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Understanding Cardiovascular Risk Perception Among Females Patients With Hypercholesterolemia And Their Risk Reduction Strategies

Suhaiza Samsudin,* Mohd Aznan Md Aris, Fa`iza Abdullah

Abstract--- Introduction: *With the increasing trend of hypercholesterolemia in the Malaysian adult population over the past five years, cardiovascular disease (CVD) remains the leading cause of death and disability. However, only half of the public has recognised hypercholesterolemia as a risk factor for CVD. Therefore, an accurate perception of hypercholesterolemia and CVD risk factors by the patient itself is important as this is one of the factors that explain health-related behaviours.* ***Methodology:*** *A qualitative study was conducted to understand the patient perceptions of hypercholesterolemia and CVD risk factors, as well as the strategies to prevent CVD risk. It involved a total of 13 women with hypercholesterolemia detected in their blood during a routine medical screening at a primary health care clinic in the International Islamic University Malaysia, Kuantan, Pahang. The interviews were audio-recorded, transcribed, coded, and analysed using the NVivo version 12 software.* ***Result:*** *All participants showed their concern regarding hypercholesterolemia and were aware that a high level of cholesterol would adversely affect their health. They perceived themselves as at risk of developing CVD due to the high cholesterol level. However, they were unable to properly identify other CVD risks, while some were able to relate behavioural risk factors with CVD and discuss their lifestyle changes to prevent CVD. In contrast, a few individuals were still unable to practise good lifestyle habits despite their concerns.* ***Conclusion:*** *The finding of this study implied the need for proper education and communication with the physician-in-charge in terms of CVD risk in order to improve patient uptake of healthy lifestyle choices.*

Keywords--- *Risk Perception, Cardiovascular Disease, High Cholesterol*

I. INTRODUCTION

Among all Non-Communicable Diseases (NCDs), cardiovascular disease (CVD) has been identified as the leading cause of death and disability among adults worldwide. Data collected by the World Health Organisation (WHO) [1] has reported that CVD caused 31.7% of all deaths globally in 2016, accounting for 50% of deaths due to NCDs (WHO, 2016). It is estimated that 17 million people die over a year globally and 23.6 million people will die by 2030 due to coronary heart disease and stroke [2].

Suhaiza Samsudin, Mohd Aznan Md Aris, Fa`iza Abdullah, Department Family Medicine, Kulliyyah of Medicine International Islamic University Malaysia, Jalan Sultan Ahmad Shah, 25200, Kuantan, Pahang, Malaysia.*
Corresponding author : Mohd Aznan Md Aris
Email : aznan@iium.edu.my

Similarly, CVD has been known as the leading cause of death in Malaysia since the early 1980s. Data from WHO data published in May 2014 clearly enumerated that deaths due to coronary heart disease in Malaysia reached 29,363 or 23.10% of total deaths. Chronic illnesses in Malaysia are due to both demographic and socioeconomic transitions caused by economic development [3]. This will inevitably result in a higher prevalence of NCDs in the country [4]. Despite new technologies and developments in the healthcare system, Malaysia still cannot escape from the risks of CVD.

There are several risk factors associated with CVD. Dyslipidaemia is one of the main modifiable risk factors for CVD, followed by hypertension, hyperglycaemia, obesity, and lifestyle factors such as physical inactivity, smoking, excessive alcohol consumption, and unhealthy dietary behaviour [5]. The National Health and Morbidity Survey (NHMS) 2011 reported the prevalence of hypercholesterolemia to be 35.1% among adults aged 18 years and above [6]. In the preceding NHMS 2006 survey, the rate was 20.6%; this depicted an increase of 14.5% over a five-year period [7].

Unfortunately, half of the people with existing risk factors are unaware of their increased risk for CVD [6]. Poor understanding of one's CVD risk can also be related to inadequate explanation by health professionals regarding the significance of such clinical condition [8]. According to health behaviour models, risk perception is a clue for behaviour change [9]. Consequently, patients who recognise their increased risk for CVD are more likely to engage in preventive behaviours and comply with their treatment [10]; [11].

Despite widespread awareness among clinicians regarding primary and secondary CVD prevention goals and the potential for improving clinical outcomes by integrating lifestyle risk reduction interventions into practice, the application of these interventions is far from optimal [12].

Moreover, good knowledge and information alone may not promote lifestyle changes. It is known that individuals will continue to engage in unhealthy behaviour despite knowing the risks. Given that prevention, as opposed to cure, is the most effective way to deal with CVD [13]; [14], it is of major interest to know how the general public perceives CVD risk factors and whether their perceptions are in line with the actual CVD risk. Knowledge of this information will help to address the misconceptions held by the general public and ultimately lead to more successful approaches in tackling CVD.

This study was conducted to understand the perception of hypercholesterolemia and CVD risk factors among patients with hypercholesterolemia. It also looked into the patients' risk reduction strategies for CVD prevention in terms of their lifestyle changes.

II. METHODOLOGY

This study was conducted between March and May 2018 at the International Islamic University Islam, Family Health Clinic (IIUM FHC), Kuantan, Pahang. It is a primary care clinic that provides services for the IIUM staff and the surrounding public community of the Kuantan District, Pahang. The clinic receives around 150 patient visits per day and provides healthcare services for all outpatient cases, including women and child health.

The qualitative study design was used to explore the understanding of CVD risk factor perception among patients with hypercholesterolemia and their risk reduction strategies**.** Face-to-face in-depth interviews (IDI) were conducted throughout March until May 2018. The potential study participants were identified from medical records in the clinic and purposive sampling was then used to select those who fulfilled the study objectives. Accordingly, women with a recent blood test (within the last six months) showing high total blood cholesterol (TC) level of more than 5.2 mmol/L and low-density lipoprotein (LDL) level of more than 4.9 mmol/L were identified. The participants were invited to be involved in the study by phone, whereby they were informed of the research protocol and given an

appointment for the interview session [15]. Written consent was taken from all participants for the audio recording and interview sessions, and they were assured regarding the confidentiality and anonymity of their participation. They also signed an informed consent form allowing the findings from the study to be published.

Written approval was obtained from the Research Ethics Committee, IIUM. An interview script was developed based on the literature review and used as a guide for the interview session. The respondents were interviewed and open-ended questions were used throughout the session, which lasted for about 30 to 45 minutes. It covered the participant's awareness regarding their barriers to CVD prevention. The interview session was conducted using the national language of Malaysia, *Bahasa Melayu*.

The interview session was conducted in one of the IIUM FHC consultation rooms. Two researchers, one research assistant, and a scheduled participant were present during the process for data collection. Due to time and room limitations, the session was only conducted on every Tuesday afternoon from 2.00 pm to 4.00 pm, except for two participants whose sessions were held on a Tuesday morning as that was the only time they could spend for the study.

During the interview, all important points were noted, especially the nonverbal cues, and recorded on a digital Panasonic audio recorder for the subsequent transcription process. The recruitment of participants was stopped when saturated data were consensually reached, with a total of 13 women who participated in this study. All recorded interviews were re-listened for three times and then transcribed in verbatim in Microsoft Word by the research assistant. The transcripts were thus used as the basic data for analysis purposes. The software named NVIVO 12 was used for qualitative data analysis, whereby the data collected were independently and repeatedly read to arrive at the coding framework. The list of codes and themes was finally agreed on.

III. RESULT

KNOWLEDGE AND PERCEPTION OF HYPERCHOLESTEROLEMIA

All participants were aware that high cholesterol levels in their blood would affect their physical health. They also realised that one of the contributing factors for developing CVD was due to an increase in the cholesterol level in their blood.

Their responses and reaction after knowing their blood cholesterol level were sadness and worry concomitantly. They expressed their concern due to knowing that high cholesterol level was an important risk factor towards developing CVD.

"I feel afraid too. Since the heart is an important organ". Respondent 2

"It is worrying me. But it is very difficult to control our diet." Respondent 4

"The first time I know I have high cholesterol; I was so demotivated for one week. I don't eat much… I eat cookies, I don't eat rice." Respondent 7

However, certain individuals were able to accept their disease diagnosis well.

"I took all those medications and so far, I can accept the fact that I have high cholesterol." Respondent 3

They were all aware and agreed that they had a risk of developing CVD.

"Yes, it has a risk. I have discussed it among friends… to control all cholesterol levels." Respondent 5

"Yes. The doctor told me that there is a risk if the cholesterol is high. It could be a stroke… a heart attack like that." Respondent 2

KNOWLEDGE REGARDING CARDIOVASCULAR DISEASE AND THE RISK FACTORS

This study included an assessment of patient perception regarding cardiovascular risk factors. Overall, they perceived the presence of family history and increasing age as the main factors in CVD, while most respondents identified and agreed that having a high cholesterol level was a cardiovascular risk. However, a majority of them could not readily identify other risk factors, such as the presence of other comorbidities (i.e. hypertension and diabetes mellitus) and engaging in unhealthy lifestyles (i.e. smoking and physical inactivity), which would increase their risk of developing a heart attack and/or stroke.

"There is a possibility. That's why people say it runs in the family. They must be someone in the family. The "family" factor. Second, age factors. Sometimes, career factors are also possible. Because sometimes we see in someone who is active previously, but suddenly he stops his activity, and then it becomes a risk." Respondent 9

"Maybe, because all of my siblings experienced "heart attack". Respondent 12

RISK REDUCTION STRATEGIES

A majority of the patients were able to describe their preventive measures in order to reduce the risk of developing CVD, specifically by practising lifestyle changes in terms of diet and exercise. They also reported to having healthy eating habits themselves, such as reducing all fatty and oily food consumption and increasing their vegetable intake.

"I control my diet by taking healthy food like vegetables, reducing fatty foods, and exercising about three times a week." Respondent 1

"I reduce taking oily food and do exercise. The doctor advises me to exercise 20 minutes a day. The doctor already told us that it depends on us. If there is time, I do, but if not, I cannot make it." Respondent 11

"I reduce the intake of food that causes high cholesterol. That's all." Respondent 3

"For cholesterol, I do not take cold and carbonated drinks. I didn't smoke. Then, I reduce taking sweet drinks. That is the word of "early prevention" for the heart." Respondent 8

The relevance of lifestyle changes depended on the perceived risk for CVD and weight assigned to the risk. For example, certain participants felt that they were at risk of CVD due to high cholesterol level, but did not felt the urge to engage in any healthy lifestyle practices.

"There is. I know because I have checked at the pharmacy. But you know what, I don't change.
I have a lack of exercise, most of the time, I lay on the bed." Respondent 2

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IV. DISCUSSION

This study revealed some insight into the patients' experiences with respect to their disease, which showed their understanding of CVD and the strategies to reduce the risk of developing the disease.

KNOWLEDGE AND PERCEPTION OF HYPERCHOLESTEROLEMIA

All participants agreed that hypercholesterolemia was one of the contributing factors for developing CVD. This is consistent with a previous study that shows that their participants are aware that high cholesterol levels adversely affect their health [16]. However, this is in contrary to another finding that has concluded a poor awareness of hypercholesterolemia among the Malaysian population. Among those with hypercholesterolemia, only 19.2% of them

are aware of the disease status [17]. The reason for this may be due to the study population that has involved those of the urban population, which is proven to have high prevalence, awareness, treatment, and control of their hypercholesterolemia compared to those living in a rural area [18].

In our study, it was found that after being diagnosed with hypercholesterolemia, the majority of them were sad and worried about their conditions. This may be due to hypercholesterolemia being a well-documented risk factor for CVD [19], whereby a strong positive and linear association is present between the total and LDL cholesterol levels with the risk of cardiovascular events [20]. However, excessive worry can cause negative consequences as well. In several studies, psychological stress, which is expressed as "thinking too much", is found to be a significant factor associated with CVD and hypertension [21]; [22].

KNOWLEDGE REGARDING CARDIOVASCULAR DISEASE AND THE RISK FACTORS

This study included an assessment of the patients' perception of cardiovascular risk factors. The results showed that most respondents perceived the presence of family history and increasing age as the main factors in CVD. This contradicts the previous study by Ancheson [23] in which a majority of people with an increased risk for heart disease and stroke based on their familial risk did not consider themselves to be at an increased risk.

This result has been expected as there is strong epidemiologic evidence for the familial aggregation of CVD. Researchers from the Framingham Study have demonstrated that having at least one parent with CVD doubles the eight-year risk of CVD among men and increases the risk among women by 70% [24]. This is very crucial for the disease management since interventions that educate about the importance of family history as one of the CVD risk factors may further motivate individuals to make lifestyle changes in order to reduce their heart disease risk [25]. Additionally, family history reflects the influence of not only genetics but also environment and behaviour [26].

Although family history and age play an important role in the development of CVD, modifiable risk factors are equally crucial elements as well. In fact, a recent study by INTERHEART has revealed that the modifiable risk factors are present in 80% of all cases of myocardial infarction [27]. Furthermore, the prevalence of modifiable risk factors is predominant compared to non-modifiable ones, with abdominal obesity (51.2%), hypertension (39.5%), and psychosocial stress (33.8%) being among the highest-scoring factors [28].

Despite the rise in CVD risk factors among the Malaysian population, the current study yielded findings indicating that the population generally did not recognise their potential relation to the development of CVDs. In Malaysia, several studies have shown the incidence and prevalence of common risk factors of CVDs such as smoking [1], hypertension [29], obesity [30], high cholesterol, fatty diet, alcohol consumption [1], and lowered physical activity [31] to be increasing. This rise is associated with rapid urbanisation, which results in epidemiological and nutrition transition; here, energy-dense diets replace the traditional diets and the sedentary lifestyles prevail in poverty [32]. As such, there is a shift in the disease burden from under-nutrition and highly active lifestyle to over-nutrition-related and sedentary lifestyle-related chronic diseases.

RISK REDUCTION STRATEGIES

All individuals will benefit from a heart-healthy diet and good lifestyle regardless of their disease risk. Establishing the habits of a healthy diet and physical activity early on can reduce the risk of cardiovascular problems over the years. Therefore, people must change their habits in order to reverse the trends of increasing CVD risk factor levels.

This study showed that a majority of patients was able to describe their preventive measures in reducing the risk of developing CVD. They practised lifestyle changes in terms of diet and exercise, such as reducing all fatty and oily

food consumption and increasing their vegetable intake. This is in line with a previous study that shows a majority of its respondents agreeing that they should know their level of blood pressure, blood sugar, and blood cholesterol, as well as reduce their sugar and fat intake [33]. The high proportion of positive attitude is noted to be due to their awareness towards the healthy lifestyles as promoted lately in the mass media regarding healthy eating and regular exercise. This is very important since lifestyle changes are the first step to reduce one's cholesterol levels. These lifestyle interventions are aimed at weight control [34]; reducing the levels of unhealthy fatty acids such as saturated fat [35] and trans fatty acids (TFA); and improving the lipid profile [36]; [37]; [38].

Unfortunately, it has been found that although the participants had reasonably adequate knowledge about CVD, they did not act upon their knowledge [39]. The previous study conducted in Malaysia has revealed the percentage of good CVD practice to be merely around 50%, which indicates that the behaviour to reduce the CVD risk as still not optimal [40]. This notion is also seen in a study by Kim & Beckles [41] from the United State (U.S) which has found that the overall practice regarding CVD risk reduction behaviour to be suboptimal in both genders. A few possible explanations can be speculated regarding the lack of association between CVD knowledge on risk factors and their practices, one of which being knowledge does not necessarily associate with positive health behaviours as expected. This may indicate that people have good CVD knowledge, but they are unaware of their own susceptibility to the disease in relation to their lifestyle habits [42]. Therefore, this shows that knowledge is not enough to prevent CVD as the sample size has shown relatively good CVD knowledge but had a poor practice of good lifestyle. Since other factors may prevent the translation of knowledge into motivation and practice, knowledge alone is not sufficient to promote behaviour change [43]; [44]; [45]; [46].

Consequently, further research is required to investigate other contributing factors that may influence CVD risk, other than knowledge.

V. CONCLUSION

The sampled population could be considered as having good awareness with regards to the CVD risk factors and attitude. They also showed a good level of knowledge about risk reduction strategies as the disease prevention method, but the practice was still not optimal. Thus, the findings of this study imply the need for proper education and communication with the physician-in-charge in terms of CVD risk in order to improve the patient uptake of healthy lifestyle choices.

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