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Factors Affecting Adherence to Healthy Lifestyle

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ABSTRACT

The aim of study was to determine reasons for poor adherence to lifestyle recommendations. The objective was to determine: reason for poor adherence to dietary regimen, exercise recommendations, medications, and smoking cessation. Factors affecting adherence to lifestyle changes were categorized into four major categories i.e. socio-demographic factors, cognitive factors, interpersonal factors, unintentional/others. It was found that the major factors responsible for non-adherence were busy schedule, low socioeconomic status, low education level, beliefs, health condition, severe weather condition, cost of medications, side effects of medications, poor memory, lack of motivation, lack of social and family support, unwillingness, tendency to eat out, increasing number of fast food outlet, frequent social gatherings, depression, stress, smoking, patient-physician communication, trust in health-care provider, insufficient information on benefits and use of prescribed medicines and proposed lifestyle changes. No particular intervention strategy can improve the adherence of all patients, research studies reach a conclusion that effective attempts to improve patient adherence depend upon a set of significant factors. Mutual cooperation fosters greater patient satisfaction, lessens the risks of non-adherence, and improves patients' health and fitness.

Key words: *Poor adherence, Lifestyle changes, Cognitive factors, Cardiovascular risk.*

INTRODUCTION

Cardiovascular diseases and its associated risk factors including hypertension, dyslipidemia, type 2 diabetes, and obesity can be prevented and managed through a combination of healthy lifestyle and medications. Numerous studies have shown the benefit of healthy dietary habits and regular exercise in the prevention and management of type 2 diabetes[1,2,3,4,5] and *obesity*[6,7]. Along with identifying the most appropriate treatment regimen for an individual with or at high risk of cardiovascular disease, the patient's adherence to therapy is vital in realizing optimal cardiovascular risk reduction. Targeting lifestyle modification amongst patients with lifestyle diseases is effective if the health-care practitioner understands patients' reasons for non-adherence to healthy diet and exercise recommendations.

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Despite decades of research, non-adherence to doctors' recommendations remains a major health-care issue[8]. The adherence rate ranges between 20% and 80% depending on the population being studied, used adherence measures, nature of the person's health conditions, and characteristics of the treatment procedures[9,10]. On average, researchers estimate that 50% of patients do not adhere to medication regimens prescribed by their doctors[11] and the rate of nonadherence to lifestyle change recommendations is even higher[11,12]. Regimen adherence problems are common in individuals with diabetes, thus making glycaemic control difficult to attain[13,14,15].

Poor adherence to lifestyle recommendations leads to poor control of the conditions, reduces the effectiveness of therapy and increases the risk of cardiovascular events[16,17], lead to relapses, hospitalization, complications, or even death[8,16,18]. It can also reduce patients' quality of life and, at the broader level, lead to poorer population health outcomes and increased health care costs[19]. In addition, higher hospital admission rates resulting from non-adherence increase the cost of medical care[18,20]. Finally, participants failing to adhere to treatment regimens compromise the results of clinical trials[21]. Poor adherence seems to be a significant barrier to attainment of positive clinical outcome among patient of type 2 diabetes[22]. Overall, non-adherence to recommended lifestyle and medications represents an important and widespread issue. Supporting adherence to long-term medicines and lifestyle modification is therefore an essential component of patient management. In order to reduce the negative impact of non-adherence, we need to understand the reasons why some patients don't follow their health care provider's recommendations[23]. Thus the first step in helping patients with or at risk of cardiovascular disease is determining the factors that could influence the patients' adherence.

The reason of non-adherence to one intervention may be different from another. This review alluded reasons for non-adherence to recommendations on lifestyle relating to diet, exercise, medications and smoking cessation.

Factors affecting adherence to healthy lifestyle:

I. Socio-demographic factors

1. Age: Studies have shown that old age was associated with better adherence to dietary recommendations[24,25,26,27,28,29] and smoking cessation[28] and overall lifestyle changes[29]. Elderly people may concentrate more on healthy lifestyle as they are free from family responsibilities and work responsibilities. Another reason for adherence may be the consciousness about health, and desire to improve physical fitness.

Few studies have also shown that old age was found to be associated with non-adherence to physical activity[30], dietary recommendations [31,32] and overall lifestyle changes[33,34]. It may be due to the health problems, fear of injury as well as attitudinal barriers such as misconceptions about exercise and perceived lack of ability, and dependency on other family members.

Researchers also indicated a U-shape relationship between age and overall lifestyle changes in diabetics[35]. It was also found in a study that there was no significant relationship of age with dietary, physical activity and medical adherence in hypertensive individuals[28].

2. Gender: Women are more weight concern and have self-perception of their body. Men's attutitude towards food is generally uncomplicated and enjoyable though they are more frequently overweight and have higher risk of cardiovascular diseases. In several studies females have been reported to be more likely than males to mention healthy dietary habits[36,37,38,39,40].

3. Socio-economic status: Socio-economic status was found to be positively related with adherence to dietary[28], physical activity[31] and medical recommendations[22]. Income was also found to be positively related with adherence to dietary, physical activity and medical recommendation[31]. It was also revealed in a

study that level of monthly income was strongly associated with adherence to healthy diet and regular exercise[32]. Other studies also found that financial problem has a negative relationship with adherence to dietary[41,42] and medical recommendations[43].

4. Education: Effect of education on lifestyle is as great as level of income. Education also helps support and sustains healthy lifestyle and healthy choices, fostering human development, human relationships and personal, family and community well-being. Several studies indicated that educational level of individuals was shown to be positively related with adherence to dietary regimen[30,44], physical activity[28,32,44], medications[22,32], smoking cessation[22,32] and overall lifestyle recommendations[44].

II. Cognitive factors

1. Beliefs: Beliefs such as treatment can have some benefits[45], a disease can have serious consequences[46,47], they are susceptible to a disease[48], they have the ability to carry out the prescribed treatment regimen[49,50] was positively associated with adherence to overall lifestyle changes. Negative health belief had negative association with dietary adherence[41,42]. Patients' health beliefs are affected by their health literacy, and these beliefs are also contributors to non-adherence to medications[51]. If patients hold beliefs that are incongruent with their physician's prescription, or if their family or colleagues hold contradictory views about their illnesses and treatments, patients may have trouble even forming a willingness or intention to adhere[52,53].

2. Perceptions: Perceptions go on to shape a person's behavioral intentions and, ultimately, their subsequent actions. It was revealed in studies that negative perceptions were associated with non-adherence to dietary regimen[41,42]. A perception that exercise exacerbated their illness, found negatively associated with adherence to physical activity[54].

3. Knowledge: Knowledge about healthy food, nutrition, benefits of exercise, and harmful effects of tobacco and alcohol consumption, consequences of non-adherence to healthy lifestyle is helpful in increasing adherence of the people to healthy lifestyle. Knowledge has Positive relationship with adherence to diet[31,55], physical activity[55], medical adherence[43,55], and overall lifestyle changes[55,56].

4. Awareness about health benefits of healthy lifestyle and medications: A study on diabetics found positive relationship between awareness about benefits of medications and medical adherence[22]. Lack of information was an important reason of non-adherence to diet regimen[41,42,54] and physical activity[54]. Sufficient information provided by doctors on benefits and use of prescribed medicine and proposed lifestyle changes helps in adherence to lifestyle recommendations[35,56].

5. Motivation: Motivation found to have positive relationship with overall lifestyle changes[57,58,59]. Low outcome expectancies serve as demotivating factors. It was found in a study that lack of motivation was associated with non-adherence to exercise[60,61]. Exercising with partner can enhance motivation and support. Exercising with a partner can be more fun and competition make people perform better. Numerous studies revealed that lack of an exercise partner is associated with non-adherence to physical activity recommendations[2,41,54,60].

6. Consciousness and self- efficacy: Consciousness and self-efficacy found to have positive relationship with adherence to lifestyle changes *i.e.* healthy diet and physical exercise[62]. A sense of self-efficacy found to strengthen motivation to adhere to healthy lifestyle[63]. Self-efficacy for physical activity was found as one of the facilitators of physical exercise[64].

7. Poor memory: An important factor influencing adherence was patients' ability to remember the details of the recommendations made to them. Studies have repeatedly shown that forgetting to take medications was a major contributor to non-adherence[65,66,67].

III. Interpersonal factors

1. Social support: The social environment and the social support available to patients also

affect their willingness to adhere to recommended treatment regimen[68,69]. Studies have found that social support was positively related with adherence to dietary and physical activity recommendations[70,71,72] and overall lifestyle changes[73,74] but there is a study which found no significant relationship found between social support and overall lifestyle changes[50].

2. Lack of family support: It was found that lack of support from spouse and family was associated with non-adherence to dietary recommendation[41,42,75]. A study says that family conflicts were associated with non-adherence to lifestyle recommendations[76]. Family support was found to be the strongest and most consistent predictor of adherence to treatment in patients with type 2 diabetes[77].

3. Relationship between health-care providers and patient: A good relationship between health-care provider and patient was found to be associated with adherence to lifestyle recommendations[56,78]. Patients reporting high levels of concordance with the physician were more likely to be compliant in taking medications prescribed during consultation[79]. Patient's involvement in decision making helps in increasing patient's adherence to medications and lifestyle change recommendations[21,80].

4. Trust in physician: Patients' trust in their physicians is essential to their emotional disclosure and is therefore a crucial component of the patient–physician relationship. Patients must believe that their physician is someone who can understand their unique experience of being a patient, and someone who can provide them with reliable and honest advice. Trusting relationships between physicians and patients can greatly affect patient outcomes. It has been shown that physicians who promote trust in the therapeutic relationship, and who express compassion for their patients succeeds in fostering patient adherence with a variety of preventive and treatment recommendations. Various studies revealed that trust in physician was positive related with adherence to lifestyle changes[35,78,79].

5. Patient-physician communication: Patients who feel that their physicians communicate well with them and actively encourage them to be involved in their own care tend to be more motivated to adhere[82,83]. Additionally, when physicians and patients agree on how involved patients should be in their care, adherence is improved. Effective interpersonal communication makes it possible for patients and physicians to work together to help patients follow mutually agreed-upon recommendations, promotes greater patient satisfaction which in turn fosters higher levels of adherence[84]. Poor communication between patient-health care practitioners is associated with poorer treatment adherence in patients with diabetes[15].

IV. Unintentional/ other factors

1. **Busy schedule**: Numerous studies revealed that busy schedule was associated with non-adherence to physical activity recommendations. Work responsibilities, family responsibilities, obligations and lack of time makes it difficult to adhere to regular physical exercise[2,41,60,85,86,87,88].

2. **Health**: Studies indicated that better health was associated with adherence to physical activity recommendations[90,91] and poor health was associated with non-adherence to physical activity[2,41,88,92] and overall lifestyle recommendations[46]. But few researchers also found that those who perceive themselves to be in poor health were less likely than those with good health to adhere to lifestyle changes[32,35].

5. Unwillingness: An important reason for non-adherence to lifestyle changes that individuals do not consider the need for change, are resistant to suggestions of change, and being not willing to invest the necessary effort to achieve the desired outcome. Unwillingness is associated with non-adherence to dietary[41,42,88] and physical activity recommendations[2,41].

6. Smoking: Smoking was found to be associated with non-adherence to physical activity[89]. In a study conducted in Finland in hypertension patients, non-smokers were more compliant to the diet restrictions[93]. Several Studies about compliance indicated that patients who smoked or drank alcohol were more likely to be non-compliant to the medications or treatment[94,95,96,97].

7. Extreme weather conditions (hot/cold/rainy season): The weather in which people exercise is very influential in terms of exercise adherence. It can often be the case that inclement weather can prevent people from exercising. Exercising in inclement weather may also compromise health. Poor weather was found to have negative relationship with adherence to physical activity recommendation[2,41]. Intensely hot summer weather was found to be associated with non-adherence to exercise[88]. Patients reported in a study that surrounding environment or weather doesn‘t suit them to exercise regularly[85].

8. Side effect: Side effect of medicines found to have a negative relationship with adherence to medical recommendations[22,98]. Numerous studies on side effects factor found that side effects threaten patient's compliance to medications[99,100,101,102].

9. Cost of the treatment: Cost of prescribed drugs has negative relationship with adherence to medical recommendations[35,103]. For many patients, if income is low, cost of medication directly affects their level of medication adherence especially when it is a long term therapy[19,104,105].

10. Feeling better/worse: Feeling better or worse was found to be associated with non-adherence to medical recommendations. If patient feel better or worse after taking medications, in both conditions patient found to become non-compliant to medications[43]. A research found significant positive association between sense of normality and motivation to adhere to healthy lifestyle[57].

11. Eating out: Increasing number of fast food outlet and high frequency of consumption of fast food found to be a reason for non-adherence to diet regimen[42,88]. People who have tendency to eat out adhere less to dietary recommendations[54]. Patients reported in a study that situational factors like eating out at restaurant and inappropriate foods offers by others affect their recommended diet plan[85].

12. Social gatherings: Social get-togethers are frequent in prosperous communities where energy rich and fatty food items are served. Social gatherings found to be associated with non-adherence to healthy diet[88]. Most of the patients reported in a study that high frequency of social gathering (functions or festivals) with family and friends affect their healthy diet plan[85].

13. Depression: Depression has long been known to predict poor health outcomes, a fact that may be explained partly by the adherence problems caused by depression. Depressed patients experience pessimism, cognitive impairments, and withdrawal from social support, all of which can diminish both the willingness and ability to follow treatment regimens. A research suggests that one of the strongest predictors of patient non-adherence to medical treatment is patients' depression[106] .

Studies indicated that depressed people were more likely to be non-adherent to weight loss diet regimen[60] and overall lifestyle changes[11,107].

14. Stress: Various stressors such as long working hours, shift work, responsibilities and a continually changing work environment may affect adoption of healthy lifestyle behaviors[108]. Researches revealed that stress was one of the reason for non- adherence to weight loss diet[60] and overall lifestyle changes[88].

Ways to improve adherence to lifestyle changes

Health professionals can improve adherence by tailoring their communications according to the individual patient's knowledge, understanding, beliefs, preferences, needs and circumstances; and maintaining motivation by emphasizing the role of therapy in reducing cardiovascular risk. Effective intervention need not be excessively time consuming. One should ensure that cost-effective drugs are

prescribed to the patients[22]. Decreasing number of medicine doses or using simple reminder system may be helpful for some patients, arranging follow-up test or consultation may assist with adherence to medicines[109]. Adherence can be improved by patient education, motivational strategies, and improving doctor-patient relationship[110].

CONCLUSIONS

Level of non-adherence is high whether it is lifestyle recommendation or treatment prescription. Numerous factors are responsible for non-adherence, and for each type of recommendation, factors are different. A health professional should consider all possible factors which hinders adherence of the patients to the diet, physical activity, and treatment regimen while guiding the patients. There is a need for education to address the lack of information on benefits of treatment and healthy diet as well as the benefits of exercise and how exercise should be undertaken.

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