals in society are such as husband, wife, children and so forth. But sometimes this role cannot be executed perfectly by each individual. There are some children who are forced to occupy the needs of other family members while their parents are sitting at home.

The research results showed that the family have a role to the care of its member. This role is summarized in three common themes. First, family role in controlling cholesterol level was memorized the routine check. The family is a system that interact with each other to completed needs including health. So, the family plays an important role in developing, prevent and resolve or improve existing health problems in the family. The family is also seen as agencies (institutions) that can fill up human needs. Every family member have a responsibility to other family members who have limitations. The husband as a patient in family frequently forget to go for routine check the

cholesterol level. So, the wives have an important role to keep the health of husband through a routine check. This role is done by marking signs in the calendar and getting a special schedule.¹⁶

Second, family has a role to limit the intake of high cholesterol food. A balanced nutrition daily food intake correlates with a healthy person. Food with high cholesterol as meat, durians, alcohol and others cause hypercholesterolemia that can be a threat to life. The family members especially the wife who serves food, have a determinant role to keep family's members health. Family is the center of the most important decisions, including making decisions about family health issues. It is the duty of each family member to care for other sick family members as the principal function of family. Family plays a role to supporting a sick family member. In other words there needs to be something good match between family needs and the intake of environmental resources for the health care of family members.^{17, 18}

Third, family could join the individuals to participate in exercise. Regularly exercise can burn a cholesterol effectively in the blood. If the person seldom do the exercise, the glucose that got after meals is converted to be a lipid, steroide or cholesterol. The cholesterol will be a sediment in blood vessels that can cause a coronary hearth disease. In this, family have a key role to keep healthy a family member.

Family is one or more individuals who live together, so have the emotional ties and develop in the interrelation of social, role and task. The family also a set of people with the bonds of marriage, birth, and adoption in order to create, maintain culture, and enhance their physical, mental emotional and social development of each family member. Family have to duty to increase a health level of the family member. There are some factor that affecting the family role for example age, education, occupation, race, information, culture, environment, beliefs, socioeconomic.^{18,19}

CONCLUSIONS

The research results show three themes, family role in controlling cholesterol levels on husband with hypercholesterolemia were the resource persons to memorize a routine check, to limitation of food that high cholesterol content and to participate in exercise. This study provided the information on family's roles to control cholesterol levels among husbands that have high cholesterol and increase the knowledge of a nurse who take care of hypercholesterolemia patients. This research confirmed that the wife's role in husband's health status is very important to community health in developing countries.

ACKNOWLEDGEMENT

We extend our gratitude to all subjects who participated in this study. We are grateful to Mekar DWI Anggraeni Skep., Ns. MKep., for language editing assistance. This study was supported by a grant from a nursing granted by Soedirman University, Purwokerto, Indonesia.

REFERENCES

1. Barter P, Gotto AM, Phil D, LaRosa JC, Maroni J, Szarek M, et al. HDL Cholesterol, Very Low Levels of LDL Cholesterol, and Cardiovascular Events. *N Engl J Med.* 2007;357:1301-10.
2. Brewer HB. Increasing HDL Cholesterol Levels. *N Engl J Med.* 2004;350:15.
3. Cesar TB, Oliveira MRM, Mesquita CH and Maranha RC. High Cholesterol Intake Modifies Chylomicron Metabolism in Normolipidemic Young Men. *J Nutr.* 2006;136: 971-976.
4. Crowe FL, Skeaff CM, Green TJ and Gray AR. Serum fatty acids as biomarkers of fat intake predict serum cholesterol concentrations in a population-based survey of New Zealand adolescents and adults. *Am J Clin Nutr.* 2006;83:887-94.
5. Goodrow EF, Wilson TA, Houde SC, Vishwanathan R, Scollin PA, Handelman G and Nicolosi RJ. Consumption of One Egg Per Day Increases Serum Lutein and Zeaxanthin Concentrations in Older Adults without Altering Serum Lipid and Lipoprotein Cholesterol Concentrations. *J Nutr.* 2006;136:2519-2524.
6. Yanovski SZ and Yanovski JA. Obesity. *N Engl J Med.* 2002; 346(8): 591-602.
7. Greene CM, Zern TL, Wood RJ, Shrestha S, Aggarwal D, Sharman MJ, Volek JS and Fernandez ML. Maintenance of the LDL Cholesterol:HDL Cholesterol Ratio in an Elderly Population Given a Dietary Cholesterol Challenge. *J Nutr.* 2005;135: 2793-2798.
8. Domanski MJ. Primary Prevention of Coronary Artery Disease. *N Engl J Med.* 2007;357:15.
9. Law MR, Wald NJ and Rudnicka ER. Quantifying effect of statins on low density lipoprotein cholesterol, ischaemic heart disease, and stroke: systematic review and Meta-analysis. *BMJ.* 2003;326;1423.
10. Moleong LJ. *Qualitatif Research Method.* Remaja Rosdakarya, Bandung. 2006.
11. Speziale HJS, & Carpenter DR. *Qualitative research in nursing: Advancing the humanistic imperative.* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins. 2003.

12. Lewington S. The importance of cholesterol, blood pressure and smoking for coronary heart disease. *European Heart Journal*. 2003;24:1703–1704.
13. Tanasescu M, Cho E, Manson JE and Hu, FB. Dietary fat and cholesterol and the risk of cardiovascular disease among women with type 2 diabetes. *Am J Clin Nutr*. 2004; 79:999–1005.
14. Herron KL, Vega-Lopez S, Conde K, Ramjiganesh T, Shachter NS, and Fernandez ML. Men Classified as Hypo- or Hyperresponders to Dietary Cholesterol Feeding Exhibit Differences in Lipoprotein Metabolism. *J Nutr*. 2003;133: 1036–1042.
15. Itskowitz MS. Low HDL Cholesterol Levels. *N Engl J Med*. 2006;354;4.
16. Friedman MM. *Family Nursing : Research, Theory and Practice*. 4th edition, Norwalk CT, Appleton & Lange. 1998.
17. Clarke D, Frost C, Collins R, Appleby P, Peto R. Dietary lipids and blood cholesterol: quantitative meta-analysis of metabolic ward studies. *BMJ*. 1997;314:112.
18. Wannamethee G, Shaper AG, Whincup PH, Walker M. Low serum total cholesterol concentrations and mortality in middle aged British men. *BMJ*. 1995;311:409-413.
19. Efendi N. *Community Health Nursing*. Jakarta : EGC.1998.