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Exploring Patients' Perspectives towards the Customized Health Education Protocol for Chronic Illnesses in the Primary Health Care Services in West Bank: A mixed Methods Study

Masarra Mohammad Mousa Khasib

202012552

Dissertation Committee:

Dr. Mahmoud Al-Khalaldeh
Dr. Imad Thultheen
Dr. Ahmad Ayed
Dr. Ghada Aboshosha
Dr. Jamal Quddomi

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Masarra Mohammad Mousa Khasib
202012552

This dissertation was defended successfully on August 29, 2024 and approved by:

Dissertation Committee Members:

	Name	Title	Signature
1.	Dr. Mahmoud al-Kalaldeh	Main Supervisor	
2.	Dr. Imad Thultheen	Members of Dissertation Committee	
3.	Dr. Ahmad Ayed	Members of Dissertation Committee	
4.	Dr. Ghada Abushosha	Members of Dissertation Committee	
5.	Dr. Jamal Qaddumi	Members of Dissertation Committee	

Palestine, August/2024

Declaration

I declare that, except where explicit reference is made to the contribution of others, this dissertation is substantially my own work and has not been submitted for any other degree at the Arab American University or any other institution.

Student Name. Masarra Mohammad Mousa Khasib

Student ID: 202012552

Signature: Masarra Khasib

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Dedication

To Our God Almighty who is always there when I am in need. Thank you for guiding me and giving me strength in my everyday life.

To express my thanks to all those who contributed in many ways to the success of this study and made it an unforgettable experience for me.

My dear friends Fatimah, thank you for always looking out for me and being there for me.

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This achievement is as much as it is mine

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Dr. Mahmoud AL-Kalaldeh
Dr. Imad Thultheen
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Dr. Jamal. Qaddumi

Abstract

Background: Non communicable disease also known as chronic illness kill 41 million people each year, 74% globally. A 17 million people each year die before age 70. 77% of non-communicable disease death with 86% of premature death occurs in low- and middle-income countries. Non-communicable diseases are the leading causes of mortality and morbidity in Palestinian society, it responsible for 68.5% of all Palestinian fatalities in 2020. Non- communicable diseases caused by unhealthy behaviors; hence, changing these behaviors will reduce the incidence of these diseases. Aim: To explore The Effectiveness of Provided Health Education Protocol for chronic illness in primary health care services in west bank.

Methodology: A mixed method study was carried out between January-March in 2024 in primary health clinics of Ministry of Health selected in Ramallah district. A total of 377 representative sample of non-communicable diseases patients selected conveniently to complete a translated world health organization STEP wise approach. Additionally, 15 non-communicable diseases participants as a focus group was interviewed purposefully.

Results: The quantitative results assessed the participants' behaviors including: Smoking status of participants, dieting behavior and physical activity behavior. Participants in the study reported consuming a median of two servings of fruits and vegetables daily. A (89.7%) of participants integrated walking into their daily lives with a median frequency of five days per week and an average daily time of fifteen minutes. Regarding smoking advice, (85.6%) of patients reported getting it either rarely or never. A need for better nutritional counseling is needed since (95.5%) of patients reported rarely or never receiving advice regarding diet. The results also showed that (91.5%) of patients never receive guidance on physical activity. A need for regular medication counseling is noticed as (84.9%) of patients received infrequent pharmaceutical advice. A statistically significant relation between education provided by healthcare providers and dieting behavior is detected among non –communicable disease patients at α level = 0.05(p=0.000). There was a significant relationship between low fats diet advice provided by healthcare providers and raised cholesterol levels (p = 0.031). Additionally, there was a significant relationship between low sugar diet advice provided by healthcare providers and fasting blood sugar levels (p = 0.014), as well as Glycated hemoglobin levels (p = 0.045).The qualitative results emerged three major themes were explored from the voices of non-communicable diseases patients attended the governmental primary health clinics in Ramallah governorate, in accordance to perceptions of non-communicable disease from patients' point of view in the qualitative evident content analysis that are: (i) the

effectiveness of health education during routine clinic visits; (ii) barriers to provide sufficient health education & (iii) alternative sources for acquiring information.
Conclusion: A negligible advice from healthcare professionals' regards practicing regular physical activity, eating a healthy diet, stopping tobacco, and adhering to prescribed medication. Therefore, the study recommended to improve therapeutic communication between the health workers and the patients with assurance that patients receive thorough advice customized to their particular needs and situation.
Keywords: Non-communicable disease; World Health Organization PEN-2 Intervention; STEPS; Healthy behavior patterns; Education, lifestyle advice

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List of Definitions of Abbreviations

Abbreviations	Title
WHO	World Health Organization
NCDs	Non- Communicable Disease
PEN	Package of Essential NCDs
MOH	Ministry of Health
DM	Diabetes Mellitus
HTN	Hypertension
CVD Risk	Cardiovascular risk
CAD	Coronary Artery Disease
LMICs	Low-and middle –income countries
LDL	Low density lipoprotein
HDL	High density lipoprotein
FBS	Fasting BLOOD Sugar
HbA1c	Hemoglobin glycosylated test
PHCs	Primary Health Centers
DALYs	Disability-Adjusted Life Years
CCM	Chronic Care Model
NGOs	Non- Governmental Organizations
USA	United States

PCBs	Palestinian Central Bureau of Statistic
TOT	Training of Trainers
UNRWA	United Nations Relief and Works Agency

Chapter One: Introduction

1.1 Background

Around the world, the management and wellbeing of individuals with chronic illnesses depend heavily on health education. A sizable burden of disease worldwide is caused by chronic diseases like diabetes, heart disease, cancer, and respiratory ailments (Schmidt, 2016). One of the health sector's key initiatives is health education, which tries to encourage communities to adopt healthy lifestyles. Experts agree that health education is crucial for managing chronic non-communicable diseases properly, which referred to as NCDs. Such combination of diseases is considered persistent medical conditions that include cardiovascular disease (CVD), stroke, diabetes, hypertension, cancer and asthma. NCDs are produced by multicausality factors including; physiological, genetic, behavioral, and environmental aspects involved industrialization in addition to urbanization. Additionally, NCD s are frequently have a detrimental impact on all person's quality of life domains which require ongoing management, as NCDs tend to be longlasting disorders with increasing concern allover the world (Aye, et al., 2020;& The International Federation of Red Cross and Red Crescent Societies (IFRC), 2022).

The majority of deaths and disabilities worldwide are dominated by the chronic noncommunicable diseases, particularly cardiovascular disease and diabetes mellitus. Nowadays, 425 million people worldwide have diabetes that is anticipated to reach 629 million by the year of 2045. Regarding hypertension, there will be 1.56 billion adult sufferers of hypertension worldwide by the end of 2025 (Lu, Zhao, Shangguan, Lu, & Huang, 2022).

Exploring the complexity of the consequencies of chronic non-communicable illnesses reflected by increasing the mortality rate among individuals yearly . A high mortality rate is annually reported, of about 41-million-person correspondent to 74% of all deaths occurred globally. NCDs are widely spread among people from all geographical areas, nations, and all age groups despite its frequent linkage to older age groups, as the universal statistics showed that 17 million deaths deceased before reaching 70 years old; whereas 86% of these early deaths happened in low to middle-income countries. About 40.4% of Palestinian inhabitants showed readiness to prevent and make control upon NCDs (Albelbeis et al., 2020; & WHO , 2022).

Effective health education in the context of chronic non-communicable diseases aims to provide people with the required knowledge, skills, besides boosting self-

confidence to handle their conditions appropriately, and making up their minds to live healthier. Self-management of chronic conditions frequently entails making daily decisions about adopting a healthy lifestyle through adherence to well fitted medication, consuming a heart healthy nutrition, performing daily exercise and exerting maximum efforts to stop smoking (Chaudhry & Golay, 2019). This can be achieved by nourishing knowledge and gaining mastery of new adjusted skills required to manage their conditions and delay the occurrence of complications. It enables people to have a full comprehension about the nature of their condition, how it is developed, besides the vitality of prevention the probable consequences through following accurate treatment regimen and complying with the provided recommendations (Bloom, et al., 2011).

Attention was gained toward the most effective preventative strategy of the occurrence of chronic non-communicable diseases which are linked strongly to make a true change of lifestyle in terms of diet, physical activity, stop smoking, and the control of metabolic disorders. Nutrition has a vivacious influence on controlling the risk of NCDs if adhered to accurately. Furthermore, it is essential to enhance elderly care and focus on providing health education in the community by raising awareness in public in respect to the utmost preventive strategies (Thompson, Parrott, & Nussbaum, 2011; &WU, Lin, & Li, 2023).

The significance of health education for individuals with NCD s depends on five modifiable factors including; promoting self-management, enhancing people's understanding of their disease, encouraging lifestyle modifications, improving the quality of life, and reducing hospitalization days. In accordance to promoting self-management , it can be achieved by instructing people on how to keep eyes open on tracking of their health status, coaching them appropriately through detecting any developing symptoms as early as possible , then taking the necessary management steps (Grady & Gough, 2014). As regards enhancement of people’s understanding of their disease, one should be curious about not only reducing the expected risk markers, but also down streaming the probable complications of a displayed illness. It is important to be knowledgeable about the available treatment strategies, and how to use the accessible healthcare services in a wisely method to lessen the health literacy (Airhihenbuwa et al., 2021).

In terms of lifestyle modifications, the individual must keep in mind that changing lifestyle forms a significant contribution in increasing life expectancy, boosting the quality of life, and reduction of healthcare costs. Therefore, each person should work markedly to enhance the general wellbeing by encouraging adoption of positive lifestyle

strategies consisting of performing regular exercise, consumption of a well -balanced diet, practicing stress reduction techniques, and quitting smoking (Rippe, 2018).

Respecting to improving quality of Life, it is worthy to provide persons with the necessitate tools that enable them to actively participate in their healthcare decisions including treatment plans. This could be achieved through maintaing a therapeutic healthy relatioship with the health care providers (Busch & Rimondini, 2021). Lastly, reducing hospitalizations readmission times can take place by enhancing adherence to medication regimen in addition to identifying the disease symptoms earlier to provide early management. This assists on cutting down the hospital readmission days, thus reducing the medical expenses (Raven, Doran, & Kostrowski, 2011). In conclusion, health education regarding chronic noncommunicable diseases is a multidimensional strategy designed to provide people with the knowledge and abilities to effectively manage their conditions, enhance their quality of life, and save healthcare costs through getting better self-management and prevention, as it is considered an essential part of providing a thorough chronic disease treatment.

As regards the Palestinian situation in terms of prevalence of NCDs, it had been noticed that the percentage rates of such sort of diseases increased recently, due to alteration in dietary habits and lifestyle changes towards sedentary behaviors post industrialization as well as tracking towards aging process. Indeed, NCDs are now considered the main cause of increasing morbidity and mortality rates among young Palestinian individuals(The International Federation of Red Cross and Red Crescent Societies, 2022). In general, Palestine shares all other countries most of the same risk factors contribute to NCDs occurrence. These include practicing bad eating habits, sedentary lifestyles, cigarette usage, Alcohol and binge drinking. The burden of NCDs can also be aggravated by exposing to socioeconomic factors including mainly poverty and poor access to healthcare facilities (Dweakat, et al., 2017).

Regarding the main types of NCD that are popular in Palestine, it was noticed that hypertension cases ranked at the top of the hierarchy as reported by the Ministry of Health Bruere statistics in 2023. Diabetes Mellitus with both types ranked secondly; although it’s growing rapidly, and its prevalence has been rising fast. As regards to the prevalence of diabetes mellitus in Palestine compared to the global prevalence, Palestine reported higher rates of about 15% compared to 6%. However, one untrustworthy source indicated that the rate was possibly higher (18–21%). Type- 2 diabetes makes up 95% of diagnoses in Palestine, whereas gestational diabetes and impaired glucose tolerance make up 0.2%

and 0.1%, respectively. This rise is attributable to lifestyle alterations towards poorer quality, which rise the obesity induced diseases rates (The International Federation of Red Cross and Red Crescent Societies (IFRC), 2022).

Mostlikely, the mortality cases in Palestine is primarily linked to cardiovascular diseases, such as heart disease and stroke, as people are predisposed to risk factors including hypertension, obesity, and high cholesterol levels which aggreviate the incidence of getting diverse types of strokes (Naha et al., 2021). Another rising health concern among Palestinians is the distribution of variant types of cancer during the last 10 years. Among the most prevalent forms are lung cancer, colorectal cancer, and breast cancer, which might be escalated due to exposure to some political aspects, economic variations, and climate alterations. Political situation played a vital role as a predisposing factor of rising incidence of different types of cancer due to access restriction to cancer screening facilities which hinder early detection of new cases, and induce delays in receiving treatment because of being Besieged (Mosleh, Dalal, & Aljeesh, 2018). Conditions like asthma and chronic obstructive pulmonary disease (COPD) are common also in Palestine due to environmental factors, like smoking and air pollutant dispersion which prominently contribute to increase in the incidence rate of variant respiratory problems (Aye, et al., 2020).

Over the past years, Palestine's healthcare system faced numerous obstacles and challenges, such as inadequate resources, outdated infrastructure, and unstable political conditions. Exposure to political insecurities was considered a major challenging issue especially in respecting to shipping of medical resources including essential drugs for treating numerous chronic noncommunicable diseases. The instability of economic status also provoked stressors which rise the incidence of psychosomatic diseases like diabetes, hypertension and cardiovascular illnesses. In addition, poor economic status aggravated the unemployment rates among youth, which upsurge the incidence rate of obesity associated diseases such as cardiac disorders (Mosleh, Dalal, & Aljeesh, 2018).

Mental health status of inhabitants was severely affected, particularly after the initiation of 7th October war. Such worsening of the daily life situation provoked the emergence of numerous chronic illnesses. Lack of awareness as regards the necessity of receiving healthcare services at the primary level in the healthcare facilities governed either by the ministry of health or by UNRWA. The prevention, diagnosis, and management of NCDs are impacted by this exclusive situation. Sponsers and donors that reglarly support the organizations which provide health services to the Palestinian nation

run behind. In spite of the substantial investment of resources and some notable achievements provided by donors, much work still remains ahead , as the infrastructure was demolished due to the regular continouus Military incursions (Lu, Zhao, Shangguan, Lu, & Huang, 2022).

Respecting to public health initiatives, national efforts are exerted with the utmost individual capabilities to encourage better lives. Raising awareness concerning shaping better healthy lifestyle among public was done by formal and informal campaigns. National solidarity was achieved by the help of independent established youth groups organized nationwide. The provision of healthcare resources for diagnosis and treatment are all part of Palestine's efforts to combat NCDs. However, due to a lack of funding and access to healthcare in some places, public efforts may be hampered (Chaudhry & Golay, 2019). Numerous non-governmental organizations (NGOs), donor organizations, and international organizations have supported healthcare programs in Palestine, especially those pertaining to NCD prevention and management (Benkel, Arnby, & Molander, 2020).

As a result of poor lifestyle choices, and restricted access to healthcare services in association with other uncontrolled socioeconomic indicators, NCDs pose a serious health threat in Palestine. The impact of these diseases on the general population's health is being lessened by activating awareness campaigns and providing apt healthcare facilities, but there is still more work to be done. The region's political and economic climate can make it more difficult to effectively combat NCDs. Much more remarkable efforts are needed post 7th October war to cover the emergent health demands post demolition.

1.2 Significance of Study

A major economic & social burden worldwide is caused by chronic diseases including diabetes, hypertension, coronary vascular disease, cancer, & Asthma (Schmidt, 2016), estimated to cost US$ 47 trillion between 2010-2030, an average of more than US$ 2 trillion per year (NCD Alliance,2017). Globally, 48% of the lost disability adjusted life years (DALYs) belonged to NCDs constituted 43 folds more than other disorders such as 40% for communicable diseases, 1% for accidents, and 5% for dietary deficiencies and maternal and perinatal disorders (Forum, 2011). In Palestine, 60 /1000 DALYs in West Bank and 57 per 1000 in Gaza Strip (DALYs referred to one lost year of

optimal healthy life) with 10,992$ per DALY averted (Mosleh, Dalal, & Aljeesh, 2018; & Basu et al., 2024).

The PEN approach emphasizes providing comprehensive care, including patient education, self-management, and behavior change strategies tailored to individual needs. While there is existing evidence supporting the effectiveness of PEN in various contexts, its impact on healthcare outcomes among the elderly population in Palestine remains largely unexplored. Understanding patients' perspectives towards a customized health education protocol for chronic illnesses is considered crucial for several reasons. Firstly, it allows healthcare providers to gain insights into the experiences, preferences, and needs of patients with chronic noncommunicable diseases to address their specific challenges, enhance engagement, and improve overall healthcare outcomes. Secondly, exploring patients' perspectives provides an opportunity to identify barriers and facilitators to the implementation of the customized health education protocol in primary healthcare services. Factors such as cultural beliefs, health literacy, access to resources, and healthcare provider-patient communication can significantly influence the effectiveness of interventions, giving better support for patients in managing their chronic illnesses. Thirdly, NCDs pose a serious health threat to the Palestinian nation due to restricted access to healthcare services, & being exposed to poor socioeconomic circumstances. Thus, investigating patients' perspectives contributes to the body of knowledge on the applicability and feasibility of the PEN approach in the Palestinian context. Cultural, social, and economic factors linked to Palestinian people may influence the implementation and acceptance of the customized health education protocol (Mosleh, Dalal, & Aljeesh, 2018).

The main findings of this study might have fruitful implications that suit other low-resource settings face similar challenges in managing chronic diseases among their populations, as the impact of chronic noncommunicable diseases on general population's health can be lessened by raising public awareness through education and making primary healthcare services accessible and affordable.

1.3 Problem Statement

Nowadays, Palestinians live in three distinct communities; those in Israel, the Gaza Strip, and the West Bank. Israel is in charge of the Palestinians who live inside the green line, while Fatah and Hamas, respectively, rule the West Bank and the Gaza Strip. Both Fatah and Hamas have their own healthcare systems to serve their respective populations.

Palestinians are quickly shifting from communicable diseases to noncommunicable diseases such diabetes, hypertension, cardiovascular disease (CVD), and cancer which are responsible of 68.5% of all Palestinian fatalities occurred in 2020 in Palestinian society (Abukhader, Caplan, Reese, & Alema-Mensah, 2014 ;&WHO, 2022).

Globally, the mortality rates caused by chronic non-communicable diseases (NCDs) are anticipated to reach 52 million by 2030, if the current lifestyle and management trends continued to be used in the same way. A joint study conducted by the World Economic Forum and Harvard University showed that NCD-related costs will be escalated dramatically up to US$47 trillion, equivalent to 75% of global domestic product from 2010 to 2030, if proper interventions are not taken into consideration (Kabir, Karim, & Billah, 2021).

Modification of the individual lifestyle behaviors in addition to the socioeconomic determinants of health enhance the development and management of chronic diseases. Many of these conditions (diabetes, heart disease, and respiratory diseases) are preventable through altering their leading risk factors that are; physical inactivity, poor nutrition, tobacco use, and excessive alcohol. Regretfully, prevention still receives less funding than treatment. Given the projected trajectory of chronic illness, innovation in drugs and technology, along with a corresponding investment in prevention, will be necessary for future aspirations (Hacker, 2024).

The educational sessions included within the WHO-PEN-2 intervention program can vividly improve public health awareness if applied properly. Health education in the context of chronic non communicable diseases is crucial in enhancing prevention, and improving management styles of NCDs. It enables people to make wise decisions about their health, resulting in conforming to healthier lifestyle. The WHO - PEN package helps in reducing the burden of chronic noncommunicable diseases in different regions worldwide. This was achieved by improving NCD patients' information regards the illnesses' risk factors, symptoms, and strategies of prevention and management (Albelbeisi, Albelbisi, Bilbeisi, & El Afifi, 2022).

The debate surrounding the scheme of delivering essential, effective and applicable healthcare interventions in order to control the growing burden of chronic diseases, such as diabetes and hypertension that arise among Palestinian patients lately. The personalized, patient-centered approach known as the Package of Essential Non-Communicable Diseases (PEN) holds a promise for improving healthcare outcomes. However, there is a lack of conducted researches on the effectiveness of PEN-2

interventions, specifically concerning controlling of chronic noncommunicable diseases in the Palestinian nation (WHO, 2020). Therefore, the Palestinian ministry of health adopt the WHO Package of Essential Non-Communicable Diseases (PEN-2) approach in their primary healthcare facilities. Despite this involvement of the WHO-PEN-2 in the routine educational delivered services to NCDs patients in the West bank ,there is still lack of research studies conducted to determine the effectiveness of such sessions on the alteration of lifestyle behavior of NCD patients towards being more healthier, which necessitates further investigation to cover this gap ,enlisting the stakeholders' insights and guide policymakers in tailoring well fitted educational interventions incorporated into the Palestinian local context, thereby maximizing their impact on inducing the essential change of adopting healthy lifestyle behaviors among NCD patients.

1.4 Purpose Statement

The aim of the current study is to explore The Effectiveness of Provided Health Education protocol for chronic illness in the primary care services in west bank. ; and to assess the influence of cultural, social, and economic factors on the applicability and feasibility of the customized health education protocol for NCDs patients in the Palestinian context.

1.4.1 Specific Objectives

1. Assess the perspectives of elderly patients regarding the customized health education protocol, including their understanding, acceptance, and perceived benefits of the intervention.
2. Identify the influence of cultural, social, and economic factors on the applicability and feasibility of the customized health education protocol for chronic illnesses in the Palestinian context

1.4.2 Research Questions

1. What are the prevalent patterns of chronic non-communicable disease (NCD) diagnoses among Palestinian patients diagnosed with NCDs?
2. What are the smoking behaviors and cessation efforts among participants with chronic non-communicable diseases (NCDs)?
3. What are the Dieting behaviors among participants with chronic non-communicable diseases (NCDs)?

4. What are the Physical Activity behaviors among participants with chronic non-communicable diseases (NCDs)?
5. What are the insights of participants regarding the measurement, diagnosis, and management of blood pressure, diabetes, cholesterol, and cardiovascular disease among NCDs patients?
6. What is the perspective of chronic non-communicable disease patients towards the customized health education protocol for chronic illnesses designed by WHO, including their understanding, acceptance, and satisfaction and perceived benefits of the intervention concerning their dietary, smoking, physical activity, and medication behaviors?
7. Do cultural, social, and economic factors influence the applicability and feasibility of the customized health education protocol for NCDs patients in the Palestinian context?
8. Does socioeconomic factors influence the behavior of the NCDs patients respecting to adherence to healthy lifestyle in the Palestine?
9. What are the barriers in the existing NCDs prevention and management services at the Palestinian PHC system that assist in implementing the PEN intervention positively from a health care providers' perspective?

1.4.3 Research Hypothesis

H0 #1: There is no significant relation between smoking advice provided by healthcare providers and smoking behaviors among NCD patients at α level = 0.05.

H0 #2: There is no significant relation between physical activity advice provided by healthcare providers and physical activity behaviors among NCD patients at α level = 0.05.

H0 #3: There is no significant relation between diet advice provided by healthcare providers and fruit, vegetables and salty intake behavior among NCD patients at α level = 0.05.

H0 #4: There is no statistically significant relation between education provided by healthcare providers and physical measurements among NCD patients at α level = 0.05.

H0 #5: There is no significant relation between education provided by healthcare providers and biochemical measurements among NCD patients at α level= 0.05.

H0 #6: There is no significant difference in NCDs patients' behaviors based on their demographic characteristics at α level= 0.05.

H0 #7: There is no significant difference in NCDs patients' medical advice based on their demographic characteristics at α level= 0.05.

1.5 Summary

Non communicable diseases are diseases which caused by practicing unhealthy behaviors like being lazy, eat unhealthy food, consume a lot of drugs and alcohol, and use of smoking, hence not spread through direct or indirect contact with other people or through infections. The main categories of non-communicable diseases (NCDs) include diabetes, cardiovascular disease (primarily caused by high blood pressure), cancer, and chronic respiratory diseases.

Few limited researches were conducted in correspondence of determining the effectiveness of the implementation of health educational sessions of PEN-2 approach on controlling the chronic noncommunicable diseases at the primary level, specifically among elderly people in Palestine, which provoked further investigation. This study was directed toward covering this research gap by addressing the importance of incorporating PEN-2intervention in the daily base delivered healthcare services to NCD patients. The current study threw the light on the expenditures of the growing socioeconomic burden of chronic diseases, mostly diabetes and hypertension exerted on the primary healthcare facilities. Moreover, it clarified the valuable importance of the contribution of PEN-2 implementation interventions in controlling the consequences of NCDs among Palestinian patients. The significance of this study arose from the social burden besides the annual financial health cost covered by the MOH while managing the variant types of NCDs in the Palestinian healthcare system. Findings of this study might apt other low-resource settings face similar challenges as in Palestine in managing chronic noncommunicable diseases. Ultimately, this study explored the challenges and barriers that faced NCD patient in rural and urban areas while receiving healthcare services proceeded by the Palestinian ministry of health.

Chapter Two: Literature Review

2.1 Introduction

This chapter discusses an abundant review data about the current study. Initially the electronic search strategies are discussed in details. Then, a glance of view is given about the WHO-PEN package in its two vital divisions; PEN-1 and PEN-2, attributed to managing and controlling of chronic noncommunicable diseases which are commonly become prominent among nations belonged to limited resources countries. Next, the chapter will exhibit the effectiveness of the integration of the Care Model of the Compliance on NCD Control Program. After that, in- depth numerous studies will talk about the variant factors influencing the effectiveness of NCD provided health education figured in PEN-2, & the effectiveness of healthcare providers training on PEN-2 educational intervention will be handled. Few empirical studies will then discuss the preventative strategies contributed in improving NCD Patients' lifestyle. The review data will also focus on the importance of lessening health literacy among NCD Patients and the alternative sources patients used for improving health related information. At last, obstacles and barriers that hinder receiving effective health education will be negotiated using secondary scientific sources.

2.2 Electronic Search Strategies

Working at the internet web website online for three weeks, performed a literature seek on three databases (DUKE, PubMed, and EBSCO). And due to interested by chronic diseases, literature overview on patients' perspectives, knowledge, behavior, adherence to treatment within the Middle East became done. The terms used in searching process, a cross datasets included: (Non -communicable OR diabetic OR hypertension OR cancer), perspectives OR views AND Patients'.

Key words include ("heart disease " OR "cancer " OR "hypertension" OR "diabetes") "non-communicable" {majr} AND (patient "perspectives" OR" patient views") AND "knowledge" [ALL fields] AND "behavior" [ALL fields] OR "behavior" [MeSH Terms] OR "behavior" [ALL Terms] AND "self -management" OR "support" [ALL Fields] OR "adherence" [ALL Fields] "adherence to treatment" [ALL Fields]."Patient perspectives "OR "patient views" were defined as attitude and beliefs about participating in self-management programs possessed by patients living with chronic disease. Searched databases for studies published among 2001and 2022 on non-

communicable diseases of the world. The selection of studies was finished as a step procedure. First, reported on the knowledge of non-communicable diseases, and/or awareness, treatment or control of chronic illness. Second, described design and methods that used, and fourth, described how non-communicable diseases were assessed in the research.

The study included only studies published in English. Studies that included data from more than one Arab country was included. Studies that exclusively focus on clinical populations or those with particular diseases were not considered in this review. The study was screened for quality factors, such as the size of the study population, age range, methods used to control chronic diseases, and cut-off values. Studies that did not report these details were excluded. A further selection process was performed to select only those studies that report patient's knowledge of chronic diseases among general populations. In PubMed database, there were 20 articles that were similar to the topic title, after reviewing the abstract, and five of those articles related to the topic without any excluded reason. In the Duke database of 145 articles reviewed, 21articles met all the criteria that followed, while the CINHL database of 381 articles only had 25 articles that met all the criteria, CINHL database 261 only 9 articles were taken that was met all the criteria. This generated 546 articles published since 2017. There were 255 duplicate articles removed. All 266 abstracts were reviewed, and 50 were excluded because they were not relevant to patients' perspectives, knowledge, behavior, or adherence to treatment. The final number of articles for each database was determined. Title, abstracts considered and records excluded reasons excluded not relevant topics taken place in other Middle Eastern languages other than the full text of the paper in English Specify subjects other than those in which there were. Duplicate articles have been removed using Endnote-. The selected articles have been reviewed in full.

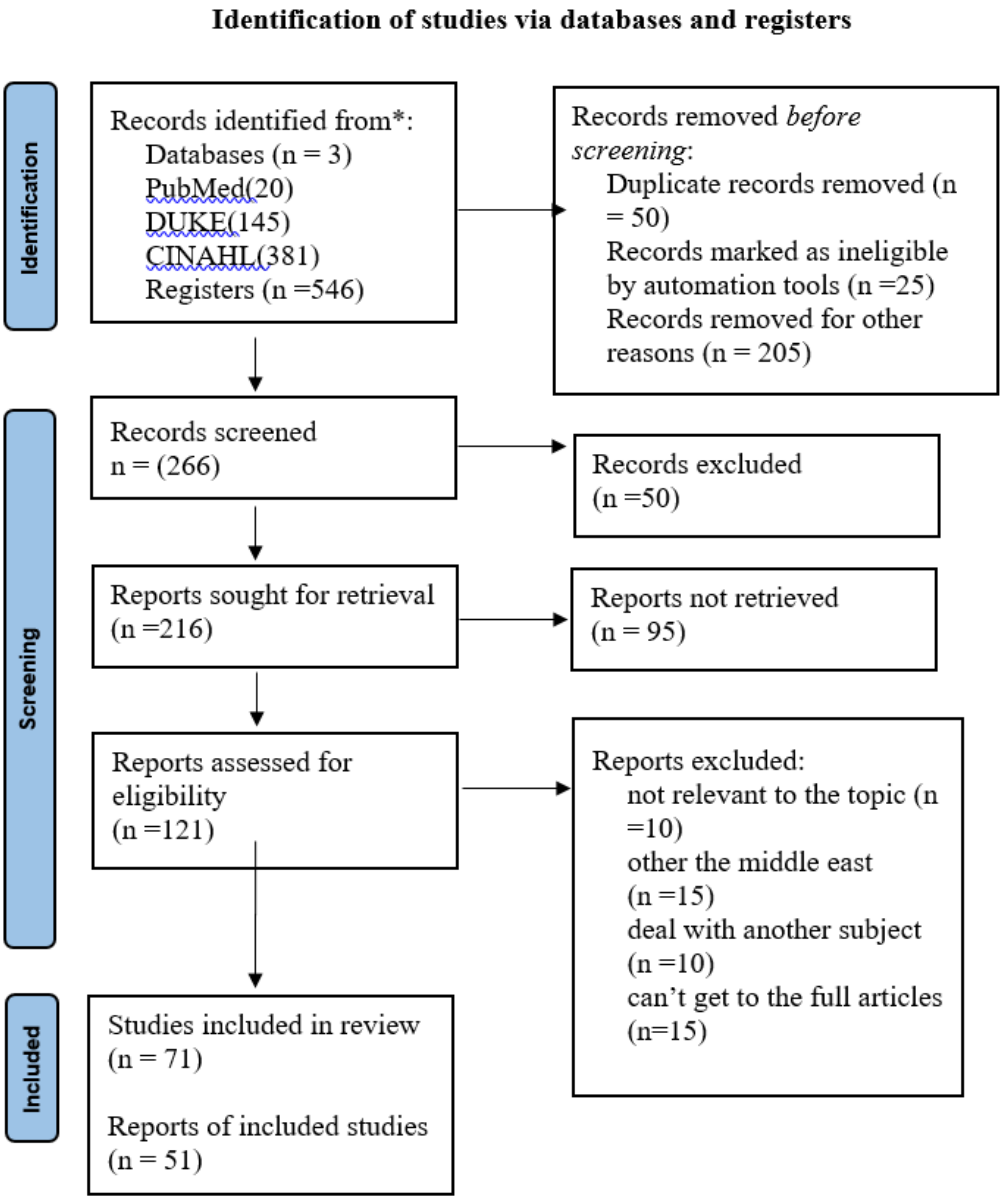


Figure 2.1. PRISMA Flow Diagram

2.3 The World Health Organization Package (PEN-2) Approach

2.3.1 Glance of View about WHO-PEN-2 Intervention

The World Health Assembly stated in 1977 that the World Health Organization's (WHO) primary objective should guarantee that all people achieve an acceptable level of health that enables them to enjoy productive lives at a social and economic level (Nakakuwa, Sankombo, & Magesa, 2023).

Suffering from chronic non communicable diseases formed a serious health concern among policy makers at all levels of the healthcare system, as chronic illnesses place a

substantial strain on health system facilities and on patients' daily livings (Chaudhry & Golay, 2019). Hence ,a global comprehensive plan was placed for the benefit of reducing premature mortality resulted from being diseased by these four common primary NCDs categories by 25% before 2025, hoping to achieve a 30% reduction by the end of 2030. Global initiatives of the WHO for the noncommunicable disease prevention and control plan of NCDs 2013-2020 report suggests empowering NCD patients through early detection, education, and self -control of health status centered on self –care and self-management (Chaudhry & Golay, 2019).A comprehensive plan was designed by the help of WHO to prevent and manage these chronic noncommunicable diseases by implementing effective interventions called PEN package which can be applied at both societal &the individual level (Alawneh, Yasin, & Musmar, 2022).

The WHO package of essential non communicable (PEN) disease interventions is a conceptual framework designed to strengthen equity and efficiency in primary health care services belonged to low-resource settings. It contains a minimum set of essential interventions to be implemented, encompasses four clinical practice protocols (PEN) assigned for early detection of NCDs and modification of associated risk factors, by using inexpensive technologies including pharmacological and non-pharmacological approaches assigned for prevention and providing of early treatment for heart attacks strokes, diabetes, cancer and asthma (Watson, et al.,2024).

The PEN -2 protocol is considered a crucial tool in the execution of the WHO-PEN package interventions, applied to all NCD patients as it focuses on providing health education and counseling on the necessity of adoption of healthy behaviors. Instructions are provided to inform the patient about the importance of engagement in regular physical activity, consumption of a heart-healthy diet, give up smoking, reduction of alcohol consumption, and attending scheduled medical checkups. The WHO-PEN package includes initiative practical steps for activating the primary healthcare facilities to deliver the necessitate services to NCD patients. It includes staff training, updating of record-keeping health information system, and support monitoring patients' progress statuses (Albelbeisi, Albelbisi, Bilbeisi, & El Afifi, 2022).

All policymakers and stakeholders can use the Global Action Plan for the Prevention and Control of NCDs 2013-2020 as a road map and a list of policy options to help them reach the global targets, which include a 25% relative reduction in cardiovascular disease, cancer, diabetes, or chronic respiratory disease-related premature mortality by 2025. The primary focus of PEN-2 action plan is on the four major NCDs

that are; cardiovascular disease, cancer, chronic respiratory disease, and diabetes as well as the four behavioral risk factors that are; tobacco use, consuming unhealthy diet, inactivity, and risky alcohol use (WHO, 2020).

Raised blood pressure, increased blood glucose, high blood lipids, and obesity are all symptoms of unhealthy diets, and insufficient exercise in adults. These are referred to as metabolic risk factors which cause cardiovascular disease that leads to the earliest fatalities (WHO, 2022). The robust control upon chronic noncommunicable diseases requires long-term, expensive treatment that consumes a significant amount of healthcare resources, in addition to following up a recognizable healthy lifestyle (Lu, Zhao, Shangguan, Lu, & Huang, 2022). Regular monitoring and assessment are essential for determining the efficacy of the PEN strategy in controlling the escalation of the noncommunicable diseases direction. Continuity of delivering optimal health care by the help of PEN depends on collecting a regular data that measures the quality of care and patients' satisfaction level about the outcomes of implementing PEN interventions (WHO, 2022).

2.3.2 Components of PEN Package Approach

The WHO -PEN Approach is an a debatable tool designed for controlling the rising of global burden of chronic diseases in spite of the healthcare setting and resource levels. Healthcare systems can be better managed to prevent chronic diseases by concentrating on lifestyle modifiable factors, which will eventually improve the wellbeing of their communities. The WHO Package of Essential NCD interventions lean towards improving the coverage of appropriate services for people with NCDs services in primary care settings (WHO, 2020). The PEN approach aims to provide evidence-based, cost-effective interventions for the prevention, diagnosis, and management of non-communicable diseases, including chronic diseases, mental health, and injuries. The approach focuses on strengthening primary healthcare services and integrating non-communicable disease interventions into routine primary healthcare services.

The PEN approach is aligned with the World Health Organization's (WHO) Global Action Plan for the Prevention and Control of Non-Communicable Diseases, which aims to reduce premature mortality from non-communicable diseases by 25% by 2025 by improving the quality of care, maintain coverage of appropriate services, and delivering cost-effective healthcare services provided for chronic disease management. It supports the healthy habits, early NCD detection, and eradication of health literacy (Aye, et al.,

2020). PEN approach consists of two Protocol; Protocol- 1 focuses on prevention of chronic disease, supported by Protocol 2 which focuses on providing health education and counselling on adopting healthy behaviors. Healthy habits are essential for managing chronic illnesses and enhancing general wellbeing.

On one hand, PEN-1 protocol consists of eight key components including; assessment and monitoring, lifestyle and behavioral interventions, pharmacological interventions, strengthening health systems, patient-centered care, risk factor modification, community involvement, and health promotion. Assessment and monitoring are referred to as the first stage in the PEN strategy assist in evaluation and keep tracking of people who have chronic diseases or are at risk for developing such diseases. This entails identifying risk factors, gathering health data, and scheduling routine checkups (WHO, 2022).

Lifestyle variables like food, exercise, smoking, and alcohol use are very important in the onset and management of chronic diseases. The PEN strategy places a strong emphasis on the value of encouraging healthy behaviors and offering counseling and assistance to people who want to change their lifestyles for the better (Grady & Gough, 2014).

The management of chronic diseases frequently relies heavily on medication and variant pharmacological interventions. The PEN approach includes advice on how to use pharmaceuticals properly, such as the choice of affordable and necessary medications, dosage modifications, and adherence assistance (Dineen Griffin, Cardenas, & Williams, 2019).

Training of healthcare providers is essential for capacity building to manage chronic diseases in an efficient manner ,achieved by giving healthcare professionals the required information and abilities they need to treat chronic illnesses effectively (International Federation of Red Cross and Red Crescent (IFRC), 2022).

It is necessary to strengthen the health systems by increasing data management systems, ensuring a steady supply of pharmaceuticals, enhancing infrastructure, and encouraging cooperation amongst all levels of the healthcare system in order to succeed in the execution of the PEN strategy fruitfully (WHO , 2022). Moreover, the PEN approach's foundational tenet is patient-centered care. It places a strong emphasis on incorporating patients in decision-making, comprehending their needs and preferences, and offering respectful, culturally sensitive treatment (Lu, Zhao, Shangguan, Lu, & Huang, 2022).

A crucial part of prevention and management of chronic diseases is identifying and controlling risk factors. The PEN method urges healthcare professionals to use evidence-based interventions to target risk factors like diabetes, high blood pressure, and high cholesterol (Grave, et al., 2010; Watson, et al., 2024). Community involvement in the management and prevention of chronic diseases is essential for the success of PEN intervention application. This part comprises promoting community-based programs that support healthy lives, mobilizing community resources, and increasing awareness (WHO, 2022). Lastly, health promotion is a dynamic key involved in PEN approach, that inform people and communities about the dangers of chronic diseases and the advantages of early detection and prevention, activated by advertisements, educational resources distribution, and neighborhood assemblies (Aye, et al., 2020).

On the other hand, PEN-2 protocol includes seven healthy activities that can help people make a control upon their chronic noncommunicable diseases focusing on the following behaviors; comply to medication regimen, change dieting habits, involve in physical activity, encourage stop smoking, reduce alcohol consumption, arrange sleep habits, and enhance education about self-care.

In terms of medication compliance, patients must follow the healthcare provider's instructions when taking any prescribed drugs. Missing doses or failing to take the medication as directed can make the condition worse (Jose & Jimmy, 2011). As regards change dieting habits, a switch to a wholesome, well-balanced diet is recommended. On one hand, consumption of a lot of fresh produce, nutritious grains, lean proteins, and healthy fats are enhanced while avoidance of processed meals, sugar, and sodium is encouraged on the other hand. Consultation of a qualified nutritionist is suggested in case of following certain dietary restrictions based on the type of the disease the patient have (Crichton, 2023). Respecting to be iinvolved in physical activity, a regular, condition-appropriate physical activity should be practiced, as exercises can help in managing weight, developing strength and mobility, and improving cardiovascular health (Albelbeisi, Albelbeisi, EL Bilbeisi, & EL Afifi, 2022). Regards stop smoking encouragement, smoking poses a serious risk for a variety of chronic illnesses, such, as heart disease, lung disease and certain forms of cancer (WHO, 2020).

In terms of reduction of alcohol consumption, it is important for the patient to be mindful that drinking much alcohol can aggravate existing condition and potentially cause complications, so it's better to drink in moderation (Grave, et al., 2010). In cooresponding with arranging sleep habits, the patient must strive to have a restful sleep

every night, making sure to establish a consistent sleep routine and creating an environment that promotes quality sleep. Inadequate sleep hours can worsen one's health status by inducing a negative impact on the overall well-being (Aye, et al., 2020).

With regard to enhancement of self-care education, the patient has to gain sufficient accurate knowledge about his disease to handle it effectively. Acquiring education can enable the patient to make informed choices regarding his well-being and assume authority, over his condition (Vainauskiene & Vaitkiene, 2021;& Dwarswaard et al., 2016). At last, the treatment of chronic noncommunicable diseases must be extremely customized based on individualized plan. Working together as a medical team can help healthcare providers to develop an adapted personalized plan that is appropriate for each patient.

2.3.3 PEN-2 Approach Benefits

In order to manage and control non-communicable diseases, The WHO launched its package with two arms PEN-1and PEN-2. Most countries belonged to lower middle-income countries (LMIC) with limited resources, was targeted to implement the PEN plan due to its diverse benefits. Several vital paybacks of this program include ;running a holistic NCD management approach, optimizing resources, building capacity ,embowering community , improving the health information system, encouraging patient participation in healthcare decision-making and individualized treatment programs for the benefit of arriving health equity supported by international collaboration,& developing national and regional policies and guidelines for the prevention and control of NCDs by activation of early detection.

In accordance to running a holistic NCD management, PEN offer a framework for the integrated management of a variety of non-communicable diseases, including chronic respiratory disorders, diabetes, cancer, and cardiovascular diseases. This guarantees that those with multiple NCDs receive thorough care.

Respecting to optimizing resources, PEN assists in prioritizing cost-effective interventions that have the greatest impact on preventing and managing NCDs considering the restricted resources in many low-resource settings. As regard building cabacity, PEN interventions enhance the countries 'capacities to effectively diagnose, treat, and manage NCDs.

PEN approach encourages the training and capacity building of healthcare professionals, including doctors, nurses, and community health workers. In relation to

embowering community, the PEN strategy places a strong emphasis on community empowerment and engagement. It encourages community-based prevention and control of NCDs through practicing health education that raise awareness, among public. Regarding improving the health information system, NCD data collection will ease resource allocation and activate policy decisions which will be better monitored through activating the PEN strategy.

Through patient participation in healthcare decision-making and individualized treatment programs, PEN promote patient-centered care. This can help patients adhere to their treatment plans much better. Furthermore, the development of national and regional policies and guidelines by the stakeholders for the prevention and control of NCDs can be based on the PEN, which support the healthcare system to be involved in all updated practices and evidence-based treatments.

The PEN strategy puts a lot of focus on NCD prevention and early identification. This covers tactics including promoting a healthy diet, quitting smoking, and routinely evaluating people at high risk. Involvement in activation of PEN approach will aalleviate health inequities in limited resources regions with significant disparities by ensuring that NCD services are able to outreach vulnerable individuals and disadvantaged locations as in Palestine. An international collaboration will be achieved through adopting PEN strategy into practice. Palestine as well as other limited resources income countries can gain benefits from the partnerships programs by easing access to updated knowledge, technical help, and modernized resources from international organizations (WHO , 2020).

In summary, the PEN approach provides a well-organized and flexible framework for controlling non-communicable diseases in resource-constrained environments like Palestine. Implementing such comprehensive strategy may result in better resource allocation and healthcare outcomes.

2.3.4 Adoption of WHO-PEN-2 Package of Essential NCD Intervention at National Level

Several countries in the WHO European Region have embarked on implementation of the WHO PEN package or equivalent in primary care, and others are interested in doing so. An integrated approach is particularly important for low -resource settings for efficient use of limited resources (WHO, 2020).

Palestine was the second country to use the PEN strategy after Sri Lanka. From January 2013, to June 2013, the Palestine Ministry of Health and WHO introduced an

evidence-based, cost-effective package called the WHO Package of Essential NCD Interventions (PEN), through a pilot project applied in 14 primary care clinics in Salfit district, West Bank on September 2012. After a 6-month pilot, an assessment was done to ascertain patients' perceptions of changes in NCD services, and to determine the feasibility of using Participative Ranking Methodology (PRM) to understand perceptions of quality of care in primary care clinics in the occupied Palestinian territory (Barghouthi, et al., 2017).

Following the success of the pilot PEN project, it was expanded to 11governorates across West Bank by the end of 2015, run by the non-communicable disease prevention and control division which belonged to the department of Public Health, after being adopted by the Palestinian Ministry of Health (MOH). Thus, the initiation of the PEN project In Ramallah began in January, 2015 in all primary health clinics affiliated with it. Training of Trainers (TOT) courses was given to medical health care providers including doctors, nurses, midwives & administrators of the primary health clinics controlled by ministry of health to introduce the objectives of the PEN intervention that tends to improve the effectiveness and quality of care for non -communicable diseases (NCDs) in primary health care clinics (Dweakat et al.,2017).

All needed resources that help in implementation of the approach were provided like the manual for NCD screening and treatment, diagnostic equipment such as BP cuff, scales, & meters. Essential laboratory tests like cholesterol, triglyceride, blood sugar level and Hgb A1C, urine analysis, creatinine and CBC are supplied.

Moreover, important drugs needed for PEN were dispensed. Screening program is stressed out to early detect those who are candidates for having NCDs. Those are: obese, smokers, over 40 years of age, have strong family history of diseases (Diabetes, CVD, renal disease, hypertension).

Screening process includes personal details about this piece of information using the CVD risk assessment prediction charts. Investigation about tobacco use, alcohol use, adherence to healthy diet and exercise, measurement of weight, height, waist circumference and blood pressure are done periodically as a prediction step for follow up. A screening registry is filed and all diseased cases of chronic non-communicable diseases like diabetes, hypertension, renal failure, caner etc. requiring follow up are referred for further management. In every follow-up visit, patient's health status is assessed by measuring the following items: CVD risk assessment, blood pressure, heart rate (HR), body mass index (BMI), waist circumference, & weight measurements.

Counselling for tobacco cessation, eye and foot checkup for diabetic patients, &adherence to regimen diet and physical activity. Different laboratory tests are done based on the case including for example: blood glucose, lipid profile, creatinine, urine analysis, and HgbA1c for DM patients particularly. Patients are asked if they take all medications regularly since their last visit. Such data is recorded in a clinical sheet every follow-up visit.

Patients with non-communicable diseases like Diabetes Mellitus, Hypertension, cardiac disease, asthma etc. are supposed to visit the clinic every three months. NCDs register forms are sent monthly from each primary health clinic to Al-balo' Directorate to prepare a quarterly report by the central NCDs health department in the Ministry (MOH, 2023).

However, a cross-sectional descriptive study was conducted in Gaza Strip delved on the effectiveness of implementation of WHO package of PEN-2 intervention displayed critical deficiencies in the governmental primary health care facilities' capacity provided to non-communicable diseases. It reported that the majority of primary healthcare facilities in Palestine including Gaza Strip did not meet the WHO's minimal requirements of quality (Albelbeisi, El-bilbeisi, Albelbeisi, & Takin, 2020). I guess such result must rise the concern of policy makers, and might serve as the foundation for a reassessment need of the way NCD care is currently provided in all primary health care facilities.

2.3.5 At International Level

A systematic review study was conducted among some low limited resource countries using 14 studies to determine the effectiveness of implementation of the WHO Package of Essential NCD (PEN-2) intervention. Major outcomes reflected poor recording of CVD risk score among NCD patients, absence of follow-up visits, deficiency of essential medicines in addition to workforce were recorded as a recognizable implementation challenges disregards the cost-effective benefit compared to no screening action (Tripathy& Mishra, 2021) which was congruent with Preceding study done by Checkley et al., 2014 that announced the unmet need of NCDs elderly patients in a look like limited resource countries such as Kyrgyzstan (Checkley et al., 2014;& Kontsevaya and Farrington, 2017).

Another study discussed the results of a pilot project applied in Korea to determine the viability of implementing specific WHO Package of Essential Non-communicable Disease (PEN) interventions for primary health care in low-resource settings in order to

facilitate the early diagnosis and treatment of diabetes mellitus and cardiovascular disease at the primary care level despite that the Democratic People's Republic of Korea, revealed having a well-established primary care system staffed by household doctors. The introduction of WHO PEN procedures pertaining to diabetes and cardiovascular disease has improved risk management in a few polyclinics. Recommendation emphasized on the necessity of excreting hard efforts to expand the pilot project to other rural areas and the hospitals serving patients in the provinces besides creating definite protocols for treating chronic respiratory and cancer diseases prior to scaling up the implementation of the package to other entire nations (Hyon, et al., 2017).

An imperative study was conducted in Myanmar utilizing a mixed -study design. A retrospective cross-sectional quantitative approach used a standardized checklist to analyze both aggregate and individual patient data collected from PEN project records. The result was compared before and after applying the PEN project. Further expansion of PEN-2 intervention took place to additional townships after resolving issues related to high weakened follow-up visits, inadequate CVD risk scores recording, shortage of necessary medications and equipment (Aye, et al., 2017-18).

2.4 Integration of the Care Model of the Compliance on NCD Control Program

The compliance with Treatment refers to the degree to which an individual follows medical advice or lifestyle recommendations from the mouth of a healthcare provider, particularly in the context of fruitfulness treatment. Indeed, the compliance framework is consisted of seven elements that include; education, treatment strategy, alteration on life style, Patients' self-management techniques teaching, teamwork encouragement, chronic illnesses change, in addition to feedback and evaluation.

Respecting to education, patients must be educated on their illness as how it progresses, and the value of following-up their treatment plan. Healthcare professionals should give patients clear, understandable information about the disease, available treatments, and lifestyle changes (Paterick, Patel, Tajik, & Chandrasekaran, 2017).

In accordance to treatment strategy, the model creates a specialized treatment strategy that incorporates drugs, therapies, and lifestyle modifications. The strategy should be simple to be implemented, taking the patient's choices and situation into account (Coulter, et al., 2015).

In terms of alterations done on lifestyle such as those related to diet and exercise, are frequently essential for treating chronic conditions. Patients should be given advice on making healthy decisions and prodded to make long-lasting improvements (Grave, et al., 2010). As regards teaching NCD patients' assembly of new self-management techniques like symptom tracking, stress reduction, and problem-solving, these embowered patients to take charge of their health conditions(Dineen Griffin, Cardenas, & Williams, 2019).

Concerning teamwork encouragement, all medical staff members involved in the patient's treatment, including primary care doctors, specialists, nurses, and dietitians ought to work as a unit. Coordination of care becomes feasible based on effective communication (El Mouaddib et al., 2023; Thompson, Parrott, & Nussbaum, 2011).

Chronic illnesses change over time, so treatment strategies require ongoing revision. The care plan must be reviewed and changed on a regular basis to be effective. Constantly monitor of the patient's progress for the benefit of giving feedback and initial evaluation must be done to make necessary adjustments to the compliance model to overcome any trapped obstacles or challenges early (Martin, Williams, Haskared, & DiMatteo, 2018).

Eventually, in order to increase the efficacy of controlling the chronic noncommunicable diseases, the compliance model (Figure 2.2) should be patient-centered and take the person's preferences, culture, and socioeconomic variables into account. In addition, constant support and communication are essential components in ensuring that patients follow their treatment regimens and preserve their general wellbeing.

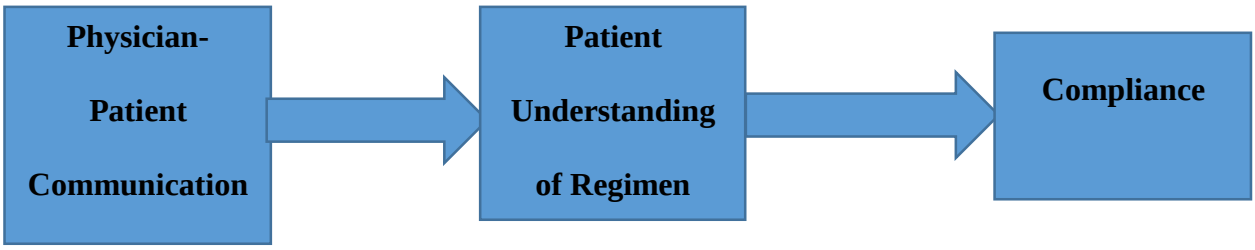


Figure 2.2. The compliance Model

A meta-analysis study using a gathered data searched through MEDLINE, EMBASE, the Cochrane Central Register of Controlled Trials, LILACS, Africa-Wide, CINAHL, and Web of Science was conducted in low- and middle-income countries

(LMICs), to evaluate the impact of integrated models of care on health and process outcomes for individuals with multimorbidity, including at least diabetes or hypertension. According to the results, there may be little to no difference in mortality, depression, and quality of life between integrated delivery of care treatments and standard care, although the evidence is highly preliminary. Regarding HbA1c, SBP, and total cholesterol, interventions to support integrated delivery of care may have little to no effect when compared to standard treatment. All of the included studies' process outcomes were inadequately recorded, and none of them provided information on the cost or continuity of service (Rohwer, et al., 2021).

A study done in Indonesia to find out how well hypertension patients understand their disease and the compliance of hypertension patients in doing self- care based on compliance model. The researchers used a grounded theory approach to correspond the model with their target goal. Five participants with hypertension disease were selected to be interviewed. Both researchers found that the selected sample have correct information about their disease, healthy eating, physical exercise and other habits that help regulate their blood pressure, but the problem was in not adhering to the medication for their disease, because of their busyness or other reasons. Based on my focused reading, the non-adherence was related to lack of distributed written educational material as patients mentioned indirectly, as they did not disclose the information overtly. The study couldn’t be generalized to other more countries because of some methodological limitations like; small sample size, poor ethical considerations, and bias in choosing the sample (Al Berek & Afiyanti, 2020).

A Markedly study conducted in Spain displayed that these patients who have chronic condition with long-term therapy considered to be a difficult problem in primary care received educational services. A low percentage of patients complied with doctor's orders, which emphasized the necessity of improving drug adherence in primary care. Such findings contemplated to be useful in the development of fresh adherence-boosting therapies. Actually, the multifaceted elements identified in this study that might receive careful consideration to get best intervention is revolved around improving the patient's knowledge and medical information. Health care providers should place a strong emphasis on using the compliance model to modify NCD patients; behavior (Lazaro, et al., 2019).

Numerous studies agreed on the presence of an actual interactive gap between patients with chronic disease and the healthcare professionals as regarding providing

therapeutic communication using compliance model. Education enrichment of public about the vital role of patients 'compliance of the lifestyle advice provided by healthcare professionals about chronic illness and the main predisposing factors in addition to adherence to treatment should be stressed out (Jolles, et al., 2013; Pere, et al., 2019; & SHamsi, Nayeri, & Esmaeili, 2016).

A joint agreement is made about the importance of building a robust therapeutic communication between patients and healthcare providers including doctors and nurses to enforce the compliance in management of chronic disease (Quigly, et al., 2015; & Dwairej, A., & Alnaimat, 2020). Therefore, as a health care professional, we must work hard to limit the spread of this diseases and prevent the probable complications in order to reduce its prevalence in Palestine.

2.5 Factors Influencing the Effectiveness of NCD Provided Health Education in PEN-2

Women are more likely than men to browse websites to figure out a possible information related to diagnosis, risk factors and possible management of their health statuses in United States of America. Moreover, younger people, white adults, those who live in households earning $75,000 or more, and those with a college degree or amore have a high likelihood of doing so (Fox& Duggan, 2013).

In addition, a study was conducted in Al- Iraq which reported that there was a substantial correlation with knowledge and the participants' ages and educational attainment, without any correlation with their gender and employment. Regarding attitude, there was no correlation with these factors. The findings indicated that participants' views about these characteristics are positive and that their knowledge of gender, age, education level, and occupation was good (Alkhazrajy, 2018). Another Prospective study delved into studying the impact of intrapersonal and socio-contextual elements that affected patients' engagement in self-management initiative program especially the economic status and the educational level. It emphasized the vital role of improving healthcare services accessibility and affordability in addition to providing social support from colleagues (Dwarswaard, et al., 2016).

A qualitative study used a series of deep-semi structured interviews which conducted in Iran uses phenomenological research to study if the patients can live with hypertension without any consequences, they took 12 males, 15 females with hypertension. Researchers developed three main themes that affected patients' blood

pressure that was; disease control, understanding the impact of the drugs, and how to deal with disease. They found that patients in the early stages after diagnosed as hypertensive patient and due to no symptom can normally do their activity, but after that and when they complain of symptom to high blood pressure, their daily live activities are affected. Depending on the results of this study, the researchers found that psychological experience such as anxiety and fear is primarily affected their behavior. Also, socioeconomic status and family relationships played a major role in the adherence of the treatment explained by affordability and accessibility of the appropriate health services. Recommendations of the study focused on the role of nurses and doctors in educating the patients about causes, dietary, and treatment choices of hypertension (SHamsi, Nayeri, & Esmaeili, 2016).

Another qualitative study was conducted in USA using a d ten focus groups, with 86 patients: 42 men and 44 women, discussed the impact of cultural background and Patients' own perception of medical condition regards adherence to treatment or even denial the presence of hypertension disease. It talked about the conscious choice made by the patient with diabetes or hypertensive disease depended on their psychological feelings to comply with management course or even practice avoidance despite of their gender, age, and educational background (Anthony, Valinsky, & Varda, 2012). Alike study coincided with the previous study reported that psychological factors and socioeconomic status considered a major contributing factor in increasing of blood pressure among patients with chronic non-communicable diseases (Al-Bayan, Islam, Edwards, & Duncan, 2016).

One more qualitative study was conducted in Canada to assess the extent of hypertensive patients' perception about the disease and the management styles. A sample was selected from patients who had long experience with hypertension. Semi -structured interviews were done with these patients using open -ended question. After that, three themes were emerged; knowledge gap between patients and health professional attributed to poor communication, lack of knowledge among these patients on the followed management strategies revolved around adopting healthy lifestyle, such as practicing regular sport, consuming healthy food, and adherence to medication, in addition to personal believes linked to emotional status. The study recommended the need of using behavioral modifications models (Jolles, Padwal, Clark, & Braam, 2013). Sharaf in 2010 agreed on the same mentioned above recommendation, that health education will greatly increase the adherence to medical advice regarding smoking cessation, having health

nutrition, and practicing daily exercise in addition to complying with patients' monthly routine follow -up visits to PHC clinics for all patients with chronic illnesses.

2.6 Effectiveness of Healthcare Providers Training on PEN-2 Educational Intervention

Numerous studies have shown how helpful health education is at managing chronic diseases. For that, the Healthy Living project's PEN approach was incorporated into the primary health care service programs, and training was intensively given to medical staff members at all primary health centers. An observational, cross-sectional study was carried out in the Republic of Moldova to compare these facilities to others where the program was not offered. For a total of 233 workdays and 2,166 NCD consultations, 24 family physicians and 24 medical assistants were under observation. The duration of NCD consultations was found to be lengthier in intervention primary health centers (PHCs), with family physicians and medical assistants adding on an extra minute and forty-three seconds, respectively. Better screening for newly diagnosed NCD patients is indicated by the fact that these PHCs also reported a higher percentage of primary NCD consultations. In the intervention group, the role of medical assistants in NCD care increased. But the results also show that several parts of the PEN training need to be improved, particularly in the areas of work allocation, risk assessments, and follow-up consultations. The results indicate that enhancement of both the standard of NCD consultations and adherence to the PEN procedure was facilitated by the PEN training. However, the recognized components of the PEN training require improvement. The results showed that PEN training has the potential to improve NCD management in basic healthcare settings (Kempers, et al., 2023).

Another study was conducted in Iran as a randomized controlled trial. 184 healthcare providers and 184 patients took part in the study. An online training course, an instructional video, and a clip comprised the training package. Additionally, two months later, the customers' healthy living behaviors were observed. The effectiveness of the health professional training program, which is based on the WHO healthy living module, was demonstrated by the study's findings. It may result in a modification of the customers' conduct. Consequently, the required steps for the development, execution, and oversight of the nationwide training program in the area of healthy lifestyle counseling must be provided (Amini, Rakhshanderou, Ramezankhani, Delavari, & Ghaffari, 2023).

Another study proved that by modifying resources (such as WHO PEN) and providing targeted clinical training and support over the course of two years, primary health care in low-resource settings can achieve sustainable improvements in NCD risk factor control. These might considerably contribute to a decrease in the early death rate from NCDs if implemented on a national scale (Collins, et al., 2020).

In the Kavango East Region, the utilization of PHC facilities' health education was assessed using a descriptive cross-sectional quantitative approach design, which showed that 76% of hospital patients did not receive information regarding their condition from the physicians. Moreover, the remained percentage of patients who did receive information were six times more educated about how to prevent the conditions they suffer from. However, 49.14% of patients who received study-related materials was unrelated to their illnesses. In conclusion, health education was not implemented well in PHC facilities, and patients were not given the necessary information to enable them to take care of their own health. The findings showed a statistically significant correlation (2.32 OR 0.93 at 95% CI) between patients who visited the PHC facility frequently with the same complaints and those who did not obtain health education (Nakakuwa, Sankombo, & Magesa, 2023).

Another quasi-experimental study using "Brief Advice" was focused on training a group of non-physician health workers in quite a few resource constraint settings by the help of WHO team, to offer behavior change interventions to NCD patients enrolled in the experimental arm. These interventions focused on four major risk factors for NCDs: tobacco use, excessive alcohol consumption, physical inactivity, and unhealthy diet. All NCD patients receive the standard care at the health centers in the control arm. After enrollment in the study, the two groups followed up at two, four, and six months into the six-month intervention. An increase in the percentage of patients with regulated blood pressure and mean blood pressure levels is the main result. A heart-healthy diet, frequent physical exercise, self-reported decreases in alcohol and tobacco use, and medication adherence are all evaluated in the secondary outcomes. The results of this intervention trial demonstrated the effectiveness of behavioral therapies at the individual level in achieving appropriate NCD management (Parashar, Willeboordse, Gupta, & Schayck, 2022).

Furthermore, a systematic review study composed of six databases were searched for publications issued between September 1, 2013, and August 31, 2018, including the Cochrane Library, PubMed, ERIC, Embase, Cumulative Index to Nursing and Allied

Health Literature (CINAHL), and PsycINFO which was conducted to investigate the importance of training of healthcare professionals about non-communicable chronic diseases lifestyle. The study proved that such training has a positive impact on supporting patient self-management and improving management adherence outcomes among NCD patients. Further high-quality researches were recommended to determine which modalities and interventions are most effective in delivering optimal primary health care services. Particular consideration needs to be highlighted to the practical effect of training healthcare personnel and its role in making the required difference. (Collins, et al., 2021).

2.7 Preventative Strategies Contribute in Improving NCD Patients' Lifestyle

Empowered self-management plays a recognizable role in inducing a remarkable change on the adopted lifestyle of patients with chronic noncommunicable diseases. A study used a grounded theory approach was conducted to assess the impact of empowering self-management on controlling high blood -pressure. Thirty -five participants were taking two or more types of blood pressure regulating psychological factors related to stress produced by the reading when measuring blood pressure, social factors, as well as factors related to healthy diet and physical activity. So, the study highlighted the role of the health professional in educating patients with hypertension to pay attention to healthy food and physical exercises as a short -term, as this has an effect on regulating their blood pressure and thus improving their psyche in the long -term self-management (Morton, et al., 2018).

A worthy cross-sectional study was carried out in Gaza Strip in five basic healthcare clinics with a representative sample of patients with non-communicable diseases. The study showed that adherence to healthy habits was not satisfied in patients with non-communicable diseases. Suggestion directed toward improving the availability of infrastructure for physical activity, as well as inexpensive and healthy food options, and to support the shift toward healthy habits at all levels. Moreover, a variety of implementation strategies aimed at addressing the primary barriers are desperately needed (Albelbeisi, et al., 2021).

Findings of this study was in consensus with a Cochrane Database of Systematic Reviews, and Ovid MEDLINE that were searched by Bussel, et al. ,in 2019, agreed with what was mentioned previously in Connell, McKevitt, & Wolf study that was done in 2005 , as they found that there was a lack of patients' understanding of the nature of their

illness and what strategies they must follow or refrain from concerning eating healthy , reducing obesity , controlling blood pressure changing daily exercising and smoking behavior in a way that helps control their chronic illness (Bussel, et al., 2019).

Another qualitative study was done in Colombia used a semi-structured interviews with 26 individuals suspected to have hypertension and four family members to investigate if there was a relationship between the patients' behavior, attitudes, and health care experience in prevention, management, and control hypertension in a middle-income country. The researchers deliberated a heterogenous selection of the study sample in terms of gender, age, housing and economic status. Findings reflected five main themes including a prominent low patients' awareness of disease prevention and knowledge experienced about adopting a healthy lifestyle including dieting, exercising, cessation of smoking and adherence to medication (Quigly, et al., 2015).

2.8 Importance of Lessening Health Literacy among NCD Patients

Health education is a vital for promoting wellness and preventing illness. It provides people with information on illness prevention, healthy lifestyle choices, and healthcare resources, enabling them to make well-informed decisions about their well-being. Communities can become healthier and the general public's health can be improved through effective health education. For the purpose of controlling and preventing chronic diseases, health education is essential. Long-term disorders known as chronic diseases frequently need continual care and dietary adjustments. Effective health education can enable people to make knowledgeable decisions, adopt healthier habits, and more successfully manage their chronic conditions (Budreviciute et al., 2020; Fenta, et al., 2024).

A qualitative study conducted in Ethiopia reflected that the lack knowledge, insufficient money for transportation and medication at the hospital, lack of regular health education, lack of access to health care services, and poor infrastructure were considered main barriers of health literacy were identified as barrier to get early diagnosis and treatment. Some participants explored that the cultural norms like wedding and funeral ceremonies enforce patients to consume prohibited substances like alcohol and salty foods (Fenta, et al., 2024).

One important study was conducted to exhibit the primary scientific data regarding the viewpoints and difficulties associated with putting in place a self-management care programs based on eradicating health literacy. System managers and healthcare

professionals, particularly nurses, must comprehend the significance of the Expert Patient Programs including PEN-2 intervention in the context of the services they provided to their patients. Undoubtedly, this is necessary to lower rates of illness and death besides improving NCD patients' quality of life. Consequently, it can be said that even though such programs have been difficult to be implemented, the outcomes among other NCD patients in other limited resources countries had justified its positive association in attaining positive satisfactory outcomes related to lifestyle habits in terms of the managerial aspects of self-care. Also, this paper aimed to stimulate future research on the topic of expert patients in the Brazilian healthcare system as a means of managing chronic conditions encouraging self-care and self-management of their health, which in turn provides an incentive to enhance quality of life (Nascimento, et al., 2023).

Noteworthy, a study in China declared that, in addition to learning scientific preventive and treatment techniques for chronic diseases, mastering health skills, and realizing that one's own body shapes its own health, older adults can also unwind both physically and emotionally. The 2017–2025 Medium- and Long-Term Plan for the Prevention and Control of Chronic Diseases in China calls for maintaining prevention-based strategies, bolstering early illness detection and screening, and encouraging the transition from illness treatment to health management. The study found that interventions in health education were crucial to the community management of chronic illnesses in senior citizens. It successfully raised patients' comprehension of the illness and increased their adherence to medical recommendations, all the while lowering their anxiety and depressive symptoms of COPD (Yadav et al., 2020).

In addition, a systematic scoping review of 21 qualitative studies was done in some of middle-income countries .It supported the previous idea by claiming that chronic patients benefited from participating in health education programs, including: Increased knowledge and understanding of their diseases, improved self- management skills, Reduced anxiety and depression, Improved quality of life and increased confidence and empowerment (Correia, et al., 2022).

Another two studies' findings coincided with previous results as both reported that encouraging NCD patients to participate with their healthcare professionals in chronic illness self-management plan reflected more satisfaction and improved patient enrolment and retention in such programs. By using patient-centered education to develop illness-specific information and enriching an understanding of the recruiting, enrolment, and retention process in research, clinicians will achieve much more successes in compelling

patients to adhere to self-management programs (Paige, Stellefson, &Singh, 2016; & Bennett-Weston, Gay, & Anderson, 2023).

Another study was done in Netherland to understand the life experiences with diseases and wishes among elderly people in hypertension management. The authors used an exploratory descriptive approach study conducted among 15 hypertensive patients without any cardiovascular disease. The researchers found that elderly people with hypertension wish to participate in their treatment plans, but always avoided discussing that with their doctors, preferring to show adherence in silence. Perhaps this indicates a great confidence in health workers; meanwhile, one of the participants expressed being untrusted about his treatment plan as the trainees didn't know the optimal blood pressure in terms of his case. All health professional should be trained well to be able to communicate properly with their patient besides being enriched with necessitate knowledge (Bussel, et al., 2019).

Noteworthy, the health education component of a sophisticated enhanced primary health care intervention constituted a main focus in reducing literacy of health. Thus, a qualitative exploratory study was conducted in Malaysia to investigate the level of education of a group of patients who regularly received NCD treatment at eight primary healthcare institutions located in rural and urban parts of Johor and Selangor which were purposively selected. Findings indicated that when patients' perceptions and beliefs are sufficiently addressed, they are willing to participate in health education. To draw patients' attention and raise awareness of healthy living with NCDs, the current venue for health education has to be revised from an open place to a more private space (i.e., a closed room). Additionally, changes need to be made to the method and policy of health education delivered to patients, in order to increase health education development. Also healthcare providers should constantly update their knowledge and skills. This will help them eventually become expert educators in their particular specialized fields (Jaafar, et al., 2020).

2.9 Alternative Sources of Health Education among NCD Patients

A study conducted in Ugandans the effectiveness of the provided patient-centered medical education which reported enhancement of Ugandan patients' sense of satisfaction with overall healthcare and doctor-patient communication, as well as their self-management confidence. The study findings demonstrated that printed booklets were appropriate for the local context, very well-liked, and practicable to use in low-or middle

-income country (LMIC) outpatient scenario for patients from various socioeconomic backgrounds (Siddharthan, et al., 2016).

A systematic review study was conducted using a diverse data sources of 24 papers gathered from PsycARTICLES, Academic Search Complete, Health Source, CINAHL, and Google Scholar published between January 2014 and January 2018. Through digging investigation, health knowledge, access, and support were shown to be the three main themes that impeded self-efficacy. It was discovered that self-management programs, telehealth, mobile apps, gaming, and social media are the four main tactics that support most of used health information respecting to healthy behavior adopted by NCD patients due to semi-free costs and ease access to these popular sources (Farley, 2019). Exposure to media, including news, entertainment, and advertising media, is likely to have an impact on public views regarding preventive measures as well as individual behavior (Rowbotham et al., 2020).

AlSaleh in her PhD thesis highlighted the importance of health education provided to patients with chronic noncomunicable diseases in primary health care clinics in Saudi Arabia by focusing on the results reported by previous study conducted by ALnaif & Alghanim in 2009 in their cross-sectional survey designed to find out where the general public gets their health educational knowledge. It assessed the participant knowledge and attitudes about a variety of subjects related to health education provided in PHC centers. Findings showed that, just only 20% of NCD sampled patients attended PHC reported receiving health education in the previous 12 months. They said that their primary sources of health education were TV besides friends and family. A sizable portion of the suffered individuals from chronic illnesses were ignorant of their diseases. The findings also predicted that the sociodemographic traits of respondents accordingly contributed to the knowledge gap (AlSaleh, 2016).

2.10 Obstacles and Barriers that Hinder Receiving Effective Health Education

Data based on the theory of planned behavior and the health belief model were gathered using a semi-structured interview guide among ten patients with non-communicable diseases (NCDs) who were receiving treatment at five government primary healthcare facilities in the Gaza Strip participated in this qualitative study from September 2020 to November 2020 was conducted. After the data was analyzed to show the major obstacles to maintain a healthy diet and factors influencing the practice of PA,

lack of social support, reminders, and material accessibility were the biggest obstacles to PA practice. The most typical obstacles to following a healthy diet were also things like not having access to the resources, not having social support, and not feeling confident in oneself. Healthy habits were seen favorably by the majority of the interviewees (Albelbeisi& Shaqfa, 2022).

A systematic review and meta-analysis study conducted in the Eastern Mediterranean region discussed the faced barriers on changing the lifestyle towards being healthier. The key themes that came out of the data analysis were: inadequate information "awareness & familiarity," obsolete and unreliable protocols, protocol specialization, inadequate remuneration, insufficient resources, time constraints, and poor monitoring & feedback. Health professionals showed a good attitude about the program of healthy practices, as evidenced by their interviews. It appeared that other broad characteristics, as opposed to knowledge or attitude components, are more closely associated with the inadequate protocol commitment. Healthcare practitioners may encounter obstacles linked to external circumstances or difficulties related to protocol. The current study's conclusions ought to prompt high-level managers and policymakers to put different workable plans into place that aim to address the primary obstacles to following the Protocol of healthy habits (Albelbeisi & Shaqfa, 2022).

Another study conducted by Albelbeisi et al., in Palestine supported these results focusing on the necessity of adopting diverse implementation strategies aimed at resolving the primary obstacles identified regards tackling the deficiency of incentives, patient factors, and time restrictions (Albelbeisi A. H., et al., 2021).

Moreover, a retrospective record review study was conducted in Gaza Strip for assessing the challenges that face the cardiovascular risk management in Palestine. The study found that interventions exerted efforts to prevent chronic diseases following the adoption of World Health Organization protocol-PEN-2 approach was unsatisfactory due to emerged gaps in the health care system at the primary care level. Based on the results of this study, it was not possible to prove any effective association between controlling systolic blood pressure, diastolic blood pressure, body weight, body mass index, and tobacco use, before and after incorporating the WHO PEN-2 interventions. Meanwhile, blood sugar showed a significant decree over the past two years of the applied interventions. Recommendation reflected integration of more practical interventions to strengthen the primary health care system services. Furthermore, the data clearly

demonstrate the beneficial influence was notices in terms of pharmacists' efforts on patients' compliance when they have a cohesive connection (AlHelo & Elessi, 2019).

One of the important nearby countries studies was conducted in Jordan. The study used a grounded theory approach in semi structured, face to face interviews that took place in Jordan, they highlighted the absence of health care communication in a different level regarded self -care among patients with hypertension which considered a crucial obstacle respecting to adopt a healthy lifestyle. They found that there NCD patients had incorrect beliefs about hypertension disease, such as physical activity and drug adherence, which had adverse effects on their health statuses. Lack of information about healthy food and what is the quality of food for patients with hypertension were obvious, such as, avoiding salty food and more vegetables, also they found that the patients gain them knowledge mainly from untrusted resources. Hence, the recommendations of the study came about the necessity of the effective communication between patients and the healthcare professional to educate people, and conduct awareness campaigns about this disease (Dwairej, Ahmad, & Alnaimat, 2020).

In addition, Google Scholar, Central Registration of Controlled Trials, and the Cochran and MEDLINE databases were searched using a content analysis design studies to illustrate the type of obstacles that hinder getting efficient health information among NCD patients. In this review, adherence to the PEN protocol was the most challenging, as there was poor follow-up of patients with chronic diseases. This was due to several reasons: lack of medicines and supplies in the facility, which forces patients to buy from abroad, poor ability to afford and access to costs, and the service provider not performing follow-up or home visits. It was reported that the risk score for cardiovascular disease was not recorded and calculated incorrectly for approximately one third of patients in Myanmar and the Salfit region in Palestine. The heart disease risk prevention program based on the World Health Organization (WHO) protocol among Syrian refugees in Jordan also reported that less than a quarter of them had a documented degree of risk of cardiovascular disease, and only two-thirds of them were correct. The date of the next scheduled visit was not mentioned in the file among nearly half of the cases studied (Tripathy & Mishra, 2021).

Furthermore, a mixed –method study was done in Bangladesh used questionnaire with focus group in gathering data to determine whether primary healthcare centers are prepared well to provide NCD services. This study gave a thorough information to evaluate the level of preparedness of the current health system and whether more NCD

services should be offered to the general public in Bangladesh. Crucial gaps in the NCD-related care delivery system were declared and pointed at as barriers in terms of management infrastructure, organizational hierarchy policy, resource allocation, workforce disposition, health-seeking behaviour and sociocultural characteristics of the patients (Kabir, Karim, & Billah, 2021).

In accordance to a study delved in barriers and challenges faced patients with chronic illnesses, it reported that NCD patients typically made their initial health contact with the medical healthcare professionals at the primary care level. The primary obstacles identified by patients with chronic illnesses as well as by healthcare professionals included inadequate awareness of the provided services, lack of available medications, and a scarcity of nurses in clinics, which resulted in lengthy wait times for patients. In addition, the educational sessions of management of chronic diseases were poorly handled by healthcare professionals. Nurses' lack of expertise at the clinics besides inadequate guidelines' dissemination and oversight by the district and provincial health managers. Patients and nurses expressed the necessity of being involved in the management plan written down by doctors (Maimela, et al., 2015).

On one hand, a recognizable different study conducted in France handled the NCD patients' perspective respecting generation of self-ideas for improving their care to overcome challenges and barriers. Most suggestions made by patients at the consultation level focused on enhancing communication between doctors and patients, educating patients about their own care, and customizing care to the preferences and circumstances of each individual. The majority of concepts at the hospital/clinic level focused on enhancing care coordination and activating the teamwork idea. The majority of suggestions at the health system level focused on lowering patient administrative burden, enhancing access to care, and lowering healthcare expenditures (Tran, et al., 2019). Also, a qualitative conducted study found that Patients with chronic non-communicable diseases were not able to conform to a healthy self-care management lifestyle. Patients anticipated that medical personnel will play a full range of roles. The study recommended a team collaboration between patients and professionals to be enhanced in order to support patients' essential needs, in addition to routinely evaluate patient needs periodically due to continuous changes in assistance needs (Dwarswaard, M, MSc, Staa, & Boeije, 2015).

On the other hand, several studies have focused on the role of nurses besides doctors as educators who had a vital role in reducing health literacy among patients with chronic disease in all aspects of the life. One qualitative exploratory study done among twenty

patients with hypertension in Seri Lanka produce three themes. The study showed that there was still in need for more and more improvement in the accessibility and availability of effective educational sessions. An urgent need to work hard to improve the economic status of patients is required to overcome patients' lack of access to the health services provided by the government. Affordability of primary health care services was another important issue that must be taken into consideration, which forced patients to request the service despite its coasty from private agencies in case of medication and other services shortage. Also, public health education should take place with improvement done on doctor-patient therapeutic relationship that need hard training of health care professional on effective communication (Pere, et al., 2019).

2.11 Summary

In order to manage and control noncommunicable diseases, all nations with lower middle-income settings were tasked with the implementing of the WHO-PEN interventions. PEN package efficiency is enhanced by the use of the basic compliance model of chronic disease management which focuses on several keys, including physicians –patients' communication, patient understanding of the regimen these components together provide a theoretical framework for understanding and implementing compliance (Martin, Williams, Haskared, & DiMatteo, 2018). Additionally, the two protocols that make up the WHO- PEN approach are Protocol -1, which concentrates on chronic illness prevention, and Protocol -2, which concentrates on offering health information and counseling on adopting healthy behavior to maintain good health practices and improving overall wellbeing in terms of chronic noncommunicable diseases (WHO, 2020).

The studies collectively underscore the importance of health education and self-management in managing chronic non-communicable diseases (NCDs). Morton et al., 2018) highlighted the role of healthcare professionals in educating patients with hypertension on lifestyle changes, which significantly impacts their long-term well-being. Similarly, studies in Gaza Strip, Colombia, and China revealed that inadequate infrastructure, low awareness, and poor health literacy are major barriers to effective NCD management. Patient-centered education and better communication between healthcare providers and patients were emphasized as crucial strategies to improve adherence to self-management practices, ultimately leading to better health outcomes.

Numerous studies highlighted various obstacles and barriers that hinder effective health education and self-management for patients with chronic non-communicable diseases (NCDs). Common barriers include lack of social support, inadequate access to resources, poor communication between healthcare providers and patients, and insufficient healthcare infrastructure. Specific challenges include time constraints, lack of follow-up, inadequate training of healthcare professionals, and economic constraints that limit patients' access to necessary services. Additionally, misinformation from untrusted sources and poor adherence to protocols were significant issues. Effective communication, improved access to resources, and better healthcare system organization were frequently recommended to overcome these barriers (Maimela, et al., 2015; &Tran, et al., 2019).

Alternative sources of health education for patients with chronic non-communicable diseases (NCDs) include digital health platforms such as mobile apps and online patient portals, social media and online communities, where patients can share experiences and access peer support (AlSaleh,2016; & Farley, 2019). Non-governmental organizations (NGOs) and community-based programs offer workshops, seminars, and guidance through community health workers. Additionally, pharmacies and retail health clinics provide consultations and educational resources, while workplace wellness programs offer health education sessions and screenings. Public health campaigns and awareness events further disseminate information, making health education more accessible and diverse (Rowbotham et al., 2020). Undoubtedly, failure to adherence to medication regimen is a crucial problem that affects both the patient and the health care system. Health care professionals such as physicians, pharmacists and nurses have noteworthy role in convincing NCD patients to comply with their treatment regimen through the daily practice of providing an ongoing educational advice concerning medication adherence (Jimmy& Jose, 2011).

According to the Palestinian situation, Palestine was the second country to use the PEN strategy after Sri Lanka. The first protocol training in Salfit district took place in, 2013. In Palestine, people face numerous health challenges, including a high prevalence of chronic diseases such as diabetes, hypertension, and cardiovascular diseases (Albelbeisi, Albelbeisi, EL Bilbeisi, & EL Afifi, 2022). These diseases are further complicated by limited healthcare infrastructure, scarcity of trained healthcare professionals, inadequate funding, and limited access to quality healthcare services, particularly in rural and remote areas, where healthcare facilities and providers are scarce

(Khatib, et al., 2014). This has resulted in inadequate management of chronic diseases and poor health outcomes among the elderly population (Baker, et al., 2018). In response to these challenges, the Ministry of Health (MOH) in Palestine has adopted the Package of Essential No communicable (PEN) by the end of 2015, triggering the prevention strategies that encourage people to make proper glucose control, maintain periodic blood pressure monitoring, and initiate early cholesterol management are of major concern in terms of developing an effective controlling plan of chronic diseases.

Chapter Three: Methodology

3.1 Introduction

The study used the mixed method design to explore the patients' perspective view towards the efficiency of the customized health education protocol PEN-2 designed by WHO for non- communicable chronic diseases (NCDs) in the primary health care clinics managed by Ministry of Health in West Bank.

This chapter included a talk about the participants and their characteristics. The sample that was taken for the study and the way we selected it. In addition to the tool used, its effectiveness, and the way the tool was used during the qualitative and qualitative study. The chapter also gave up the place of study and its time period, in addition to reason for choosing the place of the study, which was a strength for it because of the diversity of population in this governorate.

3.2 Participants

3.2.1 Population

3.2.1.1 Theoretic Population

All chronic non-communicable disease patients receive care in all Palestinian primary health care centers demonstrated by Ministry of health as illustrated in Figure (3.1) 440 Primary health clinics (PHC) in West Bank besides 52 PHC in Gaza Strip of total about 492.

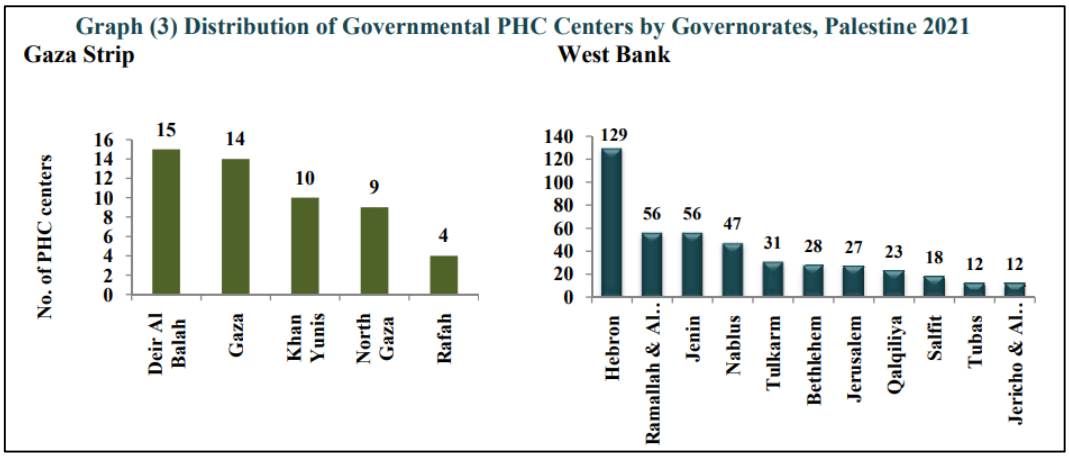


Figure 3.1. Distribution of Palestinian Governmental PHC (Albelbeisi et al., 2020)

Based on Palestinian Health Annual Report in 2022, there are 5,483,450 inhabitants living in Palestine state by the mid of 2022, of which 3,256,906 inhabitants in West bank & 2,226,544 in Gaza strip. The NCDs patients' count in West bank and Gaza strip till the end of 2023 equals (1,155,464) patient of which (789,990) case present in the west bank and the remaining cases (365,474) are in Gaza strip. Those patients with their medical records are considered the theoretic population of my study. Table (3.1) below shows the distribution of NCDs affected cases in West bank and Gaza strip based on type of chronic non -communicable disease (PHIS,2022).

Table 3.1. Number of NCDs Cases in Palestine

NSD s Type	**West Bank Cases Number**	**Gaza Strip Cases Number**
Diabetes Mellitus	140,928	61,120
Hypertension	446,603	224,524
Heart Disease	123,064	44,905
Asthma	57,562	21,205
Cancer	13,894	8,731
Renal Failure	7,939	4,989
Total	**789,990**	**365,474**

(PHIS, 2022)

According to the incidence rate of NCDs cases in 2023 in West Bank districts, Table (3.2) showed that based on Palestinian MOH registries as seen below.

Table 3.2. Incidence Rate of NCDs Cases in 2023 in West Bank Districts

District	**No. of Cases**
Bethlehem	57
Hebron Central	445
Jenin	964
Jericho & Al-aghwar	13
Jerusalem	256
Nablus	489
North Hebron	620

Qalqilia	229
Ramallh & AlBireh	223
Salfit	400
South Hebron	242
Tubas	128
Tulkarm	581
Yatta	239
Total	4886

(PHIS, 2023)

Furthermore, Table (3.3) showed the distribution of registered chronic disease patients in the Palestinian governmental PHC centers by sex and district in the West Bank based on Ministry of Health registration.

Table 3.3. Distribution of Registered Chronic Disease Patients in the Palestinian MOH PHC

District	**No. of Female NCDs Cases**	**No. of male NCDs Cases**	**No. of Patients with Chronic Diseases (unknown)**	**Total**
Bethlehem	1051	907	4	1962
Hebron Central	265	256		521
Jenin	623	490		1113
Jericho & Al-Aghwar	8	6		14
Jerusalem	691	477		1168
Nablus	2765	1918	5	4688
North Hebron	392	351		743
Qalqilia	152	113		265
Ramallh & AlBireh	138	111	4	253
Salfit	344	247	4	595
South Hebron	133	85	39	257
Tubas	74	75		149
Tulkarm	360	300		660
Yatta	155	84		239

Total	7151	5420	56	12627

(PHIS, 2023)

3.2.1.2 Target Population

All chronic non communicable diseases (NCDs) patients receive care at Ramallah governmental primary health clinics that are 55 in count. Six types of NCDs (cardiovascular diseases, cancer, diabetes, hypertension, chronic respiratory diseases, and chronic renal failure) were taken into consideration. Based on Palestinian bureau, the total target population of NCDs patients in Ramallah governorate was 20.000 (PHIS, 2023).

3.3 Sampling

3.3.1 Subjects Characteristics

In this study, the research subjects are: Chronic non-communicable disease patients, receive care at the governmental PHC clinics in Ramallah governorate with their medical files.

3.3.2 Eligibility Criteria

3.3.2.1 Inclusion Criteria

- Palestinian identity
- Age 20 -70 years old, age 20 is the age of onset D/M type 1, 30-70 the age of most chronicity of many NCDs (Anera, 2023).
- Both genders: male, female
- Suffer from major chronic non-communicable disease (cardiovascular disease, chronic respiratory disease, cancer, renal failure, hypertension and diabetes).
- The patient has a combination of chronic non-communicable diseases.
- At least has 1 year follow up at PHC clinics administered by MOH according PEN approach, the patients should have repeated their test after 3 months or 6 months, in order to ensure that there are at least two or more visits, to ensure any improvements (Parashar, 2022).
- Registered and receive treatment in Ramallah governorates MOH-PHCs in West Bank in accordance to WHO PEN Protocol 2 for health education.

- Able to communicate effectively and have a good cognition. (Not necessary to read and write but the important thing is how he understands and answer the question).
- Having no mental, psychological, or depressive disorders

3.3.2.2 Exclusion Criteria

- Patients with mental confusion or analytic deficits.
- Patients who did not receive treatment in the governmental PHCs
- Patients with dementia, sleep disorders, or degenerative ageing disorders.
- Newly discovered cases
- Has follow-up visits less than one year to MOH primary health clinics

3.3.3 Sampling Design

Convenient non probability sampling method for selecting NCDs patients who responded to the survey, simple random probability method for sampling the primary health clinic, &purposive non probability sampling for selecting the focus group of the interview.

3.3.4 Survey Sampling Size

The sample size was determined based on statistical sampling by using Raosoft website calculator which is a powerful web survey software used to determine the appropriate sample size for obtaining accurate and reliable results. This calculator considers the margin of error, level of significance, with confidence level 95% and cut point α-0.05 for, taking into account two important elements in selecting the sample that are: heterogeneousness and representativeness of the total population of the NCDs patients who receive treatment at the governmental primary health care centers in these three governorates in West bank, Palestine during 2022-2023. Based on Palestinian bureau, the total target population of NCDs patients in Ramallah governorate was 20.000, of which the study sample was 377 patients in reliance to Raosoft program based on Thomson equation as seen in (Figure 3.2).

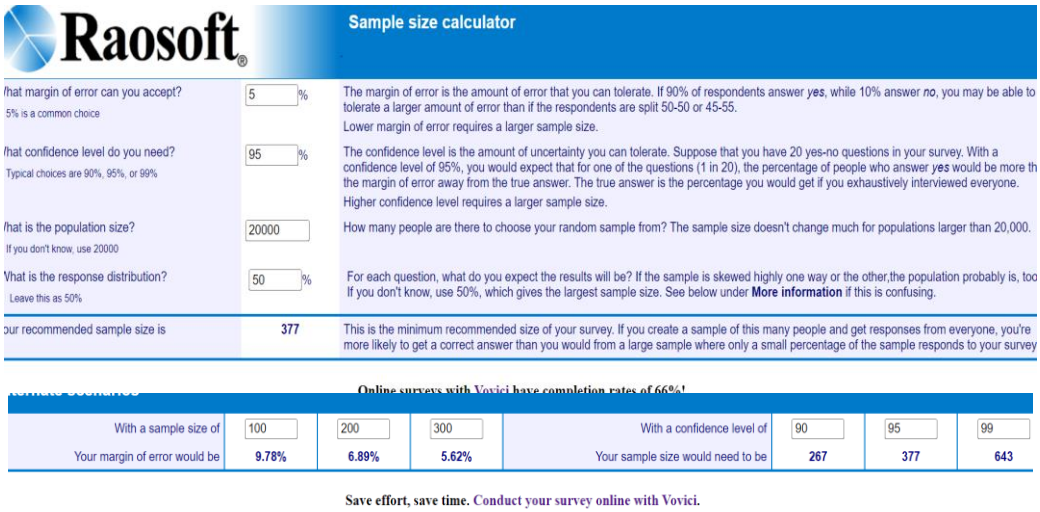


Figure 3.2. Sample Size of Patients
http://www.raosoft.com/

Hence, my study sample was 377 participants, in accordance to the prevalence rate of NCDs patients receive care at the governmental primary health clinics with their medical records. The selected sample (377 subjects) was conveniently taken out of a sample consists of 49 primary health clinics in Ramallah governorates selected randomly out of 55 PHC clinics using simple random method as shown in (Figure 3.3)

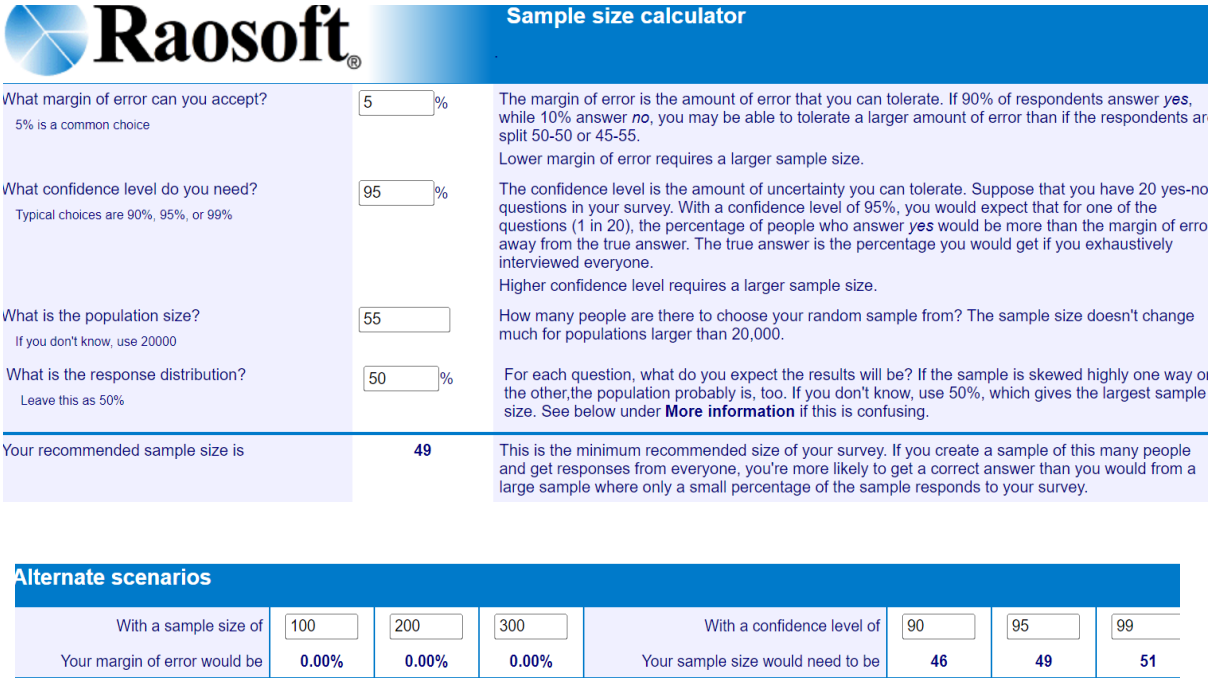


Figure 3.3. Sample Size of Primary Health Clinic

3.3.5 Focus Group Sampling Size

As regards the clients' compliance with management, a purposive sampling with semi structured interview is used to collect the data by using in –depth interviews that composed of 15 NCDs patients who attend the governmental primary health clinics regularly according to the inclusion criteria mentioned earlier. We took 15 participants to ensure inclusion of all parts of Ramallah Governorate, north, east, west, and south, until we reach the stage of saturation.

3.4 Measures and Materials

3.4.1 Variables

The dependent variable is self-care behavior of NCDs patients reflected by changes in health behaviors of patients, alteration in physical measurements, reduction in CVD risk, and improvement of biochemical measurement levels. Both dependent and independent variables were measured by using WHO-STEP-wise survey. The physical measures besides the biochemical data were collected using the patients' medical records.

The independent variable identified for the study was the demographic factors &NCDs PEN-2 education from nurses, which was measured by a structured advice received from the health care providers to practice healthy behaviors. The advice structured NCD education was grouped in four key statements that are: stop smoking, eat healthy diet, perform regular physical activity, & treatment adherence.

The demographic variables including: age, gender, residency area, religion, education level, cultural background, marital status, work status, household members, income, years of chronicity were considered also independent variables in my study.

3.4.2 Tools

Self-report was used as an instrument to collect the data in my study. It contains both STEP survey and focus group semi-structured interview besides biophysiological measures. The quantitative component involved survey data gathered by filling it by patient himself. Whereas, the qualitative component involved in-depth focus group interview, enabling participants to express their thoughts, perceptions, and concerns about the protocol, that provide rich insights into the acceptability and feasibility of the intervention from the patients' standpoint reflected by the degree of compliance to PEN intervention and its impact on management.

3.4.2.1 Self Report

1-A- STEPS Survey /Structured Interviewing Questionnaire

The WHO STEP- Wise Approach of NCD risk factor Surveillance Q-by-Q Guide Version,3.2 survey was used to collect a quantitative data about NCDs patients' behavior done to control their health status after receiving special education by health care providers. It consists of three steps rather than demographic data, in which the participants are asked about various aspects of their lifestyle to assess their practices by using a standardized method for gathering, scrutinizing and disseminating data on key NCD risk factors.

The survey instrument covers key behavioural risk factors: education tobacco use, alcohol use, physical inactivity, unhealthy diet, as well as key biological risk factors: overweight and obesity, raised blood pressure, raised blood glucose, and abnormal blood lipids (for more details please look at appendix-A).

3.4.2.2 Validity & Reliability

It's a global standard method developed by WHO to improve the quality of noncommunicable diseases and risk factor surveillance and information processes reliable and valid for the use in different countries by modified languages other than English including Arabic one(www.who.int/ncds/steps).

3.4.2.3 Semi Structured Interview

Trustworthiness in qualitative research refers to the credibility, dependability, confirmability, authenticity, and transferability of the study findings (AH & KM, 2022). Ensuring trustworthiness is crucial to establish the legitimacy and accuracy of qualitative studies.

Credibility is a noun comprises the subjective and objective components, it has two key components, trustworthiness and expertise (Creswell & Plano Clark, 2017)**.** Triangulation strategies were used to ensure the credibility of interview analysis and interpretation. Triangulation achieved by using multiple sources, methods, and perspectives to cross-check the required data.

Two Experts who are my supervisors in this study were invited to add their contributions in designing the suggested questions of the interview based on their

experience and skills. In addition to the qualitative study that included in our literature review. The first two interviews were conducted by the researcher and a colleague who helped in data collection. To check the clarity of the question we conducted the same interview with the same patient twice once the researcher the other with the colleague.

Dependability: The quality of being reliable and trustworthy and being consistent in performance or behavior (Creswell & Tashakkori , 2017). Confirmation of the proposed questions were done after analyzing the findings of the pilot study on three patients who diagnosed as: diabetes mellitus type-2, hypertension, &combined case of diabetes with hypertension to determine the pre-coded answers of these seven opens – ended questions.

Verification was done by two experts by modifying one question that is: did you receive any education within the PEN program? To become: What type of health educational services did you receive at the clinic within the PEN program? And adding another three questions in accordance with the data outcome as it's shown in Appendix-B. The final total of the proposed question became ten.

Confirmability: The degree to which the results could be confirmed or corroborated by others called confirmability. (Creswell & Plano Clark, 2017). The findings were shaped by the participants without any bias, we provide clear documentation of data collection and analysis. Triangulation as mention use in interpretation and analysis. The questions that used in the interviews were completely related to our study.

Transferability of a research finding is the extent to which it can be applied in other contexts and studies. (Creswell & Tashakkori , 2017). In-depth semi- structured interview is conducted with 15 of patients with different NCDs types, to gain a deeper understanding of their experiences with the WHO PEN Protocol- 2, their perceptions of its strengths and weaknesses, and their suggestions to improve treatment adherence and outcomes of these educations based on their responses to ten exploratory open -ended questions to be discussed scrutinizing, we tried to diversify in selecting participants from different areas in Ramallah and AL-Bireh Governorate , so we reached the north, south and center of the governorate. In addition to reaching the participants who visit the Central Directorate, who are from different areas of the West Bank, to include the north, south, and center of the West Bank. (For more details, please look at Appendix B).

Authenticity: The quality of being genuine or real called authenticity. (Creswell & Plano Clark, 2017). The genuineness and accuracy of the portrayal of the participant's

experience and their perspectives toward the health education protocol in the primary clinic ensure the accurately reflects and reality with the voices of the participants in our study.

3.4.2.4 Biophysiological Measurements

It's included in the WHO-STEP wise survey in the last two sections. Equipment and Kits assigned for the detection of results were supplied by Al-balo' health directorate laboratories for the benefit of controlling the health status of NCDs patients.

Electronic dynamap machine is used to measure blood pressure (BP), A meter is used to measure waist circumference, A scale is used to measure weight, height consequently the body mass index (BMI) is calculated by the nurses and doctors in the clinic and it was recorded in the file foot and eye checkup is done by a committee from Sant John hospital periodically, diverse Blood Test Kits are used in Ramallah and Al-Bireh Governorate Directorate/Al-balo' laboratory to assess the level of cholesterol, triglyceride, LDL, HDL, HgbA1c, &FBS, Creatinine (see appendix-A).

Validity: The overall validity of the measures was assessed by examining construct validity and sensitivity. Actually, each machine used in this study is considered valid as it measures what it's supposed to measure (e.g., dinamap measures BP) and also blood - test kits examine what are assumed to in respect to the requested labs.

Reliability: It is done by doing a continuous calibration on the used machines in this study. Ongoing check- up on expiry date of blood-test kits and comparison of the results obtained are done regularly by the responsible person of Al-balo' directorate laboratory.

3.4.2.5 Quality of Measurements

Review of all methods was done, to assure the quality of measurements the following steps were conducted:

- Training five of my nursing colleagues as assistant researchers to collect survey data reliably through structured interview, from whom already work in clinics and was trained on NCDs program.
- Using the trained five of my colleagues to collect the STEP survey data,
- Translation and back-translation of focus interview &survey materials,
- Using pilot study to test the focus group open -ended questions material.

3.5 Pilot Study

I did a pilot study for verification of the focus group questions at Arora primary health care center which provides medical services for the non-communicable diseases two days a week. Three NCDs participants who correspond to the inclusion criteria of my study agreed to attend the interview to confirm reliability and validity of the developed questions. The first one had diabetes, the 2nd had hypertension and the last had diabetes accompanied by hypertension.

Pilot study took place over one day on the 15th of January, 2024 at Arora clinic with approval of the staff and under their eyes to test the clarity of interview questions. The interview questions were effective due to answering a lot of topics we needed, but need little for modification. Addition of more three questions were done for getting more accurate piece of information regarding patient's perception toward PEN-2 intervention as it's shown in (Appendix B).

As a researcher, I collected the interviews by myself with collaboration with the health care providers who helped in preparing a suitable environment for the interview. As a researcher, I started with four patients to share in our interview. I asked if they have time to participate in a depth-interview away from crowded areas. Participants' responses were recorded for evaluation of clarity and need for illustration by using probing follow-up questions. The interview lasted twenty minutes with each participant.

3.6 Procedure

3.6.1 Research Design

A sequential mixed-methods approach is employed to examine comprehensively Palestinian patients' perspectives towards the customized health education protocol for chronic illnesses within the primary healthcare services in the West Bank that is designed by WHO. Whereas, this type of research design includes both a thematic deductive content analysis Qualitative design in addition to survey cross sectional case study non-experimental Quantitative design.

For more explanation, a thematic content analysis using the deductive reasoning qualitative approach was utilized in my study as methodology design to express the perception of patients with chronic non communicable diseases toward the received educational sessions during the application of WHO-PEN 2 approach and its impact on their behaviour. It is considered one of the methods that are widely used within the realm

of education sciences to study behaviors and experiences of the participants without influencing them(Kyngäs, Helvi, Kaakinen, &Pirjo,2020).Jenkins (2019) described content analysis as a flexible, subjective, systematic, qualitative analysis of the characteristics of a message which is considered as an effective approach handled by the researchers to study the humans' behavior indirectly through analysis of their trends in communications. This type of qualitative deductive designs went along my primary purpose of the study fittingly. It allowed me as a researcher to hear the voices of the participants through interviewing a number of NCD patients who receive their care at the governmental primary health clinics to assess their perceptions toward the educational sessions they ought to receive in a sense. A thematic content analysis design is considered an appropriate approach to study humans' social behaviors and experiences without being manipulated (Creswell & Plano Clark, 2017).

This done simply through the examination of any form of visual or written human communication by digging into the textual elements to understand the social reality in a subjective but scientific manner (Kyngäs, Helvi, Kaakinen, &Pirjo, 2020).

Furthermore, in such type of designs the analyst uses the deductive content analysis approach when some perspective views, previous research findings, knowledge based on experience, theories, or conceptual framework concerning the phenomenon of interest exist. Thus, the researcher starts the process of the analysis by using the pre-existing categories (Armat, Assarroudi, & Heydari, 2018). In point of fact, I'm close enough to the detailed health situation of patients with NCDs as I work at Ramallah and Al-Bireh directorate primary health facility, know very well what type of services they obtained and the poor level of education they attained during receiving care.

Whereas, survey cross sectional observational non- experimental Quantitative design is selected because the sample population being studied here is surveyed as it's. I tended to observe the variables and simply gathered the information without manipulation. A population -based Survey is flexible design of collecting data emerged from many different kinds of fields especially the health one. It facilitates gathering information about patients' perspective of view toward management approaches. Also, its suites both cross sectional studies, where I can assemble data just once at a one-time point, as well as in longitudinal studies (McCombes, 2023). With no doubt, a Cross-sectional design showed appropriateness in conducting the needed data in Ramallah district in a faster, low cost and reachable manner in my study based on the emerged political circumstances of west-bank (Setia ,2016). The primary health care clinics in

Ramallah city and its villages is selected to be the representative of west-bank as it considered the capital of Palestine whereby the Ministry of Health is located in. Accurate data could be conducted from Ramallah governorate easily than other west-bank governorates.

3.6.2 Study Period

The data collection for the study was carried out between January & March in 2024 including the reported patient cases in the last twelve months (2022-2023).

3.6.3 Setting of the Study

3.6.3.1 General Setting

In 1993-after Oslo Consensuses- the West Bank was apportioned into 11 governorates that are: Bethlehem, Hebron, Jericho, Jenin, Jerusalem, Nablus, Qalqiliya, Ramallh, Salfit, Tubas & Tulkarem which were further subdivided into three areas as regards administration that are: Area A, B & C.

Based on Palestinian health annual report of 2021 that is prepared by Palestinian Health Information Center (PHIC) Health Policy & Planning Unit Ministry of Health, one can notice that the total number of primary health care centers in Palestine is around 765 centers, of which 606 centers are located in the West Bank and 159 centers in Gaza Strip distributed by 6,435 persons per center. Whereas, 492 Primary health clinics (PHC) is controlled by Government alone. Of which 440 (PHC) in West Bank & 52 in Gaza Strip as one can see in (Figure 3.4) below. Based on (Figure 3.4), we can notice that Ramallah has a 57 primary health care centers (56 PHC besides the directorate of health) which forms the second largest governorate in terms of distribution after Hebron.

Furthermore, the Palestinian MOH announced that primary health care centers increased from 203 at the end of 1994 to 492 in 2021, with an increase of 142.8% (PHIS, 2022).

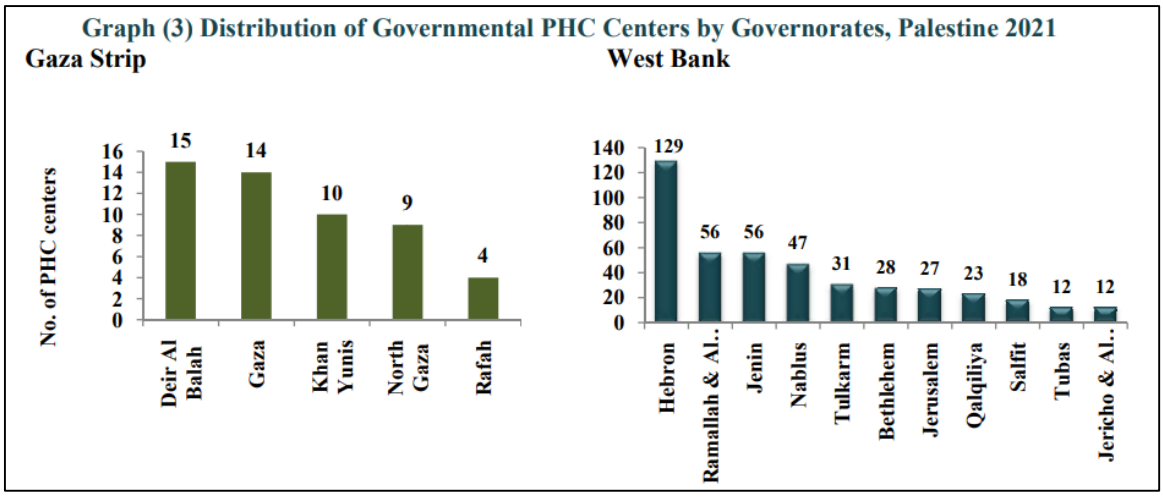


Figure 3.4. Distribution of Governmental PHC Centers, Palestine 2021

The quantitative aspect of the study is conducted through a survey to assess the level of knowledge of healthy behaviors, extent of adherence to long life treatment regimen, and the standards of health education. The quantitative design covers the patients' understood level based on responses on health and behavior survey, linked to medical laboratory results of HgbA1c, cholesterol and other labs needed to confirm health status improvement after adherence to PEN intervention; while the qualitative design covers another part of the PEN approach linked to the physician –patient communication level and the clients' compliance with management.

Indeed, Area- A forms 18% of West bank zone administered by Palestinian Authority which is the most densely populated; whereas, Area B constitutes 22% is administered by Palestinian authority shared control security with Israel. The last 60 % of area is linked to Area-C administered by Israel (Anera, 2023).

The curative health services are provided by public sector through Ministry of health, private sector, non -governmental organizations (NGOs), military medical services, Charitable communities like Red Crescent, &UNRWA health care services (WHO report ,2022). However, by the end of 2021, there were 29 governmental hospitals in Palestine (West Bank including Jerusalem and Gaza Strip) beside 60 non - governmental ones (Zeid. et al, 2023).

The majority of the health services are provided by the Ministry of Health (MOH) either through hospitals or primary health clinics in the West Bank Governorates. In the rural areas primary health care services are mainly provided by the governmental Health Centers (PHCs); while in the camp areas same services are provided by UNRWA clinics.

Each governmental primary health care clinic is manned by at least one Nurse and /or a midwife in addition to a general doctor present at least one day per week.

In the urban areas, primary Health Centers provide variant primary health care services including non-communicable disease (NCD) prevention program and management with the presence of at least one specialist doctor in addition to a number of general doctors during the five days (Collins, et al., 2020).

3.6.3.2 Justification for Selection of Ramallah Governorate for the Study

Ramallah serves as the dynamic administrative capital of the State of Palestine, which includes most of the institutions of the Palestinian Authority. It contains numerous hospitals(Palestine Medical Complex, H-clinic ,Musallam Hospital ,Khalid surgical hospital , Istishari Arab Hospital, Red Crescent Hospital , Alnazer Hospital, Arab Care Hospital, Al-moustaqbal Hospital ,Al rahma hospital ,Alrazi ophthalmology hospital)in addition to several diverse primary health centers that are classified into four categories which are :the governmental primary health care clinics (the largest in number), Military Medical Services clinics; UNRWA primary Health clinics (Al-amari ,Aljalazoon , Deir Ammar ,Ein Areek);&NGOs(Medical Relief Society, Red Crescent Society , Health Work Committees, Juzoor for Health &Social Development).

With no doubt, availability and inclusively of patients' health data are enabled because of the presence of the Ministry of Health information system in Ramallah. In addition, Ramallah primary health directorate contains the second largest number of primary health clinics compared to other governorates in the West Bank that forms 57 clinics distributed in almost all rural and urban areas of Ramallah district as shown in (Table 3.4) below, serving 85 communities with about 329,000 inhabitants (PHIS,2022). Also, direct and precise supervision on the implementation of PEN approach in those clinics will be more controlled. Added to that, collecting data will be easier to be done as I live in Ramallah due to the recent unstable political situation.

Moreover, Ramallah has a religious diversity, inhabited by more than 40,000 inhabitants from Christians and Muslims. In addition, it includes people with a variety of socioeconomic status and cultural diversity (WR Final (ramallah.ps)). It shows high utilization and attendance of NCDs services in West Bank according to PHIS in 2022 report. This piece of information supports the fact of choosing this governorate purposively with a numerous heterogeneous sample for my study which will contribute

basically to the generalizability of the final results on the rest of Palestinian governorates later on.

Table 3.4. Ramallah's Governmental Primary Health Clinics and its Duty Workdays

Diabetes Mellitus Clinics	**Working Days /Diabetic Clinics**	**Working Days/ Week as General Medicine**	**General Medicine Clinics**	**Working Days/Week**
Central Directorate - Albalo'	5Days/week	5Days/week	Qarawa Bani Zaid Rantis Betunia Deir Abzi' Bileen Al-janya Deir -Qeddis Al-mughaier Ras Karkar	2 days 1 day 5 days 2 days 2 days 1 day 2 days 4 days (Joint with UNRWA) 1 day
Na'aleen	One Day/week	3 days	Mazara' Nubani Birzeit Deir Dibwan Deir Sudan Kharbatha Bani Harith Kharbatha al-misbah Turmusayya Saffa Beit our Tahta Shebtin Medea Kafr Ni'ma Al-Beira Ramallah Al - tahta Bettello Ein Yabroud Deir Jarir Kafr Malik Bettin	2 days 5 days 2 days 2 days 2 days 3 days 1 day 2 days 2 days 1 day 2 days 2 days 0 5 days 2 days 2 days 2 days 2 days 2 days 2 days 1 day 2 days

			Burqa Deir Nizam Kafr Ein Al-Tira AL-mazraa' al-gharbiyah AL-mazraa' Al-shaqiyah Deir Abu Misha'l Arora Cooper Abu Falah Ramoun Beit Sira Silwad Attara Aboud Abwein Dora Al-qare' Al- Lubban Al-gharbiah Medical institution um Safa Sinjel Taybeh	2 days 2 days 2 days 1 day 2 days 2 days 2 days 2 days 2 days 2 days 2 days 2 days 2 days 2 days 2 days 1 day 0 1 day 5 days (joint with UNRWA) 5 days (joint with UNRWA)
Beit Rima	One Day/week	5 days		
Beit Laqia	One Day/week	4 days		
Deir Ammar	One Day Every Other Week	2 days		
Shuqba	One Day Every Other Week	3days		
Qibia	One Day/week	4 days		

3.7 Data Collection

After I received the approval letter for my study from IRAB, I emailed the Excellency Minister of Health by the help of my university (AAUP) supported by my manager Dr. Nancy Falah at work in MOH /Ramallah & Al-Bireh directorate and

permission is granted. After that, a pilot study was done at Arora primary health care clinic as I mentioned in materials section before in details for verification of focus group interview. Al-Bireh clinic, &Medical Institution were excluded out of the 57 target primary health clinics of Ramallah governorate because do not provide a general medicine care service.so the remained governed primary health care centers for the chosen sampling was 55 out of total 57.

By using Raosoft website for calculation the size of sample concerning clinics, 49 primary health clinics (PHC) out of 55 PHC governed by MOH in Ramallah district was chosen to be a representative sample for my study. Hence, a simple random sampling method was used to determine the primary health clinics (PHC) sample of my study. In reliant to this sampling method , the chosen clinics were :Central Directorate -Al-balo', Beit Rima, Qibia, Na'aleen, Beit Laqia, Shuqba, Deir Ammar,Qarawa Bani Zaid, Aroara ,Kafr Ein ,Rantis, Betunia, Deir Abzia , Bileen,Deir -Qeddis ,Ras Karkar, Birzeit, Deir Dibwan, Deir Sudan ,Kharbatha al-misbah ,Saffa ,Beit our Tahta ,Shabtin , Kafr Ni'ma ,Ramallah Al -tahta ,Bettello ,Deir Jarir ,Kafr Malik ,Bettin ,Burqa , Deir Nizam ,Al-Tira , AL-mazraa' al-gharbiyah ,AL-mazraa' Al-shaqiyah ,Cooper , Abu Falah,Beit Sira, Silwad ,Attara ,Aboud ,Dora Al-qare' , Labban Al-gharbiah, Um Safa, Sinjel, Kharbatha Bani Hareth, Ein Yabroud, Mazari' Nubani , Deir Abu Misha'l , & Ramoun . Six primary health clinics out of fifty-five were excluded from the sample due to random sampling that are: Abwein, Taybeh, Medea, Turmusayya, Al-mughaier, & Al-janya.

I aggregated data on all patients screened for one of NCDs in 49 PHC of Ramallah governorate during January-March/2024. The total sample was 377 patients with their medical records of which 41 participants with different chronic non-communicable diseases were taken from Ramallah & Al-Bireh Directorate (Albalo') alone and the remained 343 participants were taken from the other 48 primary health clinics equally as (n = 7) from each clinic. Actually, the forty-one of the sample was taken purposively from the Central Directorate -Al-balo' clinic because it mainly targets the largest number of NCDs patients attend the governmental primary health clinics even those who live outside Ramallah governorate, focusing on patients with uncontrolled cases, those who need further management and cautious follow up referred from all rural primary health clinics affiliates with Ramallah and Al-Bireh directorate. All NCDs registered patients at Ramallah governed primary health clinics with CVD risk disregard the percentage were recruited. Medical records of the selected sample of patients were included.

After that, I visited the selected primary health centers by the help of five of my colleagues and sampled the required number of participants conveniently taking into consideration the proposed inclusion criteria to fulfill the survey by me and my assistant colleagues in its Arabic version after signing the consent form. Five of my knowledgeable nursing colleagues in research who work in the continuity education department in Ramallah & Al-Bireh Health Directorate contributed in collecting the survey data from the participants and their medical files after we joined in three consecutive meetings to explain the method of collecting data using WHO-STEP survey. Training done by me about the study scope and purposes, questionnaire items, and possible areas for misunderstanding. Each survey was conducted over thirty minutes during the clinics' work hours. Data of the STEP survey was gathered over one month in January. We conducted WHO center in the ministry of health and we called Doctor Nadem Barghouthy to provide us with the Arabic version of STEP survey to no avail by saying it is not available. Translation of the WHO-STEP survey was done by me as a researcher from English version to Arabic during interviewing the participant. After completion of conducting the survey, a translation back to English was done by the researcher for the benefit of data analysis. Medical files of the sampling subjects were used to record the required physical and biochemical measurements based on the basic requirements of the WHO-STEP survey for the purpose of analysis.

As regards the focus group, I conducted a purposive traditional focus group semi-structured face to face interview composed of 15 persons with diverse major chronic -non -communicable diseases including these cases: four cases diagnosed as diabetes accompanied by hypertension, five hypertension cases , one case have mixed diagnosis includes renal failure accompanied by hypertension and diabetes, one cancer cases, three cases have cardiovascular disease accompanied by diabetes and hypertension, and the last case was Asthma. The sample size was determined by feasibility and timeline. Gathering data was done over two weeks started on the 19th of January and finished on the 4th of February.

I used an interview guide based on ten exploratory open-ended questions derived from previous studies that was qualitative methods. This style allowed for emerging of some expected explanatory themes and initiate brain -storming discussion for new themes to be explored. At Al-balo' Health Directorate, the interview was conducted by me lasted 20-30 minutes in time. The Interview was conducted in Arabic based on the interviewers

native Language. It was audio recorded, transcribed literal in Arabic and translated to English then done by the researcher.

3.8 Ethical Considerations

At first, the study was reviewed and approved by an institutional ethics committee or institutional review board (IRB) as it's conducted in accordance with ethical guidelines and regulations (Appendix C). No need for approval from WHO to use STEP scaled version; although I sent an official email to their website before two weeks of collecting my data using the STEP survey.

After that, ethical Approval to carry out the evaluation of the effectiveness of WHO PEN intervention in Ramallah's primary health clinics was obtained from the Ministry of Health before starting (Appendix D). In each primary health care center, as a researcher I met the health care providers who work in the clinic (doctor, nurse, and midwife), showed them the official letter of support from the Ministry of Health and explained the objective beyond collecting this data.

As regards conducting the survey, all research subjects were informed about the nature of the study, risks and benefits, and their right to withdraw at any time without penalty. A written informed consent before participating in the study was obtained from each one (Appendix-E). Confidentiality & privacy on Participants' information extracted from their medical records are kept confidential and secured.

Respecting to the traditional focus group interview, at the initiation of the interview, I explained to the participants the main goal and objectives of the study and stressed the point that the interview is anonymous, face-to-face and audio recorded. A written informed consent was obtained from every participant before starting the interview.

3.9 Data Analysis

The transcribed interviews were analyzed using a conceptual deductive reasoning content analysis approach to validate the findings and identify areas of convergence or divergence . Analysis was done by using NVIVO software program version 12. Initially, the audio records of the collected data were translated after being transcribed from Arabic to English thoroughly by me as a researcher. Then as a researcher, I went through all the transcripts autonomously, read every transcript several times closely. After that, I utilized the initial coding form (see Appendix-F) that fit the research questions that was proposed

in the thesis methodology based on my knowledge and my work experience in Ramallah directorate primary health clinic. Each question of the proposed ten questions was initially considered as a primary theme whereas the interpretation -focused coding strategy was used to produced codes that describe the pattern of participants' responses in the transcript.

As a coder, I adopted the deductive conceptual content analysis approach in the coding process.The identified codes were further checked by the assigned two supervisors of my thesis for accuracy. Most relevant statement were dragged to the category based on word level of analysis and implicit information was coded. Whereas, the finalized emerging themes and subthemes from the data was expressed in a phrase. At times, I found the representation of the themes in one sentence and at other times the themes were represented in two or more sentences within the transcripts. Once I identified the theme, the sentence(s) site was highlighted via the Coding Form (see Appendix -F) under the column allocated for that specific theme.

The coding of the transcripts and the identification of emerging themes were carried out using this approach, as recommended by Krippendorff (2019) in order to identify the significant themes within the body of content, and to provide a rich description of the reality of patients' perspective toward the effectiveness of education sessions created by those themes as they are lived out in a specific setting. Categories and a coding scheme were derived from the source of researcher's knowledge and work experience in the same field have significant impact on the generation of an initial list of coding categories that intend to describe this particular phenomenon. The coding scheme was revised then by two expert supervisors. Irrelevant and unwanted primary themes and categories were omitted. Re-examining and re-assessment was done for the relevant codes. Finally, a conceptual framework was developed based on the themes emerging from the transcript whereas the main three themes were identified and summarized supported by illustrative quotations to provide a deeper understanding of the findings. After development of the three key themes, as a researcher I went through the fifteen transcripts of the participants, identified and validated the presence of each theme, focused on interpreting and understanding rather than counting and measuring.

The transcribed interviews analysis afforded more comprehensive understanding of the research questions and provided deeper understanding of the experience of NCDs patients with the educational sessions provided within the context of the WHO PEN-2 Protocol at the primary health care clinics in Ramallah governorate. The Interviews were

anonymized and all participants were given a numeric name based on the date and the time of the interview when it's done. For more details about the transcript documents of NCD participants' focus group interview, please look at appendix-G.

The WHO-STEP survey items were analyzed using statistical software SPSS version 25. Descriptive statistics such as means, standard deviations used to represent the continuous variables, and frequencies were used to summarize the categorical data. Inferential statistics, one way ANOVA used to test hypothesis; while Pearson -r test used to determine the strength of association between health education about chronic non-communicable diseases provided by PEN-2 intervention and participants' behavior in response to this advice. Multiple logistic regression was used to control the confounding effects of the demographic variables by statistical analysis.

Parametric Bivariate analysis was performed using Pearson-r to test the strength of relation aligned with the advice provided by PEN-2 intervention regards behavioral indicators and biochemical measurements. P-values of less than 0.05 were considered statistically significant.

3.10 Summary

Overall, this study explicates the perspective view of NCDs patients on advice of health behaviors catered by healthcare professionals in the West Bank based on WHO PEN-2 intervention; which is numerically measured in a constructive change in the biophysiological data and the ongoing daily practices of NCDs patients. Variant tools were used in this study centered on WHO-STEP survey, focus group & biophysical measures to answer the study questions and test the supposed hypotheses by using descriptive& inferential statistics. A conceptual content analysis using deductive reasoning approach is followed to validate the findings and identify areas of convergence or divergence. Bivariate parametric analysis was performed using ANOVA, Pearson-r tests of association was used to control the confounding effects by statistical analysis.

By combining qualitative and quantitative research methods, the study was able to capture the nuanced experiences and viewpoints of patients regarding the customized health education provided by WHO protocol (Kabir et al., 2021). Moreover, this approach affords a holistic understanding of the impact of implementing the WHO PEN -2 educational sessions on the delivery of appropriate satisfactory quality of care for Chronic non-communicable disease patients received medical services by the primary health clinics of Palestinian Ministry of Health (AlHeloa &Elessi, 2019).

A cross -sectional study was carried out between January - March in 2024 in 49 primary health clinics of Ministry of Health selected randomly out of 55 clinics in Ramallah district. Whereas, a total of 377-representative sample of NCD patients selected conveniently was invited to fulfill a translated copy in Arabic of WHO STEP wise approach to surveillance Q-by-Q guide survey version 3.2 by structured interview in order to assess the participants' health behaviors on a variety of subjects linked to various aspects of life style. In-depth semi -structured traditional focus group interview with 15 NCDs participants was used by means of ten exploratory open-ended questions to emphasis on the study objectives. The WHO STEP surveillance questionnaire was analyzed numerically by using statistical software SPSS version, 25. Descriptive frequencies were used to summarize the data, while inferential statistics like *one way ANOVA* &Pearson -r tests hypothesis and determine the association between health education about chronic noncommunicable diseases (NCDs) provided by PEN-2 intervention and participants' behavior to control their chronic non-communicable diseases after receiving education. Conceptual content analysis using the deductive reasoning approach with interpretation -focused coding strategy was used to sort the data of the focus group interviews. Approval from IRAB and the Excellency of the Palestinian Ministry of Health were afforded in order to carry out this study. Anonymity &confidentiality are taken into consideration during data collection by obtaining a written informed consent from each subject of the study beside of safeguarding the confidentiality of patients' medical records information.

Chapter Four: Results

4.1 Introduction

The purpose of the study was to explore the patients' perspective towards the productivity of the customized health education protocol designed by WHO for non-communicable chronic diseases (NCDs) especially diabetes mellitus in the primary health care clinics managed by Ministry of Health in West Bank. More specifically, this chapter addressed all proposed research questions and hypothesis existing either in quantitative section or in qualitative one. Findings of this study were answered in two sections. First, two research question besides the six suggested hypotheses were answered in a quantitative manner. Second, the researcher presented the findings of the content analysis of the qualitative part to answer a two major research questions out of four. Research questions were answered by using appropriate quotes that are intended to validate and support the themes detected in the transcripts of the participants, based on the findings of the researchers' analysis of the data.

4.2 The Quantitative Results

Three hundred and seventy-seven patients with different chronic non-communicable diseases including: diabetes, hypertension, cancer, cardiac, asthma, chronic renal failure and combination of more than one of these, agreed to participate in the study voluntary during the data collection period with a response rate of 100%. The study sample was distributed in Ramallah governorate in forty-nine primary health clinics. As mentioned earlier, the data was gathered from theses 49 primary health clinics; whereas 41 respondents were taken from Al-balo' alone and (7) respondents were recruited from each primary health clinic of the remained (48) health care facilities. More illustration is seen in appendix-H.

4.2.1 Descriptive Statistics of Participants

Most of the people were elderly, with most of them falling between the 51 and 70 years. There were more women than men, and most of them identify as Muslims. The majority of participants had never been married 31.4%, but quite a few were widowed 12.5%as well. Different people had different degrees of education; most had graduated from college or university 28.1%. The most typical living place was a village 72.4%. The majority of workers were homemakers 48.3%, followed by self-employed people and

government workers 14.3%. The average monthly salary was less than 5000 NIS, and a large percentage got less than 2000 NIS. All things considered, the dataset offers brief insights into the socioeconomic and demographic characteristics of the participants under study. Table (4.1) represents more characteristics of participants.

Table 4.1. Distribution of Demographic Characteristics of Participants

Variable		N	%
Age	20-30	11	2.9%
	31-40	14	3.7%
	41-50	59	15.6%
	51-60	172	45.6%
	61-70	121	32.1%
Gender	Male	153	40.6%
	Female	224	59.4%
Religion	Muslim	365	96.8%
	Christian	12	3.2%
Marital Status	Currently married	21	5.6%
	Never married	307	81.4%
	Divorced	2	0.5%
	Widowed	47	12.5%
Education Level	Illiterate	6	1.6%
	Less than primary school	68	18%
	Primary school completed	14	3.7%
	Secondary school not completed	74	19.6%
	High school completed	100	26.5%
	College/University completed	106	28.1%
	Post graduate degree	9	2.4%
Residency Area	Village	273	72.4
	Town	49	13.0
	City	55	14.6
Main work status in12month ago	Government employee	54	14.3%
	Non-government employee	25	6.6%
	Self-employed	65	17.2%
	Student	3	0.8%
	Homemaker	182	48.3%
	Retired	28	7.4%
	Unemployed	20	5.4%
Monthly Income NIS	< 2000 NIS	102	27.1%
	2000 to < 3500 NIS	73	19.4%
	3500 to <5000 NIS	98	26%
	5000 to < 6500 NIS	67	17.8%
	6500 to < 8000 NIS	17	4.5%
	More than 8000 NIS	17	4.5%
	Others	3	0.8%

Descriptive statistics were based on Frequencies (N) and Percentages (%)

Question1: *What are the prevalent patterns of chronic non-communicable disease (NCD) diagnoses among Palestinian patients already diagnosed with NCDs?* **(Figure 4.1)**

4.2.2 Distribution of NCD DIAGNOSIS among Participants

A total of 377 patients with different chronic NCDs diagnosis were included in this study as shown in (Figure 4.1). Two major categories are noted overtly; Hypertension (HTN); Hypertension and Diabetes mellitus (HTN+DM2) with a percentage of (131) (34.7%) & (115) (30.5%) respectively. At a glance, one can noticed that nearly most of the respondents had either diabetes or hypertension accompanied by other diverse disease like ischemic heart disease, coronary artery disease, renal failure, asthma and even cancer. Cancer or asthma is stood alone as miscellaneous in a minimum percentage with (9) (2.1%) & (11) (2.9%) respectively. Figure (4.1) shows the distribution of NCD diagnosis among participants. As related the chronicity of such chronic non communicable diseases, the majority (162) (43%) complained of theses disease over 6-10 years.

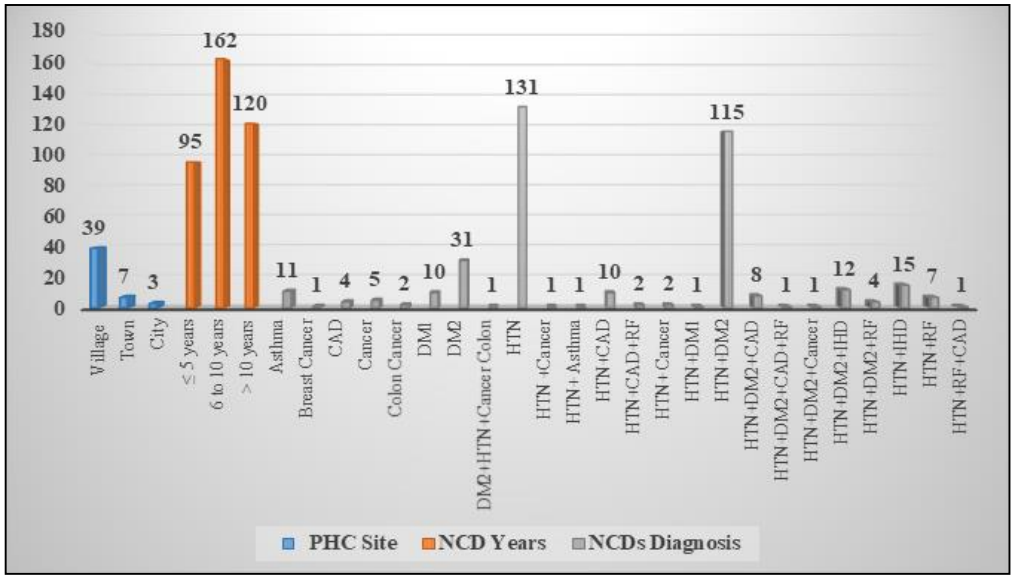


Figure 4.1. Descriptive Statistics (Frequencies) Of NCDs among Participants

4.2.3 Patterns of NCDs Behavior

Research Question 2: *What are the smoking behaviors and cessation efforts among participants with chronic non-communicable diseases (NCDs) patients?* **(Figure 4.2)**

4.2.3.1 Smoking Status of Participants

For the past 12 months, data was based on the WHO-PEN Protocol 2. Of the participants, 12.7% were smokers and 87.3% were not. The majority of smokers were men (95.8%); while a small percentage is belonged to women (4.2%). In line with their smoking status, 12.7% of individuals said they now smoked every day, compared to 87.3% who did not. The majority of individuals (90%) who said when they first started smoking were between the ages of 10 and 14. Twenty years or more of smoking was reported by a sizable fraction (21.2%). Over twenty-five percent of the individuals said they smoked more than 25 manufactured cigarettes a day. In the previous year, just 4.5% of participants made an attempt to stop smoking**.** In the previous year, 13.8% of people got guidance to stop smoking; while (30%) of participants stated that sometimes they receive advise from a professional healthcare provider to stop smoking. Just 1.6% of respondents said they now use smokeless tobacco products. 3.2% said they have previously used smokeless tobacco products. In the previous month, the majority of participants reported being exposed to passive smoking at home (68.2%) and at work (66.6%). The data indicated that smoking was significantly more common among the participants overall, and a sizable percentage of them reported having been smokers for a long time. Nonetheless, there were also signs that some people were trying to stop smoking or were looking for help to stop. Participants also seemed to be often exposed to passive smoking. Figure (4.2) presents smoking status of participants based on the WHO-PEN Protocol 2 in the last twelve months.

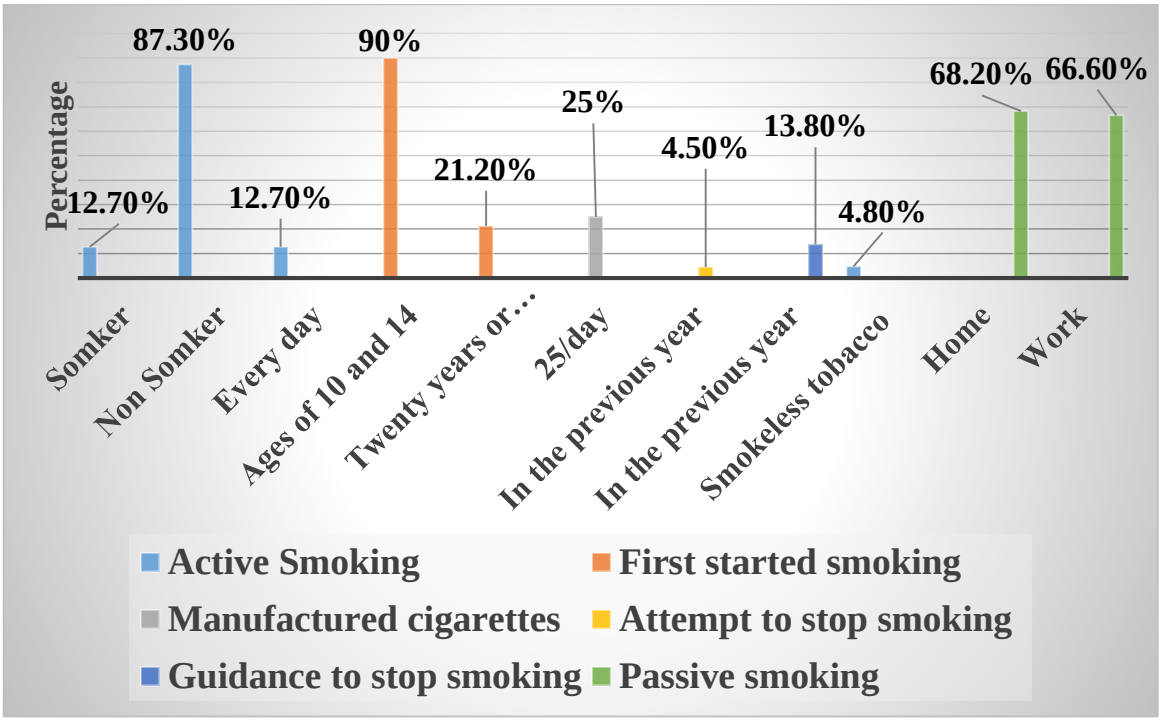


Figure 4.2. Smoking Status of Participants Based On the WHO-PEN Protocol 2 in the Last Twelve Months

Research Question 3: What are the Dieting behaviors among participants with chronic non-communicable diseases (NCDs) patients? **(**Figure 4.3**)**

4.2.3.2 Dieting Behavior among Participants

The study's participants stated that they typically consumed two servings of fruits and vegetables each day. Just only 1(0.3%) of respondents have 5 servings of fruits a day and only 2(0.5%) have 5 servings of vegetables a day. Noticeably, (57%) of the respondents consumed less than 5 servings daily Their mean frequency of adding salt or salty sauces to their meals was 3.8 ± 1.16 times per week. The average number of times per week that people used salt, salty spice, or salty sauce during cooking was 3.64 ± 1.19. Almost (59.4%) of them avoid adding salt at the cooked food at time of having their meals. The average frequency of taking processed foods rich in salt was (4.1 ± 0.88) times, which suggests a moderately high level of intake. With a mean score of 3.45 ± 1.62, individuals said they consumed "far too much" salt on average. Although, (73%) of participants claimed refraining of eating processed food. The mean score given to decreasing back on salt in the diet was (2.84 ± 1.94). The majority of participants (96.0%) agreed that consuming too much salt may be harmful to one's health. 83.0% of

respondents said they cut back on processed food to consume less salt. Just 10.6% of people regularly checked the salt level of product labels, and only 7.7% made low-sodium substitutions. Still, 88.3% of cooks substituted spices for salt in their food. Just 2.9% used extra methods to reducing salt intake, whereas over half (55.7%) abstained from consuming anything that was not prepared at home. Figure (4.3) provides insights into the dieting behavior and salt consumption patterns among the participants surveyed.

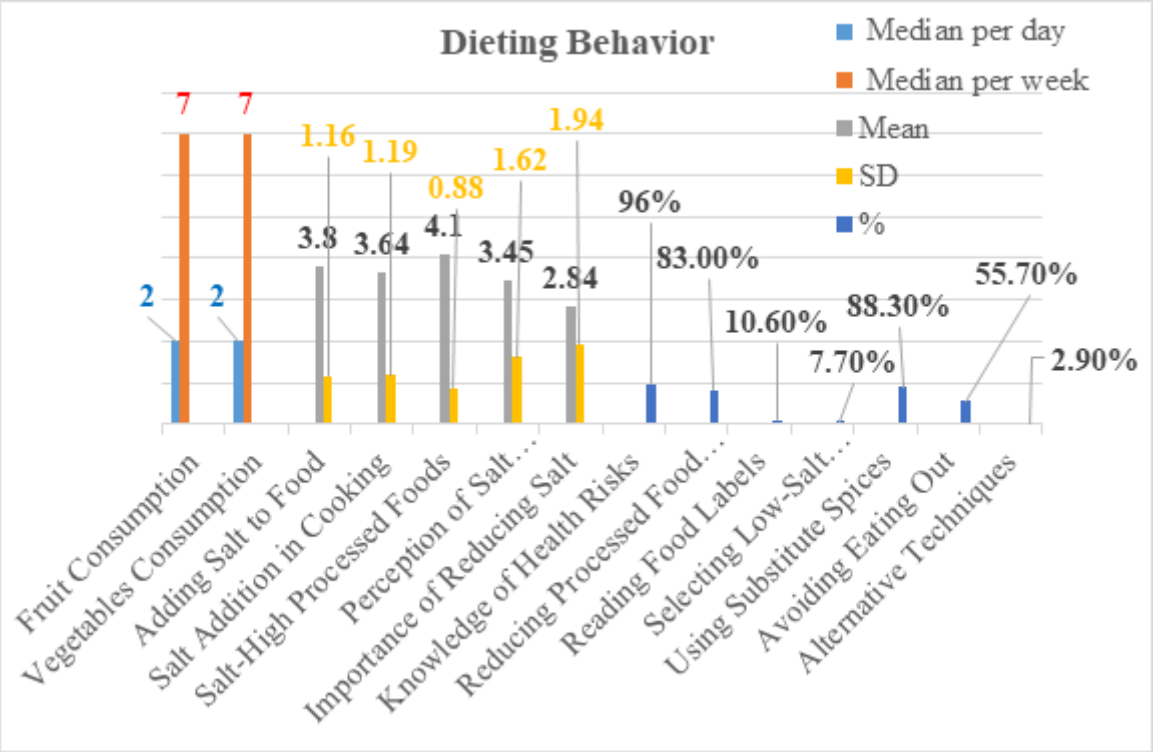


Figure 4.3. The Dieting Behavior and Salt Consumption Patterns among Participants

Question 4: What are the Physical Activity behaviors among participants with chronic non-communicable diseases (NCDs) patients? **(**Figure 4.4**)**

4.2.3.3 Physical Activity Behavior

56.5% of the participants said they worked at work in positions requiring heavy lifting, with a median frequency of four days per week and an average daily duration of thirty minutes. Also, 89.7% of workers participated in moderate-intensity exercises such as vigorous walking at work, with a median frequency of five days per week and an average daily time of fifteen minutes. With a median frequency of seven days per week and an average daily time of fifteen minutes, 53.3% of commuters chose to walk or ride a bicycle. With an average daily time of sixty minutes and a median frequency of three days per week, just 4.8% of people participated in sports or vigorous recreational

activities. With an average daily length of sixty minutes and a median frequency of three days per week, 5.6% of the population also engaged in moderate recreational or sports activity. About 343(91%) of participants practice walking and moderate vigorous activity, whereas, 38 (10.6%) achieved a score of 200 minutes and above weekly, 80 (21.2%) achieved a score of 100 minutes and above weekly. A median of 120 minutes (2 hours) was spent sitting or lying down by the participants each day, with a percentage of (1.955) lived in a sedentary lifestyle (≥ 6hours a day) of which females constitutes (1.06%) of them. Figure (4.4) represents the physical activity behavior among participants.

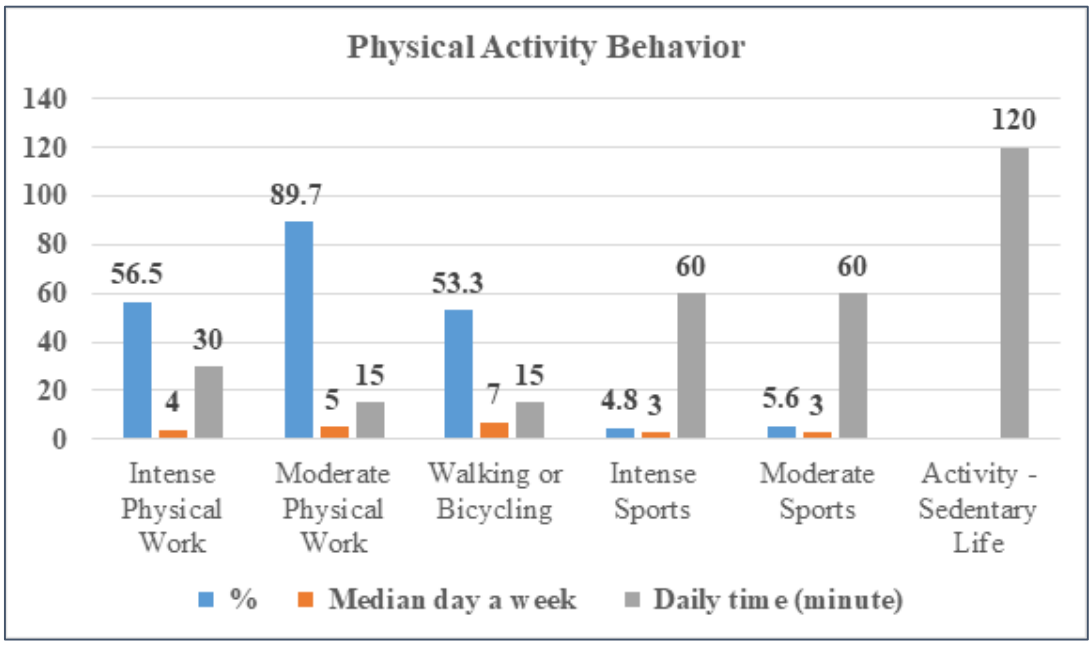


Figure 4.4. The Physical Activity Behavior among Participants

Question 5: What are the insights of participants regarding the measurement, diagnosis, and management of blood pressure, diabetes, cholesterol, and cardiovascular disease among NCDs patients? **(Table 4.2) (Figure 4.5, 4.6, 4.7)**

4.2.4 History of Chronic Non-Communicable Diseases among Participants

Table (4.2) reflects participants' insights into measurement, diagnosis and management of blood pressure, diabetes, cholesterol and cardiovascular disease.

4.2.4.1 Raised Blood Pressure

Blood Pressure Measurement: 85.7% of individuals said a medical professional or other health care provider measured their blood pressure.

Diagnosis of Raised Blood Pressure: 81.4% of individuals reported having elevated blood pressure, or hypertension, according to a physician or other health professional. Of the individuals with a diagnosis, 80.4% had their initial information within the past 12 months, suggesting a recent insight. Around (42.9%) of adults aged 25–64 years have elevated blood pressure last fortnight, while (80.4%) of participants reported having elevated blood pressure during the last year with a mean BP of (150.93) over (87.06) initially.

***Treatment and Management*:** 78.8% of participants said they had taken medication recommended by a physician or other healthcare provider for elevated blood pressure within the previous two weeks. 10.3% of people consulted traditional healers for help with elevated blood pressure. Currently, 8.2% of participants were treating elevated blood pressure with herbal or traditional medicines.

In summary, a significant proportion of the participants have had their blood pressure measured by medical experts, suggesting that they are conscious of or concerned about their health. A noteworthy percentage of individuals had received a diagnosis of hypertension, and many of them were notified of this within the last year, indicating recent attempts at detection and diagnosis. The large proportion of individuals who use prescription drugs for high blood pressure as directed by medical experts suggests that the illness is actively being treated and managed. Although they are not as prevalent as they once were, only a tiny percentage of participants have used traditional therapeutic methods. Although less common, the use of herbal or traditional medicines indicates that some individuals may be looking into other therapies for high blood pressure. Among the population studied, there seems to be a noticeable effort to monitor blood pressure, diagnose hypertension, and give appropriate therapy. Comprehensive hypertension therapy, however, may benefit from more research on the efficacy of herbal medicines and conventional healing techniques in addition to ongoing medical care. Furthermore, continuous health education programs and awareness campaigns may support community members' early identification and successful control of elevated blood pressure.

4.2.4.2 Diabetes Mellitus

Blood Sugar Measurement: Of the participants, 54.4% said they have had a medical professional or other health worker monitor their blood sugar.

Diagnosis of Diabetes: 51.2% of participants reported having elevated blood sugar or diabetes according to a physician or other healthcare provider. 52.5% of individuals who were diagnosed had just recently learned about it—within the last 12 months—indicating recent knowledge.

Treatment and Management**:** 47.2% of participants said they had taken diabetic medication recommended by a physician or other health professional within the previous two weeks. Currently, 17.5% of participants were using insulin as directed by a healthcare provider or physician for diabetes. About 2.1% of the participants reported seeking help from traditional healers for their diabetes. In the same way, 2.7% of participants said they were presently treating their diabetes using herbal or traditional medicines.

In conclusion, a significant percentage of participants have had blood sugar tests performed by medical experts, suggesting that they are aware of and actively manage their health. A significant proportion of cases of diabetes or elevated blood sugar have been diagnosed in the last year, indicating that recent efforts have been made to detect these conditions. A lesser portion of individuals need insulin therapy, but the number of participants using diabetic medication indicates active treatment and management of the illness. Among the population assessed, traditional medicinal methods and herbal medicines for diabetes are rather uncommon. Among the population surveyed, there seems to be a noticeable effort to monitor blood sugar levels, diagnose diabetes, and give appropriate treatment. The comparatively low use of herbal treatments and traditional healing methods points to a preference for traditional medical methods of treating diabetes. Access to healthcare services and ongoing awareness initiatives might improve diabetes control in the community even further.

4.2.4.3 Raised Total Cholesterol

Cholesterol Measurement: Eighty-two percent of the participants said that a physician or other health professional had checked their cholesterol levels.

Diagnosis of Raised Cholesterol**:** 47.2% of participants reported having elevated cholesterol according to a physician or other healthcare provider whereas, (23.6%) complained of having a raised total cholesterol level last 2 weeks. 46.2% of participants

who received a diagnosis did so during the previous 12 months, suggesting that they were recently aware of the condition.

***Treatment and Management*:** 41.6% of participants said they had used an oral medication recommended by a physician or other health professional for elevated total cholesterol over the previous two weeks. Just 3.4% of individuals had gone to traditional healers for help with elevated cholesterol. In the same way, 3.2% of participants said they were presently treating elevated cholesterol using herbal or traditional medicines.

As a conclusion, most participants have had their cholesterol levels measured by medical specialists, demonstrating a degree of knowledge and surveillance of their cardiovascular health. Roughly 50% of the participants had received a diagnosis of elevated cholesterol, and a sizable portion of them received this information in the last year, indicating recent efforts at detection. The proportion of individuals on oral medication for hypercholesterolemia indicates that the disease is actively being treated and managed. Among the population assessed, traditional treatment methods and herbal medicines for elevated cholesterol are rather uncommon. The people surveyed seem to be actively trying to keep an eye on their cholesterol readings, identify elevated cholesterol, and administer the proper therapy. The comparatively low use of herbal treatments and traditional healing methods points to a preference for orthodox medical methods of treating elevated cholesterol. The community's ability to control elevated cholesterol may be further improved by ongoing awareness efforts and easy access to healthcare services.

4.2.4.3 Cardiovascular Diseases

History of Cardiovascular Events: A total of 21.0% of the participants stated that they had suffered a stroke (cerebrovascular accident), angina, or a heart attack.

***Preventive Medications*:** According to 81.2% of participants, they presently use aspirin on a regular basis (daily) to treat or prevent heart disease. 50.1% of participants said they were now taking statins regularly (daily) to treat or prevent cardiovascular illnesses. These statins might be Lovastatin, Simvastatin, Atorvastatin, or any other type of statin.

In conclusion, a significant percentage of patients reported having had a cardiovascular event, such as a stroke, angina, or heart attack. Most people actively participate in preventative measures; a significant proportion routinely takes statins and a high percentage consistently takes aspirin. In comparison to regular statin usage, regular

aspirin use is more common in the population examined. The results indicate that the population under study had a proactive attitude to treatment and prevention of cardiovascular illnesses, as well as a notable prevalence of these conditions. Aspirin and statin usage on a regular basis shows adherence to preventative measures advised for people at risk of cardiovascular events.

The community's management and prevention of cardiovascular illnesses may benefit further by ongoing monitoring, adherence to treatment plans, and lifestyle changes.

Table 4.2. History of Chronic Non-Communicable Diseases among Participants

Raised Blood Pressure			
Variable		**N**	**%**
Have you ever had your blood pressure measured by a doctor or other health worker?	Yes	323	85.7%
	No	54	14.3%
Have you ever been told by a doctor or other health worker that you have raised blood pressure or hypertension	Yes	307	81.4%
	No	70	18.6%
Were you first told in the past 12 months?	Yes	303	80.4%
	No	74	19.6%
In the past two weeks, have you taken any drugs (medication) for raised blood pressure prescribed by a doctor or other health worker?	Yes	297	78.8%
	No	80	21.2%
Have you ever seen a traditional healer for raised blood pressure or hypertension?	Yes	39	10.3%
	No	338	89.7%
Are you currently taking any herbal or traditional remedy for your raised blood pressure?	Yes	31	8.2%
	No	346	91.8%
Diabetes Mellitus			
Have you ever had your blood sugar measured by a doctor or other health worker?	Yes	205	54.4%
	No	172	45.6%
Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?	Yes	193	51.2%
	No	184	48.8%
Were you first told in the past 12 months?	Yes	198	52.5%
	No	179	47.5%
In the past two weeks, have you taken any drugs (medication) for diabetes prescribed by a doctor or other health worker?	Yes	178	47.2%
	No	199	52.8%
Are you currently taking insulin for diabetes prescribed by a doctor or other health worker?	Yes	66	17.5%
	No	311	82.5%
Have you ever seen a traditional healer for diabetes or raised blood sugar?	Yes	8	2.1%
	No	369	97.9%
Are you currently taking any herbal or traditional remedy for your diabetes?	Yes	10	2.7%
	No	367	97.3%
Raised Total Cholesterol			
Have you ever had your cholesterol (fat levels in your blood) measured by a doctor or other health worker?	Yes	309	82.0%
	No	68	18.0%
Have you ever been told by a doctor or other health worker that you have raised cholesterol?	Yes	178	47.2%
	No	199	52.8%

Were you first told in the past 12 months?	Yes	174	46.2%
	No	203	53.8%
In the past two weeks, have you taken any oral treatment (medication) for raised total cholesterol prescribed by a doctor or other health worker?	Yes	157	41.6%
	No	220	58.4%
Have you ever seen a traditional healer for raised cholesterol?	Yes	13	3.4%
	No	364	96.6%
Are you currently taking any herbal or traditional remedy for your raised cholesterol?	Yes	12	3.2%
	No	365	96.8%
Cardiovascular Diseases			
Have you ever had a heart attack or chest pain from heart disease (angina) or a stroke (cerebrovascular accident or incident)?	Yes	79	21.0%
	No	298	79.0%
Are you currently taking aspirin regularly (daily) to prevent or treat heart disease?	Yes	306	81.2%
	No	71	18.8%
Are you currently taking statins (Lovastatin/Simvastatin/Atorvastatin or any other statin) regularly (daily) to prevent or treat heart disease?	Yes	189	50.1%
	No	188	49.9%
Data based on frequencies (N) and percentages (%)			

4.2.5 Descriptive Statistics of Participants' Physical and Biochemical Measurements

Descriptive statistics are shown in (Figure 4.5, 4.6, 4.7) for a number of physical and biochemical measurements linked to blood pressure readings, height, weight, body mass index (BMI), waist circumference, heart rate, blood glucose, blood lipids, and blood creatinine levels, as well as cervical cancer screening and cardiovascular disease (CVD) risk.

Of the women surveyed, 22.8% had undergone screening for cervical cancer, 36.1% had not, and 41.1% said it was not relevant. Of women, 50.9% said they were not pregnant, and 49.1% said it did not apply to them. According to the data, screening tests for cervical cancer are more common among participants aged 41–70 and less common among younger participants (20–30 years old). The "Not Applicable" category includes most participants (ages 51–70), which may indicate a lack of awareness or other factors influencing their participation in screening tests.

Distribution of initial CVD risk: Most individuals had a risk of CVD of less than 20%. Although most individuals still had a CVD risk < 20%, the most recent CVD risk distribution was comparable to the original results. Throughout the first, before to the final, and last measurements, the systolic and diastolic blood pressure values dropped. The average person's height and weight were measured at 168.84 cm and 85.08 kg, respectively, in terms of BMI, (46.1%) of participants were overweight with BMI of 25 and more and (52.4%) of them were obese. The mean initial BMI was 29.96±3.43 with a

waist circumference of 110.41±14.45cm. The initial BMI of respondents ranged from 22-45.28 of which 9(2.6%) falls within the healthy weight range. Obesity ratio (BMI≥30) was higher among women of which 143 out of 224(63.84%) than in men of which 45 out of 153(29.41%) tended to increase overtly with advancing in age (≥51years). Respecting to the comparison between BMI at time of start treatment; it was 29.96, and 29.84 after several sessions of management. The waist circumference decreased between the first and last measurements. Between the first and third readings, the heart rate dropped. The HgbA1c level and fasting blood glucose both dropped between the first and last measurements. In the previous 12 hours, more than half (56.5%) said they had eaten or drunk something other than water. For elevated blood glucose, nearly half (48.0%) said they were using insulin or another prescription drug. A comparable percentage (56.5%) said they had received pharmaceutical treatment for elevated cholesterol. The mean values of LDL, HDL, triglycerides, and total cholesterol drop from the first to the last measurements. Between the first and last measurements, there was a modest rise in mean creatinine levels.

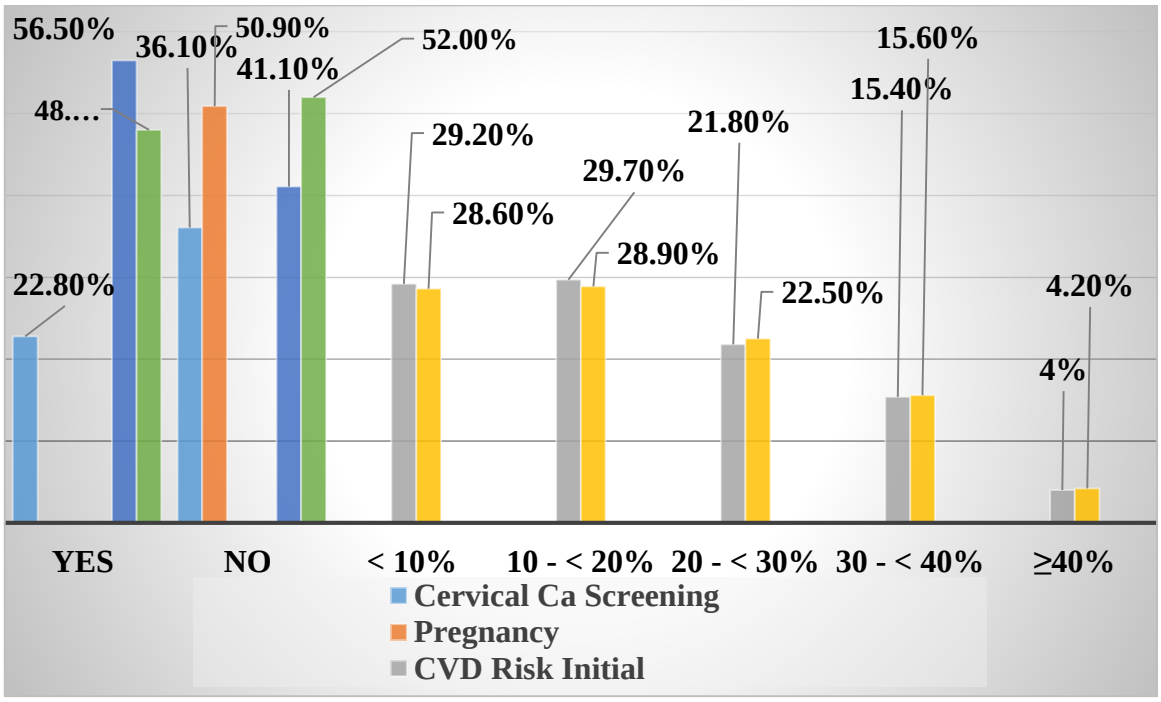


Figure 4.5. Physical Health Screening

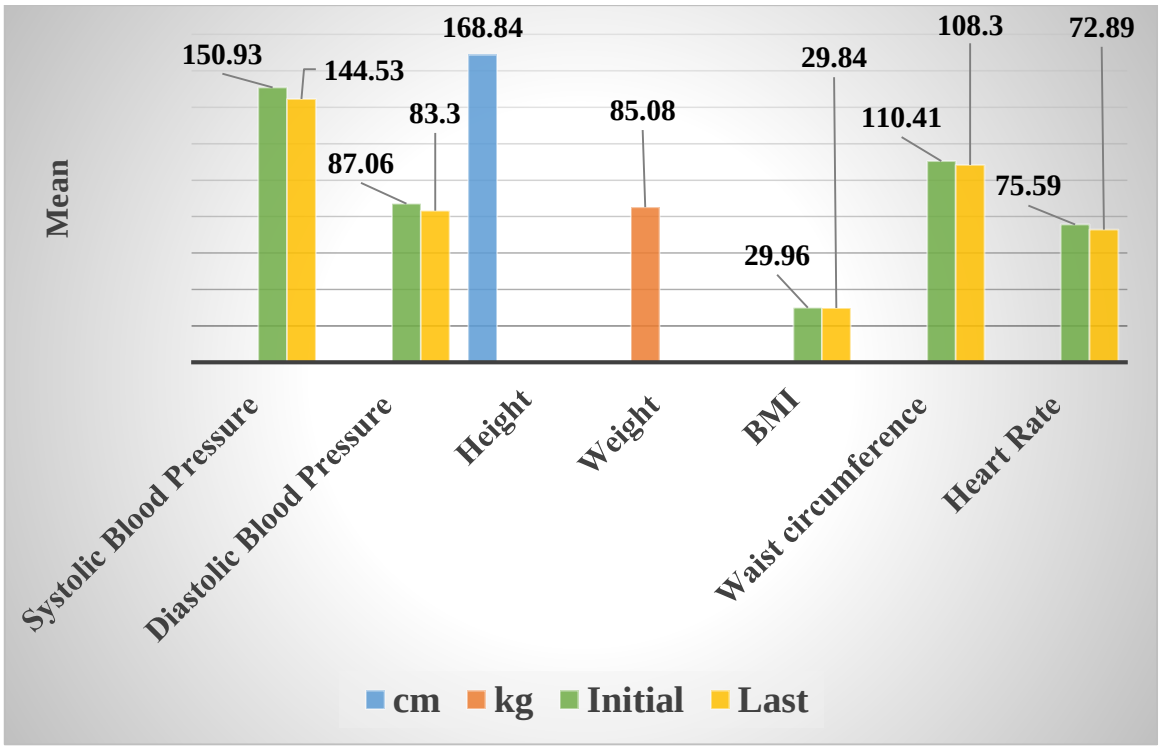


Figure 4.6. Physical Measurement

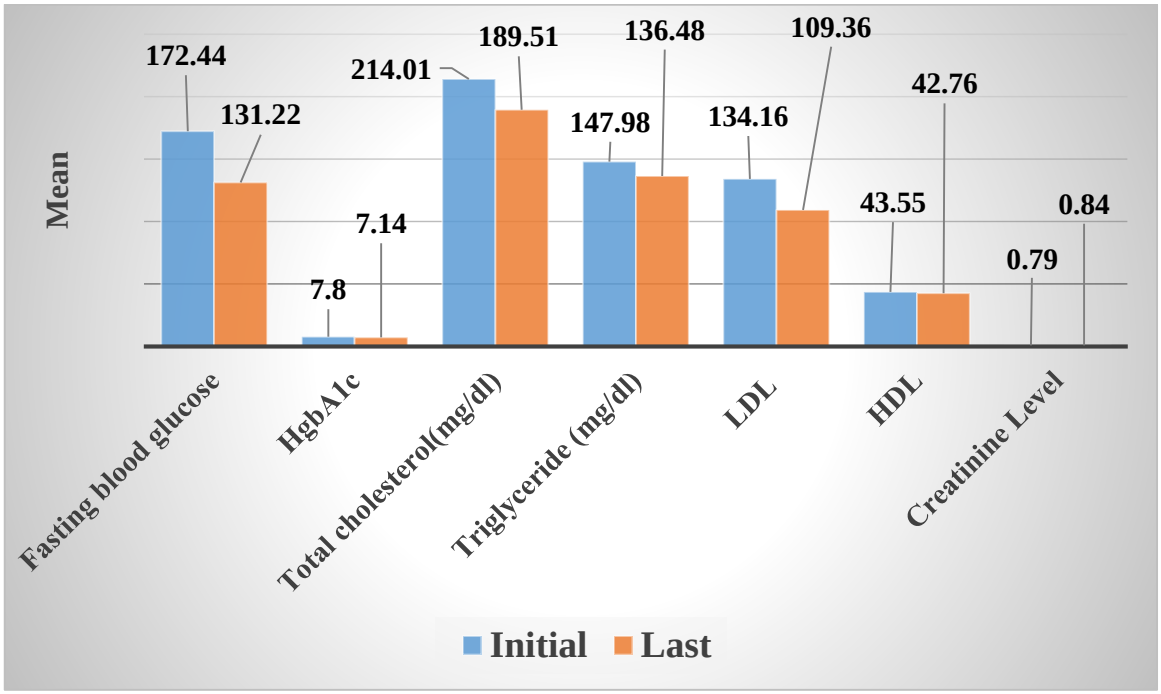


Figure 4.7. Biochemical Measurement

4.2.6 Health Advice Concerning Dietary, Smoking, Physical Activity, And Medication Behaviors among NCDs Patients

Question 6**:** *What is the perspective of chronic non-communicable disease patients towards the customized health education protocol for chronic illnesses designed by WHO, including their understanding, acceptance, satisfaction and perceived benefits of the intervention concerning their dietary, smoking, physical activity, and medication behaviors?*

H0 #1: *There is no significant relation between smoking advice provided by healthcare providers and smoking behaviors among NCD patients at α level= 0.05.* **(Table 4.3)**

H0 #2: *There is no significant relation between physical activity advice provided by healthcare providers and physical activity behaviors among NCD patients at α level= 0.05.* **(Table 4.3)**

H0 #3: *There is no significant relation between diet advice provided by healthcare providers and fruit, vegetables and salty intake behavior among NCD patients at α level= 0.05.* **(Table 4.3)**

Figure (4.8) presents responses given by patients with non-communicable diseases (NCDs) regarding health advice can provide valuable insights into their adherence to recommended behaviors. Regarding smoking advice, the majority of patients reported getting it either rarely or never (85.6%), which suggests that healthcare providers may not be communicating with patients about effective smoking cessation techniques. There appears to be a need for better nutritional counseling since a sizable number of patients (95.5%) reported rarely or never receiving advice regarding their diet. The results also showed that the majority of patients (91.5%) never or never receive guidance on physical activity, which is a possible area that healthcare providers should focus on when encouraging exercise for the management of non-communicable diseases. There is a need for regular medication counseling, as seen by the 84.9%) of patients who said they received pharmaceutical advice infrequently or never.

Ultimately, the findings highlighted how crucial it is for healthcare providers to continuously provide advice on several aspects of managing non-communicable diseases (NCDs), such as quitting smoking, altering one's diet, encouraging physical activity, and adhering to prescription regimens, in order to enhance patient outcomes and quality of life. There is a significant chance for healthcare providers to improve their

communication efforts and assurance that patients receive thorough advice customized to their particular needs and situation.

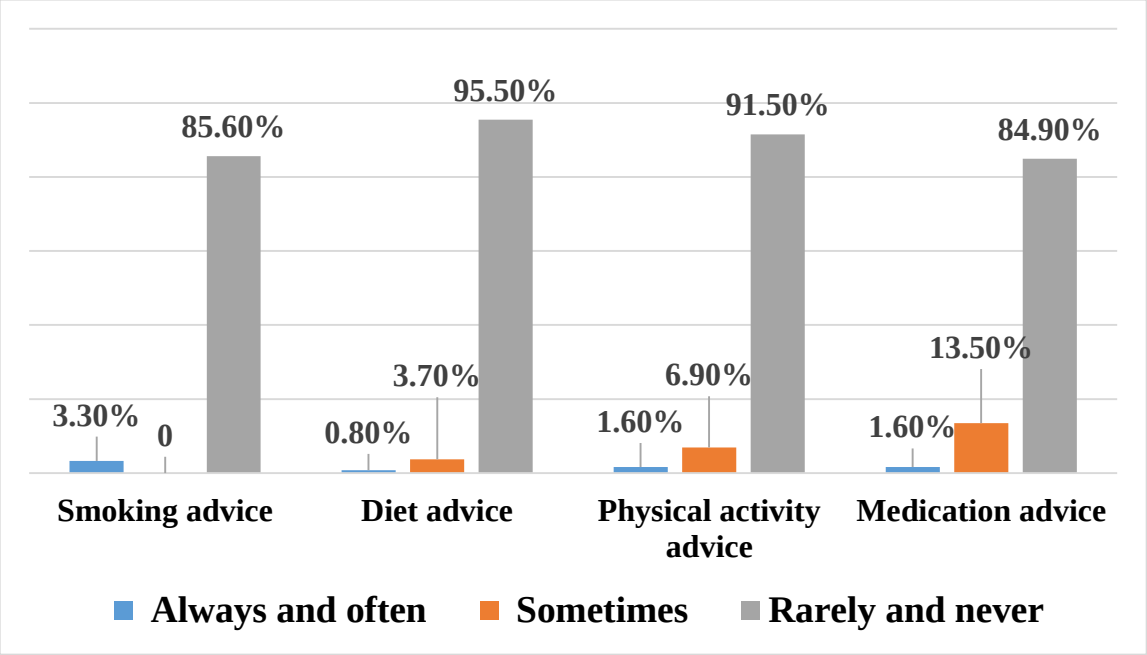


Figure 4.8. Health Advice Concerning Dietary, Smoking, Physical Activity, And Medication Behaviors among NCDs Patients

According to ANOVA tests as shown in Table (4.3), there was no a statistically significant relationship between smoking advice provided by healthcare providers and smoking behaviors (F = 0.479, p = 0.848). However, there were a statistically significant relationship between diet advice provided by healthcare providers and behaviors related to fruit and vegetable consumption (F = 2.826, p = 0.000), as well as behaviors related to salty intake (F = 3.558, p = 0.000). Similarly, no a statistically significant relationship was found between physical activity advice provided by healthcare providers and physical activity behaviors (F = 0.501, p = 0.606).

Table 4.3. Advice Provided By Healthcare Providers and NCDs Patients Behaviors

Independent Variables	Dependent Variables	ANOVA	
		F	P-value
Smoking Advice	Smoking Behaviors	0.479	0.848
Diet Advice	Fruit and Vegetables Behavior	2.826	0.000
	Salty Intake Behavior	3.558	0.000
Physical Activity Advice	Physical Activity Behavior	0.501	0.606

H0 #4: *There is no statistically significant relation between education provided by healthcare providers and physical measurements among NCD patients at α level = 0.05.*
H0 #5: *There is no significant relation between education provided by healthcare providers and biochemical measurements among NCD patients at α level= 0.05*.

Table (4.4) presents the various diet, exercise, weight loss, quitting smoking, and medication advice in order to determine the physical measurements. ANOVA tests revealed that there was no significant relationship between low salty diet advice provided by healthcare providers and raised blood pressure ($p = 0.894$). No significant relationship was observed between physical activity advice and raised blood pressure ($p = 0.888$), cardiac risk ($p = 0.267$), or body mass index (BMI) ($p = 0.477$). However, there was a significant association between physical activity advice and waist circumference ($p = 0.001$). In terms of quitting smoking advice, while no significant relationship was found with cardiac risk ($p = 0.105$), there was a significant association with raised blood pressure ($p = 0.049$). For weight reduction advice, no significant relationship was detected with BMI ($p = 0.983$), but there was a significant correlation with waist circumference ($p = 0.024$) and raised blood pressure ($p = 0.011$). When considering medication advice, although no significant relationship was found with raised blood pressure ($p = 0.054$), there were significant associations with cardiac risk ($p = 0.004$), BMI ($p = 0.026$), and waist circumference ($p < 0.001$). Lastly, general diet advice did not show a significant relationship with BMI ($p = 0.525$), but it did exhibit a significant association with waist circumference ($p = 0.010$).

There was a significant relationship between low fats diet advice provided by healthcare providers and raised cholesterol levels ($p = 0.031$). Additionally, there was a significant relationship between low sugar diet advice provided by healthcare providers and fasting blood sugar (FBS) levels ($p = 0.014$), as well as Glycated hemoglobin (HgbA1c) levels ($p = 0.045$). However, no significant relationship was found between physical activity advice provided by healthcare providers and raised cholesterol levels ($p = 0.138$), lipid profile ($p = 0.176$), fasting blood sugar (FBS) levels ($p = 0.069$), or Glycated hemoglobin (HgbA1c) levels ($p = 0.204$). Similarly, no significant relationship was found between quitting smoking advice provided by healthcare providers and Glycated hemoglobin (HgbA1c) levels ($p = 0.080$). Moreover, there was no significant relationship found between medication advice provided by healthcare providers and Glycated hemoglobin (HgbA1c) levels ($p = 0.073$). However, there were significant

relationships between medication advice provided by healthcare providers and raised cholesterol levels (p = 0.020), as well as raised triglyceride levels (p = 0.014).

Table 4.4. Advice Provided By Healthcare Providers and NCDs Patients' Physical and Biochemical Measurements

Independent variables	Dependent variables	ANOVA	
		F	P-value
Low salty diet advice	Raised BP	0.414	0.894
Low fats diet advice	Raised cholesterol	2.076	0.031
Low sugar diet advice	FBS	3.609	0.014
	HgbA1c	2.718	0.045
Diet advice	BMI	0.942	0.525
	Waist circumference	2.015	0.010
Physical activity advice	Raised BP	0.285	0.888
	Raised cholesterol	1.752	0.138
	Cardiac risk	1.306	.267
	BMI	0.878	0.477
	Waist circumference	4.660	0.001
	Lipid profile	1.590	0.176
	FBS	2.196	0.069
	HgbA1c	1.493	0.204
Quit smoking advice	Cardiac risk	1.766	0.105
	HgbA1c	1.972	0.080
	Raised BP	2.137	0.049
Weight reduction advice	BMI	0.097	0.983
	Waist circumference	2.852	0.024
	Raised BP	3.294	0.011
Medication advice	Raised BP	1.613	0.054
	HgbA1c	1.560	0.073
	Raised Cholesterol	1.840	0.020
	Raised triglycerides	1.949	0.014
	Cardiac risk	2.186	0.004
	BMI	1.780	0.026
	Waist circumference	3.244	0.000

4.2.7 Health Behaviors across Demographic Characteristics of NCDs Patients

H0 #6: *There is no significant difference in NCDs patients behaviors based on their demographic characteristics at α level= 0.05* (Table 4.5)

4.2.7.1 NCDs Patients' Fruit and Vegetable Behaviors Based on Demographic Characteristics

Based on the (Table 4.5), there were significant differences in NCDs patients' fruit and vegetable behavior based on their monthly income at the p-value of 0.05 (p=0.009). It was specifically in favor of individuals earning more than 8000 NIS. This implies that higher income individuals tend to exhibit healthier fruit and vegetable behavior in comparison to those with lower incomes. However, for other demographic characteristics such as residency area, number of years complaining of the disease, gender, religion, age, level of education, and marital status, the p-values were greater than 0.05, suggesting that there was no significant difference in NCDs patients' fruit and vegetable behaviors based on these demographic characteristics at the specified significance level.

Table 4.5. NCDs Patients' Fruit and Vegetable Behaviors Based on Demographic Characteristics

Factors			**Diet -Fruit & Vegetable Behavior Handling score**		**F value**	**p-value**
			Mean	**SD**		
	Residency Area				1.090	0.337
	Number of years complaining of the disease				1.456	0.235
	Gender				2.233	0.136
	Religion				0.676	0.411
	Age in numbers				1.559	0.019
	Level of Education				1.707	0.118
	Marital status				0.864	0.460
Monthly Income	< 2000 NIS		3.689	0.995	2.708	0.009
	2000 to < 3500 NIS		3.897	0.952		
	3500 to <5000 NIS		3.9796	0.972		
	5000 to < 6500 NIS		4.123	0.708		
	6500 to < 8000 NIS		4.265	0.721		
	More than 8000		4.412	1.004		

4.2.7.2 NCDs Patients' Salty Diet Behaviors Based On Demographic Characteristics

Based on Table (4.6), there were significant differences in NCDs patients' salty diet behavior based on their monthly income at the p-value of 0.05 (p = 0.028). It was specifically in favor of individuals earning more than 8000 NIS and < 2000 NIS. In addition to, there were significant differences in NCDs patients' salty diet behavior based on their level of education at the p-value of 0.05 (p = 0.026). It was specifically in favor of individuals had no formal schooling. This implies that lower education individuals tend

to exhibit salty diet behavior. However, for other demographic characteristics such as residency area, number of years complaining of the disease, gender, religion, age and marital status, the p-values were greater than 0.05, suggesting that there was no significant difference in NCDs patients' salty diet behaviors based on these demographic characteristics at the specified significance level.

Table 4.6. NCDs Patients' Salty Diet Behaviors Based On Demographic Characteristics

Factors		Salty diet Behavior Handling score		F value	p-value
		Mean	SD		
Residency Area				1.193	0.305
Number of years complaining of the disease				2.383	0.094
Gender				1.636	0.202
Religion				2.555	0.111
Age in numbers				0.837	0.752
Marital status				0.748	0.524
Level of Education	No formal schooling	4.236	5.198	2.425	0.026
	Less than primary school	2.689	2.513		
	Primary school completed	2.292	0.185		
	Secondary school not completed	2.307	0.792		
	Secondary school completed	2.441	1.532		
	College/University completed	2.164	0.244		
	Post graduate degree	2.185	0.328		
Monthly income	< 2000 NIS	2.900	2.786	2.278	0.028
	2000 to < 3500 NIS	2.279	0.804		
	3500 to <5000 NIS	2.194	0.223		
	5000 to < 6500 NIS	2.202	0.229		
	6500 to < 8000 NIS	2.235	0.244		
	More than 8000	2.900	2.786		

4.2.7.3 NCDs Patients' Physical Activity Behaviors Based On Demographic Characteristics

Table (4.7) revealed statistically significant differences in physical activity behavior among NCDs patients based on several demographic factors. Specifically, there were significant differences favoring males in gender ($p = 0.000$), currently married individuals in marital status ($p = 0.003$), and those with a postgraduate degree in level of education ($p = 0.006$). Additionally, higher monthly income (more than 8000 NIS) was associated with significant differences in physical activity behavior ($p = 0.000$). Furthermore, both the number of years complaining of the disease ($p = 0.033$) and age in numbers ($p = 0.019$) showed significant differences. However, residency area and religion

did not exhibit significant differences in physical activity behavior among NCDs patients, as indicated by their non-significant p-values.

Table 4.7. NCDs Patients' Physical Activity Behaviors Based On Demographic Characteristics

Factors		Physical activity Behavior Handling score		F value	p-value
		Mean	SD		
Residency Area				1.612	0.201
Number of years complaining of the disease				3.452	0.033
Gender	Male	14.16	11.47	23.92	0.000
	Female	9.77	5.80		
Religion				0.083	0.774
Age in numbers: 44 years (M±SD: 22.981±20.652)				1.559	0.019
Marital status	Never married	11.1	10.3	4.794	0.003
	Currently married	12.3	9.13		
	Divorced	6.33	0.00		
	Widowed	7.27	3.41		
	Never married	11.01	10.32		
Level of Education	No formal schooling	12.10	12.28	3.044	0.006
	Less than primary school	9.13	5.52		
	Primary school completed	10.24	6.62		
	Secondary school not completed	13.41	11.30		
	Secondary school completed	11.10	9.81		
	College/University completed	11.66	6.56		
	Post graduate degree	20.20	11.97		
Monthly income	< 2000 NIS	9.71	6.05	4.546	0.000
	2000 to < 3500 NIS	9.93	7.28		
	3500 to <5000 NIS	10.95	6.10		
	5000 to < 6500 NIS	14.01	11.90		
	6500 to < 8000 NIS	17.51	11.46		
	More than 8000	18.03	16.57		

4.2.7.4 NCDs Patients' Smoking Behaviors Based On Demographic Characteristics

Table (4.8) shows smoking behavior among NCDs patients significantly differs based on gender, favoring males as indicated by the p-value of 0.000. However, no significant differences were observed based on other demographic characteristics such as residency area, number of years complaining of the disease, religion, age in numbers, marital status, level of education, and monthly income, as their associated p-values were not provided.

Table 4.8. NCDs Patients' Smoking Behaviors Based On Demographic Characteristics

Factors		Smoking Behavior Handling score		F value	p-value
		Mean	SD		
Residency Area				0.056	0.946
Number of years complaining of the disease				0.822	0.440
Gender	Male	2.314	1.121	68.96	0.000
	Female	1.672	0.240		
Religion				0.323	0.570
Age in numbers				0.973	0.521
Marital status				0.357	0.784
Level of Education				0.497	0.811
Monthly income				1.376	0.214

4.2.7.5 Medical Advice across Demographic Characteristics of NCDs Patients

H0 #7: *There is no significant difference in NCDs patients' medical advice based on their demographic characteristics at α level= 0.05* (Table 4.9)

Table (4.9) revealed that diet advice among NCDs patients significantly differs based on gender, favoring females as indicated by the p-value of 0.048. Also, there were significant differences based on monthly income (p-value = 0.03) favoring who had income of 5000 to < 6500 NIS. On the other hand, the study showed that, 7 out of 48 (14.58%) of whose monthly earning income less than 2000NIS were smokers, and 8 out of 48(16.66%) of whose monthly income was more than 2000 but less than 3500 NIS were smokers. In sum, 15(31.25%) of smokers belonged to low middle class (less than 3500 NIS monthly). Additionally ,22(45.83%) of smokers earned 3500 to less than 5000 NIS monthly, and 5 out of 48 of them (10.41%) earned 5000- less than 6500 NIS, similarly (10.41%) to those earned 6500 -less than 8000NIS, while just 1(2%) of smokers earned more than 8000NIS monthly. However, no significant differences were observed based on other demographic characteristics such as, age, marital status, occupation and level of education as their associated p-values were not provided. Although education showed no significance to smoking, but it was noticed that most of smokers belonged to higher than secondary class category. About 6 out of 48(12.5%) of less than primary class education were smokers, 14 out of 48(29.16%) not completed secondary class, while 9 out of 48(18.75%) completed secondary school, and 19 out of them completed college (39.58%) were smokers.

Table 4.9. Diet Advice Based On NCDs Patients' Demographic Characteristics

Factors		Diet advice score		F value	p-value
		Mean	SD		
Gender	Male	4.711	0.567	3.928	0.048
	Female	4.819	0.487		
Age				0.872	0.481
Level of education				1.835	0.091
Marital status				1.476	0.221
Occupation				1.213	0.294
Monthly income	< 2000 NIS	4.747	0.597	2.249	0.030
	2000 to < 3500 NIS	4.851	0.315		
	3500 to <5000 NIS	4.764	0.555		
	5000 to < 6500 NIS	4.889	0.295		
	6500 to < 8000 NIS	4.555	0.716		
	More than 8000	4.563	0.853		
	don't know	4.071	0.303		
	Refused	4.286	.		

Table (4.10) revealed that smoking advice among NCDs patients significantly differs based on age, favoring (51-60 years) as indicated by the p-value of 0.001. However, no significant differences were observed based on other demographic characteristics such as, age, marital status, level of education, occupation and monthly income, as their associated p-values were not provided.

Table 4.10. Smoking Advice Based on NCDs Patients' Demographic Characteristics

Factors		Smoking advice score		F value	p-value
		Mean	SD		
Gender				1.201	0.276
Level of education				2.328	0.063
Marital status				0.158	0.854
Monthly income				0.391	0.883
Occupation				1.981	0.090
Age	31-40	1.00	.	5.822	0.001
	41-50	4.308	0.830		
	51-60	4.408	0.768		
	61-70	4.333	0.866		

Table (4.11) revealed that physical activity advice among NCDs patients significantly differs based on level of education, favoring primary school completed (9th class) as indicated by the p-value of 0.036. Also there were significant differences based

on monthly income (p-value = 0.019) favoring who had income of 2000 to < 3500 NIS. However, no significant differences were observed based on other demographic characteristics such as, age, marital status, occupation and gender as their associated p-values were not provided.

Table 4.11. Physical Activity Advice Based on NCDs Patients' Demographic Characteristics

Factors		Physical activity advice score		F value	p-value
		Mean	SD		
Level of education	No formal schooling	4.667	0.817	2.281	0.036
	Less than primary school(9th not completed)	4.500	0.906		
	Primary school completed(9th class)	4.893	0.401		
	Secondary school not completed	4.811	0.541		
	Secondary school completed	4.840	0.507		
	College/University completed	4.675	0.750		
	Post graduate degree	4.444	1.333		
Age				2.251	0.134
Gender				0.617	0.650
Marital status				1.353	0.257
Occupation				1.155	0.328
Monthly income	< 2000 NIS	4.583	0.887	2.434	0.019
	2000 to < 3500 NIS	4.836	0.507		
	3500 to <5000 NIS	4.776	0.597		
	5000 to < 6500 NIS	4.821	0.527		
	6500 to < 8000 NIS	4.618	0.697		
	More than 8000	4.500	1.090		
	don't know	4.250	1.061		
	Refused	3.000	.		

Table (4.12) revealed that medication advice among NCDs patients significantly differs based on level of education, favoring less than primary school (9th not completed) as indicated by the p-value of 0.025. Also there were significant differences based on occupation (p-value = 0.032) favoring who were students and non-government employee. However, no significant differences were observed based on other demographic characteristics such as, age, marital status, gender and level of education as their associated p-values were not provided.

Table 4.12. Medication Advice Based on NCDs Patients' Demographic Characteristics

Factors		Medication advice score		F value	p-value
		Mean	SD		
Level of education	No formal schooling	3.750	0.835	2.438	0.025
	Less than primary school(9th not completed)	4.145	0.953		
	Primary school completed(9th class)	4.738	0.569		
	Secondary school not completed	4.412	0.745		
	Secondary school completed	4.398	0.769		
	College/University completed	4.349	0.652		
	Post graduate degree	4.667	0.722		
Age				1.806	0.127
Gender				1.248	0.265
Marital status				1.311	0.271
Monthly income				1.782	0.090
Occupation	Government employee	4.241	0.799	2.219	0.032
	Non-government employee	4.433	0.717		
	Self-employed	4.387	0.689		
	Student	4.444	0.962		
	Homemaker	4.366	0.784		
	Retired	4.393	0.602		
	Unemployed (able to work)	3.583	1.304		
	Unemployed (unable to work)	4.817	0.372		

4.3 The Qualitative Results

The qualitative results provide an important information on how the Patient Education and Nutrition (PEN) affects people's health habits and measures. A broad comprehension of health-related information and subsequent behaviors has viewed by participant feedback and observations. In addition to providing useful context to support quantitative data, these findings deepen knowledge of the practical applications of the PEN program and its potential to encourage better lifestyles.

Rigorous data collecting methods were used in this study to ensure the thorough collection of data necessary for the objectives of the study. Semi-structured interviews were the principal technique used; they were selected due to their flexibility in providing

participants with the chance to expound on their answers in addition to scripted questions. Semi-structured interviews offer a compromise between preserving a certain degree of uniformity across participants and permitting the study of varied viewpoints and experiences. The interview session lasted 30 to 40 minutes, which was thoughtfully chosen to accommodate in-depth conversations while still honoring participants' time constraints. One hour was thought to be enough time to fully explore the subjects of interest without overwhelming participants with interviews that were too long.

Furthermore, the interviews' semi-structured format promoted a setting in which open discussion was encouraged. Participants were allowed to share their ideas, experiences, and points of view in their own words by using open-ended questions and ideas. This method improved the quality and depth of the information gathered by fostering a relationship of trust and rapport between the researcher and the participants in addition to ensuring the acquisition of rich, comprehensive data. In addition, a carefully chosen list of ten qualitative questions served as a guide for the interview process. These inquiries were formulated to address a variety of significant subjects and issues related to the study's objectives. The purposefully wide and open-ended questions offered a framework for the conversation, but they also allowed for flexibility and adjustment based on how the conversation developed and the individual experiences of each participant.

A technique to manual content analysis was used. By accepting a wide range of data sources, such as websites, interviews, and medical records, qualitative content analysis demonstrates its adaptability. However, because of their great variety, interpreting these varied texts is difficult. Depending on the goals of the study, the caliber of the data, and the experience of the researchers, qualitative content analysis can take many various shapes, leading to the creation of themes and/or categories. While themes connect many categories and provide the topic under study more relevance, categories group comparable codes to describe material briefly and with limited interpretation. It is noteworthy that themes can change without reference to earlier classification, especially when data richness permits a direct flow from codes to sub-themes and themes (Lindgren et al., 2020; Creswell & Plano Clark, 2007; Creswell & Tashakkori , 2017; Oliveira et al., 2018; Dodgson, 2017). The predetermined themes of this study were already known that are guided by several qualitative questions beside quantitative results of this study.

4.3.1 Coding Process

The technique of systematically classifying and evaluating text to find themes, patterns and insights was known as coding. It was reflective, subjective, iterative, and receptive to new patterns and ideas. It also required close attention to detail and critical thought. Getting familiar with the qualitative data should be the first step. To fully comprehend the topic, read the text many times. Next, open coding was implemented, which entailed segmenting the data into manageable chunks and giving each chunk a name that could be interpreted or described. Putting the codes in order and making connections to larger categories. Searching for connections between codes and locating smaller themes in the data. With selective coding, less pertinent codes were eliminated and the most important patterns that surfaced from the data were prioritized. Comparing newly coded and previously coded data segments in order to improve the coding method and guarantee consistency. Keeping a journal or notepad during the coding process to record ideas, observations, and understandings. Lastly, interpreting the coded data by synthesizing the results, establishing links between thematic units, and producing new understandings or conclusions (Lindgren et al., 2020; Creswell & Plano Clark, 2017; Creswell & Tashakkori , 2017; Oliveira et al., 2018; Dodgson, 2017). Table (4.13) shows coding-construction form.

Table 4.13. Coding Constructive Form

Categories	Subthemes	Themes
Information meet expectations Instructions answer questions	Meaningful Instructions	**The effectiveness of health education during routine clinic visits**
Healthy diet Adherence to medication Lab tests control Physical Exercise	Acquiring new skills and information	
Avoidance Unwillingness Family and social commitments	Patient-related barriers	**Barriers to provide Sufficient Health Education**
Lack of knowledge Work overload Lack of interest Ineffective therapeutic communication	Staff- related barriers	
Lack of supervision Absence of specialized nurse for education Lack of appointment system	System-related barriers	
External Physicians	Health care providers	

Home nursing		**Alternative Sources for Acquiring Information**
Family Friends Neighbors	Significant others	
Medical blogs TV &Radio Books and pamphlets	Media	

4.4 Qualitative Results

4.4.1 Demographic Data of the Participants

A total of 15 chronic NCDs patients were individualized interviewed of which 33.3% were solely hypertension cases (n=5); the majority were females (n = 13, 80%); all married and nearly half of them belonged to the age group of 61–70 years (n=8). The majority had less than 10 years of total service (n = 12). In particular, Table (4.14) illustrates demographic characteristics of participants.

Table 4.14. Participants' Demographic Data of Focus Group

Variables		**Frequency**	**Percent**
Age	41-50	4	26.7%
	51-60	3	20%
	61-70	8	53.3%
Gender	Male	3	20%
	Female	12	80%
Religion	Muslim	12	80%
	Christian	3	20%
Education: Number of Education in years	Non	2	13.3%
	5	1	6.7%
	11	2	13.3%
	12	3	20%
	14	1	6.7%
	16	5	33.3%
	18	1	6.7%
Work	Herdsman	1	6.7%
	Housewife	5	33.3%
	Lawyer	1	6.7%
	Retired Nurse	1	6.7%
	Retired Social Worker	1	6.7%
	Retired Teacher	1	6.7%
	School Janitor	1	6.7%
	Special Business	1	6.7%
	Teacher	3	20%

Marital Status	Currently married	15	100%
NCD Diagnosis	Asthma	1	6.7%
	CA Colon	1	6.7%
	CAD+HTN	1	6.7%
	DM+HTN	4	26.7%
	DM+HTN+CAD	1	6.7%
	DM+HTN+CA	1	6.7%
	HTN	5	33.3%
	RF+HTN+DM+CAD	1	6.7%
NCD Chronicity Mode: 4,6 Years	3 Years	2	13.3%
	4 Years	3	20%
	5 Years	1	6.7%
	6 Years	3	20%
	7 Years	1	6.7%
	10 Years	2	13.3%
	15 Years	1	6.7%
	17 Years	1	6.7%
	20 Years	1	6.7%
No. of Years Received Service Mode: 4, 6 Years	3Years	2	13.3%
	4 Years	3	20%
	5 Years	2	13.3%
	6 Years	3	20%
	7 Years	2	13.3%
	10 Years	1	6.7%
	15 Years	2	13.3%
Name of Clinic Mode: Al-balo’	Kharbatha Bani Hareth	1	6.7%
	Al-balo’	4	26.7%
	Arora	2	13.3%
	Beit -Oor Altahta	1	6.7%
	Birzeit	3	20%
	Deir-Sudan	1	6.7%
	Kufr Ein	2	13.3%
	Na’aleen	1	6.7%

4.4.2 Themes and Subthemes

Three major themes were explored from the voices of NCDs patients attended the governmental primary health clinics in Ramallah governorate, in accordance to perceptions of non-communicable disease from patients’ point of view in the qualitative evident content analysis that are: (i) the effectiveness of health education during routine clinic visits; (ii) barriers to provide sufficient health education & (iii) alternative sources for acquiring information as shown in (Table 4.15).

4.4.3 Theme #1: The Effectiveness of Health Education during Routine Clinic Visits

The effectiveness of health education during regular clinic visits was one of the main themes. Based on participants' responses, several codes were emerged. These codes were categorized in case of their similarities. Two subthemes that provided light on the different aspects of educational effectiveness were found under this main subject.

4.4.3.1 Subtheme 1: Un-Meaningful Instructions

One such subtheme was "Meaningful instructions," which included situations in which patients were given pertinent and understandable advice. This subtheme further divided into areas like "Information meeting expectations," where participants reported that the guidelines satisfied their informational needs, and "Instructions answer questions," where participants felt that the instructions addressed particular questions or concerns, they had.

Based on the responses given by participants, an analysis of the effectiveness of health education during normal clinic visits reveals numerous important findings. A complaint about the quality of information given by doctors and nurses at some clinics highlighted a significant deficiency in patient education. Due to the absence of thorough instruction, people were forced to conduct their own independent research, which was frequently done online. In addition to taking consultations and advices from others like private doctors, specialists from public hospitals.

A participant expressed concerns about healthcare providers prioritizing prescription renewal over patient education.

> *"… Nurses and doctors prioritized prescription renewal over patient education, leading to minimal attention to vital signs or patient concerns. Patients received no educational information during visits, prompting them to resort to self-education online…"* (P #7).

In the meantime, another person indicated that he needed more information and started looking for different healthcare facilities in order to receive better advice.

> *"...I think I need to learn more about my health condition. The training sessions I went to were not beneficial; they frequently left me perplexed or lacking in understanding. As a result, I regularly seek the opinion of experts at Ramallah Hospital, who offer more*

thorough and perceptive guide on treating my medical condition…"(P #9).

He said that a lack of educational resources contributed to that decision and having a good knowledge on making healthy lifestyle choices might significantly enhance one's quality of life.

"… A gap in the educational support let me frustrated and taking an advice from specialists at private hospitals… I believe that proper education about healthy lifestyle choices could vastly improve our quality of life…" (P #10).

Furthermore, participants experience demonstrated the differences in the quality of care provided by various healthcare facilities, with a discernible improvement observed following treatment at an alternative clinic. Proactive testing and thorough findings explanations highlighted the possible influence of good health education during clinic visits. Even in situations where patients get guidance from their doctor on diet, exercise, and medicine, it is still necessary to emphasize the importance of patient education in the management of diseases. In the same way, 3 out of 15 participants experience indicated that, even with standard evaluations like blood pressure checks and prescription medicine, no health updates or information was given during clinic appointments. This demonstrated how healthcare professionals lost out on a chance to actively engage in patient education and responded to any questions or issues.

One claimed about his dissatisfaction with the kind of medical instruction he was given when visiting clinics. This may suggest that more individualized care and better patient-provider communication are required.

"…I was not satisfied with the health education I received during clinic visits, even with the help of my son who is a doctor. I pointed out that there was a lack of clear instructions and little communication from nurses and physicians. When I questioned about my lab findings and nutritional advice, I felt ignored and discouraged…" (P #1).

While another 3 0ut 15 reported about some negligence. He expressed unhappiness with the clinic sessions since there was not enough interaction from the medical staff.

"…A variety of subjects were discussed during clinic appointments, such as comprehending thyroid test findings and controlling hypertension through dietary modifications. Nonetheless, I saw that

medical staff frequently gave short or ambiguous responses to patients' questions rather than participating completely in their care. I got the impression from the staff's lack of reaction that they valued their social contacts more than having deep conversations with patients, which left several issues unresolved..." (P #2).

There was variation between clinics as said by some participants. One participant provided a detailed description of his experience at certain center. He voiced his dissatisfaction with the clinic's lack of data, pointing to a deficiency in the quality of care. He made it clear that he did not hold the medical personnel accountable, demonstrating compassion and understanding for the difficulties that healthcare professionals encounter.

"...Before I was being referred to al-balo', I was not satisfied with this little information nurses and doctor provided me with at Arora clinic…""...I don't blame the physicians or nurses here; but, I saw that a doctor looked after me and provided me advice on what to eat, how to take my medications, and how to exercise. In addition, the doctor performed many blood and urine tests on me without my request and thoroughly described the results…" (P#3).

A further response compared the treatment obtained at two distinct clinics. It emphasized how each clinic took a different approach in terms of advice, direction, and emphasis. Some clinics focused mostly on following prescription regimens and basic dietary instructions.

"...The doctor and dietitian at Al-Balo's clinic gave patients individualized advice so they understood their treatment regimens completely. By providing individualized guidance on a range of health-related topics, they promoted an all-encompassing method of patient care. Ras Karkar Clinic, on the other hand, focused mostly on stressing medication adherence and offering minimal dietary instructions. Unfortunately, patients were left wanting more in-depth knowledge because the clinic did not provide much in the way of personalized coaching or deeper teaching..." (P #11).

Conversely, another clinic had the same issue, but the members of the health team differed in how they approached and provided care.

"...The degree of advice given by doctors and nurses differed greatly. Certain healthcare practitioners ensured that their patients

had the information necessary to properly maintain their health by providing them with detailed instructions on drug administration, nutritional guidance, and lifestyle alterations. Some, on the other hand, paid little attention, offered less assistance, and frequently ignored the inquiries of the patients, leaving them feeling misinformed and neglected…" (P #12).

4.4.3.2 Subtheme 2: Impair in Acquiring new skills and information

Second subtheme was "Acquiring new skills and information," which reflected patients' experiences of gaining knowledge or learning practical skills during clinic visits. This subtheme encompassed categories such as "Healthy diet," where patients received guidance on dietary habits, "Adherence to medication," focusing on instructions related to medication management, "Lab tests control," pertaining to guidance on monitoring and interpreting lab test results, and "Physical exercise," highlighting advice on incorporating physical activity into daily routines.

Despite continuously normal readings and prompt medication adherence, other participants said that neither the doctors nor the nurses gave any health updates or information during their visits.

"…The clinic's services have serious issues which have gotten worse recently. These problems included missing lab test appointments and prescription shortages. The lack of appropriate attention and information from doctors and nurses left many patients feeling abandoned and unsatisfied with the standard of treatment…" (P #13).

In the PEN program, participants expressed unhappiness with the health education received during clinic visits. A participant received very little in the way of educational services; this mostly consisted of providing basic medical testing and medicines, but no extensive advice on how to manage their diseases.

"…I was not satisfied with the health education I received during clinic visits, even with the help of my son who is a doctor. I pointed out that there was a lack of clear instructions and little communication from nurses and physicians. When I questioned

about my lab findings and nutritional advice, I felt ignored and discouraged…" (P #1).

Another person voiced worry with the inadequate answers given to patients' inquiries during clinic sessions.

"...During clinic sessions, topics covered included treating hypertension with dietary changes and interpreting thyroid test findings. I believed that medical professionals neglected to appropriately respond to patients' questions and valued socializing above interacting with patients…" (P #2).

Another observed that crucial health communication, test result interpretations, and medication conversations had disappeared from clinic meetings. He also highlighted a lack of instructional resources.

"...I don't blame the physicians or nurses here; but, I saw that a doctor looked after me and provided me advice on what to eat, how to take my medications, and how to exercise. In addition, the doctor performed many blood and urine tests on me without my request and thoroughly described the results…" (P#3).

Another also reported that the nurse gave them very little information and did not offer them with comprehensive information about their health. According to this feedback, the patient thought that medical staff did not provide them with enough thorough advice or communication, especially when it came to managing their diabetes and general health.

"...Despite the doctor's reassurances about my health, I noticed a significant lack of detailed information. Initially, the doctor provided helpful advice on controlling my diabetes, which was promising. However, during subsequent visits, the focus shifted almost entirely to prescribing medication and conducting laboratory tests, with little attention given to broader aspects of my health. This narrow approach left me feeling like I was missing important context and guidance for managing my condition. Additionally, the nurse offered limited information about my health, which compounded my concerns and left me with unanswered questions..." (P #4).

Furthermore, a number of participants voiced their worries regarding the dearth of instructional resources, data, and guidance offered. He believed there was a deficiency in the information available to aid in their understanding of his medical issues and proposed courses of therapy. It was challenging to make wise judgments on wellness and health in the lack of help. One person mentioned the expert's presence and emphasized the importance of having a competent expert on hand to offer thorough explanations and guidance.

> *"…The clinic in my village failed to provide any educational materials or information, only allowing me to collect prescription medication without additional support or guidance. Recently, a specialized doctor emphasized the importance of avoiding irritants, regular exercise, and maintaining a healthy diet…"* (P #5).

Since the specialist could answer complicated questions and gave tailored advice, their presence gave them comfort and confidence in the treatment they were receiving.

> *"…During clinic appointments, patients frequently voiced worries about the absence of thorough counsel on controlling their ailments. They saw that the limited assistance they were given was insufficient to deal with their circumstances. Many also said that there was little health education offered, which prevented them from understanding their treatment plans and making decisions regarding their health that were well-informed…"*(P #6).

According to a feedback from another response, there was a need to make improvements to both general patient care philosophy and its training programs. The patient experience may be improved by filling up the gaps in health information and making sure that patients receive considerate, careful treatment. To enhance patient outcomes and satisfaction, it was critical for healthcare practitioners to pay close attention to and answer patients' concerns, educate patients thoroughly about health issues, and include patients in their own treatment plans.

> *"…I assign the clinic's training sessions a poor overall rating due to significant gaps in the provision of health information and dissatisfaction with the care received. Many key topics seemed to be overlooked, and the educational content was lacking in depth and clarity. Additionally, there was a noticeable disrespect for patients' needs and preferences, which led me to feel that their concerns and*

requirements were not being adequately addressed. This lack of attentiveness to patients' individual situations contributed to my negative evaluation of the clinic's training sessions…" (P#15).

As a conclusion, these themes and subthemes offered a comprehensive understanding of the effectiveness of health education provided during routine clinic visits, encompassing various aspects of patient instruction and empowerment. The data presented suggested that the clinic's health education services under the PEN program were not very successful. Patients indicated that nurses and physicians mostly concentrated on routine measures and medication administration during their visits, providing little in the way of instructional help. In-depth conversations on patients' medical issues and aggressive advice on sickness management were conspicuously absent. Patients often expressed unhappiness with the quality of information offered, depending instead on internet resources for self-education or referrals to other healthcare institutions for guidance from professionals. The clinic's health education programs did not seem to be meeting patient needs overall, which highlights the need for improved educational initiatives and more proactive participation from clinic staff.

4.4.4 Theme 2: Barriers to Provide Sufficient Health Education

One other significant theme was the barriers to providing sufficient health education. Three primary subthemes were identified from these barriers: system, staff, and patient-related.

4.4.4.1 Subtheme 1: Patient-Related Barriers

Patient-related hurdles emerged as a subtheme in the analysis of the factors influencing patient involvement with educational programs. This subtheme originated from the evaluation of participant responds, with several kinds of codes classified according to characteristics including avoidance, unwillingness, and family and social commitments.

From the participant responses provided, several barriers to attaining sufficient health education at the clinic were evident, falling under the subtheme of patient-related barriers:

Avoidance: The patient avoided to ask any question about her condition. One participant was frustrated by the nurses at the Arora clinic's went manner and seeming lack of passion in sharing knowledge about diseases.

"…I avoid questioning the nurses. I wonder, if those who are responsible do agree with these confused circumstances as the nurse mixes up the cases and bring kids to be vaccinated at the same day of providing care to chronic diseased adults…" (P#3).

The busy environment of the clinic, along with a diverse patient base, contributed to a sense of avoidance in seeking clarification or guidance from nurses regarding their condition. The participant noted that patient education was not given enough importance, which caused them to miss out on opportunities to comprehend and took control of her health. Other participants said the nurses were cold and unresponsive, uninterested to interact or answer questions.

"…The nurse didn't seem to want to talk to me; she just remained seated at her desk. She frequently ignored my questions or responded incoherently when I questioned about my condition and course of therapy. Rather, she advised me to visit a physician in order to have a better knowledge of my issue. I was irritated and felt unsupported by the nurse's dismissive attitude since my issues were not being addressed immediately. My whole experience was significantly influenced by her apparent unwillingness to deliver the degree of attention and involvement I expected…" (P #4).

They made an effort to communicate, but they felt ignored, which deterred them from asking for help. Nurse educators' lack of responsiveness added to patients' unhappiness and discontent with the treatment they received

"…I usually don't ask the nurses and doctors questions since I think I know more about my health than they do. I feel that their knowledge may not provide me the kind of clarity or direction I require. Furthermore, it seems that a lot of workers are affected by income worries since they frequently exhibit signs of boredom and burnout. The staff's lack of involvement and excitement may be detracting from the overall standard of treatment and having a bad effect on the patient experience…" (P#14).

Unwillingness: According to one participant, healthcare professionals, seemed unwilling in talking to participants or sharing information about patients' conditions.

"…Neither physicians nor nurses make an attempt to give me basic health information. They have a rude, ineffective manner that makes

me feel uncomfortable. Medical personnel spend more time conversing with one another than they do performing their tasks, which indicates a lack of information sharing. A bad healthcare experience is the outcome of this disregard for the requirements of the patients…" (P#15).

Observation of nurses and doctors engaging in socialization rather than addressing patient needs during duty hours. A participant was hesitant to ask inquiries of doctors because she felt they were uninterested or too busy. She didn't know if the doctor was open to talking; she just took his body language clues. This lead to loss opportunities to learn more about her illness and receive clarity.

"…By analyzing their body language, which frequently conveys whether they are busy or bored, I can generally tell how involved the physicians are. As a result, I usually wait for a more favorable opportunity when they seem to have more time and are more willing to talk. Since I don't want to bother them or interrupt them, I avoid asking questions while they appear busy. I intend to have a more meaningful and relaxed conversation about my worries by holding off until a more appropriate moment…" (P #6).

Family and social commitments: A participant stated that he frequently felt hurried during clinic visits due to his big family and several commitments, which prevented him from asking clinicians questions about his health condition or seeking information.

"…In the beginning of my life, I hurried through clinic appointments without questioning nurses about my health because I had a large family and numerous duties. I acknowledge that I neglected my health. Lately, when I asked nurses for advice while getting my prescription, they would just grin and say nothing. Instead, they told me to see the doctor because they believed he or she would be better knowledgeable about my circumstances..." (P #1).

One participant talked about how he neglected his own health for a while and blamed it on the heavy burden of taking care of his mother before she died. He said that he had once made poor food and lifestyle decisions, which he now regrets. In spite of this, the participant said that he had not discussed the reasons for their declining health state with their healthcare professionals. Rather, he is directed to seek therapy at a different facility.

"…Before my mother died, I didn't take care of my own health, ate everything I wanted without thinking about the possible consequences, and drank a lot of coffee, cola, and sweets. I carried on with these behaviors after her death, worried that my own health might fail me. I accept my guilt and put the blame for my failing health on my own negligence and commitment to my family rather than on doctors..." (P #11).

4.4.4.2 Subtheme 2: Staff-Related Barriers

Barriers associated to staff include challenges such as lack of knowledge, work overload, lack of interest, and ineffective therapeutic communication, underscoring difficulties encountered by medical practitioners in providing effective education.

Lack of knowledge: It was noted that one major barrier to receiving proper education at the clinic was participant misinformation. It was further made worse by the belief that there were no advantages to visiting a clinic. Patients did not receive new information at their repeated visit.

"...I feel that even though the nurses are kind, they don't go above and beyond the call of duty to have meaningful talks or provide useful information regarding my health. I feel confused about how to manage my health and unsupported by this shallow communication. I thus frequently feel as though my clinic appointments are ineffective since I don't have the direction or counsel, I require to make wise judgments regarding my treatment..."(P #6).

This made it harder for the participants to properly manage their health condition in the long run since these obstacles produced feelings of dissatisfaction and despair.

"...My interactions with the medical personnel, including the doctors and nurses, have generally made me believe that their level of knowledge and skill may not match my expectations. It seems like they prefer to have more informal or private chats rather than go into detail about my symptoms or current lab findings. My immediate health issues are no longer the focus, and I feel as though my medical requirements are being disregarded or not given enough

consideration. These exchanges add to my general sense of annoyance and discontent with the treatment I get…" (P #9).

Work overload: Participants brought up obstacles including the strain of a heavy workload and stress on clinic employees. They pointed out that these difficulties might have a detrimental effect on the standard of treatment by causing hurried or careless interactions with patients. Due to their inability to handle their obligations under such circumstances, healthcare professionals may conduct fewer in-depth consultations and pay less attention to the requirements of their patients.

"…In my opinion, you won't likely return unless it's an urgent matter if you visit the clinic and the physicians and nurses are overworked and unable to provide the care you need. It appears that the physicians and nurses working here are not pleasant, and when they are, they don't seem to want to spend the time necessary to educate their patients. It's probable that their months-long financial difficulties are depressing them…" (P #10).

The participants described nurse educators' communication with patients as poor, contrasting their own proactive approach to patient education.

"…Even while nurses have a desire to help, their extensive workload frequently prevents them from adequately attending to patients' needs and providing the information that is required. Overwhelmed with a full schedule, the doctor limits patient encounters and avoids questioning, which makes it more difficult for patients to get appropriate assistance and communication…" (P #1).

These barriers hinder the participant's access to comprehensive education and support, ultimately impacting their ability to manage their complex disease effectively.

"…Managing a big patient population with just one physician and one nurse might be difficult. Because I only get short, vague replies from the doctor when I ask him or her questions, this might make me feel neglected. My issues don't feel like they're being sufficiently addressed because of how quickly these discussions are going..."(P #13).

Lack of interest: The participants observed that rather than teaching patients how to properly manage their diseases, nurses and physicians mostly concentrated on delivering routine services like changing dressings and administering medications.

> *"…The nurses seem busy when I attend the room for my blood pressure check, mostly monitoring my blood pressure and occasionally my weight, even though I don't prioritize the latter because I take frequent readings of my blood pressure at home. But they never talk to me, never ask how I'm doing or how I'm handling my condition, which gives me the impression that they don't care about me or have empathy…"* (P #12).

They believed that healthcare professionals were not interested in attending to people' complaints and were making little to no effort to educate patients. Furthermore, the participant saw that medical staff members argued more than they addressed patients' issues, indicating a lack of emphasis on patient care and education,

> "*…It appears that medical professionals, including nurses, are not very interested to discussing patients' problems with one another. They don't seem to want to talk about the results of recent lab work or ask about symptoms…"" …Doctors ignore good lifestyle behaviors and medication adherence in favor of quickly taking blood pressure measurements and moving on to other topics of conversation. The sudden termination of appointments implies a disregard for the health of patients and an emphasis on intake alone.* (P #6).

Ineffective therapeutic communication: Although some kindness and affection may be evident, this should not be interpreted as evidence of effective communication. Participants reported that some clinics didn't offered a constructive learning atmosphere due to impaired in communication between the health worker and the patients.

> *"… I am working in the health field… the clinic's personnel are unfriendly, don't communicate well with patients, and seem unmotivated to teach them…I am unable to understand any rationale for the nurses' negative actions toward individuals who are seeking care. Even though I am in the health field, I don't get*

respect from them, and they usually regard patients like enemies and have regard for dialogue and patient care…" (P #7).

Participants express gratitude to the medical staff and nurses for their consideration, focus, and readiness to listen to the participant's concerns. Some participants said that physicians and nurses at some clinics avoid meaningful conversations with patients in favor of interacting socially with one another. Healthcare professionals didn't seem interested in talking about patients' health issues or providing them with comprehensive answers, even though the participant saw a possibly manageable patient load. Patients said that medical staff members' responses were brief, uncomfortable, and dismissive, which made them cautious to ask questions or seek more information,

"…The clinic's physicians and nurses frequently break protocols and exhibit mood swings, which negatively impacts patient care. There is no performance monitoring system in place, and service quality appears to be based on human preferences. Personal concerns, like as marital issues, might result in inadequate patient care. Treatment regimens are often kept confidential by doctors, which causes patients to become disengaged…" (P #12).

4.4.4.3 Subtheme 3: System-Related Barriers

System-related barriers, including lack of supervision, absence of specialized nursing roles for education, and the absence of an appointment system, underscored structural deficiencies impacting the delivery of health education services.

Lack of supervision: Frustration was expressed at the clinic's lack of supervision and responsibility, especially with regard to the way the physicians and nurses manage the patients. Dissatisfaction with the healthcare system resulted from participants witnessing a culture of neglect and mistreatment without control,

"…The government must make sure that clinics have a sufficient responsibility and supervision on their employment, The health of the public should be the first priority for government representatives, and they should start by addressing issues that have a negative influence on patient care and service quality, such as poor monitoring, early exits, and a lack of control on medical staff…." (P #4).

Systemic problems including unsatisfied nurses, dismissive nurse educators, and general inadequacies in monitoring and responsibility were brought to light. These obstacles made it more difficult to receive important health information and assistance, which reduced trust in the medical system.

> *"…To ensure accountability, stakeholders should covertly watch healthcare staff. In order to improve the educational and communication abilities of nurses and physicians, managers should regularly offer workshops and training. It is essential to continuously monitor the functioning of the team, and part of that involves making in-person clinic visits as patients to personally see nurse-patient interactions… "…Nurses are not better than the doctor, as they don't show any desire to give me any piece of advice regards my health status. Actually, no one supervises their job if it's done appropriately or not. Nurses and doctors work at their convenience with no supervision or accountancy…"* (P#15).

Absence of specialized nursing roles for education: The lack of specialized responsibilities among healthcare providers was a significant barrier for education. It was noticed that medical professionals, including nurses and physicians, focused mostly on providing basic services without providing patients with appropriate education on how to manage their diseases.

> *"…The government ought to select committed educators to educate patients and handle their health-related problems in addition to hiring more nurses. Cancer patients should be given priority, and their families should also get support. In-depth training is necessary for doctors and nurses to instruct patients during clinic appointments..."* (P #10).

In addressing patient demands and concerns, the participants saw a lack of specialization among healthcare practitioners,

> *"…I think that when providing the service to people, they should be trained how to be cooperative and patient. Additionally, the ministry has developed its staff members so they have all they need to instruct others. On a personal level, we need to start awareness efforts to increase public awareness…"* (P#14).

They greet one other kindly and treated each other with respect, but there was little interaction beyond writing prescriptions. Despite having enough of time on their hands, they made little attempt to find out how they were doing or have deep talks.

> *"...I was happy that my medical information was used by the doctor to quickly make prescriptions for me, and that my blood pressure was routinely monitored by a nurse. Although these steps were beneficial, the lack of detailed instructions made the experience unsatisfactory overall. It was challenging for me to properly manage my health because of the numerous unresolved concerns and problems that came from this lack of direction..."* (P#14).

Absence of an appointment system: One of the major concerns mentioned by the participants was the lack of an appointment system. Because of this, healthcare professionals found it difficult to prioritize education, less gave enough time for each patient. It was difficult to provide a thorough education as resources like specialist staff or instructional materials were not being used to their full potential. Following up with patients became more difficult. Extended waiting periods might lead to patient dissatisfaction and decreased openness to educational initiatives

> *"...During my visit to the health center, I had hoped to learn more about managing my health condition. But it was hard to plan without an appointment system. I was able to see a nurse, who apologized but was unable to see me for a long time..."...I didn't know when I would be seen when I got to the health center. Patients were arriving and leaving in a disorganized manner. When I did eventually get to see a doctor, they didn't appear to have much time to answer my queries..."* (P #12).

In summary, the participant experiences shed light on a number of barriers that prevent healthcare clinics from providing adequate patient education and assistance. Healthcare providers' lack of interest and engagement, nurse educators' limited interaction and communication, clinic staff members' perceptions of negligence and overload, and systemic problems like poorly implemented patient monitoring programs and communication channels are some of these barriers. These obstacles make it more difficult for patients to receive the critical health knowledge and assistance they need, which exacerbates their frustration and makes it harder for them to properly manage their diseases.

4.4.5 Theme # 3: Alternative Sources for Acquiring Information

The theme of "Alternative Sources for Acquiring Information" emphasized the wide range of channels people used to enrich their knowledge about health-related issues outside of regular healthcare channels. The dependence on medical professionals, such as physicians, nurses, and specialists, as the main sources of medical knowledge and direction, was a significant subtheme under this theme. In addition, people frequently seek second views and specialized knowledge from outside doctors, especially experts who do not work at their usual healthcare facility. Home nursing emerged as a noteworthy subtheme, as people seek the individualized care and education of home healthcare specialists in the convenience of their own homes.

Significant others' impact also became apparent as a critical factor, with family, friends, and neighbors providing priceless knowledge and support. Family members were crucial in offering emotional support and in sharing experiences pertaining to health, including parents, siblings, and spouses. In a similar vein, neighbors and friends participated in the information exchange by sharing their insights and counsel after dealing with healthcare-related concerns firsthand. In addition, people used a variety of media channels, including books, pamphlets, radio and television shows, and medical blogs, in an effort to find a variety of easily available sources of health-related information to aid in their comprehension and decision-making. Together, these alternative sources improved people's health literacy and gave them the ability to make decisions about their wellbeing that were well-informed.

4.4.5.1 Subtheme 1: Health Care Providers

The "Healthcare Providers" subtheme emphasized how important to serve as patients' primary source of medical knowledge. One claimed about his experience when he was referred to another certain center. In this center nurses and doctors provided valuable information.

> *"…As a result, even though I like kunafa sweets, I purposefully avoid eating it because of its high sugar content, which may have an adverse effect on my blood sugar levels. Rather, I make little dietary changes such as cooking with very little salt to keep my blood pressure in check and making a fresh salad for lunch every day to get more veggies and fiber into my meals. Additionally, when I was*

sent to Al-Balo' hospital for assistance in managing my increased cumulative blood sugar levels, I had the chance to learn a lot from the nurses and physicians there. Their professional counsel and direction have been invaluable in assisting me in learning how to take better care of my health and lead a healthier lifestyle…" (P#3).

Patients who were in need of direction and knowledge resort to physicians, nurses, and other professionals for individualized consultations, diagnosis, and explanations regarding their health issues. A participant shared how he used his network of medical providers to manage his own health. This strategy emphasized the value of having an informed and helpful network of people who can offer trustworthy advice and information.

"…Furthermore, throughout my long career as a retired social worker, I have made a lot of friends and acquaintances in the medical area, including physicians, nurses, and pharmacists. I can always rely on this network of reliable specialists to help me with any inquiries or issues I may have regarding my health. Their knowledge and experience provide me comfort and direction, enabling me to make wise choices and continue to take the initiative in maintaining my well-being...." (P #6).

Patients were able to learn more about their disorders and take an active role in making healthcare decisions because of these encounters, which promoted open communication and trust. Someone expressed a preference for advice from a cardiologist above that of a physician from a nearby clinic. This suggested proactively controlling cardiovascular health in accordance with professional medical guidance.

"… Rather than the cardiologist on call at my neighborhood clinic, the majority of the information I know about my heart health comes from the one I visited in the hospital in Ramallah. The doctor stressed the value of maintaining an active lifestyle during my stay in the hospital, particularly by going for regular walks. He advised me to include walking as much as possible in my daily routine to help maintain a healthy heart, strengthen my cardiovascular system, and enhance circulation. I've since tried to include frequent walks into my lifestyle as part of my overall health and wellness plan because of his simple but effective suggestion…" (P #9).

4.4.5.2 Subtheme 2: Significant Others

The "Significant Others" subtheme emphasized the vital role that friends, neighbors, and family played in advancing people's understanding of healthcare. Family members, neighbors and friends were a great source of assistance; they might give both practical guidance and emotional support by relying on their own experiences as claimed by one of participants.

> *"…As I told you my son is a doctor. He takes care of me and explains everything to me what to eat and what to avoid. He asks me to walk at least 15 minutes, but I have severe pain in my joints forbid me from walking. Also, when I sit with my neighbors in the evening, we chat together and they advise me to drink some herbs and swallow a garlic clove on an empty stomach to make control over my blood pressure…"* (P #1).

By means of casual discussions or group support systems, significant others enhanced people's health literacy. Someone else pointed on how, in times of anxiety, the person went to a colleague nurse for guidance on medical issues. She managed her health issues and found comfort from this outside-the-clinic link, which gave her access to a reliable source of knowledge and assistance. It demonstrated the value of having informed connections for advice and the person's initiative in asking for assistance when necessary.

> *"...I go to a nurse colleague who works outside the clinic whenever I'm nervous or unsure about something health-related," I say. This reliable coworker is a great asset to have on hand, offering expert counsel and assistance anytime I need it. I know I can call her for direction and clarity whether I'm having new symptoms or have inquiries about taking care of my health. Her knowledge gives me the confidence to make wise choices and the knowledge that I can trust to provide me with accurate counsel on my health..."* (P #5).

A person got help from her nutritionist daughter in order to make better food choices. This was in congruence with a physician in a hospital. This cooperative strategy ensured the individual received thorough care and guidance from reliable sources and enabled to effectively manage healthcare decisions and obstacles.

> *"…As a dietician, my daughter has been a huge assistance to me. She helps me identify my dietary requirements and choose foods that*

are healthier for me. It has been really helpful that the physician at the Ramallah Complex Hospital has also given me the educational health resources required for my condition. In addition, my situation is still being followed up on by the dietician who left the Ramallah Hospital. My daughter's and the hospital's medical staff's assistance has been crucial in assisting me in taking control of my health and making wise lifestyle choices…" (P #8).

Another person benefited greatly from her husband's understanding of the illness and his advice. Whenever she encountered any symptoms, she sought her advice and assistance, taking advantage of his extensive knowledge and familiarity with the illness.

"…Since my husband has had hypertension for the previous ten years, I rely on his skills to manage my health. Due to his extensive experience with the illness, he has an in-depth understanding of how to properly manage it. He is informed about the signs and solutions, and I value his opinions and advice. I come to him for advice and assistance if I have any symptoms or worries regarding my health. His knowledge has been a valuable resource to me as I've navigated my own health issues..." (P #13).

4.4.5.3 Subtheme 3: Medias

The "Medias" subtheme drew attention to the wide range of media outlets people use to obtain health-related information. Someone explained how, upon discovering they had an illness, the person adopted an active attitude towards maintaining his health. They started doing internet research to learn more about his condition and discover practical management strategies. The fact that the person took the initiative to look up information online reflected that he was committed to being educated and taking charge of his own health.

"...I have been active in my search for knowledge regarding my illness ever since I discovered it. I began looking through several websites to find out more about the illness, hoping to figure out how to manage it well enough to continue living as healthily as possible. In the process of doing my research, I came across a wealth of information on the ideal diet for people with diabetes, including lists of items to consume and things to avoid. With the use of this

knowledge, I have been able to better regulate my illness and enhance my general health by making dietary and lifestyle adjustments..."(P#3).

These platforms span a number of media, including written materials like books and pamphlets, radio and television shows. A person claimed having little schooling and the difficulties that causes with reading. He did, however, discovered a different knowledge source by watching television health shows. This made it easier to grasp the information he was learning about health and wellbeing. Despite his reading challenges, the person's interest in health programs demonstrated a willingness to be educated and did the best choices for their health.

"… Though I'm not very educated, therefore I find it difficult to read, I like to watch television shows on health. These programs give me useful information in an easily understood way regarding a variety of health-related issues. I can stay educated and get insights that help me manage my illness and live a better lifestyle by listening to professionals address all facets of health and wellness. I can learn about health in an approachable and interesting way thanks to television programming..." (P #4).

A person actively used a variety of information sources and had an interest in health-related subjects. She frequently listened to health-related radio shows, especially in the early hours of the day, and she took pleasure in reading medical publications to increase their understanding of health and wellbeing. She also valued the range of health-related television show that were accessible to her, as they provide her with information on many facets of health. This commitment to remaining informed and making well-informed decisions about her health was demonstrated by her active approach to studying and staying up to date with health information.

"...I like to read, especially books on health that teach me more about being well. I enjoy reading as well as listening to radio announcements on health initiatives, especially in the early morning. I can start my day with fresh knowledge and advice on how to be healthy at this time of day. In addition, I like how many engaging health-related television shows there are. I find these shows to be both entertaining and educational since they present a variety of viewpoints and views on a range of health-related issues.

To be informed about the most recent developments in health advice and trends, I enjoy watching these shows…" (P #6).

Furthermore, printed materials like books and pamphlets were useful tactile tools for anyone looking for detailed information about particular medical diseases, available treatments, and preventive measures. For anybody looking for comprehensive information on certain medical disorders, therapies that may be accessible, and preventive measures, pamphlets may be immensely helpful resources. They cater to a broad readership by providing succinct, readable summaries of significant subjects.

"…I find pamphlets to be very beneficial since they offer brief details regarding certain illnesses, treatments, and precautions. When I need to review anything, I can easily refer to them since they are simple to read. I can carry a real copy with me and refer to it anytime I need to, which makes it convenient. I have found that pamphlets have been quite helpful in understanding my medical issues and how to successfully manage them…" (P #7).

In conclusion, medical professionals such as physicians and nurses functioned as the principal repositories of medical data, providing specific advice and treatment strategies. Family and friends offered priceless knowledge and assistance, drawing on their own experiences to provide both practical guidance and emotional support. People looking for information and direction can access a variety of health-related sources through a variety of channels, including printed materials and television. Collectively, these subthemes supported the dissemination of knowledge among individuals and encouraged the making of well-informed healthcare decisions using other information sources.

4.4.6 Integration between Quantitative and Qualitative Results

A solid and thorough understanding of study issues is produced by integrating quantitative and qualitative data. Within the framework of this investigation, quantitative information provided a comprehensive overview of the behaviors and practices of management utilized by NCD participants, whereas qualitative data offered deep observations into their encounters and barriers. Better health outcomes can be supported by using this holistic approach to inform more effective initiatives to enhance patient education and healthcare delivery.

Quantitative research results demonstrated the vital significance of ongoing health counseling from medical professionals in the treatment of non-communicable diseases (NCDs). This included advice on changing one's diet, upping physical activity levels, stopping smoking, and following prescription guidelines. However, no meaningful connections were discovered between the recommendations made by medical professionals and modifications to physical activity or smoking habits, elevated blood pressure, heart risk, or body mass index (BMI). Participants' opinions on the quality of information given during clinic visits were reflected in the qualitative findings, which indicated a substantial gap in efficient patient education. Due to what they viewed as inadequacies in their health education, a large number of participants felt compelled to pursue independent web research or meet with private physicians and specialists. Notably, disparities in the caliber of care were noted throughout different medical facilities. Patients who received therapy at other clinics that provided more in-depth explanations and proactive testing reported better results and increased satisfaction. Participants frequently did not get further health updates or information, even during regular examinations like blood pressure checks and prescription updates. This highlighted lost chances for patient education and involvement.

The importance of health advice in treating non-communicable diseases was shown by both quantitative and qualitative evidence. Qualitative insights revealed gaps in the delivery and perceived quality of health advice, whereas quantitative data could not demonstrate any meaningful correlations between health advice and behavioral outcomes.

The integration of the data revealed important communication gaps between patients and healthcare professionals. Even though participants received health advice, they looked for other sources of information since they were unable to find specific, tailored, and easily understood information. Qualitative data revealed differences in the quality of healthcare, with clinics that offered thorough health education reporting higher results. This highlights how important it is that patients receive consistent, excellent patient education in all healthcare settings. The combined results highlight how difficult it is to manage NCDs through patient education in an effective manner. Qualitative insights highlight serious gaps in communication and the caliber of information offered, while quantitative data highlights the importance of ongoing health advice. Patient outcomes and quality of life can be improved by filling in these gaps through better healthcare delivery, individualized patient education, and the use of alternative

information sources. This thorough understanding can guide the development of patient assistance systems and healthcare practice optimization techniques.

Poor patterns of dieting (86.7%; 76.9% consume ≤2 serving fruit and vegetable respectively) and physical activity style (<5% adhere to fitness sport) among the participants that were reported in this study often explained by the second theme that is barriers to receive sufficient health education. Actually, the staff related barriers mainly attributed to ineffective therapeutic communication and patient related barriers concerned with avoidance to receive education explained the reason beyond poor achievements of NCD participants regards being committed to a healthy behavior style.

In addition ,the numerous number of missing values of physical measurements(>90% of patients didn't have more than 2 readings of BMI ,HR ,waist circumference in their records) and biochemical lab tests(about 97.1% of participants didn't have more than one reading of LDL ,HDL ,triglyceride in their records) in the follow up visits among NCD participants in addition to persistence of CVD proportion ratio since the first visit of the patient till the last visit emphasized the presence of system-related barriers mainly lack of supervision as mentioned in the second theme.

Eventually , the presence of the outliers in terms of having 5 servings of fruits a week(3%) and five and more vegetable servings a week (8%) among participants in addition to those who practice walking more than half an hour daily (5.1%) besides (4.8%) of those who do sport fitness in a gym, whereas, (2.7%) out of them practice that three times a week in this study explain the reason beyond such healthy practices which might be connected to receive information by the way of alternative sources expressed.

The study revealed significant health challenges among non-communicable disease (NCD) patients in Palestine. Quantitatively, 73% avoiding unhealthy foods, 47.2% had high cholesterol, and 81.4% had high blood pressure. Physical activity was low, with only 10.6% meeting the weekly exercise recommendation. Qualitatively, most participants received minimal verbal instructions, indicating poor education quality. The STEPS survey showed only 3.3% received regular advice on smoking, 0.8% on diet, and 1.6% on exercise and medication. Significant barriers included lack of supervision and healthcare professionals' disinterest. The lack of written self-management instructions contributes to widespread dissatisfaction, as patients feel neglected and perceive healthcare providers as more focused on socializing than addressing their needs. This dissatisfaction leads to avoidance of seeking further health information and exacerbated

trust issues, as patients view doctors as more knowledgeable than nurses, undermining the potential for effective nurse-led education.

Medication adherence varied widely among patients, with high adherence rates for aspirin and statins but lower rates for diabetic and high cholesterol medications. Dietary habits were concerning, with low fruit and vegetable intake and frequent use of salt, reflecting inadequate dietary advice from healthcare professionals. Systemic issues further compound these challenges, with two-thirds of participants citing a lack of supervision and specialized educational nurses as major barriers to receiving adequate health education. Inconsistencies in cardiovascular disease (CVD) risk prediction and treatment adjustments also highlight the need for more responsive healthcare practices, as general practitioners rarely modified treatment plans based on significant changes in patients' health status. Lifestyle advice were highly appreciated by most patients, disregards being underutilized in Palestinian PHC since they were offered inefficiently by most of healthcare professionals.

The picture through which education affects health was still complex and intertwined. From interviews, despite the presence of a unit of noncommunicable diseases within a Ministry of Health, implementation of its guidelines for management of such diseases by providing health education was not activated practically in the governmental primary health clinic facilities as it was supposed to be. A statistically significant association was detected just only between the diet advice provided by healthcare providers in its two parts which showed a positive utilization of such advice by NCD patients who received it, reflected by improvement in daily intake of fruits and vegetables in addition to reduction of salty intake. As a consequence, the diet advice provided by the healthcare providers at the primary health clinics in this study, showed a statistically significant difference respecting to glycemic measurement include both FBS, HgbA1c and waist circumference. However, the physical activity and weight reduction advice delivered by healthcare providers showed a statistically significant difference respecting to waist circumference. Additionally, medication delivered advice to NCD patients showed a statistically significant difference respecting to raise Cholesterol, raised triglycerides, CVD risk, BMI, and Waist circumference as those who received such advices in such fields utilized it differently with an effective impact. Inefficient health-related advice was related to lack of NCD explicit guidelines, poor interaction between staff and patients, negative attitudes of health staff. inadequate training, workload pressure, inadequate support, improper monitoring system, lack of logistics supplies like

shortages of adequate space, pamphlets and brochures, display screens, &telehealth delivery platform.

In conclusion, the integration of quantitative and qualitative research results underscored the critical role of ongoing health counseling from medical professionals in managing non-communicable diseases (NCDs). Quantitative data highlighted the significance of health advice but failed to establish meaningful correlations between this advice and specific behavioral outcomes, such as changes in physical activity or smoking habits, and key health metrics like blood pressure, heart risk, and BMI. In contrast, qualitative findings revealed significant gaps in patient education quality and delivery, with many participants resorting to independent web research or private consultations due to perceived inadequacies in the information provided during clinic visits. The combined results pointed to the challenges in effectively managing NCDs through patient education. While quantitative data emphasized the importance of ongoing health advice, qualitative insights reveal serious communication and information quality gaps. Addressing these gaps through improved healthcare delivery, individualized patient education, and alternative information sources could significantly enhance patient outcomes and quality of life.

Chapter Five: Discussion

5.1 Introduction

This chapter was the one of the chapters in which the researcher tried as much as possible to detail all matters in a clear and comprehensive mannar.so that the reader can clearly understand the result and the relationships between them. this chapter covers many topics such as PEN intervention-2 and NCD -modifiable risk factors, association between demographic factors and NCDs lifestyle behavior, which included dieting behavior, smoking behavior, and physical behavior, physical activity behavior and its relation with obesity, NCDs patient's behavior regards cervical screening, these that was from quantitative result, in addition to speak about barriers toward practicing healthy behaviors (patient related barriers , self-related barriers, system- related barriers). Also this chapter deal with health advice provided and NCDs –patients' behaviors with the effectiveness health education interrelated to receive health advice which were the results of qualitative result.

5.2 Overall Significant Result

This study delved into identifying the perception of NCD patients in West Bank, towards the effectiveness of education provided by healthcare professionals on their life style behavior. A mixed method design was used to particularly explain such perspective views and barriers beyond not achieving the optimal benefit of applying WHO-PEN-2 intervention. It exhibited the assessment of the Palestinian NCD healthy behavior across their demographic factors, taking into consideration the major modifiable risk factors that are; dietary choices, physical activity levels, dietary choices, use or exposure to smoke, alcohol consumption which significantly contribute to NCDs morbidity and mortality.

Notably, inadequate intake of fruits and vegetables- less than 5 servings daily- ($p=0.009$; 0.019 respectively) attributed to monthly income was reported by (57%). Meanwhile, (73%) of participants talked about avoid consuming fats, salt, and processed food; although (47.2%) of them reported having elevated cholesterol in addition to (81.4%) suffering from elevated blood pressure. Accordingly, less physical activity was detected among participants in this study as only (10.6%) achieved the health score of 200 minutes and above weekly, by practicing walking accompanied with other exercising activities.

Physical activity was significantly affected by almost all of the included demographic factors including gender, age, marital status, level of education, and monthly income (p=0.000; p=0.019; p=0.003; p=0.006; p=0.000 respectively). Undeniable obesity was detected among (52.4%) of the respondents with a BMI Mean (29.96±3.43) besides a waist circumference of (110.41±14.45cm).

Additionally, low rates of tobacco use were reported among NCD patients (12.7%) in this study; whereas, most of smokers were educated higher or equal secondary level, with low to middle income, aged more than 50 years. A statistically significant demographic factor was shown across gender on the side of males (M±SD 2.314±1.121) with (p=.000).

Three major themes were explored from the voices of 15 NCDs patients attended the governmental primary health clinics in Ramallah governorate, in accordance to Perceptions of non-communicable disease from patients' point of view in the qualitative evident content analysis that are: (i)the effectiveness of health education during routine clinic visits; (ii)barriers to provide sufficient health education &(iii) alternative sources for acquiring information. Little valuable instructions are given verbally by the healthcare providers as reported by the majority of the interviewed participants which projected that the effectiveness of NCDs education was unsatisfactory. This declaration was consistent with the overall inferential findings of STEPS survey responses in according to the association between the health advice provided by healthcare providers and the resulted of behavior which showed that (3.3%) received always and often advice in terms of smoking, (0.8%) in terms of consuming healthy diet, (1.6%) in terms of practicing physical activity similarly to adherence to medication.

A statistically significant association was detected just only between the diet advice provided by healthcare providers (Fruit and vegetables and Salty intake) and its associated behavior of eating healthy diet (p=.000; p=.000 respectively). Other lifestyle aspects advice including smoking, physical activity, and medication administration were statistically insignificant. On the other hand, age of participants showed a statistically significant difference across the level of delivered education respecting to smoking (p=.001), while gender and monthly income affecting the ability of receiving education related to diet (p=.048; p=.03 respectively). Additionally, level of education and income affects the level of received educational information concerning physical activity (p=0.036; p=0.019 respectively). Lastly, level of education and the occupation of NCD

participants influenced the level of inquiring education in terms of medication (p=0.025; p=0.032).

The most significant barriers identified by all this study's participants was the system-related barrier especially lack of supervision as two thirds of interviewed participants reported that .Almost all of them was concerned about lack of interest among healthcare professional as a staff related barrier to providing effective education at Ramallah's health clinics pointed at following a therapeutic communication as a gateway for improvement in addition to healthcare workers training. Medical blogs were the main alternative source for attaining information concerning non-communicable diseases among two thirds of participants.

5.3 PEN Intervention-2 and NCD -Modifiable Risk Factors

Prevention and management of NCD diseases could be achieved through application of effective interventions (PEN) at both levels; the population and individual one focus on health education in low-resource settings (Kontsevaya and Farrington,2017). The major modifiable risk factors for NCDs are revolved around following unhealthy diets, tobacco smoking, alcohol consumption, physical inactivity which contribute significantly to NCDs morbidity and mortality (WHO,2022). These four modifiable behavioral risk factors may increase the risk of having NCDs by leading to four metabolic/physiological risk factors overweight or obesity, high blood pressure or hypertension, high cholesterol and high blood sugar (Singh& Bharti, 2021; & Parashar, Willeboordse, Gupta, & Schayck, 2022).

5.4 Association between Demographic Factors and NCD Lifestyle Behavior

5.4.1 Demographic Factors and NCD Dieting Behavior

With no doubt, the association between socioeconomic status and non-communicable disease behavioral risk factors is well recognized in low and middle-income countries, as several studies reported that (Quigly, et al., 2015;Wu, et al.,2015;Allen, et al.,2017; Pullar, et al.,2018;& Alkhazrajy, 2018).One of the important conducted studies that handled this subject carefully was a metanalysis study reviewed 75 relevant previous studies done in 1990-2015 discussed the impact of socioeconomic status on tobacco use, alcohol use, diet, and physical activity of NCD patients. It displayed

that that a significantly higher prevalence of tobacco and alcohol use, less fruit, vegetables, fish, and fiber consumption were found among low socioeconomic groups than those of high socioeconomic status. However, less physical activity and more consumption of fats, salt, and processed food were reported among high socioeconomic groups than low socioeconomic individuals (Allen, et al.,2017). This study finding showed consistency with this study finding as regards impact on income in addition to age across diet.

A statistical significant difference was reported in according to inadequate intake of fruits and vegetables(p=0.009; 0.019 respectively)as (57%) of the respondents to the STEP survey consumed less than 5 servings daily compared to the study conducted in Nepal as (96.6%) of participants had insufficient fruits and vegetables intake as only (1.8%) were having one serving of vegetable a day, and to that done in Gaza strip as (15.4 %) only showed adherence in terms of eating a healthy diet (Dhungana, et al., 2014; & Albelbeisi al.,20121).

In addition, an agreement also was seen in terms of consuming fatty or salty meals as, more than half of the respondents reported that they avoid eating fatty delivered meals and adding salt at the cooked food at time of having their meal. Moreover, (73%) of them avoid eating processed food and consumed low grams of salts which showed better results than seen in Nepal and Kyrgyzstan. In Kyrgyzstan, the most common consumed foods by people there are high in salt and Tran's fats. Over two thirds (42.9%) of adults aged 25–64 years have elevated blood pressure and almost a quarter (23.6%) have a raised total cholesterol level; while in Nepal as the majority of participants consumed 14.4 grams ±4.89 grams of daily salt intake.

Hypertension was detected in (12.2%) of participants compared to (78.8%) in the current study reported that in the past two weeks, medication for raised blood pressure was taken. In both studies, high education level and high income showed better trending toward consuming of healthy diet; whereas dietary risk accounts for a group of NCD disease s like cancer, cardiac, diabetes, and hypertension which coincide with the finding in this study disregards the insignificance statistical differences across educational level (Dhungana, et al., 2014; &Kontsevaya and Farrington,2017).

5.4.2 Demographic Factors and NCD- Physical Activity Behavior

Exercise training improve glycemic control among NCD patients like diabetic, thereby preventing complications. It also helps in preventing obesity and reducing

hypertension and cardiovascular risk by lowering serum lipids, reducing blood pressure and increasing insulin sensitivity. In addition, exercise improves the mental health status by releasing the endorphins or "Happy Hormones" (Ranjani & Mohan, 2020). To reach an improvement in health, all physicians recommend a person to do moderate exercise for about 150 minutes a week or 75 minutes in case of vigorous exercise. Hence, the recommended exercise in terms of minutes /week is 100-200 minutes a week, which equals 500-1000 metabolic equivalent of task (MET) minutes a week score.

In order to achieve 1000 MET minutes, a person should practice a brisk walking accompanied by low impact aerobics for 200 minutes a week (Wheeler, 2024). In this study, 38 (10.6%) achieved a score of 200 minutes and above weekly,80 (21.2%) achieved a score of 100 minutes and above weekly. A percentage of (31.8%) of respondent to STEP survey achieved the healthy standards of physical activity. In addition, (53.3%) of respondents in this study, claimed to walk with a median frequency of seven days per week for about fifteen minutes daily. Missing cases in responding to this question was high as almost half of respondents didn't complete this part (46.2%) which might expose the finding to be unreliable. The median of sedentary life style of participants as reported was2 hours on a typical day with a percentage of (1.955) lived in a sedentary lifestyle (≥ 6hours a day) of which females constitutes (1.06%), which reflected better results than shown in Gaza which declared that (98.6%) were living a sedentary lifestyle (AlHelo & El essi,2019).Such findings were consistent with a study done in Nepal where the majority of participants (76.3%) were from lower socio-economic class of which 48.8% of individuals performed physical activity (Dhungana, et al.,2014). It also went along with a study done in Gaza strip as (50.1%) attended regular physical activity (Albelbeisi, et al., 2021).

However, this study result was much higher than studies done among high income countries as a very small proportion (9.4%) of individuals aged 25–64 years in Ho Chi Minh City (HCMC) achieving the minimum recommendation of doing 30 minutes moderate-intensity physical activity for at least 5 days per week (Trinh, et al.,2008). This proved what Allen, et al., 2017 reported that high socioeconomic groups were found to be less physically active than individuals of low socioeconomic status, being prone more to obesity. Contradictory to the findings of this study, two other Indian studies reported that low-income and less educated groups had the highest prevalence of inactivity (Gupta, et al., 2012; &Kar, et al.,2010).

It seems by looking at the exhibited data in this study that nearly half of the respondents' monthly income in the current study was below 3500 NIS. This goes along with the global association between poverty and increasing the prevalence of NCDs among people. Pullar1et al., 2018 investigated in their study the impact of poverty on NCDs occurrence and the common associated behavioral risk factors (unhealthy diets, physical inactivity, tobacco and alcohol use). Several studies stated that there is poor alignment between poverty and affordability of healthy food consequential leading to undernutrition or overnutrition. Low monthly income negatively affects the human mood and increase the blues rates pushing people to misuse alcohol and smoking tobacco, being potential to be affected by NCDs including cardiovascular, diabetes, hypertension, and cancer. researchers analyzed 283 peer-reviewed studies conducted in low- and middle-income countries in Africa, Asia and Latin America between 1968 and 2017.

A study conducted by Johns Hopkins Bloomberg School of Public Health in 2018 showed a clear link between poverty and NCDs; as people with low socioeconomic status (low income and low education) are more prone to an elevated risk of NCD risk factors (high BMI, tobacco use, alcohol use and hypertension), consequently being riskier to develop NCDs-diabetes, stroke, heart attack and cancer. Singh& Bharti,2021 agreed on the contribution of such modifiable factors and the climbing of the prevalence rate of NCDs. They pointed at the negative impact of tracking the modern sedentary lifestyle, having poor nutrition, using cigarette smoking and risky alcohol intake among Indian people which showed blood pressure (27% increase), smoking (3% increase), alcohol use (28% increase), low fruit (29% increase), high body-mass index (82% increase), and high fasting plasma glucose (58% increase).

In this study, the physical activity behavior showed a statistical significant differences across the means of almost all proposed demographic factors including gender (on the side of male; M±SD=14.16±11.47 M); Age (on the side of 44 years; M±SD=22.981±20.652); marital status (on the side of married; M±SD =12.3±9.13); level of education (on the side of post graduate degree; M±SD =20.20±11.97); monthly income (on the side of more than 8000NIS; M±SD= 18.03±16.57) with (p=0.000; p=0.019; p=0.003; p=0.006; p=0.000 respectively).

5.4.3 Obesity and Physical Activity Behavior

Among the recognizable changes that occur among people due to modernity of lifestyle is the rapidly shifting toward increasing overweight and obesity prevalence rates

which is considered as one contributing factor to the significant rise of NCDs worldwide. Obesity class is mainly determined by BMI, &waist circumference measurements, in addition to the biomedical lab indicators that include lipid profile tests (cholesterol, LDL, HDL, Triglyceride and blood sugar. The adverse effect of obesity is reflected on the blood pressure readings which contributes to Hypertension disease when the mean systolic blood pressure ≥130 mmHg or mean diastolic blood pressure ≥80 mmHg depends on the recommendation of the current American Heart Association (Pham, et al., 2023).

According to the current study, the baseline information on the magnitude of the obesity problem as a risk factor for NCDs reflected a high percentage rate as (46.1%) of participants were overweight with BMI of 25 and more and (52.4%) of them were obese. The mean initial BMI was 29.96±3.43 with a waist circumference of 110.41±14.45cm. Actually, the initial BMI of respondents ranged from 22-45.28 of which 9(2.6%) falls within the healthy weight range. A neglected improvement in the mean of BMI is shown after receiving treatment (29.84); whereby unhealthy lifestyle behaviors of NCD patients contributed either directly or indirectly to overweight and obesity. It seems that Palestine looks like other low-income countries as overweight in men and women are high in many of the 23 low-income and middle-income countries including, Egypt (74%), Argentina (73%), South Africa (70%), Turkey (69%) and others as reported by Alwan, et al.,2010 with high rates of non-communicable disease. Obesity was more common in South Africa, the Russia Federation and Mexico (45.2%, 36% and 28.6%, respectively) compared with China, India and Ghana (15.3%, 9.7% and 6.4%, respectively) based on a study conducted by Wu et al., 2015. In addition, our study findings were worse than that reported in Nepal study using the STEPS as (17.7%) of participants were overweight, and 4% obese (Rawal, et al.,2020). The current study also showed that the rate of obesity (BMI≥30) was higher among women 143/224(63.84%) than in men 45/153(29.41%) tended to increase overtly with advancing in age (≥51years). One biological hypothesis explaining this is due to alteration in fat distribution and adipocyte attributed to sex hormones and older age. Such finding corresponds to a study conducting in Vietnam used a STEPS survey 2009 and 2015(Pham, et al., 2023).

Obesity induced by an increase in sedentary behavior ≥6 hours daily, leads to dyslipidemia which elevates the readings of blood pressure subsequently rising the incidence rate of NCDs especially cardiac, DM and HTN diseases (Alwan, et al.,2010; & Pham, et al.,2023). In this study, almost (80.4%) of participants reported having elevated blood pressure during the last year with a mean BP of (150.93) over (87.06) initially.

Keep in mind that 343(91%) of respondents discussed that the cuff size was large and inappropriate which might decrease the BP readings depends on a scientific base. I deduce that addressing the consumption of unhealthy diet and physical inactivity are considered two challengeable risk factors of inducing obesity resulted in occurrence of most of non-communicable diseases like diabetes, cardiovascular disease, hypertension and cancer.

5.4.4 Demographic Factors and NCD Smoking Behavior

Tobacco control remains a public health concern as it aids in prevention of non-communicable diseases including cancer, hypertension, respiratory and cardiovascular diseases. In the context of Palestine, the prevalence rate of smoking among individuals aged 18 years and above was about 40% in the West Bank compared to (17%) in Gaza Strip as revealed in 2021(PCBS,2022). In this study, low rates of tobacco use among NCD patients was reported as (12.7%) were smokers and (87.3%) were not, compared to (28.6%) in Nepal & (50.5%) in n Kyrgyzstan among NCDS patients (Dhungana, et al.,2014; &Kontsevaya and Farrington,2017). Although, the majority of participants in this study reported being exposed to passive smoking at home (68.2%) and at work (66.6%). Passive smoking in Palestine is considered a crucial problem. The percentage of individuals aged 18 years and above who was exposed daily to secondhand smoke at home is (64.1%) of which (72.1%) exhibited in West Bank and (51.1%) in Gaza strip. On the other hand, the exposure percentage to passive smoking at workplace in Palestine was (58.4%) of which (64.4%) was reported in West Bank and (42.4%) in Gaza strip (PCBS, 2023). Moreover, the current study indicated that (4.5%) of respondents to STEP survey stated that they tried to stop smoking several times during the last 12 months. Actually, the main reasons beyond smoking use among NCD patients are still underreported and diverse at the international level.

In addition, the result in terms of gender use was consistent with the international study findings which stated that smoking is distributed among men much higher than women (Wu, et al.,2015; &Allen, et al.,2017). In this study, the majority of smokers were men (95.8%); while a small percentage is belonged to women (4.2%). Our study matched the findings of a study conducted in India as tobacco chewing was higher in men (50.3%) compared with women (4.8%) and higher among older age groups. Also, the Indian study reported that the level of tobacco consumption increased with high education and high income (Corsi, et al.,2013) which was consistent with Nepal study that was done (28.6% smoking) among 406 cardiovascular patients of age 20 to 50 years selected randomly,

with low income and (46.3%) of them without formal schooling (Dhungana, et al.,2014). Contradiction to the study of Allen, et al., 2017 which reported that low socioeconomic groups were found to have a significantly higher prevalence of tobacco use.

Poverty in variant studies displayed a significant relationship with the increase current daily smoking in low-middle income countries such as Indian rural regions (46.9%). Discrepancies are seen regarding association between socioeconomic status (education and income) and the tendency rate to smoke. Some researchers believed that tobacco use distributed among low socioeconomic status (low income, low education level) (Allen, et al., 2017). Others seen that tobacco use are higher among high socioeconomic status group (high income, high education) (Corsi, et al., 2013). Others seen that tobacco use is linked to education rather than income with for the benefit of high educated group (Wu, et al.,2015). In the present study, 15(31.25%) of smokers belonged to low middle class; 22(45.83%) belonged to middle class and all smokers belonged to a level of education higher than secondary school.

In fact, no specific tobacco smoking tendency directed toward increase use or decrease respecting to the income as some upper-middle income countries also reflected high tobacco smoke rates such as Mexico rural counterparts, and China (30%); meanwhile Ghana (7.7%) and South Africa (20%) which are considered low middle income countries reflected lower rates (Wu et al.,2015). On the other hand, some studies displayed that education and ageing is more strongly correlated to smoking trend rather than income in most countries focusing on being more educated and older than 60 years resulted in being less consuming of tobacco products (Wu et al.,2015; & Allen et al.,2017) which is contradicted to our study finding in terms of education impact on smoking behavior as the study reflected that most of smokers were educated higher or equal secondary level , with low to middle income and age more than 50 years ,although the statistical analysis did not show any significant difference in the Means with education ,income or age .Just even statistically significant with gender on the side of males(M±SD 2.314±1.121) with (p=.000).

5.4.5 NCD Patients' Behavior Regards Cervical Screening

The Global Action Plan for the Prevention and Control of cervical cancer guided by the WHO encouraged the integration of regular cervical cancer screening into their health systems interventions of major NCDs as more than more than (80%) of cervical cancers are diagnosed in locally advanced stages or with distant metastases in low-

resource settings. Data of these countries showed that cervical cancer screening coverage has reached over (70%) among the targeted women who aged 30 years and above as they have the highest risk of developing cervical cancer. These empowered women to promptly seeking help in case of suspect leading to early detection in routine health-care services (WHO, 2021). In terms of this study, 86(38.74%) of NCDs female patients did the screening test for cervical cancer of which the lowest rate (3.49%) was detected among women aged 31-40, and the highest (41.86%) was among women aged 51-60 years old. This reflects lower rates than recommended by WHO. Justification for this result might be due to the non -randomly sampling.

5.5 Barriers toward Practicing Healthy Behaviors

In general, adherence of non-communicable diseases patients to healthy behaviors worldwide is subnormal. It is still not up to the required quality targeting a group of main barriers which hinder accomplishing the optimal level. Consequently, adjustments of such barriers toward practicing healthy behaviors can achieve great benefits for NCDs patients. Three subthemes are identified in this study that represent these barriers that are; system, staff, and patient-related.

5.5.1 Patient Related Barriers

The study showed in the first subtheme that is patient related barrier, a strong consensus between the majorities of NCD patients about not getting a written instruction in terms of self-management. Instead, little instructions are given verbally which was consistent with the study of Islam, et al, 2022. The current study also revealed that most patients were dissatisfied with doctors and nurses' manner while dealing with them, so they get frustrated and avoid seeking any piece of health information. They reported that nurses and doctors were overwhelmed in socialization rather than addressing patient needs or supporting patients during duty hours. A matching was noticed in a study conducted in Gaza strip which targeted toward lack of written instructions (96.0%), lack of patients' social support (63%), and self-efficacy (61%) as main barriers to be adhered to healthy dieting and physical activity behavior. Subsequently, self-efficacy has been observed to increase the likelihood of following a lifestyle intervention healthy changes that produce better outcomes (Albelbeisi, et al.,2021).

Social commitments and family responsibilities as reported in our current study constitutes a part of patient related barrier which prevent some patients from asking

clinicians questions about their health condition or get enough instructions assisting them in improving their clinical outcomes.

Lack of social support influences the physical ,social ,role ,and mental functioning of health- related quality of life(HRQoL) dimensions among patients with NCDs adversely(Albelbeisi, et al.,2021; Ranjani & Mohan,2020;& Al-Noumani, et al.,2022).Ranjani & Mohan,2020 in their conducted qualitative study in Indian displayed that family support is considered an integral component in the treatment of NCDs patients by motivating the patient and empowering him to follow the healthcare providers' advice on medication, diet, regular exercise or adopting a healthy lifestyle. Being overwhelmed with familial responsibilities and lack of support will no doubt hurst both mental and physical wellbeing of a person.

5.5.2 Staff Related Barriers

The second important subtheme attributed to barriers is staff related. More than two thirds of NCD patients claimed that nurses and doctors who provide primary healthcare services at PHC did not have adequate knowledge consistent with what was found in Zimbabwe (Kamvura, et al.,2022). Some participants stated that nurses are less-knowledgeable compared to physicians which made them hesitated to listen to advice from nurses as they perceived doctors to be more trustworthy in affording health education. This perception coincides with what was reported in a qualitative study conducted in rural and urban areas of Johor and Selangor in Malaysian (Jaafar, et al.,2020) and with that done in Sri Lanka (Higuchi & Liyanage,2016).

The vast majority of NCD patients in my present study complained of receiving ineffective health educational information referred that to the lack of training. A study in Bishkek, showed agreement on the present study's finding, as 97(90%) of the doctors and nurses working in primary health care centers using the PEN intervention received initial training due to low average score of knowledge regards NCDs (Average scores were 20–30%) (Kontsevaya and Farrington, 2017). Moreover, the World Health Organization (WHO) developed a program consisted of four volumes about national NCD health literacy development and responsiveness.

The aim of such program is to strengthen NCD patients' self-management by receiving effective educational sessions to adopt a healthy lifestyle behavior. The program focused on NCD patients who are being left behind by not taking care of their health needs; depriving them from expressing their problems; and being excluded from

participation in their health management plans. Furthermore, the developed program focused on building capacity of health workers, through training them properly. Effective communication courses are planned to be provided to them to overcome health literacy and to be responsive (WHO, 2022). Several studies threw the light on the importance of healthcare professionals training programs to overcome the barrier of provision of high-quality care to NCD patients besides workload pressure (Kontsevaya and Farrington, 2017; Rawal, et al.,2020; Rawal, et al.,2021; &WHO,2022).

Nonetheless, work overload hinders affording a diverse and effective educational instruction for NCD patients at the primary health care clinics. More than half of NCD participants in this study referred the inadequacy of provided education to the staff workload as they noticed while receiving service. Excessive workload in this study as interpreted by the mouth of the participants is related to inadequate number of health workers at the health facilities or disorganization of the work duty. Some studies that were conducted in low resources settings reported that work overload due to inadequacy in number of health workers at the health facilities as a main barrier to provide effective education to NCD patients in the primary healthcare facilities (Rawal, et al.,2020; Rawal, et al.,2021; & Kamvura, et al.,2022).

Notably, immersion in delivering routine services to NCD patients rather than showing empathy or interest in their cases attentively was recognized by almost all of the participants in this study, which was congruent with a study conducted in Northeast Ethiopia as subjects of the study revealed that healthcare professionals didn't pay close attention, or allow adequate time for their patients to ask questions (Fenta, etal.,2024). Some studies attribute that to the level of job satisfaction among staffs which is influenced by the institutional motivation given to the workers, consequently impact the quality and efficiency of the services they provide (Rawal, et al.,2020; Rawal, et al.,2021).Negative attitudes of healthcare professionals was recognized among those who are working at the primary healthcare clinics in limited resources settings due to low salaries, lack of incentives and lack of motivation (Aluttis, Bishaw, &Frank,2014; Albelbeisi ,et al.,2021;Rawal,et al.,2021;&El Mouaddib ,et al.2023).This result was coincides with what was found in our study.

One last important staff -related barrier to afford efficient education, is ineffective therapeutic communication process which was mentioned by more than half of the participants in this study. Overcoming communication barriers is key for developing an understanding of patient's needs. The major facilitators of good therapeutic

communication consist of building rapport with the patient, presence of conducive environment, and having a good therapeutic practice including listening, showing empathy, and using simple, comprehensible language, targeted the patient's needs (Ameworwor, et al.,2024). My study's findings showed lower rate than other studies conducted elsewhere.

A study in Ghana revealed that (59.2%) of NCD patients reported having good therapeutic communication with health professionals. Most participants in my study reported that healthcare providers at the PHC did not listen to them attentively whereas in Ghana study, (90.4%) of NCD patients stated that they had trust in health professionals as they build rapport with their patients, listen to them and clarify the required information in a simple plain language (Ameworwor, et al.,2024). Participants in this study showed an agreement with what was stated in other studies that a friendly warm welcome and expressed compassion shown by healthcare providers served as a gateway to good communication pathway between patients and the health professionals (Ritonga, Riadi, &Siregar, 2020; & Acioli, et al.,2014).

Notably, in this study, most participants talked about their inability to comprehend the health-related information message on non-communicable diseases, their lack of knowledge about their condition, and their inability to talk to healthcare professionals at the clinic which made them uncomfortable, and dismissive. This declaration was consistent with what was mentioned in several studies done in Bangladesh, in Brazil, and in Northeast Ethiopia (Islam, et al.,2022; Chehuen, et al.,2019; & Fenta, et al.,2024). Additionally, I found that patients' trust in their healthcare professional at Ramallah's primary Healthcare clinics was poor, opposed to what was found in a study conducted in Singapore by Shirazian et al, 2016.With o doubt, trust relation serves as a facilitator for good therapeutic communication.

5.5.3 System-Related Barriers

The most significant barriers identified by all this study's participants was the system-related barrier especially complained about lack of supervision. Two thirds of NCD participants in the qualitative section of this study declared that, lack of supervision was the main system -related barrier to education at Ramallah's primary health clinics. This finding was consistent with what was reported in Bangladesh and Zimbabwe NCD patients as they pointed to the poos supervision of quality of care delivered to patients (Tabassum ,2016; Islam, et al,2022; & Kamvura, et al.,2022). Although, it was

incongruent with a study done in Nepal that have shown that the Ministry of Health has given high priority to NCDs primary clinics' supervision and control (Rawal, et al.,2020).

Based on my personal observation while collecting the data of my study, I noticed that most of patients' medical records particularly in the rural areas did not address many of the important biochemical measurements. No rechecking was done if values fell outside the normal ranges. Poor follow up was detected regards the physical measurements.NO record was found for alterations in BMI. In addition, the regular mandatory monthly visits of NCD patient were unrecorded. Furthermore, CVD risk score remained the same since the baseline visit of the patient disregard his progressive health status.

Nearly half of the participants in my study stated that, absence of specialized educational nurse constitutes a system-related barrier to get sufficient informative education. This was comparable with a study done in Nepal which stated that health literacy was affected by absence of a specialized knowledgeable educators, and poor access to good quality information (Budhathoki, et al., 2017)

Notably, there had been high level of signaling from the participants toward lack of appointment system. This observation in our study could be ascribed to the fact that the high patient volume constitutes a significant pressure on healthcare professionals who spent most of duty time on delivering the routine care rather than affording enough educational instructions. On regret, absence of an appointment system causing patients to wait for long periods of time to receive care. Such situation in Palestine resembled most low- and middle-income countries altogether (Alnaif & Alghanim,2009; Jaafar, et al.,2020; Rawal, et al.,2021; Hadian, et al.,2021; & Islam, et al., 2022).

5.6 Health Advice Provided and NCD-Patients' Behaviors

Health education has been defined as" any combination of learning experiences designed to influence an individual's knowledge and health behavior to improve, maintain, or learn to cope with their illness" (WHO,2020). Numerous studies were conducted all over the world discussing the importance of healthcare providers' education, focusing on the positive effect of adherence to counseling on healthy behaviors among NCDs patients (Tripathy & Mishra, 2021; Correia, et al., 2022; Nakakuwa, Sankombo, & Magesa, 2023; &Wu, Lin, & Li, 2023). WHO-PEN protocol -2 is a noteworthy tool concerned with providing health education and counseling on healthy

behaviors for NCDs patients including regular physical activity, eat a healthy diet, stop tobacco and harmful use of alcohol, and adherence to medical therapy (Albelbeisi et al.,2021).

However, most studies done in Palestine handled the healthcare providers' perception concerning health counseling done among NCDS patients rather than the patients' perspectives (Collier and Kienzler; Albelbeisi et al.,2020). Little is known about NCD patients' perception in West Bank if receive a meaningful advice on healthy practices from healthcare professionals or not, exclusively regarding the modifiable contributing factors (Albelbeisi & Shaqfa, 2022).

In order to reduce cost and healthcare burden, addressing risk factors for non-communicable chronic diseases (NCD) should take place. This can be achieved by using a sound health-related advice especially directed toward risky behaviors. In respecting to whether NCDs patients receive advice on health behaviors from healthcare workers in Ramallah's PHCs or not, the Mean percentages (always and often) of knowledge across the key recommendations of WHO-PEN-2 intervention was demonstrated according to patients' claims in the last twelve months. The study reported that the Mean percentage of receiving advice regards stop smoking was (3.3%), (0.8%) in terms of eating a healthy diet, & equal percentages (1.6%) in terms of taking regular physical activity, &of treatment adherence by attending regular follow up as reported by respondents in the survey. A noticeable severely poor knowledge is detected all over the four domains disregards the revealed representative numbers.

5.7 Effectiveness of Health Education Interrelated to Received Health Advice

5.7.1 Meaningful Instructions

In terms of poor provided health education to NCD patients in Ramallah healthcare facilities, the first theme discussed in this study talked about the effectiveness of health education during routine clinic visits supported this fact strongly. The first included subtheme (Meaningful Instructions) revealed that only 3 out of 15 participants of the focus group stated that they received information meets expectations and clear instructions which answer their questions.

5.7.2 Acquired New Skills and Information Interconnected to Diet and Activity Advice

However nearly half of participants (7/15) claimed in subtheme-2 that they acquired new skills and information regarding physical activity compared to (1.6%) mentioned that in the survey. A contradictory finding was reported in this study in terms of physical activity advice. It sounds consistent with what was reported in a study conducted in Gaza strip (54.5%), and in Canada (42%) depend on patients' reports about receiving advice from healthcare professional in primary health clinics about adherence to exercise. On regret, these results achieved a remarkable lower percentage than that were done in other countries (Albelbeisi, et al.,2022; & Sinclair, Lawson, &Burge, 2008).

In contrast, a study conducted in Australia, reported lower percentage (24.4%) than that of Canada, &Gaza but much higher than reported in our study quantitative section (1.6%) (Eakin, et al.,2007). Actually, just only (3%) of chronic non communicable patients in our study who complete the survey reported that they always and often received an advice about control body weight and avoid overweight by reducing high calorie food and taking adequate physical activity; which was in congruence with the study findings concerning overweight and obesity percentage (98.5%). Leisure-time physical activity either vigorous or moderate represented a very small proportion (4.8%;5.6% respectively) of individuals' total activity level.

Some differences in the pattern of physical activity between men and women were noted, with insufficient activity levels decreasing with age. This finding corresponds with other similar studies (Trinh, et al.,2008; Wu et al., 2015; & Singh & Bharti,2021). Although, more than half of participants in the survey (53.3%) claimed to practice walking behavior daily for nearly 15 minutes. Studies insist on increasing physical activity to moderate levels (such as brisk walking); at least 150 minutes per week in order to consider this behaviour sufficient to maintain healthy lifestyle (Wu et al., 2015; Singh & Bharti,2021; WHO,2022; & Albelbeisi, et al.,2022; & Wheeler,2024). This means that walking behavior of our participants in this study is not aligned with the optimal level of physical activity healthy behavior.

5.7.3 Acquired New Skills and Information Interconnected to Medication Advice

In terms of subtheme-2 emerged from the first theme discussed in the qualitative part of this study" the effectiveness of health education during routine clinic visits",

nearly half (46.6%) of participants received advice on controlling their diseases by adherence to laboratory tests. Only 20% of participants declared that they received a meaningful piece of information concerning adherence to medication compared to a Mean of (1.6%) in terms of consistent advice received about adherence to medication in this study survey. Such finding reported a markedly lower results than that of Gaza strip (86.1%) (Albelbeisi et al.,2022).

The qualitative analysis of my present study respecting to medication received advice indicated that patients considered that they did not receive sufficient information consistent with a study conducted in Argentina which declared that some of the subjects seemed unsatisfied with a drug related information, acknowledging that the suggested lifestyle advice was more effective in other parts than taking a prescribed drug, which is a relevant fact that has already been mentioned in my present study. Accordingly (25%-27%) of respondents to the STEPS survey in my study reported that sometimes they receive advice concerning explaining how to take medication at home, daily frequency, the reason beyond prescribing the medicine, while showing the appropriate dose. Indeed, this displayed the highest Mean reported percentages among all other sections of lifestyle advices provided by healthcare professional. I deduce that this result came out because of the mentality of our medical health team members in Palestine which mainly focus on prescribing medication as a gold core of healing all diseases. A study conducted in Gaza strip supported my idea as (92.6%) of healthcare providers stated that they sometimes or always showed a strict commitment toward medication counseling (Albelbeisi et al.,2020 &; Sánchez Urbano, et al.,2021). Furthermore, the patients believe in the healing power of mediation in terms of diseases rather than modifying their lifestyle behavior also supports this fact. A widely held numerous of studies reflected the faithfulness of patients on the medication power of healing (Rawal, et al.,2020; Sánchez Urbano, et al.,2021; &Fenta, et al,2024).

5.7.4 Medication Advice and Biochemical Measurements

As shown in this study, the vast majority of participants (81.2%) committed to daily use of aspirin to treat or prevent heart disease, while (50.1%) took statins on regular basis to treat or prevent cardiovascular illnesses. On the other hand, the majority of hypertensive patients (78.8%) used to take their prescribed medication regularly, whereas less than half (47.2%) of diabetic participants said they had taken the recommended medication within the previous two weeks, in accordance with (41.6%) of a raised

cholesterol participant. A significant percentage of participants claimed to do cholesterol level, blood pressure routine monitor, blood sugar and HgbA1c level tests on regular basis depends on their variant alterations on health status, suggesting that they are aware of their diseases and actively participated in their management respecting to follow up laboratory tests and administering of medication. Respecting to the comparison between the mean scores of these lab tests at initial and after 12 months of treatment, a slight drop in the scores is reported. Justification for this might be due to the effect of administering medication away of adherence to a modifiable risk factors related to dieting, physical activity and smoking habits.

In accordance to LDL and HDL final Mean scores, which showed the comparison between the initial and after receiving treatment results, a tremendous missing value (97.1%) was detected, which might reflect a positive false decrease in the mean scores of laboratory tests.

One important detectable thing, is the consistency of CVD risk prediction among NCD patients, when comparison is made between initial and after a 12 months treatment. To my knowledge based on working experience in PHC in Ramallah directorate, few general practitioners modify the initial placed ratio even if the laboratory tests and the patient's health status showed an outstanding improvement or the opposite. Therefore, the figure in chart (5) reflected a fixed CVD risk score among patients from initial to the last reading.

The good news arisen from my study is that NCD patients realized the importance of adherence to medical treatment and regular follow-up through lab tests. Yet, traditional methods of treatment used in the previous centuries were slopped down. The study revealed that (8.2%) of participants used an herbal or traditional medicine in treating elevated blood pressure, and (2.7%) of participants treat their elevated bold glucose level by herbal or traditional medicines, compared to (3.2%) of raised cholesterol level using herbal or traditional treatment for the same purpose. Such finding displayed good awareness among Palestinian hypertensive patients contradicted to a what were reported in Zimbabwe and Senegal community, which reported poor awareness among most of hypertensive patients resulted in abundant use of alternative potentially harmful remedies (Kamvura, et al.,2022; &Duboz, et al.,2015).

5.7.5 Healthy Diet Advice and Diet Behavior

Adherence to healthy diet among NCD patients constitutes a focal point of behavioral change. In terms of subtheme-2 emerged from the first theme discussed in this study handled the effectiveness of health education during routine clinic visits, only (20%) of participants declared that they got benefit of new skills or received a piece of information concerning adherence to healthy diet compared to (0.8%) in terms of advice received about following a healthy diet in this study survey. The current study finding revealed low mean in contrast to the findings reported in Gaza strip with a Mean percentage in terms of eating healthy diet (49.3%) and in Canada (38%) as NCD patients reported that they often or always receiving advice from their physicians on consuming healthy diet (Albelbeisi, et al.,2022; & Sinclair, Lawson, &Burge, 2008).

Actually, the low-slung score of the diet received advice showed an agreement with the poor behavior of NCD patients in dieting. The study participants' behavior median regarding consumption of fruits and vegetables was inadequate equals two servings daily. This behavior went along with the low score (4%) of advice provided by the healthcare professional concerning this issue. Moreover, the respondents in the survey showed a mean frequency of adding salt to their meals, used salt or salty sauce during cooking and consume processed foods rich in salt was around 4 times per week, and a median of (88.3%) of cooks substituted spices for salt in their food, which suggest a moderately high level of intake. Such behavior reflected a consensus to the poor mean score of advice (less than 4%) received by healthcare workers in PHC.

5.7.6 Quit Smoking Advice and Smoking Behavior

Tobacco use is a serious health-damaging behavior as indicated in most published studies (Wu et al.,2015; Allen, et al.,2017; Collier and Kienzler, 2018; &Albelbeisi et al.,2020). In the current study, the Mean percentage in terms of stop tobacco advice for smokers' patients was reported as (3%) although (30%) of participants stated that sometimes they were advised to stop smoking, being supported to quit. A study conducted in the Gaza strip among NCD smoker patients showed a significant higher percent (43.9%) (Albelbeisi, et al.,2022). Similar study done in Gaza among healthcare professionals rather than NCD patients indicated that physicians sometimes or always provided a counseling to NCD patients on quit tobacco smoking with a mean of (55%), which sounds consistent with a study conducted in USA, demonstrated that healthcare

providers reported that they always and often advised patients to stop smoking with a mean of (54.7% to 73.9%) (Landrine, Corral, &Campbell ,2018; &Albelbeisi et al.,2020).

Indeed, the overall findings of the low rates of lifestyle advice provided by healthcare professional to NCD patients in this study at the governmental primary healthcare clinics were not too incomprehensible. The majority of participants believed that the effectiveness of NCDs education was unsatisfactory, and a more effective sessions are needed. These results correspond with data derived from studies done in other the low to middle income countries (Kabir, Karim, & Billah, 2021; Tripathy & Mishra, 2021; Islam et al., 2022; Nakakuwa, Sankombo, & Magesa, 2023; &Wu, Lin, & Li, 2023). The findings of the present study were also consistent with studies done in some Western countries, such as Sweden, Germany, Italy, United Kingdom, Australia, Canada, Ireland, New Zealand and the US, as the results showed that tremendous adjustments are required to improve healthy behaviors among NCDs patients (Darker et al., 2015). In addition, most of NCD patients are not adhered to a healthy lifestyle post recovery of the disease upsets, as a survey finding of two studies conducted by the European Society of Cardiology in twenty-four European countries reflected. Similarly, the majority of Palestinian NCD patients who participated in this study projected alike behavior (Kontsevaya et al.,2016; &Kontsevaya and Farrington, 2017).

5.8 Health -Related Lifestyle Advice across Demographic Characteristics

To be effective, health related advice (HRA) must be obvious, simple, concise, and match the patients' needs individually considering their health status, cultural beliefs, religion, risk factors associated with lifestyle, and sociodemographic features such as the educational level, monthly income, marital status, social support system, employment status, &family household members. These factors may influence the patient's perceptive views and understanding, and receptivity of HRA (Sánchez Urbano, et al.,2021). My current study revealed a significant difference in Means of NCD patients who received smoking stop advice (F=5.822; P=.001) in terms of age on the side of 51-60years old with (M±SD=4.408±.768) which coincided with Sánchez Urbano, et al., 2021 conducted study which showed that age is statistically significant with quit smoking advice although participants of higher age were less likely to receive the advice to quit smoking. Respecting to diet advice, my current study revealed a significant difference in Means of NCD patients who received healthy diet advice (F=5.822; P=.001) in terms of gender for

the sake of females with (M±SD=4.8189±.487) which was in agreement with Sánchez Urbano, et al.,2021 study.

Meanwhile, my present study did not show a statistical significance in terms of educational level as did Sánchez Urbano, et al., 2021 study for the benefit of subjects who complete the primary level; but showed statistically significant difference as regards income (F= 2.249; p=.030) for the benefit of those who earn 5000 to < 6500 NIS monthly with (M±SD=4.889±.295) contradictory to Sánchez Urbano, et al.,2021 study. Moreover, a significant difference in Means of practicing physical activity advice was reported in terms of level of education (F= 2.281; p=.036) on the side of those who complete the 9th class with (M±SD=4.892±.400); and in terms of income (F=2.434; p=.019) on the side of those who earn 2000 to < 3500 NIS monthly with (M±SD=4.835±.507). Although, Sánchez Urbano, et al.,2021 study did not show statistical significance difference in terms of either educational level or income.

On the opposite, sex and age were statistically significant linked to physical activity and weight control. Lastly, there was a significant difference in the means of medication adherence advice in terms of level of education (F=2.438; p=.025) for the benefit of those completed the 9th class with (M±SD=4.738±.568); and in terms of occupation (F=2.219; P=.032) for the benefit of the category of Unemployed patients (unable to work) with (M±SD=4.816±.372). Occupation status was significantly correlated to diet and physical activity advice respecting to Sánchez Urbano, et al.,2021 study done in a central area of Argentina.

5.9 Association between Health Advice and Behaviors of NCD Patients

Lifestyle advice are highly appreciated by most patients, disregards being underutilized in Palestinian PHC since they are offered inefficiently by most of healthcare professionals. The picture through which education affects health is still complex and intertwined. However, most preceding researches proposed that patients who have more knowledge about their illness are more likely to prosper in controlling their health status. This is highly dependent on the use of appropriate health education methods and the delivery of the right messages through the right approach (Alnaif & Alghanim, 2009).

Despite the presence of a unit of noncommunicable diseases within a Ministry of Health, implementation of its guidelines for management of such diseases by providing health education is not activated practically in the governmental primary health clinic facilities as it is supposed to be. A statistically significant association was detected just

only between the diet advice provided by healthcare providers in its two parts (Fruit and vegetables and Salty intake) and its associated behavior of eating healthy diet (p=.000; p=.000 respectively), which showed a positive utilization of such advice by NCD patients who received it, reflected by improvement in daily intake of fruits and vegetables in addition to reduction of salty intake.

5.10 Association between Health Advice and Biochemical Measurements

As a consequence, the diet advice provided by the healthcare providers at the primary health clinics in this study, showed a statistically significant difference respecting to glycemic measurement include both FBS, HgbA1c (p=014; p=0.045 respectively), and waist circumference(p=0.010). However, the physical activity and weight reduction advice delivered by healthcare providers showed a statistically significant difference respecting to waist circumference (p=.001; p=.024 respectively). Additionally, medication delivered advice to NCD patients showed a statistically significant difference respecting to raised Cholesterol, raised triglycerides, CVD risk, BMI, and Waist circumference (p=0.020; p=0.014; p=0.004; p=0.026; p=0.000 respectively), as those who received such advices in such fields utilized it differently with an effective impact.

In summary, inefficient health-related advice are related to lack of NCD explicit guidelines, poor interaction between staff and patients, negative attitudes of health staff. inadequate training, workload pressure, inadequate support, improper monitoring system, lack of logistics supplies like shortages of adequate space, pamphlets and brochures, display screens, &telehealth delivery platform.

5.11 Alternative Sources for Acquiring New Information

Because of inefficiently education provided by the healthcare professionals at the governmental primary health clinics, NCD patients in this study delivered their health - related information about their diseases through alternative sources which is particularly discussed in the third theme of the qualitative analysis of the current study. Actually, three subthemes are derived from this main theme in my present study that are; healthcare providers, significant others; and media. These additional sources of information, apart from the healthcare providers at primary health clinics, may help to satisfy NCD patients health information needs.

Respecting to the current study, more than half of participants claimed that they receive most essential information attributed to their disease from physicians at hospitals or at private clinics rather than at the primary health clinic. They added also that almost most nurses at the governmental primary health clinics in their rural areas did not have any valuable health information. Such findings were coinciding with a study done in India as one-third of patients perceived nurses as unqualified to provide any explanation and information about their management and follow up advice (Riaz, et al.,2020).

Some studies agreed on the claim that doctors primarily served as a powerful influencer in giving health education to patients (Samina, et al.,2008; Ghisi, et al.,2014; & Islam, et al,2022). Indeed, the subject in this study reported severely lower score than other low resource countries respecting to attaining health advice by the mouth of healthcare providers at the primary health clinics. In Saudi Arabia. more than half of the respondents (56.8%) indicated that they received most of their health-related information from hospital Staff; whereas, (55%) of the information received that at PHC. Just only (20%) of patients receive well enough comprehensible education at the governmental primary health clinics (Alnaif &Alghanim,2009). In Nepal, (23.5%), of NCD patients were able to find a good-related health information to their diseases at the PHC by healthcare professionals (Narayan, et al.,2020). The lowest percentage (12.2%) was seen in Filipin similar to Malaysia (Kawi, et al.,2022; & Mazlan, et al.,2021). On the other hand, Ethiopia and In North Shewa zone, Oromia region, showed higher percentages of considering healthcare providers as source of information among NCD patients (43.87%;54.1% respectively) (Tilahun, et al.,2021; & Legesse, et al.,2022).

According to media, the vast majority of the participants in this study expressed their interest in browsing web pages to found any requested information much more than other forms like television, radio and printed materials. Undoubtedly, social media has a powerful potential to support non-communicable diseases (NCDs) prevention and management in low and middle-income countries (LMICs) through disseminating information related to patient health education, that assist in self-management. Media also provides psychological support to NCD patients by sharing experiences of variant cases and encourage patients to be involved in public health campaigns. Moreover, media contributes in health professionals' capacity building (Shariful -Islam, et al.,2019). Media includes different forms like television, radio, social media, medical blogs, and print media. It is able to reach a large population and connect each together through communication channels which affect behavior. Meanwhile, people should be assured to

access accurate information instead of misinformation especially on the internet (WHO, 2022).

It sounds that nearly 91% of Palestinian have access to internet service at home during the first quarter of 2022 PCBU, 2023). Blogging is a useful platform where two thirds of the participants in the current study used to receive and share information, opinion, and advice respecting to their NCDs. This result corresponds with data derived from several studies done in both developing and developed countries e.g., USA, Germany, Canada, and Malaysia (Kohler,2013; Fox & Duggan, 2013; Mazlan, et al.,2021; Fenta, et al.,2024; & Kawi, et al.,2024); although it was contradicted to a study done in Ethiopia, Flippin, and in Arabia Saudi with a percentage of (1.96%;7.2%;22% respectively) (Tilahun, et al., 2021; Kawi, et al.,2022; & Alnaif &Alghanim,2009).

Respecting to mass media including watching medical-related television series, and listening to radio health related programs, one third of participants in this study utilized it as a source of information. Finding of this study was similar to Filipin (37%) (Kawi, et al.,2022) but higher than percentages reported in Ethiopia in terms of television (20.59%,) and radio (22.79%) (Tilahun, et al.,2021). However, it was sharply lower than what was found in North Shewa zone, Oromia region for television and radio (75.2%; 39.4%respectively), &in Saudi Arabia (82.8%;15.5% respectively) (Legesse, et al.,2022; & Alnaif & Alghanim,2009). According to NCD patients, seeking out health information through printed materials like books, pamphlets, brochures in this study, the percentage (53.3%) was higher than other mentioned in variant countries. In Ethiopia, NCD patients use books as a source of information in a minimal percentage (2.45%) compared to Filipin (18.3%) (Tilahun, et al.,2021; (Kawi, et al.,2022). Meanwhile, in Saudi Arabia better percentage was revealed of using printed items (36.2%) (Alnaif & Alghanim,2009).

In terms of significant persons as a source of acquiring knowledge related to noncommunicable diseases, one third of participants in this study tried to find health - related information through friends. Accordingly, the present study's result showed higher rates than reported in Zimbabwe, in Ethiopia (2.95%) and in North Shewa zone and Oromia region (8.6%) (Kamvura, et al.,2022; Tilahun, et al.,2021; & Legesse, et al.,2022). Although it showed lower rate than presented in Saudi Arabia (56.1%) (Alnaif &Alghanim,2009).

Additionally, seeking out relevant information about non communicable diseases through family source was reported by (26.66%) of participants in this study nearly similar (30.1%) to the percent in North Shewa zone, Oromia region (Legesse, et al.,2022).

However, it was better than in Ethiopia (5.39%) but less than in Filipin (59.6%) (Tilahun, et al.,2021; & Kawi, et al.,2022).

At last, the participants in this study suggested some initiatives for the improvement of delivered healthcare services, including providing sufficient resources, training of health care providers, dissemination of health information through social media, and the adoption of electronic appointment system besides an interactional style of monitoring.

5.12 Conclusion

In conclusion, the vast majority of participants in this study claimed that they received a negligible advice from healthcare professionals regards practicing regular physical activity, eating a healthy diet, stopping tobacco, and adhering to prescribed medication. Nevertheless, the received advice concerning adoption of healthy diet showed a statistical significance in related to the subsequent health behavior among NCD patients reflected by biochemical measurement (cholesterol, FBS, HgbA1c) and waist circumference. Age, monthly income and level of education showed a statistical significancy across dieting and physical activity behavior among NCDs patients; while gender displayed significancy across smoking and physical activity behavior.

On the other hand, monthly income projected a statistically significant difference across diet and physical activity advice afforded by healthcare professionals; whereas educational level reflected similar significancy across medication and physical activity lifestyle advice. Moreover, age showed a statistically significant relation with smoking advice; while occupation displayed a significant association with medication lifestyle advice.

The qualitative analysed data supported the quantitative findings reflecting the perspective view of NCD patients in terms of the effectiveness of provided health advice related education focused on three main themes that are; (i)the effectiveness of health education during routine clinic visits; (ii)barriers to provide sufficient health education &(iii) Alternative Sources for Acquiring information.

Notably, the study prioritized the imperative need to develop a unified guideline, and train healthcare workers to assist them in providing the required health relate information for NCD patients. In addition, a prompt monitoring strategy is essential to be developed to ensure that healthcare providers are committed to providing advice on health

behaviors for patients with noncommunicable diseases. Further future studies are needed to escalate the importance of this study findings for follow up.

5.13 Strengths and Limitations of the Study

This study was designed to generate additional insights into the importance of affording health educational sessions in the primary health facilities among NCD adult patients for the sake of inducing healthy behavioral change. Consequently, reducing the health expenditure of the Palestinian Ministry of Health. Overall, the study recruited a diverse sample, in terms of gender, employment, marital status, and educational qualifications besides selecting a mixed method design which strengthen this exploratory first conducted study about NCD patients' perspective views toward afforded health - related education. However, this study as all scientific previous conducted studies on medical field had some limitations that could refrain its generalizability.

Firstly, it has some methodological limitations linked to the selected study design which was non experimental descriptive cross-sectional away of causality which affected the generalizability. I think, adoption of a longitudinal quasi experimental approach rather than descriptive cross-sectional one (which could involve collecting data over multiple months or even years) to prove the efficiency of health education on behavior of NCDs' patients will be more rigor. Confounding variables in the study were not completely controlled as related to randomization, &restriction. So multiple linear regression was used to eliminate the variation in the confounders.

Secondly, such designs increased the risk of social desirability bias, as participants in a self- report tool unusually reported what they believed in as a socially desirable behavior Fore that, as a researcher, I informed participant that they have the right to refuse the participation in this study and are able to withdraw anytime without any penalty.

Thirdly, recall bias might occur in such type of study as the researcher depends on the participants' own recollection of their practices few months ago. Self-reported behaviors and even knowledge might be overinflated or being exposed to forgetfulness issue.in Furthermore, the study environment itself affects participants'' responses and their knowledge and practices.

Fourthly, the sampling strategy that was used in this study followed a non-probability technique. A convenient sampling was selected for the survey and purposive for the interviews; thus, recall bias can't be ruled out. In addition, a small sample size was recruited, which affected representativeness and the generalizability of final results. On

the other hand, such used methods might lead to a reliance on limited number of patients' perspectives and their views on what should be included regards effect of education and on their behavior might be unreflective. Hence, results must be considered cautiously.

Fifthly, the study is exposed to a structural barrier. In fact, there are wide ranges of factors that should be addressed rather than that based on individual level which affect preconception of NCDs patients. This study was confined to few factors based on suggested objectives. Furthermore, some researchers have found that the use of more than one researcher in collecting the data can threaten the consistency or reliability of the gathered data.

Finally, this study was prone to some logistical difficulties; as it was limited by time and resources; as I don't have enough time to spend with patients to conduct interviews thoroughly and make in-depth interviews and discussion with larger numbers of them until data saturation. Indeed, resource constrains including time and budget played a challenging role in gaining access to a truly random sample. In addition, dependence on subjective assessment while analyzing the text data of the interviews in English translated from Arabic language might be prone to increased error, as delicate linguistic nuances might be lost.

5.14 Nursing Implications

This study examined the perception and behavior of Palestinian NCDS patients in relation to education provided through PEN-2 intervention. Stakeholders in the Palestinian Ministry of health- especially in the primary health care department need to take account of the various behavioral aspects and constraints identified by this study. While paying respect to traditional values and patients' educational level varieties, a new structured educational health program needs to be developed in collaboration with the government, NGOs, and other stakeholders to improve the lifestyle patterns of Palestinian NCDs patients, and promote positive changes in patients' life style behavior. Implementation of such education program on regular bases should take place as a strategic program for caring of NCDs patients.

With no doubt, the major impact attributed to this study is the influence on doctors, nurses, and nutritionists to follow up their patients' health behaviors and educating them effectively. For nursing practice in Palestine, the study demonstrated the need for primary health care nurses to ensure that patients who visit the clinic possess the required knowledge; as they serve the first point of contact with patients through collecting data

regarding the patients' lifestyle and self-efficacy and recommend consultations with doctors and nutritionists.

Developing training programs for all healthcare providers who take care of NCD patients at the primary level is important to address shortages of skilled workforce. Healthcare providers cannot afford efficient educational sessions to NCD patients provided they are properly trained and adequately resourced with supplies. Thus, professional training of doctors, nurses, nutritionists play a vital role in early detection and prevention of hypertension, diabetes, cardiac asthma and cancer considered crucial in controlling NCDs. Well-designed Interventions ought to be figured to provide an individualized health education sessions and improve health behaviour, such as adopting a healthy diet, indulging exercises in the daily routine activities as well as working hard to stop smoking and reduce alcohol consumption. Training effectively on delivery of basic health education to NCD patients is a major concern of targeting the prevention for NCDs rather than looking forward managing the consequences particularly in rural area based on the principle of "An ounce of prevention is worth a pound of cure". Such programs assist healthcare providers in managing people with or at risk of an NCD in the community. Rigorous training sessions on NCDs healthy lifestyle behaviors like stop smoking, reduce alcohol consumption, and handle healthy diets is essential to facilitate understanding of their role in health promotion. The government and other national primary healthcare organizations should make people aware of their health status and enable them to make control upon their surrounding environment to create safe and healthy community (Zaman, et al.,2024)

Allocation of human and non -human resources in the Palestinian primary health care facilities should be managed for the sake of healthcare professionals' experiences exchange. A thorough close supervision of healthcare providers' work by policy makers in the primary healthcare facilities should be endorsed. Mentorship and preceptorship programs are warranted to be applied in the primary healthcare clinics particularly assigned to the new employees including doctors and nurses, to enhance delivering effective healthcare services for NCDs patients, focusing on increasing their knowledge concerning their health conditions. Ongoing follow- up of the continuity of care provided by nurses and doctors to NCD patients are crucial in keeping up the level of service at the acceptable level. Incentives and other motivational methods are helpful to ensure the continuity of delivering care to patients in a friendly welcoming environment.

From another perspective, there is a significant need for research support in discovering innovative techniques s to enhance conforming to healthy lifestyle particularly respecting to improvement in food biotechnology. Additionally, discovering quick and sensitive diagnostic tools for identifying NCDs at the point-of-care provides significant advantages to both healthcare workers and the overall healthcare system. Innovations are crucial for effectively tackling the increasing crisis of NCDs, commonly focusing on lifestyle initiatives, encouraging healthy eating habits, and helping people quit smoking. We think it is important to search for more inventions in order to create improved societal living conditions (Budreviciute, et al.,2020). Further experimental researches, in addition to evidence-based projects are needed to be conducted in NCDs field. Systematic Reviewed studies emphasized on a limited researched area, such as cervical cancer, with high-burden conditions should be taken into consideration. A unified guideline should be adopted by the Palestinian Ministry of Health to be implemented virtually in all primary healthcare facilities.

5.15 Recommendations

Stakeholders must constitute a simple and highly valued tool to help address NCD patient's needs to prevent and control diseases in Palestine. Ministry of Health should identify key area for actions to strengthen care and integration of health education program delivered to chronic NCDs patients. This can be accomplished by improving PHC-level chronic care provision by redesigning how education services are delivered. In addition, key stakeholders should be involved in government, and the private sector in training health care providers how to advise patients on practical issues helping with treatment adherence and life style behavior changed to become healthier. The Palestinian Ministry of Health must develop a training module assigned for NCDs to cover all health services requirements to increases the knowledge about diabetes, hypertension, obesity, or common cancers, both at individual and societal level to be approved later on in all governorates. Such module must be practical, smooth ,and fruitful package includes interactive lectures and problem-based learning scheme such as, group discussions and case studies. Scale-up public awareness about healthy behaviors concerning chronic non communicable diseases through using social media, patients' feedback, and public education campaigns to empower community. Improve provider understandings of the reasons for non-adherence to treatment and healthy life style at the individual patient level, and provide support to patients by building better therapeutic relations and

enhancing knowledge among patients on continuity of NCD care. Establish a web-based educational platform which will constitute a primary source of abundant health information for NCDs patients and incorporate all updated NCD service data for the benefit of health care providers. More funding is needed for NCD education and related researches.

Nursing leadership and political decision-makers should consider providing a transparent, enthused evaluation program and feedback checklist for healthcare providers to enhance the continuity of conveying health education knowledge to patients and raise their abilities to conform with a healthy lifestyle. A throughout monitoring and close supervision must be of a high priority to be executed by administrators, to ensure improvement in the healthcare providers' performance in terms of educating NCD patients to achieve the desired outcomes. Overall progress reports designed by administrators effectively aids in maintaining of continuity of care to NCD patients and enhance tracking their status to ensure initiating lifelong positive change.

Future cohort researches that include both patients and providers' perspectives are recommended to be conducted. More scientific papers are needed to support producing meaningful evidence that goes beyond just outlining the challenging issue and barriers with relation to the field of chronic noncommunicable diseases, answering "how" to put the gathered review of this paper into practice and be evaluated. Investment in conducting more ideologically challenging researches like this one done in NCDs area, could play a valuable shift in policy and strategic directions toward reduction of the burden of such disease by preventing poor health and disease, reducing health care costs, and improving patient outcomes.

References

Abukhader, H., Caplan, L., Reese, L., & Alema-Mensah, E. (2014, Aug 25). Factors affecting the prevalence of chronic disease in Palestinian people: an analysis of data from the Palestinian Central Bureau of Statistics. HHS Public Access.

Albelbeisi, A., & Shaqfa, KM. (2022, June 15). Factors that Hinder Adherence to Physical Activity and a Healthy Diet among Palestinian Non-Communicable Disease Patients: A Qualitative Study. *Austin Journal of Public Health and Epidemiology,1123*, 1-13.doi:10.26420/AustinJPublicHealthEpidemiol.2022.1123.

Acioli, S., Kebian, LV., de Araujo Faria, MG., Ferraccioli, P., &Correa, VD. (2014). Práticas De Cuidado: o papel do enfermeiro na atenção básica [Nurses' work with children with cancer: palliative care]. *Revista Enfermagem. Univ State Rio De Janeiro,22*(5):637–42.

Airhihenbuwa, C. O., Tseng, T. S., Sutton, V. D., & Price, L. (2021). Global Perspectives on Improving Chronic Disease Prevention and Management in Diverse Settings. *Preventing chronic disease, 18*, E33. https://doi.org/10.5888/pcd18.210055

Alawneh, I. S., Yasin, A., & Musmar, S. (2022). The Prevalence of Uncontrolled Hypertension among Patients Taking Antihypertensive Medications and the Associated Risk Factors in North Palestine: A Cross-Sectional Study. *Advances in medicine,* 2022, 5319756,1-7. https://doi.org/10.1155/2022/5319756

Al-Bayan, M., Islam, N., Edwards, S., & Duncan, D. (2016). Neighborhood perceptions and hypertension among low-income black women: a qualitative study. *BMC Public Health 16*, 1075 (2016). https://doi.org/10.1186/s12889-016-3741-2

Albelbeisi, A. H., Albelbeisi, A., El Bilbeisi, A. H., Takian, A., & Akbari-Sari, A. (2020). Capacity of Palestinian primary health care system to prevent and control of non-communicable diseases in Gaza Strip, Palestine: A capacity assessment analysis based on adapted WHO-PEN tool. The *International journal of health planning and management, 35*(6), 1412–1425. https://doi.org/10.1002/hpm.3022

Albelbeisi, A. H., et al. (2021, Jan 31). Barriers of Adherence among Palestinian Healthcare Professionals towards the Protocol of Health Education and Counselling on Healthy Behaviors for Non-Communicable Diseases. *Ethiopian Journal of Health Science,3*, 73-84. doi:10.4314/ejhs. v31i1.9

Albelbeisi, A., Albelbeisi, A., El Bilbeisi, AH., Taleb, M., Takian, A., and Akbari-Sari, A. (2021). Barriers toward the practice of healthy behaviors among patients with noncommunicable diseases in Gaza Strip, Palestine. SAGE Open Medicine,9: 1–10 .DOI: 10.1177/20503121211029179 journals.sagepub.com/home/smo

Albelbeisi, A. H., Albelbeisi, A., El Bilbeisi, A. H., & El Afifi, A. (2022). Do Patients with Major Non-Communicable Diseases Receive Advice on Health Behaviors from Healthcare Professionals in the Gaza Strip, Palestine? *Ethiopian journal of health sciences, 32*(1), 45–54. https://doi.org/10.4314/ejhs.v32i1.6

Albelbeisi, A., & Shaqfa, KM. (2022, May 12). Barriers to the Commitment of Palestinian Health Providers to the Protocol of Healthy Behaviors for Patients with Non-Communicable Diseases: A Qualitative Thematic Analysis Study. *Nursing and Health Care* *9*(1):1067,1-8. https://www.researchgate.net/publication/360397617

Albelbeisi, A., Albelbeisi, A., Elbilbeisi, AH., &Elafifi, A. (2022). Do Patients with Major Non-Communicable Diseases Receive Advice on Health Behaviors from Healthcare Professionals in the Gaza Strip, Palestine? *Ethiop J Health Sci ,32* (1): 45.doi: http://dx.doi.org/10.4314/ejhs.v32i1.6

Albelbeisi, AH., Albelbeisi, A., El Bilbeisi, AH., Takian, A., &Akbari-Sari, A. (2020). Capacity of Palestinian primary health care system to prevent and control of non-communicable diseases in Gaza Strip, Palestine: A capacity assessment analysis based on adapted WHO-PEN tool. *The International Journal of Health Planning and Management ,35*(6):1412-25.

Albelbeisi et al. (2020). Capacity of Palestinian primary health care system to prevent and control of non-communicable diseases in Gaza Strip, Palestine: A capacity assessment analysis based on adapted WHO-PEN tool. *Int J Health Plann Mgmt*,*22*, 1–14. https://doi.org/10.1002/hpm.3022

AlHelo, R.& Elessi, Kh. (2019). Implementation of World Health Organization Package of Essential Noncommunicable Disease Interventions for Cardiovascular Risk Management in Gaza/Palestine: *A Retrospective Record Review Study. Dubai Med J, 2:*153–157. DOI: 10.1159/000503992

Alkhazrajy, L. (2018). Knowledge and Attitudes Regarding Health Education among Sample of Iraq Patients Attending Primary Health Centers. *AL-Kindy College Medical Journal, 14*(2): 49-53.DOI:10.47723/kcmj.v14i2.51

Allen, L., et al. (2017). Socioeconomic status and non-communicable disease behavioural risk factors in low-income and lower-middle-income countries: a systematic review. *Lancet Glob Health ,5*: e277–89

Alnaif, M., & Alghanim, S. (2009). Patients' Knowledge and Attitudes Towards Health Education: Implication for Primary Health Care Services in Saudi Arabia. *J Fam Community Med ,16*(1):27-32

Al-Noumani, H., Al-Harrasi, M., Al Zaabi, O., &Natarajan, J. (2022). Predictors of health-related quality of life in patients with non-communicable diseases: A national cross-section study. *Applied Nursing Research,64*, 151566. https://doi.org/10.1016/j.apnr.2022.151566

AlSaleh, N. (2016). Identifying Health Education Competencies for Primary Health Care Nurses in Saudi Arabia: A Delphi Consensus Study (unpublished doctoral dissertation in Philosophy). University of Salford, Manchester United Kingdom.

Aluttis, C., Bishaw, T., &Frank, M.W. (2014). The workforce for health in a globalized context- global shortages and international migration Glob. *Health Action, 7*, 10.3402/gha. v7.23611

Alwan, A., et al. (2010). Chronic Diseases: Chronic Diseases and Development 5 Monitoring and surveillance of chronic non-communicable diseases: progress and capacity in high-burden countries. *Lancet; 376*: 1861–68. DOI:10.1016/S0140 6736(10)61853-3

Ameworwor, E. R., Amu, H., Dowou, R. K., Kye-Duodu, G., Amu, S., & Bain, L. E. (2024). Exploring therapeutic communication in managing chronic non-communicable diseases: a mixed-method study in Ghana. *Archives of public health = Archives belges de sante publique*, *82*(1), 36. https://doi.org/10.1186/s13690-024-01263-y

Amini, N., Rakhshanderou, S., Ramezankhani, A., Delavari, A., & Ghaffari, M. (2023). WHO-PEN intervention in Iran's health system based on 5As healthy lifestyle counseling model: A randomized-clinical trial. *Journal of education and health promotion*, *12*, 18. https://doi.org/10.4103/jehp.jehp_107_22

Anera. (2023). What are Area A, Area B, and Area C in the West Bank? Annual Report. Anera.org. www.anera.org/what-are-area-a-area-b-and-area-c-in-the-west-bank/

Anthony, H., Valinsky, L., Inbar, Z. *et al.* (2012). Perceptions of hypertension treatment among patients with and without diabetes. *BMC Fam Pract 13*, (24),1-7 . https://doi.org/10.1186/1471-2296-13-24

Armat, M., Assarroudi, A., Rad, M., Sharifi, H., & Heydari, A. (2018). Inductive and Deductive: Ambiguous Labels in Qualitative Content Analysis. *The Qualitative Report*, *23*(1), 219–221. https://doi.org/10.46743/2160-3715/2018.2872

Aye, L. L., Tripathy, J. P., Maung Maung, T., Oo, M. M., Nwe, M. L., Thu, H. M. M., Ko, K., & Kaung, K. K. (2020). Experiences from the pilot implementation of the Package of Essential Non-communicable Disease Interventions (PEN) in Myanmar, 2017-18: A mixed methods study. *PloS one*, *15*(2), e0229081. https://doi.org/10.1371/journal.pone.0229081

Baker, R., Wilson, A., Nockels, K., Agarwal, S., Modi, P., & Bankart, J. (2018, January 29). level of detection of hypertension in primary medical care and interventions to improve detection: a systemic review of the evidence since 2000. *BMJ,3*, p. e019965. http://dx.doi.org/10.1136/bmjopen-2017-019965

Basu S, Yudkin JS, Jawad M, Ghattas H, Hamad BA, Jamaluddine Z, et al. (2024) Reducing non-communicable diseases among Palestinian populations in Gaza: A participatory comparative and cost-effectiveness modeling assessment. *PLOS Glob Public Health 4*(5): e0003168. https:// doi.org/10.1371/journal.pgph.0003168

Barghouthi et al. (2017). Implementation of WHO package of essential non-communicable disease interventions in the occupied Palestinian territory: assessment of patient perceptions to changes in quality of care with participatory ranking methods. *The Lancet,390(1),* S27. ISSN 0140-6736. https://doi.org/10.1016/S0140-6736(17)32028-7

Benkel, I., Arnby, M., & Molander, U. (2020). Living with a chronic disease: A quantitative study of the views of patients with a chronic disease on the change in their life situation. *SAGE open medicine*, *8*, 2050312120910350. https://doi.org/10.1177/2050312120910350

Bennett-Weston, A., Gay, S. & Anderson, S. (2023). A theoretical systematic review of patient involvement in health and social care education. *Adv in Health Sci Educ 28*, 279–304. https://doi.org/10.1007/s10459-022-10137-3

Bloom, D.E., Cafiero, E.T., Jané-Llopis, E., Abrahams-Gessel, S., Bloom, L.R., Fathima, S., Feigl, A.B., Gaziano, T., Mowafi, M., Pandya, A., Prettner, K., Rosenberg, L., Seligman, B., Stein, A.Z., & Weinstein, C. (2011). The Global Economic Burden of Noncommunicable Diseases. World Economic Forum & Harvard School of Public Health, Geneva:

Budhathoki, SS., Pokharel, PK., Good, S., Limbu, S., Bhattachan, M., &Osborne, RH. (2017). The potential of health literacy to address the health-related UN sustainable development goal 3 (SDG3) in Nepal: a rapid review. *BMC Health Serv Res,17* (1):237.

Budreviciute, A., Damiati, S., Sabir, D. K., Onder, K., Schuller-Goetzburg, P., Plakys, G., Katileviciute, A., Khoja, S., & Kodzius, R. (2020). Management and Prevention Strategies for Non-communicable Diseases (NCDs) and Their Risk Factors. *Frontiers in public health*, *8*, 574111. https://doi.org/10.3389/fpubh.2020.574111

Bussel, E., Reurich, L., Pols, J., Richard, E., Moll van Charante, E., & Ligthart, S. (2019). Hypertension management: experiences, wishes and concerns among older people-a qualitative study. *BMJ open*, *9*(8), e030742. https://doi.org/10.1136/bmjopen-2019-030742

Busch, M., & Rimondini, M. (2021). Empowering Patients and Supporting Health Care Providers-New Avenues for High Quality Care and Safety. *International journal of environmental research and public health*, *18*(18), 9438. https://doi.org/10.3390/ijerph18189438

Chaudhry, A., & Golay, A. (2019). Patient education and self-management support. for chronic disease: methodology for implementing patient-tailored therapeutic programmes. *Public health panorama ,5* (2-3),357-361. http://iris.who.int/handle/10665/330106

Checkley, W., Ghannem, H., Irazola, V., Kimaiyo, S., Levitt, N. S., Miranda, J. J., Niessen, L., Prabhakaran, D., Rabadán-Diehl, C., Ramirez-Zea, M., Rubinstein, A., Sigamani, A., Smith, R., Tandon, N., Wu, Y., Xavier, D., Yan, L. L., & GRAND South Network, UnitedHealth Group/National Heart, Lung, and Blood Institute Centers of Excellence (2014). Management of NCD in low- and middle-income countries. *Global heart*, *9*(4), 431–443. https://doi.org/10.1016/j.gheart.2014.11.003

Chehuen, JA., et al. (2019). Functional health literacy in chronic cardiovascular patients. *BMC Health Serv Res ,24*:1121-32.

Collier, J., &Kienzler, H. (2018). Barriers to cardiovascular disease secondary prevention care in the West Bank, Palestine–a health professional perspective. *Conflict and health;12*(1):1-13.

Collins, D., et al. (2020). Implementing a package of noncommunicable disease interventions in the Republic of Moldova: two-year follow-up data. *Primary health care research & development, 21*, e39. https://doi.org/10.1017/S1463423620000420

Collins, C., Doran, G., Patton, P., Fitzgerald, R., & Rochfort, A. (2021). Does education of primary care professionals promote patient self-management and improve outcomes in chronic disease? An updated systematic review. *BJGP open*, *5*(3), BJGPO.2020.0186. https://doi.org/10.3399/BJGPO.2020.0186

Connell, P., McKevitt, C., & Wolfe, C. (2005). Strategies to manage hypertension: a qualitative study with black Caribbean patients. *The British journal of general practice: the journal of the Royal College of General Practitioners*, *55*(514), 357–361.

Cooper, H., Booth, K., Fear, S., & Gill, G. (2001). Chronic disease patient education: lessons from meta-analyses. *Patient education and counseling*, *44*(2), 107–117. https://doi.org/10.1016/s0738-3991(00)00182-8.

Correia, J. C., Waqas, A., Assal, J. P., Davies, M. J., Somers, F., Golay, A., & Pataky, Z. (2023). Effectiveness of therapeutic patient education interventions for chronic diseases: A systematic review and meta-analyses of randomized controlled trials. *Frontiers in medicine*, *9*, 996528. https://doi.org/10.3389/fmed.2022.996528

Corsi, D. J., Subramanian, S. V., Lear, S. A., Teo, K. K., Boyle, M. H., Raju, P. K., Joshi, R., Neal, B., & Chow, C. K. (2014). Tobacco use, smoking quit rates, and socioeconomic patterning among men and women: a cross-sectional survey in rural Andhra Pradesh, India. *European journal of preventive cardiology*, *21*(10), 1308–1318. https://doi.org/10.1177/2047487313491356

Coulter, A., Entwistle, V. A., Eccles, A., Ryan, S., Shepperd, S., & Perera, R. (2015). Personalised care planning for adults with chronic or long-term health conditions. *The Cochrane database of systematic reviews*, *2015*(3), CD010523. https://doi.org/10.1002/14651858.CD010523.pub2

Creswell, J. & Clark,V. (2017). Designing and conducting mixed methods research. 3rd edi. Sage publications. ISBN:1483346986, 9781483346984
https://books.google.ps/books?id=eTwmDwAAQBAJ

Creswell, J. &. Clark,V. (2017). Differing perspectives on mixed methods research. *Journal of Mixed Methods Research, 1*(4), 303-308.

Crichton,C. (2023). What are the benefits of eating healthy? Reviewed by Marengo ,K .Medical News Today. https://www.medicalnewstoday.com/articles/322268

Darker, C., Whiston, L., Jordan, S., Doogue, R., Collins, C., Ryan, K. and Oshea, B. (2015). A national survey of chronic disease management by practice nurses in Ireland. Irish Practice Nurses Association. Department of Public Health & Primary Care. Trinity College Dublin, Britain.

Dhungana, R.et al.(2014). Prevalence of cardiovascular health risk behaviors in a remote rural community of Sindhuli district, Nepal. *BMC Cardiovasc Disord,14*: 92. doi: 10.1186/1471-2261-14-92

Dineen-Griffin, S., Garcia-Cardenas, V., Williams, K., & Benrimoj, S. I. (2019). Helping patients help themselves: A systematic review of self-management support strategies in primary health care practice. *PloS one, 14*(8), e0220116. https://doi.org/10.1371/journal.pone.0220116

Dodgson, J. E. (2017). About research: Qualitative methodologies. *Journal of Human Lactation, 33(*2), 355-358.

Duboz, P., Gueye, L., Boetsch, G., &Macia, E. (2015). Access to Health Care in Dakar (Senegal): frequency, type of provider, and non-communicable chronic diseases. *Med Sante Trop,25*(2), 71-165.doi:10.1684/mst.2015.0450.

Dwairej, L. , Ahmad, M. and Alnaimat, I. (2020) The Process of Compliance with Self-Care among Patients with Hypertension: A Grounded Theory Study. *Open Journal of Nursing, 10,* 534-550. doi: 10.4236/ojn.2020.105037.

Dwarswaard, J., Bakker, E. J., van Staa, A., & Boeije, H. R. (2016). Self-management support from the perspective of patients with a chronic condition: a thematic synthesis of qualitative studies. *Health expectations: an international journal of public participation in health care and health policy*, *19*(2), 194–208. https://doi.org/10.1111/hex.12346

Dweakat,R., Bouziyeh ,Y., Abu-Hijleh ,R., Shamasnah ,I., Ramlawi ,A.(2017) . Clinical audit to assess quality of service in a newly implemented NCD program: a cross-sectional survey to review a pilot implementation of the WHO PEN approach in Salfit district, occupied Palestinian territory. The Lancet,390, S28

El Mouaddib, H., Sebbani, M., Mansouri, A., Adarmouch, L., & Amine, M. (2023). Job satisfaction of primary healthcare professionals (public sector): A cross-sectional study in Morocco. *Heliyon*, *9*(9), e20357. https://doi.org/10.1016/j.heliyon.2023.e20357

Farley H. (2019). Promoting self-efficacy in patients with chronic disease beyond traditional education: A literature review. *Nursing open*, *7*(1), 30–41. https://doi.org/10.1002/nop2.382

Fenta, E.T., kidie, A.A., Tiruneh, M.G. *et al.* (2024). Exploring barriers of health literacy on non-communicable disease prevention and care among patients in north wollo

zone public hospitals; Northeast, Ethiopia, 2023: application of socio-ecological model. *BMC Public Health 24*, 971 (2024). https://doi.org/10.1186/s12889-024-18524-8

Fox, S., & Duggan, M. (2013). Health Online 2013 Report: information triage. Pew Research Center Internet and American Life Project. https://www.pewresearch.org/internet/2013/01/15/

Grady, P. A., & Gough, L. L. (2014). Self-management: a comprehensive approach to management of chronic conditions. *American journal of public health, 104*(8), e25–e31. https://doi.org/10.2105/AJPH.2014.302041

Grave, R., Calugi, S., Centis, E., Marzocchi, R., El Ghoch, M., & Marchesini, G. (2010). Lifestyle modification in the management of the metabolic syndrome: achievements and challenges. *Diabetes, metabolic syndrome and obesity: targets and therapy, 3*, 373–385. https://doi.org/10.2147/DMSOTT.S13860

Gupta, R., Deedwania, P. C., Sharma, K., Gupta, A., Guptha, S., Achari, V., Asirvatham, A. J., Bhansali, A., Gupta, B., Gupta, S., Jali, M. V., Mahanta, T. G., Maheshwari, A., Saboo, B., Singh, J., & Gupta, R. (2012). Association of educational, occupational and socioeconomic status with cardiovascular risk factors in Asian Indians: a cross-sectional study. *PloS one*, *7*(8), e44098. https://doi.org/10.1371/journal.pone.0044098

Ghisi, G. L., Abdallah, F., Grace, S. L., Thomas, S., & Oh, P. (2014). A systematic review of patient education in cardiac patients: do they increase knowledge and promote health behavior change? *Patient education and counseling*, *95*(2), 160–174. https://doi.org/10.1016/j.pec.2014.01.012

Hacker, K. (2024). The Burden of Chronic Disease. *Mayo Clinic proceedings. Innovations, quality & outcomes*, *8*(1), 112–119. https://doi.org/10.1016/j.mayocpiqo.2023.08.005

Hadian, M., Mozafari, M. R., Mazaheri, E., & Jabbari, A. (2021). Challenges of the Health System in Preventing Non-Communicable Diseases; Systematized Review. *International journal of preventive medicine*, *12*, 71. https://doi.org/10.4103/ijpvm.IJPVM_487_20

Higuchi.M., & Liyanage, Ch. (2016). Primary Healthcare Providers' Perceptions of Non-communicable Disease Prevention and Control in the Western Province of Sri Lanka: A Qualitative Study. *Journal of International Helath,13*(2),113-121

Hyon, S., Nam, Y., Sun, C., Garg, R., Shrestha, M., OK, U., & Kumar, R. (2017). Package of essential noncommunicable disease (PEN) intervention in primary health -care setting in the Democratic People of Korea: a feasibility study. *WHO South -East Asia Journal of Public Health, 6*(2),1-12.

Islam, K., Huque, R., Saif-Ur-Rahman, K. M., Ehtesham Kabir, A. N. M., & Enayet Hussain, A. H. M. (2022). Implementation status of non-communicable disease control program at primary health care level in Bangladesh: Findings from a

qualitative research. *Public health in practice (Oxford, England), 3*, 100271. https://doi.org/10.1016/j.puhip.2022.100271

Jaafar, N., Perialathan, K., Zulkepli, M. Z., Mohd Zin, Z., Jonoi, P. E., & Johari, M. Z. (2020). Patients' Perception Towards Health Education Services Received at the Enhanced Primary Healthcare Facilities: A Qualitative Exploration. *Journal of primary care & community health*, *11*, 2150132720980629. https://doi.org/10.1177/2150132720980629

Jenkins, E .(2019).A Qualitative Content Analysis of the Perceptions of the Meanings & Experiences of Infertile African American Coupled Department of Family Sciences College of Professional Education. Unpublished Doctoral Dissertation. The Graduate School of the Texas Woman's University. Denton, TX, USA. JENKINS-DISSERTATION-2019.pdf (720.02 KB)

Jolles, E., Padwal, R., Clark, A., & Braam, B. (2013). A Qualitative Study of Patient Perspectives about Hypertension. *ISRN Hypertension ,2013*(2),1-10. DOI:10.5402/2013/671691

Jimmy, B., & Jose, J. (2011). Patient medication adherence: measures in daily practice. *Oman medical journal*, *26*(3), 155–159. https://doi.org/10.5001/omj.2011.38

Johns Hopkins Bloomberg School of Public Health. (2018). Poverty Increases Risk of Non-Communicable Diseases in Lower Income Countries. Johns Hopkins University, Maryland, USA.

Juzoor for Health and Social Development. (2017). The Palestine National Diabetes Project. http://www.juzoor.org.

Kabir, A., Karim, M. N., & Billah, B. (2021). Primary healthcare system readiness to prevent and manage non- communicable diseases in Bangladesh: a mixed- method study protocol. *BMJ Open,11*: 1-13. doi: http://bmjopen.bmj.com/

Kamvura, T.T., Dambi, J.M., Chiriseri, E. *et al.* (2022). Barriers to the provision of non-communicable disease care in Zimbabwe: a qualitative study of primary health care nurses. *BMC Nurs, 21*(64),1-15. Doi: https://doi.org/10.1186/s12912-022-00841-1

Kar, S., Thakur, J., Virdi, N., Jain, S., & Kumar, S. (2010). Risk factors for cardiovascular diseases: is the social gradient reversing in northern India? *Natl Med J India, 23* ,206-209.

Kawi, J., Fudolig, M., Serafica, R., Reyes, A. T., Sy, F., Leyva, E. W. A., & Evangelista, L. S. (2024). Health information sources and health-seeking behaviours of Filipinos living in medically underserved communities: Empirical quantitative research. *Nursing open*, *11*(3), e2140. https://doi.org/10.1002/nop2.2140

Kempers, J., Rotaru, C., Topa, A., Zarbailov, N., Curteanu, A., & Prytherch, H. (2023). Does training on the WHO package of essential noncommunicable (PEN) disease interventions enhance consultation quality? A real-world assessment of adherence

to PEN protocol in primary health centres in the Republic of Moldova. *Global health action*, *16*(1), 2285619. https://doi.org/10.1080/16549716.2023.2285619

Khatib, R., Schwalm, J. D., Yusuf, S., Haynes, R. B., McKee, M., Khan, M., & Nieuwlaat, R. (2014). Patient and healthcare provider barriers to hypertension awareness, treatment and follow up: a systematic review and meta-analysis of qualitative and quantitative studies. *PloS one*, *9*(1), e84238. https://doi.org/10.1371/journal.pone.0084238

Kohler, S. (2013). Can Internet Access Growth Help Reduce the Global Burden of Noncommunicable Diseases? Institute for Social Medicine, Epidemiology and Health Economics, Charité University Medical Center, Berlin, Germany.

Kontsevaya and Farrington. (2017). Implementation of a package of essential noncommunicable (PEN) disease interventions in Kyrgyzstan: evaluation of effects and costs in Bishkek after one year. The Regional Office for Europe of the World Health Organization. https://www.who.int/europe/publications/m/item/implementation-of-a-package-of-essential-noncommunicable-(pen)-disease-interventions-in-kyrgyzstan-evaluation-of-effects-and-costs-in-bishkek-after-one-year

Kotseva, K., Wood, D., De Bacquer, D., De Backer, G., Rydén, L., Jennings, C., Gyberg, V., Amouyel, P., Bruthans, J., Castro Conde, A., Cífková, R., Deckers, J. W., De Sutter, J., Dilic, M., Dolzhenko, M., Erglis, A., Fras, Z., Gaita, D., Gotcheva, N., Goudevenos, J., … EUROASPIRE Investigators (2016). EUROASPIRE IV: A European Society of Cardiology survey on the lifestyle, risk factor and therapeutic management of coronary patients from 24 European countries. *European journal of preventive cardiology*, *23*(6), 636–648. https://doi.org/10.1177/2047487315569401

Krippendorff, K. (2019). Content analysis: An Introduction to Its Methodology ,4th edi. SAGE Publications, Inc. https://doi.org/10.4135/9781071878781

Kyngäs, Helvi & Kaakinen, Pirjo. (2020). The Application of Content Analysis in Nursing Science Research: Deductive Content Analysis. *ResearchGate*,23-30. 10.1007/978-3-030-30199-6_3.

Landrine, H., Corral, I., & Campbell, K. M. (2018). Racial disparities in healthcare provider advice to quit smoking. *Preventive medicine reports*, *10*, 172–175. https://doi.org/10.1016/j.pmedr.2018.03.003

Lazaro, F., García-González, J. M., Adams, D. P., Fernandez-Lazaro, D., Mielgo-Ayuso, J., Caballero-Garcia, A., Moreno Racionero, F., Córdova, A., & Miron-Canelo, J. A. (2019). Adherence to treatment and related factors among patients with chronic conditions in primary care: a cross-sectional study. *BMC family practice*, *20*(1), 132. https://doi.org/10.1186/s12875-019-1019-3

Legesse, E., Nigussie, T., Girma, D., Geleta, L. A., Dejene, H., Deriba, B. S., Geleta, T. A., Sahlu, D., Tesema, M., Tilahun, A., Awol, M., Teshome, F., Midaksa, G., & Bati, F. (2022). Level of Adequate Knowledge of Non-communicable Diseases and

Associated Factors Among Adult Residents of North Shewa Zone, Oromia Region, Ethiopia: A Mixed-Method Approach. *Frontiers in public health*, *10*, 892108. https://doi.org/10.3389/fpubh.2022.892108

Lindgren, B. M., Lundman, B., & Graneheim, U. H. (2020). Abstraction and interpretation during the qualitative content analysis process. *International journal of nursing studies*, *108*, 103632. https://doi.org/10.1016/j.ijnurstu.2020.103632

Lu, Y., Zhao, Y., Shangguan, X., Lv, B., & Huang, R. (2022). Patient attitude and determinants toward chronic diseases control: A cross-sectional survey in rural China. *Frontiers in public health*, *10*, 970032. https://doi.org/10.3389/fpubh.2022.970032

Maimela, E., Van Geertruyden, J. P., Alberts, M., Modjadji, S. E., Meulemans, H., Fraeyman, J., & Bastiaens, H. (2015). The perceptions and perspectives of patients and health care providers on chronic diseases management in rural South Africa: a qualitative study. *BMC health services research*, *15*, 143. https://doi.org/10.1186/s12913-015-0812-5

Martin, L. R., Williams, S. L., Haskared, K. B., & DiMatteo, M. R. (2018). The challenge of patient adherence. *Therapeutics and Clinical Risk Management*, *1*, 189-199. https://api.semanticscholar.org/CorpusID:3941347

Mazlan, A., Adzharuddin, N., Omar, S., & Tamam, E. (2021). Online Health Information Seeking Behavior of Non-Communicable Disease (NCD) Among Government Employees in Putrajaya Malaysia. Jurnal Komunikasi: Malaysian *Journal of Communication Jilid ,37*(1) ,419-433

McCombes, S. (2023, November 20). *What Is a Research Design | Types, Guide & Examples?* Scribbr. Retrieved December 20, 2023, from https://www.scribbr.com/methodology/research-design/

Mosleh,M. ,Dalal ,K.,&Aljeesh ,Y.(2018). Burden of chronic diseases in the Palestinian health- care sector using disability -adjusted life -years. *Science Direct.* Elsevier Ltd . DOI: https://doi.org/10.1016/S0140-6736(18)30346-5

Naha, S., Gardner, M. J., Khangura, D., Kurukulasuriya, L. R., & Sowers, J. R. (2021). Hypertension in Diabetes. In K. R. Feingold (Eds.) et. al., *Endotext*. MDText.com, Inc. https://www.ncbi.nlm.nih.gov/books/NBK279027/

Nakakuwa, F., Sankombo, M., & Magesa, E. (2023). Assessment of the implementation of health education in primary health care facilities, Kavango, East Region, Namibia. *Journal of public health in Africa*, *14*(2), 2248. https://doi.org/10.4081/jphia.2023.2248

Nascimento, A., et al. (2023). Perspectives and Challenges for Implementation the Expert Patient Program: A Scoping Review. Texto & Contexto - Enfermagem ,32(10), 1-15.doi:10.1590/1980-265X-TCE-2022-0222en

Oliveira, J. (2018). Mixed methods in nursing research: application possibilities according to Creswell.*Texto Contexto Enferm, 27*(2),1-8: e0560017 https://doi.org/10.1590/0104-070720180000560017

Paige, S., Stellefson, M., &Singh, B.(2016). Patient perspectives on factors associated with enrollment and retention in chronic disease self-management programs: a systematic review. *Patient Intelligence* ,8:21-37 https://doi.org/10.2147/PI.S70185

Palestinian Central Bureau of Statistics (PCBS). (2022). A world of 8 billion: "Towards a resilient future Harnessing opportunities and ensuring rights and choices for all". MOH; Ramallah - Palestine.

Palestinian Central Bureau of Statistics (PCBS). (2023). Palestine in Figures 2022.Ramallah- Palestine.

Palestinian Health Information Center (PHIC). (2022). Health Annual Report, Palestine 2021, June 2022. Ministry of Health, Ramallah -Palestine.

Palestinian Health Information Center (PHIC). (2023). The Annual Health Report for 2022. Palestinian Ministry of Health, Ramallah -Palestine

Parashar, A., Willeboordse, M., Gupta, A. K., & van Schayck, O. C. P. (2022). Effect of brief interventions to promote behavior change on clinical outcomes of selected non-communicable diseases: The World Health Organization (WHO) Package of Essential Non-communicable disease (PEN) Interventions for primary health care settings - study protocol of a quasi-experimental study. *Contemporary clinical trials*, *113*, 106675. https://doi.org/10.1016/j.cct.2022.106675

Paterick, T. E., Patel, N., Tajik, A. J., & Chandrasekaran, K. (2017). Improving health outcomes through patient education and partnerships with patients. *Proceedings (Baylor University. Medical Center)*, *30*(1), 112–113. https://doi.org/10.1080/08998280.2017.11929552

Perera, M., de Silva, C. K., Tavajoh, S., Kasturiratne, A., Luke, N. V., Ediriweera, D. S., Ranasinha, C. D., Legido-Quigley, H., de Silva, H. A., & Jafar, T. H. (2019). Patient perspectives on hypertension management in health system of Sri Lanka: a qualitative study. *BMJ open*, *9*(10), e031773. https://doi.org/10.1136/bmjopen-2019-031773

Pham, T., et al. (2023). Prevalence of obesity and abdominal obesity and their association with metabolic-related conditions in Vietnamese adults: an analysis of Vietnam STEPS survey 2009 and 2015.*The Lancet Regional Health -Western Pacific,39*(100859),1-14. https://doi.org/10.1016/j.lanwpc.2023. 100859

Pullar, J., Allen, L., Townsend, N., Williams, J., Foster, C., Roberts, N., Rayner, M., Mikkelsen, B., Branca, F., & Wickramasinghe, K. (2018). The impact of poverty reduction and development interventions on non-communicable diseases and their behavioural risk factors in low and lower-middle income countries: A systematic review. *PloS one*, *13*(2), e0193378. https://doi.org/10.1371/journal.pone.0193378

Quigley, H., Camacho Lopez, P. A., Balabanova, D., Perel, P., Lopez-Jaramillo, P., Nieuwlaat, R., Schwalm, J. D., McCready, T., Yusuf, S., & McKee, M. (2015). Patients' knowledge, attitudes, behaviour and health care experiences on the prevention, detection, management and control of hypertension in Colombia: a qualitative study. *PloS one*, *10*(4), e0122112. https://doi.org/10.1371/journal.pone.0122112

Ranjani, H., & Mohan, V. (2020). Prevention and Control of Noncommunicable Diseases Role of Family Physicians in Improving Compliance to Lifestyle Modification. *The Asian Journal of diabetology ,11*(2),9-14

Rawal, L. B., Kharel, C., Yadav, U. N., Kanda, K., Biswas, T., Vandelanotte, C., Baral, S., & Abdullah, A. S. (2020). Community health workers for non-communicable disease prevention and control in Nepal: a qualitative study. *BMJ open*, *10*(12), e040350. https://doi.org/10.1136/bmjopen-2020-040350

Rawal, L., Jubayer, S., Choudhury, S. R., Islam, S. M. S., & Abdullah, A. S. (2020). Community health workers for non-communicable diseases prevention and control in Bangladesh: a qualitative study. *Global health research and policy*, *6*(1), 1. https://doi.org/10.1186/s41256-020-00182-z

Riaz, B. K., Islam, M. Z., Islam, A. N. M. S., Zaman, M. M., Hossain, M. A., Rahman, M. M., Khanam, F., Amin, K. M. B., & Noor, I. N. (2020). Risk factors for non-communicable diseases in Bangladesh: findings of the population-based cross-sectional national survey 2018. *BMJ open*, *10*(11), e041334. https://doi.org/10.1136/bmjopen-2020-041334

Rider ,E. & Nawotniak, R .(2010). Interpersonal and Communication Skills: The Kalamazoo Consensus Statement Assessment Tools. A Practical Guide to Teaching and Assessing the ACGME Core Competencies. 2nd edition. Marblehead, MA: HCPro, Inc., pp 1-137.

Raven, M. C., Doran, K. M., Kostrowski, S., Gillespie, C. C., & Elbel, B. D. (2011). An intervention to improve care and reduce costs for high-risk patients with frequent hospital admissions: a pilot study. *BMC health services research*, *11*, 270. https://doi.org/10.1186/1472-6963-11-270

Rippe J. M. (2018). Lifestyle Medicine: The Health Promoting Power of Daily Habits and Practices. *American journal of lifestyle medicine*, *12*(6), 499–512. https://doi.org/10.1177/1559827618785554

Ritonga, S., Riadi, S., &Siregar, Z. (2020). Islamic Communication Model in Therapeutic Communication Practices at Adam Malik Hospital. *SIASAT,5*(2):84–93. DOI:10.33258/siasat.v5i2.59

Rohwer, A., Uwimana Nicol, J., Toews, I., Young, T., Bavuma, C. M., & Meerpohl, J. (2021). **E**ffects of integrated models of care for diabetes and hypertension in low-income and middle-income countries: a systematic review and meta-analysis. *BMJ open*, *11*(7), e043705. https://doi.org/10.1136/bmjopen-2020-043705

Rowbotham, S., Astell-Burt, T., Barakat, T., & Hawe, P. (2020). 30+ years of media analysis of relevance to chronic disease: a scoping review. *BMC public health*, *20*(1), 364. https://doi.org/10.1186/s12889-020-8365-x

Sánchez Urbano, RE., et al. (2021). Reception of Dietary and Other Health-Related Lifestyle Advice to Address Non-communicable Diseases in a Primary Care Context: A Mixed-Method Study in Central Argentina. *Front. Nutr. 8*,622543,1-12. doi: 10.3389/fnut.2021.622543

Schmidt, H. (2016). Chronic Disease Prevention and Health Promotion. In D. H. Barrett (Eds.) et. al., *Public Health Ethics: Cases Spanning the Globe*. (pp. 137–176). Springer.

Setia M. S. (2016). Methodology Series Module 3: Cross-sectional Studies. *Indian journal of dermatology*, *61*(3), 261–264. https://doi.org/10.4103/0019-5154.182410

Shamsi, A., Nayeri, N., & Esmaeili, M.(2017). Living with Hypertension: A Qualitative Research. *International journal of community-based nursing and midwifery*, *5*(3), 219–230.

Sharaf F. (2010). Impact of health education on compliance among patients of chronic diseases in Al Qassim, Saudi Arabia. *International journal of health sciences*, *4*(2), 139–148.

Sharifulislam, SH., Tabassum, R., Liu, Y., Chen, Sh., Redfern, J., Kim, S., Ball, K., Maddison, R., & Chow. C. (2019). The role of social media in preventing and managing non-communicable diseases in low-and-middle income countries: Hope or hype? Health Policy and Technology,8(1),96-101. https://doi.org/10.1016/j.hlpt.2019.01.001

Shirazian, S., Crnosija, N., Weinger, K., Jacobson, A. M., Park, J., Tanenbaum, M. L., Gonzalez, J. S., Mattana, J., & Hammock, A. C. (2016). The self-management experience of patients with type 2 diabetes and chronic kidney disease: A qualitative study. *Chronic illness*, *12*(1), 18–28. https://doi.org/10.1177/1742395315614381

Siddharthan, T.,Rabin, T.,Canavan, M.,Nassali, F.,Kirchhoff, Ph., Kalyesubula, R.,Coca, S., Rastegar, A., &Knauf, F. (2016). Implementation of Patient-Centered Education for Chronic-Disease Management in Uganda: An Effectiveness Study. *PLOS ONE, 11* (11). e0166411-. ISSN 1932-6203 DOI: https://doi.org/10.1371/journal.pone.0166411

Singh, H.& Bharti, J. (2021). Non-Communicable Diseases and Their Risk Factors: Review. *EAS J Parasitol Infect Dis;3*(6),83-86. ISSN: 2663-09. DOI: 10.36349/easjpid. 2021.v03i06.001

Tabassum, R. (2016). Health Paradox of Indigenous people in Bangladesh: unravelling aspects of mass media campaigns in changing health behaviors to prevent non-

communicable diseases, South East Asia Journal of Public Health 6(2):17-22. DOI:10.3329/seajph.v6i2.31831

Thompson, T.L., Parrott, R., & Nussbaum, J.F. (Eds.). (2011). The Routledge Handbook of Health Communication (2nd ed.). Routledge. https://doi.org/10.4324/9780203846063

Tilahun, D., Abera, A., & Nemera, G. (2021). Communicative health literacy in patients with non-communicable diseases in Ethiopia: a cross-sectional study. *Tropical medicine and health*, *49*(1), 57. https://doi.org/10.1186/s41182-021-00345-9

Tran V-T, et al. (2019). Patients' perspective on how to improve the care of people with chronic conditions in France: a citizen science study within the ComPaRe e-cohort. *BMJ Qual Saf ;28,*875-886. doi:10.1136/bmjqs-2018-008593

Tripathy, J., & Mishra, S. (2021). How effective was implementation of the package of essential non-communicable disease (PEN) interventions: A review of evidence? *ScienceDirect Journal,15*(5),102285.https://doi.org/10.1016/j.dsx.2021.102266

Vainauskienė, V., & Vaitkienė, R. (2021). Enablers of Patient Knowledge Empowerment for Self-Management of Chronic Disease: An Integrative Review. *International journal of environmental research and public health*, *18*(5), 2247. https://doi.org/10.3390/ijerph18052247

Watson, K. B., Carlson, S. A., Lu, H., Wooten, K. G., Pankowska, M. M., & Greenlund, K. J. (2024). Chronic Disease Indicators: 2022-2024 Refresh and Modernization of the Web Tool. *Preventing chronic disease*, *21*, E46. https://doi.org/10.5888/pcd21.240109

Wheeler, T. (2024). What is A MET score?WebMD.http://www.webmd.com/fitness-exercise/what-is-a-met -score

World Health Organization. (2013). The WHO STEP wise approach to noncommunicable disease risk factor surveillance (STEPS) 20 Avenue Appia, 1211 Geneva 27, Switzerland. *Retrieved from:* www.who.int/ncds/steps

World Health Organization. (2020). Health Topics: Health Education. https://www.who.int/topics/health_education/en/.

World Health Organization. (2020). WHO Package of Essential Noncomunicable (PEN) Disease Intervention for Primary Health Care. ISBN: 978-92-4-000922-6

World Health Organization (WHO). (2021). New recommendations for Screening and treatment to prevent cervical cancer. Human reproductive program hrp. ISBN 978 92 4 150655 7

World Health Organization (WHO). (2022). National Palestine STEPwise Survey .

World Health Organization. (May ,2022). Health conditions in the occupied Palestinian territory, including east Jerusalem, and in the occupied Syrian Golan. Seventy-Fifth World Health Assembly; A75/26.

World Health Organization. (2022). Global status report on Noncommunicable Diseases Progress Monitor—2022. Geneva: WHO. https://www.who.int/publications/i/item/9789240047761

World Health Organization. (2022). Health literacy development for the prevention and control of noncommunicable diseases: *Recommended actions, 3*. Avenue Appia 201121 Geneva 27, Switzerland. License: CC BY-NC-SA 3.0 IGO.

World Health Organization. (2023). World Health Organization Package of essential noncommunicable (PEN) disease interventions for primary health care in low-resource settings. ISBN 978 92 4 150655 7. www.who.int

World Health Organization. (2023). Noncommunicable Diseases. Newsroom/Fact sheets. https://www.who.int/news-room/fact-sheets/detail/noncommunicable-diseases.

Wu, F., et al. (2015). Common risk factors for chronic non-communicable diseases among older adults in China, Ghana, Mexico, India, Russia and South Africa: the study on global AGEing and adult health (SAGE) wave 1. BMC Public Health;15(88),1-13. doi: 10.1186/s12889-015-1407-0.

Wu, H., Lin, W., & Li, Y. (2023). Health education in the management of chronic diseases among the elderly in the community with the assistance of a Mask R-CNN model. *American journal of translational research*, *15*(7), 4629–4638.

Yadav, U. N., Lloyd, J., Hosseinzadeh, H., Baral, K. P., Bhatta, N., & Harris, M. F. (2020). Levels and determinants of health literacy and patient activation among multi-morbid COPD people in rural Nepal: Findings from a cross-sectional study. *PloS one*, *15*(5), e0233488. https://doi.org/10.1371/journal.pone.0233488

Zaman,S. Singh,R., Evans,R., Singh,A., Singh,S., Singh,P.,Prakash,H., Kumar,M., Thrift, A .(2024). Development and evaluation of a training program on non-communicable diseases to empower community health workers in rural India. *PEC Innovation,4*,100305**,** ISSN 2772-6282.https://doi.org/10.1016/j.pecinn.2024.100305.

Zeid et al. (2023). Palestine in Figures 2022. Ramallah – Palestine. Palestinian Central Bureau of Statistics (PCBS). http://www.pcbs.gov.ps

Internet Websites References:

https://www.who.int/teams/noncommunicable-diseases/surveillance/systems-tools/steps/instrument

http://www.moh.ps/

http://www.raosoft.com/

https://www.cdc.gov/sleep/about_sleep/how_much_sleep.html

https://doi.org/10.1016/S0140-6736(17)32028-7

WR Final (ramallah.ps)

www.anera.org/what-are-area-a-area-b-and-area-c-in-the-west-bank/

441219-WEST-BANK-AND-GAZA-2022-INTERNATIONAL-RELIGIOUS-FREEDOM-REPORT.pdf (state.gov)

Appendices

Appendix A: STEPS Question-by-Question (Q-by-Q) Guide

Introduction	The Question-by-Question Guide presents the STEPS Instrument with a brief explanation for each of the questions.

Purpose	The purpose of the Question-by-Question Guide is to provide background information to the interviewers and supervisors as to what is intended by each question. Interviewers can use this information when participants request clarification about specific questions or they do not know the answer.
	Interviewers and supervisors should refrain from offering their own interpretations.

The table below is a brief guide to each of the columns in the Q-by-Q Guide		
Column	**Description**	**Site Tailoring**
Question	Each question is to be read to the participants	• Select sections to use. • Add expanded and optional questions as desired.
Response	This column lists the available response options which the interviewer will be circling or filling in the text boxes. The skip instructions are shown on the right-hand side of the responses and should be carefully followed during interviews.	• Add site specific responses for demographic responses (e.g., C6). • Change skip question identifiers where necessary.
Code	The column is designed to match data from the instrument into the data entry tool, data analysis syntax, data book, and fact sheet.	This should never be changed or removed. The code is used as a general identifier for the data entry and analysis.

Survey Information

Consent, Interview Language and Name	**Response**	**Code**

Location and Date	**Response**		**Code**
Cluster/Centre/Village ID	**Village Town City Camp**		I1
Cluster/Centre/Village name	**Name of primary health care center**		I2
Mention NCD Type patient complains of	**NCD Type**	**Complain NCD years**	I3
		≤ 5 years	
		6-10 years	
		>10 years	

Date of completion of the instrument	dd mm year		I4
Consent has been read and obtained	Yes 1 No 2 **If NO, END**		I5
Interview Language *[Insert Language].*	English 1 *Arabic* 2		I6
Time of interview *Enter time interview started.*	⌊_⌊_⌋ : ⌊_⌊_⌋ hrs mins		I7
Family Surname of the participant			I8
First Name *of the participant*			I9
Additional Information that may be helpful			
Contact phone number where possible of participant			I10

Step 1 Demographic Information		
CORE: Demographic Information		
Question	**Response**	**Code**
Sex	Male 1 Fem 2	C1
What is your religion?	Muslim 1 Christian 2 Others 3	C2

	Don't Know 77		
How old are you? Write down age in years and also circle the choice	Yrs:	20-30 years 31-40 years 41-50 years 51-60 years 61-70 years	C3
In total, how many years have you spent at school and in full-time study (excluding pre-school)?	Yrs		C4

EXPANDED: Demographic Information			
What is the **highest level of education** you have completed?	No formal schooling Less than primary school Primary school completed Secondary school completed High school completed College/University completed Post graduate degree Refused	1 2 3 4 5 6 7 8 8	C5
What is your / *cultural* **background**?	Educated people (middle class) People who value work (immigrants, small business Religious people (Muslim, People who is liberal and People who come from wealthy Refused	1 2 3 4 5 8	C6
What is your **marital status**?	Never married Currently married Separated Divorced Widowed Cohabitating Refused	1 2 3 4 5 6 8 8	C7
Which of the following best describes your **main work** status over the past 12 months?	Government employee Non-government employee Self-employed Non-paid	1 2 3 4	C8

	Student 5 Homemaker 6 Retired 7 Unemployed (able to work) 8 Unemployed (unable to work) 9 Refused 8	
How many people older than 18 years, including yourself, live in your household?	Number of people	C9

EXPANDED: Demographic Information, Continued

Question	**Response**		**Code**
Income	OR per month	< 2000 NIS	C10
		2000 to < 3500 NIS	
		3500 to <5000 NIS	
		5000 to < 6500 NIS	
		6500 to < 8000 NIS	
		More than 8000	
		Don't know 77	
		Refused 88	
Can you give an **estimate** of the annual household income if I read some options to you?	≤ 50000Nis 1 More 50000 ≤ 60000 NIS 2 More than 60000 ≤ 70000NIS 3 More than 70000 ≤ 80000 4 More than 80000 5 Don't Know 7 Refused 8		C11

Step 1 Behavioural Measurements

CORE: Tobacco Use

Now I am going to ask you some questions about tobacco use.

Question	**Response**	**Code**
Do you **currently** smoke any **tobacco** products, such as cigarettes, cigars or pipes?	Yes 1 No 2 If No, go to T8	T1
Do you currently smoke tobacco products **daily**?	Yes 1 No 2	T2
How old were you when you **first started** smoking?	1 ----------	T3 *If known, go to T5a/T5aw*

Age (years)			
Do you remember how long ago it was? In Years	< 1 year	1	T4a
	1-5 years	2	
	>5-10 years	3	
	10-15 years	4	
	>15-20 years	5	
	>20 years	6	
	Don't' know 77	7	
	OR in Months	If known, go to	T4b
On average, **how many** of the following products do you smoke **each day/week?** *Pack=20 cigarettes*	DAILY↓		
	Manufactured cigarettes	< 5	T5a/T5aw
		5- < 10	
		10 -< 15	
		15-< 25	
		≥ 25	
		Don't know	
	Hand-rolled cigarettes /day	< 5	T5b/T5bw
		5- < 10	
		10 -< 15	
		15-< 25	
		≥ 25	
		Don't know	
	Pipes full of tobacco	----- per day	T5c/T5cw
	Electronic cigarettes puff per day	< 50	T5d/T5dw
		50-100	
		> 100- < 130	
		130-150	
		> 150 -200	
		> 200	
		Don't know	
		Once daily	T5e/T5ew

	Number of Shisha sessions /day	Twice daily	
		3-4 daily	
		5-6 daily	
		>6daily	
		Once weekly	
		Twice weekly	
		3-4 weekly	
		5-6 weekly	
	Other (please specify)	If Other, go to T5other, else go to T6	T5f/T5fw
	Don't; know 77		T5other/ T5otherw
During the past 12 months, have you tried to **stop smoking**?	Yes No	1 2	T6-a
During the past 12 months, how many times have you tried to **stop smoking**? Quit attempts number	Number of attempts	_____ Don't know 77	T6-b
During any visit to a doctor or other health worker in the past 12 months, were you advised to quit smoking tobacco?	Yes No No visit during the past 12 months	1 *If T2=Yes, go to* 2 *If* 3 *If T2=Yes, go to T12; if T2=No, go to*	T7
In the past, did you **ever smoke** any tobacco products? .	Yes No	1 2 *If No, go to T12*	T8
In the past, did you **ever** smoke **daily**? .	Yes No	1 If *T1=Yes, go to T12*. 2 *If*	T9

EXPANDED: Tobacco Use		
Question	**Response**	**Code**
How old were you when you **stopped** smoking?	Age (years) Don't Know 77 *If known, go to T12*	T10

How **long ago** did you stop smoking?	Years ago,	*If known, go to T12*	T11a
	OR Months ago,	*If known, go to T12*	T11b
	OR Weeks ago,		T11c
	Don't Know 77		
Do you **currently use** any **smokeless tobacco** products such as *[snuff, chewing tobacco, betel]*? .	Yes 1 No 2	*If No, go to T15*	T12
Do you **currently use smokeless tobacco** products **daily?** *For current users of smokeless tobacco products*	Yes 1 No 2	*If No, go to T14aw*	T13
On average, how many **times a day** **Or a week** do you use …. *(IF LESS THAN DAILY, RECORD WEEKLY)* *For current users of smokeless tobacco only.*	DAILY↓		WEEKLY↓
	Snuff, by mouth		T14a/ T14aw
	Snuff, by nose		T14b/ T14bw
	Chewing tobacco		T14c/ T14cw
	Betel, quid		T14d/ T14dw
	Other	*If Other, go to T14other, if T13=No, go to T16, else go to T17*	T14e/ T14ew
	Other (please specify):	*If T13=No, go to T16, else go to T17*	T14other/ T14otherw
	Don't Know 77		
	Yes 1		T15

In the **past**, did you **ever use** smokeless tobacco products such as *[snuff, chewing tobacco, or betel]*?	No 2 *If No, go to T17* No 2	
During the past 30 days, did someone smoke **in your home**? Passive smoking	Yes 1 No 2	T16
During the past 30 days, did someone smoke in closed areas **in your workplace** (in the building, in a work area or a specific office)?	Yes 1 No 2 Don't work in a closed area 3	T17

CORE: Alcohol Consumption		
The next questions ask about the consumption of alcohol.		
Question	**Response**	**Code**
Have you **ever** consumed any alcohol such as beer, wine, spirits or others?	Yes 1 No 2 *If No, go to A16*	A1
Have you consumed any alcohol within the **past 12 months**?	Yes 1 *If yes, go to A4* No 2	A2
Have you stopped drinking due to health reasons, such as a negative impact on your health or on the advice of your doctor or other health worker? *This question is for those participants that did not drink during the past 12 months, but that have drunk in their lifetime.*	Yes 1 *If yes, go to A16* No 2 *If No, go to A16*	A3
	Daily 1 5-6 days 2	A4

During the past 12 months, **how frequently** have you had at least one **standard alcoholic drink(8-20gm)**?	3-4 days 3 1-2 days 4 1-3 days 5 Less 6 Never 7	
Have you consumed any alcohol within the **past 30 days**? *Select the appropriate response.*	Yes 1 No 2 *If No, go to A13*	A5
During the past 30 days, on how many **occasions** did you have at least one standard alcoholic drink?	Number Don't know 77 *If zero, go to A13*	A6
During the past 30 days, when you drank alcohol, how many **standard drinks on average** did you have during one drinking occasion? .	Number Don't know 77	A7
During the past 30 days, what was the **largest number** of standard drinks you had on a single occasion, counting all types of alcoholic drinks together?	Largest number Don't Know 77	A8
During the past 30 days, how many times did you have **six or more** standard drinks in a single drinking occasion?	Number of times Don't Know 77	A9

CORE: Alcohol Consumption, continued		
Question	**Response**	**Code**
During each of the **past 7 days**, how many standard drinks(8-20gm) did you have each day? *Record for each day the number of standard drinks. If no drinks record 0.*	Monday 1	A10a
	Tuesday 2	A10b
	Wednesday 3	A10c
	Thursday 4	A10d
	Friday 5	A10e
	Saturday 6	A10f
	Sunday 7	A10g
	Don't Know 77	

During the **past 7 days**, did you consume any **homebrewed** alcohol, any alcohol **brought over the border/from another country**, any alcohol **not intended for drinking** or other **untaxed** alcohol?	Yes 1 No 2 *If No, go to A13*	A11
On average, **how many standard drinks** of the following did you consume **during the past 7 days**?	Homebrewed spirits, e.g.	A12a
	Homebrewed beer or wine,	A12b
	Alcohol brought over	A12c
	Alcohol not intended for drinking, e.g. alcohol-based medicines, perfumes, after shaves	A12d
	Other untaxed alcohol in the country	A12e
	Don't Know *77*	

EXPANDED: Alcohol Consumption		
During the **past 12 months,** how often have you found that you were not able to stop drinking once you had started?	Daily or almost 1 Weekly 2 Monthly 3 Less than 4 Never 5	A13
During the **past 12 months,** how often have you failed to do what was normally expected from you because of drinking?	Daily or almost 1 Weekly 2 Monthly 3 Less than 4 Never 5	A14
During the **past 12 months,** how often have you needed a first drink in the morning to get yourself going after a heavy drinking session?	Daily or almost 1 Weekly 2 Monthly 3 Less than 4 Never 5	A15
During the **past 12 months**, have you had family problems or problems with your partner due to **someone else's** drinking?	Yes, more than 1 Yes, monthly 2 Yes, several 3 Yes, once or 4 No 5	A16
CORE: Diet		

The next questions ask about the fruits and vegetables that you usually eat. I have a nutrition card here that shows you some examples of local fruits and vegetables. Each picture represents the size of a serving. As you answer these questions please think of a typical week in the last year.

Question	Response		Code
In a typical week(7days), on how many days do you **eat fruit**? *A typical week means a "normal" week when the diet is not affected by cultural, religious, or other events. Ask the participant to not report an average over a period.*	Once a week	*1.1.1.1.*	1.1.1.1.1.1.1
	Twice a week		
	3 times a week		
	4 times a week		
	5 times a week		
	6 times a week		
	All the week		
	Don't know 77		
How many **servings** of fruit do you eat on **one** of those days? **One Serving equals**: One medium piece of fruit, such as an apple, orange, or banana One-half cup of cut fruit, such as melon, pineapple, or grapes One-quarter cup of dried fruit, such as raisins, apricots, or cranberries Six ounces of 100 percent fruit juice, such as orange, apple, or grape juice	Number of servings Don't Know 77		1.1.1.1.1.1.1
In a typical week, on how many days do you **eat vegetables**?	Once a week	*1.1.1.1.*	D3
	Twice a week		
	3 time a week		
	4 times a week		
	5 times a week		
	6 times a week		
	All the week		
	Don't know 77		

How many **servings** of vegetables do you eat on one of those days? **One Serving equals:** 2 cups: raw leafy salad greens 1 cup: cut-up vegetables 1 cup :100% vegetable juice, low-sodium or no-salt-added 1 cup: raw leafy vegetables or ½ cup cooked (lettuce, Spinach, greens) ½ cup: cooked carrot ½ cup: cooked Broccoli ½ CUP: Fresh, Frozen or Canned Vegetable ½ cup: cooked beans or peas ½ cup: sweet corn One medium piece of vegetable: such as Tomato, cucumber, carrot Potato: half of a medium Bell pepper: half of a large Sweet potato: half of a large	Number of servings Don't know 77	D4

1.1.1.1.1.1.1.9	**Dietary salt**		
1.1.1.1.1.1.1.10	With the next questions, we would like to learn more about salt in your diet. Dietary salt includes ordinary table salt, unrefined salt such as sea salt, iodized salt, salty stock cubes and powders, and salty sauces such as soy sauce or fish sauce (see showcard). The following questions are on adding salt to the food right before you eat it, on how food is prepared in your home, on eating processed foods that are high in salt such as, and questions on controlling your salt intake. Please answer the questions even if you consider yourself to eat a diet low in salt.		
How often do you **add salt or a salty sauce such as soy sauce** to your food right before you eat it or as you are eating it?		Always	1	D5
		Often	2	
		Sometimes	3	
		Rarely	4	
		Never	5	
		Don't know	77	
How often is **salt, salty seasoning or a salty sauce added** in cooking or preparing foods in your household?		Always	1	D6
		Often	2	
		Sometimes	3	
		Rarely	4	
		Never	5	
		Don't know	77	
How often do you eat **processed food high in salt**? By processed food high in salt, I mean foods that have been altered from their natural state, such as packaged salty snacks, canned salty food including pickles and preserves, salty food prepared at a fast-food restaurant, cheese, bacon and processed meat		Always	1	D7
		Often	2	
		Sometimes	3	
		Rarely	4	
		Never	5	
		Don't know	77	
How much salt or salty sauce do you think you consume?		Far too much	1	D8
		Too much	2	
		Just the right	3	

	Too little	4	
	Far too little	5	
	Don't know	77	

EXPANDED: Diet			
Question	**Response**		**Code**
How important to you is **lowering the salt** in your diet?	Very important	1	D9
	Somewhat	2	
	Not at all	3	
	Don't know	77	
Do you think that too much salt or salty sauce in your diet could cause a **health problem**?	Yes	1	D10
	No	2	
	Don't know	77	
Do you do any of the following on a regular basis to **control your salt intake**?			
Limit consumption of processed foods	Yes	1	D11a
	No	2	
Look at the salt or sodium content on food labels	Yes	1	D11b
	No	2	
Buy low salt/sodium alternatives	Yes	1	D11c
	No	2	
Use spices other than salt when cooking	Yes	1	D11d
	No	2	
Avoid eating foods prepared outside of a home	Yes	1	D11e
	No	2	
Do other things specifically to control your salt intake	Yes	1 *If yes, go to*	D11f
	No	2	
Other (please specify)			D11other

CORE: Physical Activity		
Next, I am going to ask you about the time you spend doing different types of physical activity in a typical week. Please answer these questions even if you do not consider yourself to be a physically active person. Think first about the time you spend doing work. Think of work as the things that you have to do such as paid or unpaid work, study/training, household chores, harvesting food/crops, fishing or hunting for food, seeking employment. *[Insert other examples if needed]*. In answering the following questions 'vigorous-intensity activities' are activities that require hard physical effort and cause large increases in breathing or heart rate, 'moderate-intensity activities' are activities that require moderate physical effort and cause small increases in breathing or heart rate.		
Question	**Response**	**Code**

Work		
Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate like *[carrying or lifting heavy loads, digging or construction work]*?	Yes 1 No 2 *If No, go to P 4*	1.1.1.1.1.1
In a typical week, on how many days do you do vigorous-intensity activities as part of your work? *"Typical week" means a week when the participant is engaged in his/her usual activities.*	Once a week Twice a week 3 times a week 4 times a week 5 times a week 6 times a week All the week Don't know Number of days	1.1.1.1.1.1
How much time do you spend doing vigorous-intensity activities at work on a typical day?	Hours: minutes	P3
Does your work involve moderate-intensity activity, that causes small increases in breathing or heart rate such as brisk walking *[or carrying light loads]*?	Yes 1 No 2 *If No, go to P 7*	P4
In a typical week, on how many days do you do moderate-intensity activities as part of your work?	Once a week Twice a week 3 times a week 4 times a week 5 times a week 6 times a week All the week Don't know Number of days	P5
How much time do you spend doing moderate-intensity activities at work on a typical day?	Hours: minutes	P6
Travel to and from places		
The next questions exclude the physical activities at work that you have already mentioned. Now I would like to ask you about the usual way you travel to and from places. For example, to work, for shopping, to market, to place of worship.		

Do you walk or use a bicycle *(pedal cycle)* to get to and from places?	Yes 1 No 2 *If No, go to P 10*	P7
In a typical week, on how many days do you walk or bicycle to get to and from places? *"Typical week" number of days from 1-7.*	Once a week Twice a week 3 times a week 4 times a week 5 times a week 6 times a week All the week Number of days Don't know 77	P8

CORE: Physical Activity, Continued		
Question	**Response**	**Code**
How much time do you spend walking or bicycling for travel on a typical day?	Hours : minutes	P9
Recreational activities		
The next questions exclude the work and transport activities that you have already mentioned. Now I would like to ask you about sports, fitness and recreational activities (leisure)		
Do you do any vigorous-intensity sports, fitness or recreational *(leisure)* activities that cause large increases in breathing or heart rate like *[running or football, Jogging* or running, Racewalking, hiking uphill, Cycling more than 10 miles per hour or steeply uphill, Swimming fast or lap swimming?	Yes 1 No 2 *If No, go to P 13*	P10
In a typical week, on how many days do you do vigorous-intensity sports, fitness or recreational *(leisure)* activities?	Once a week Twice a week 3 times a week 4 times a week 5 times a week NO. of days Don't know 77	P11

	6 times a week		
	All the week		
How much time do you spend doing vigorous-intensity sports, fitness or recreational activities on a typical day?	Hours: minutes		P12
Do you do any moderate-intensity sports, fitness or recreational *(leisure)* activities that cause a small increase in breathing or heart rate such as brisk walking, *[cycling, swimming, volleyball]*?	Yes	1	P13
	No	2 *If No, go to P16*	
In a typical week, on how many days do you do moderate-intensity sports, fitness or recreational *(leisure)* activities?	Once a week		P14
	Twice a week		
	3 times a week		
	4 times a week		
	5 times a week	NO. of days	
	6 times a week	Don't know 77	
	All the week		
How much time do you spend doing moderate-intensity sports, fitness or recreational *(leisure)* activities on a typical day?	Hours: minutes		P15

EXPANDED: Physical Activity		
Sedentary behavior		
The following question is about sitting or reclining at work, at home, getting to and from places, or with friends including time spent sitting at a desk, sitting with friends, traveling in car, bus, train, reading, playing cards or watching television, but do not include time spent sleeping.		
How much time do you usually spend sitting or reclining on a typical day? *Ask the participant to consider total time spent sitting at work, in an office, reading, watching television, using a computer, doing hand craft like knitting, resting etc. The participant should not include time spent sleeping.*	Hours: minutes	P16

CORE: History of Raised Blood Pressure		
Question	**Response**	**Code**

Have you ever had your blood pressure measured by a doctor or other health worker? *Ask the participant to only consider measurements*	Yes No	1 2 *If No, go*	H1
Have you ever been told by a doctor or other health worker that you have raised blood pressure or hypertension?	Yes No	1 2 *If*	H2a
Were you first told in the past 12 months? *Only for those that have previously been diagnosed with raised blood pressure.*	Yes No	1 2	H2b
In the past two weeks, have you taken any drugs (medication) for raised blood pressure prescribed by a doctor or other health worker? *Ask the participant to only consider drugs for raised blood pressure prescribed by a doctor or other health worker.*	Yes No	1 2	H3
Have you ever seen a traditional healer for raised blood pressure or hypertension?	Yes No	1 2	H4
Are you currently taking any herbal or traditional remedy for your raised blood pressure?	Yes No	1 2	H5

CORE: History of Diabetes			
Have you ever had your blood sugar measured by a doctor or other health worker? *Ask the participant to only consider measurements done by a doctor or other health worker.*	Yes No	1 2 *If No, go*	H6
Have you ever been told by a doctor or other health worker that you have raised blood sugar or diabetes?	Yes No	1 2 *If No, go to H12*	H7a
Were you first told in the past 12 months? *Only for those that have previously been diagnosed with diabetes.*	Yes No	1 2	H7b
In the past two weeks, have you taken any drugs (medication) for diabetes prescribed by a doctor or other health worker? *Ask the participant to only consider drugs for diabetes prescribed by a doctor or other health worker.*	Yes No	1 2	H8
Are you currently taking insulin for diabetes prescribed by a doctor or other health worker? *Ask the participant to only consider insulin that was prescribed by a doctor or other health worker.*	Yes No	1 2	H9

Have you ever seen a traditional healer for diabetes or raised blood sugar?	Yes 1 No 2	H10
Are you currently taking any herbal or traditional remedy for your diabetes?	Yes 1 No 2	H11

CORE: History of Raised Total Cholesterol			
Questions	**Response**	**1.1.1.1.1.1.1.1.13**	**Code**
Have you ever had your cholesterol (fat levels in your blood) measured by a doctor or other health worker? *Ask the participant to only consider measurements done by a doctor or other health worker.*	Yes 1 No 2 *If No, go to H17*		H12
Have you ever been told by a doctor or other health worker that you have raised cholesterol?	Yes 1 No 2 *If No, go to H17*		H13a
Were you first told in the past 12 months? *Only for those that have previously been diagnosed with raised total cholesterol.*	Yes 1 No 2		H13b
In the past two weeks, have you taken any oral treatment (medication) for raised total cholesterol prescribed by a doctor or other health worker? *Ask the participant to only consider drugs for raised total cholesterol prescribed by a doctor or other health worker.*	Yes 1 No 2		H14
Have you ever seen a traditional healer for raised cholesterol?	Yes 1 No 2		H15
Are you currently taking any herbal or traditional remedy for your raised cholesterol?	Yes 1 No 2		H16

CORE: History of Cardiovascular Diseases		
Have you ever had a heart attack or chest pain from heart disease (angina) or a stroke (cerebrovascular accident or incident)?	Yes 1 No 2	H17
Are you currently taking aspirin regularly to prevent or treat heart disease? *"Regularly" means on a daily or almost daily basis.*	Yes 1 No 2	H18
	Yes 1	

Are you currently taking statins (Lovastatin/Simvastatin/Atorvastatin or any other statin) regularly to prevent or treat heart disease? *"Regularly" means on a daily or almost daily basis.*	No	2	H19

CORE: Lifestyle Advice			
Question	**Response**		**Code**
During the past 12 months, have you visited a doctor or other health worker?	Yes No	1 2 *If no and*	H20
1.1.1.1.1.1.1.1.14 During any of your visits to a doctor or other health worker in the past 12 months, were you advised to do any of the following? ****** ***(RECORD FOR EACH) Behavioral Advice*** ***Ask the participant to only consider advice from a doctor or other health worker.***			
Strongly advise all smokers to stop smoking or don't start and support them in their efforts	Always Often Sometimes Rarely Never	1 2 3 4 5	H20a
Assist in preparing a quitting plan	Always Often Sometimes Rarely Never	1 2 3 4 5	H20b
Reduce salt to less than 5 grams (1 teaspoon) per day in your diet	Always Often Sometimes Rarely Never	1 2 3 4 5	H20c
Reduce salt when cooking, limit processed and fast foods	Always Often Sometimes Rarely Never	1 2 3 4 5	H20d
	Always	1	H20e

Eat at least five servings of fruit and/or vegetables (400-500 grams) each day	Often	2	
	Sometimes	3	
	Rarely	4	
	Never	5	
Limit fatty meat, dairy fat and cooking oil (less than two tablespoons per day) in your diet	Always	1	H20f
	Often	2	
	Sometimes	3	
	Rarely	4	
	Never	5	
Replace palm and coconut oil with olive, soya, corn, rapeseed or safflower oil	Always	1	H20g
	Often	2	
	Sometimes	3	
	Rarely	4	
	Never	5	
Replace other meat with chicken (without skin)	Always	1	H20h
	Often	2	
	Sometimes	3	
	Rarely	4	
	Never	5	
Reduce sugary beverages in your diet	Always	1	H20i
	Often	2	
	Sometimes	3	
	Rarely	4	
	Never	5	
Start or do more physical activity: Progressively increase physical activity to moderate levels (such as brisk walking); at least 150 minutes per week	Always	1	H20j
	Often	2	
	Sometimes	3	
	Rarely	4	
	Never	5	
Maintain a healthy body weight or lose weight: Control body weight and avoid overweight by	Always	1	H20k
	Often	2	

reducing high calorie food and taking adequate physical activity	Sometimes	3	
	Rarely	4	
	Never	5	
Teach how to take medications at home	Always	1	H20l
	Often	2	
	Sometimes	3	
	Rarely	4	
	Never	5	
Explain the difference between medicines for long- term control and medicines for quick relief	Always	1	H20m
	Often	2	
	Sometimes	3	
	Rarely	4	
	Never	5	
Tell the reason for prescribing the medicine/s	Always	1	H20n
	Often	2	
	Sometimes	3	
	Rarely	4	
	Never	5	
Show the appropriate dose	Always	1	H20o
	Often	2	
	Sometimes	3	
	Rarely	4	
	Never	5	
How many times a day to take the medicine	Always	1	H20p
	Often	2	
	Sometimes	3	
	Rarely	4	
	Never	5	
The need to take the medicines regularly as advised even if there are no symptoms	Always	1	H20q
	Often	2	
	Sometimes	3	
	Rarely	4	

	Never	5	

CORE (for women only): Cervical Cancer Screening		
The next question asks about cervical cancer prevention. Screening tests for cervical cancer prevention can be done in different ways, including Visual Inspection with Acetic Acid/vinegar (VIA), pap smear and Human Papillomavirus (HPV) test. VIA is an inspection of the surface of the uterine cervix after acetic acid (or vinegar) has been applied to it. For both pap smear and HPV test, a doctor or nurse uses a swab to wipe from inside your vagina, take a sample and send it to a laboratory. It is even possible that you were given the swab yourself and asked to swab the inside of your vagina. The laboratory checks for abnormal cell changes if a pap smear is done, and for the HP virus if an HPV test is done.		
Have you ever had a screening test for cervical cancer, using any of these methods described above?	Yes 1 No 2 Don't know 77	CX1

Step 2 Physical Measurements		
CORE: Blood Pressure		
Device ID for blood pressure *Record device ID.*		M2
Cuff size used *Select cuff size used.*	Small 1 Medium 2 Large 3	M3
Reading 1(initial)	Systolic (mmHg)	M4a
	Diastolic (mmHg)	M4b
Reading 2(before last)	Systolic (mmHg)	M5a
	Diastolic (mmHg)	M5b
Reading 3(last)	Systolic (mmHg)	M6a
	Diastolic (mmHg)	M6b
During the past two weeks, have you been treated for raised blood pressure with drugs (medication) prescribed by a doctor or other health worker? *Select appropriate response.*	Yes 1 No 2	M7
CORE: Height and Weight		
Question	**Response**	**Code**
For women: Are you pregnant? *Pregnant women skip over height, weight, waist and hip measurements.*	Yes 1 If *yes, go to M16*	M8

EXPANDED: Heart Rate		
Heart Rate: Beats per minute *Record the three heart rate readings.*		
Reading 1 initial		
Reading 2 before last		
Reading 3 last reading		
CVD Risk Score		
Initial Ratio		
Before last		
Last Ratio		
Step 3 Biochemical Measurements		
	No 2	
Device IDs for height and weight *Record device IDs.*	Height Weight	M10a M10b
Height *Record participant's height in cm with one decimal*	in Centimetres (cm)	M11
Weight *If too large for scale 666.6* *Record participant's weight in kg with one decimal point.*	in Kilograms (kg)	M12
Body Mass Index (BMI)	Initial Measurement 1 Before last Measurement 2 Last Measurement 3	
CORE: Waist		
Device ID for waist *Record device ID.*		M13
Waist circumference *Record participant's waist circumference in centimetres with one decimal point.*	in Centimeters (cm) — Initial reading 1; Before 2; Last 3	M14

Appendix -B: Focus Group Interview Questions

Exploring patients' perspectives towards the customized health protocol for chronic illness in the primary health care services in Ramallah governorate: A mixed –methods study (Addressing non-communicable diseases in primary health care in Ramallah: a study on population' perspective-knowledge and behavioral changes-toward effectiveness of WHO PEN-2 intervention; Khaseeb, M. January -March 2024)

interview number				Time of the interview				
Date of Interview	Date			Month		Year		
Chronic Non communiable disease type								

Hello! I'm Masarra Khaseeb a PhD candidate in AAUP-conducting a piece of information via this interview on health issues in Ramallah primary health clinics. You were randomly selected. In total, we will have 10 participants. The answers to these questions cannot be right or wrong, good or bad. More important is the fact that your answers were truthful, sincere and reflected your experience and what you really think. It will take about 20-30 minutes. Participation in this interview is voluntary. You have the right to terminate it at any time and not answer certain questions if you don't wish. I guarantee you that your answers will be used only for research purposes. Your name and address will not be displayed in any documents. Your participation is very important for our research and I need to audio-record your replies for analysis. I really appreciate your experience and participation.

1) Do you have any questions?

2) Do you agree to participate in the interview?

INTERVIEWER: Continue the interview if the respondents agree to participate.

In the beginning few questions about you (Demographic Data): Age, sex, religion, education level, marital status, Job Nature, Type of NCDs, number of years of chronicity, and Number of years receive medical service in PHC.

B-1) Essential 10 Open -Ended Questions (Draft Copy before Modification):

1. Did you receive any education within the PEN program? If yes
2. What are the main topics that have been delivered to you?

3. How do you see the effectiveness of these education sessions?
4. Have you received the expected materials you need?
5. Was the nurse educator interactive with you during education?
6. How did you feel the cooperation of nurse educators towards your needs?
7. What do you recommend to improve the outcomes of these education?

B-2) Additional Open -Ended Questions Counted on as a Modification:

1. How are you dealing with your disease, what do you do to manage your illness? Added
2. If no, why couldn't you attain enough education at the clinic?
3. What are the sources of your knowledge regarding your disease management?

The Modified question is:

What type of health educational services did you receive at the clinic within the PEN program? Instead of: Did you receive any education within the PEN program?

B-3) Final Accredited Questions of Focus Group Interview:

1. How are you dealing with your disease, what do you do to manage your illness?
2. What type of health educational services did you receive at the clinic within the PEN program?
3. What are the main topics that have been delivered to you?
4. How do you see the effectiveness of these education sessions?
5. Have you received the expected materials you need?
6. If no, why couldn't you attain enough education at the clinic?
7. Was the nurse educator interactive with you during education?
8. How did you feel the cooperation of nurse educators towards your needs?
9. What are the sources of your knowledge regarding your disease management?
10. What do you recommend to improve the outcomes of these education?

At the end:

That concludes our interview. Thank you so much for coming and sharing your thoughts and opinions with me.

Appendix-C: AAUP-IRB Approval Letter of the Study

Arab American University
Institutional Review Board - Ramallah

الجامعة العربية الأمريكية
مجلس اخلاقيات البحث العلمي – رام الله

IRB Approval Letter

Study Title: "Exploring patients' perspectives towards the customized health protocol for chronic illness in the primary health care services in West Bank: A mixed –methods study"

Submitted by: Masarra Mohammad Mousa Khaseeb

Date received: 13th December 2023

Date reviewed: 27th December 2023

Date approved: 28th December 2023

Your Study titled **"Exploring patients' perspectives towards the customized health protocol for chronic illness in the primary health care services in West Bank: A mixed –methods study"** with archived number R-2023/A/2/N was reviewed by the Arab American University IRB committee and was approved on the 28th December 2023.

Sajed Ghawadra, PhD
IRB-R Chairman
Arab American University of Palestine

الجامعة العربية الأمريكية - فلسطين
مجلس اخلاقيات البحث العلمي - رام الله
IRB-R
ARAB AMERICAN UNIVERSITY-PALESTINE
INSTITUTIONAL REVIEW BOARD - RAMALLAH

General Conditions:

1. Valid for 8 months from the date of approval.
2. It is important to inform the IRB-R with any modification of the approved study protocol.
3. The Bord appreciates a copy of the research when accomplished.

رام الله – فلسطين

Tel: 02-294-1999 **E-Email:** IRB-R@aaup.edu **Website:** www.aaup.edu

Appendix-D: Permission Letter from MOH

Arab American University		الجامعـــة العربيـــة الأمريكيـــة
Scientific Research Deanship		عمادة البحث العلمي
Ethical Review Committee		لجنة اخلاقيات البحث العلمي

Arab American University (AAUP),

Date:

To Her Excellency Dr. Mai Al-Kaila,

Subject: Permission to conduct research at MOH /Primary Health Clinics

After Greetings,

My name is Masarra Mohammad Mousa Khaseeb, held BS degree in nursing science and Master degree in MCH from Al-Quds university, work at MOH in Ramallah &Al-Bireh Health Directorate on the file of family medicine.

Nowadays, I'm studying for a PhD in Philosophy in Nursing at the University of the AAUP with University ID No.:202012552. I am seeking a permission to do a research at MOH primary health clinics linked to Ramallah& Al-Bireh Health Directorate

I am conducting research on the effectiveness of provided health education for chronic illness in the primary health care services in west bank: A mixed method study

In summary, the limited research on the effectiveness of the PEN approach, specifically among diabetic populations in Palestine, necessitates further investigation. This study aims to fill this research gap by exploring patients' perspectives towards a customized health education protocol for chronic illnesses in primary healthcare services in Ramallah Governorate in the West Bank. By doing so, it seeks to contribute valuable insights that can inform the development and implementation of effective healthcare interventions for chronic diseases in Palestine.

The research will entail collecting data from patients with chronic noncommunicable diseases who receive their medical services at the governmental primary health clinics in Ramallah Health Directorate & their medical records.

Hence, I request a permission to get access to a database of the selected participants, the actual numbers of NCDs patients with different categories of diseases, &list of primary health clinics linked to Ramallah &Al-Bireh Health Directorate.

I will invite some of health care providers from your organization (work colleagues) to participate in this study by collecting the STEP wise survey data. Also, NCDs patients who accept to be participants will be asked to answer questionnaires within 30 minutes at clinics; & be interviewed as a focus group discussion lasted for 20-30 minutes maximum. The participant's responses will be recorded. Data collection will take place on the premises during work hours.

Participants will be asked to give their written consent before the research begins. Their responses will be treated confidentially, and identities will be anonymous unless otherwise expressly indicated. Individual privacy will be maintained in all published and written data resulting from the study.

The results will be communicated in my dissertation and published in academic journals.

The research participants will not be advantaged or disadvantaged in any way. They will be reassured that they can withdraw their permission at any time during this project without any penalty. There are no foreseeable risks in participating in this study. The participants will not be paid for this study.

All research data will be preserved anonymously for reuse by the Palestinian Ministry of Health/NCD department.

I therefore request permission in writing to conduct my research at your organization. The permission letter should be on your organization's headed paper, signed and dated, and specifically referring to myself by name and the title of my study.

Please let me know if you require any further information. I look forward to your response as soon as is convenient.

Yours sincerely,

Name: Masarra Khaseeb

Contact number: +972599232551

Email address: masarra27@yahoo.com

Main Supervisor's name: Mahmood Kalaldeh

Name of external supervisor: Imad Thelthen

جنين - ص.ب: 240 هاتف: 970-4-2418888 فاكس: 970-4-2510813

Jenin - P.O. Box: 240 Tel: 970-4-2418888 Fax: 970-4-2510813 E-mail: src@aaup.eduWebsite: www.aaup.edu

Appendix-E: CONSENT FORM FOR Participation (INSERT NAME):

RESEARCH TITLE The Effectiveness of Provided Health Education Protocol for Chronic Illness in the Primary Health Care Services in West Bank: A mixed method study.

RESEARCHER/S: Masarra Mohammad Mousa Khaseeb

I have been given information about research title and discussed the research project with researcher's name who is conducting this research as part of PhD degree in Nursing Philosophy supervised by Mahmood Kalaldeh supervisor in the Health Science department of Nursing Arab American University (AAUP).

I have been given information about the aim of this study which is to bridge the gap by exploring patients' perspectives towards the efficiency of applying the WHO-PEN intervention health education protocol for chronic illnesses in primary healthcare settings in the West Bank. Outputs of this research will give stakeholders a clear insight about the extent of patients' benefit from this approach in their management in addition to what facilities and barriers are faced the application of this intervention in Palestine properly.

I have been informed that there is no risk or potential burden associated with this research. On the contrast, participation may help stakeholders in improving the medical services provided to chronic NCDs patients referred to primary health clinics governed by Ministry of Health. Moreover, I have been advised to ask freely the researcher any questions I may have about the research and my participation. I understand that my participation in this research is voluntary, I am free to refuse to participate and I am free to withdraw from the research at any time. My refusal to participate or withdrawal of consent will not affect my treatment in any way.

If I have any enquiries or concern about the research, I can contact (Masarra Khaseeb and supervisor Mahmoud Kalaldeh) on phone number: +972599232551, Email: masarra27@yahoo.com /or if I have any complaints regarding the way the research is or has been conducted, I can contact the Office of Research, University of AAUP on Tel: 970-4-2418888 or email: src@aaup.edu.

By signing below, I am indicating my consent to (please tick):

I understand that the data collected from my participation will be used for purpose of thesis &for scientific journal publication. Thus, I consent for it to be used in that manner.

Signed Date. ...../...../.....

Name (please print) .....

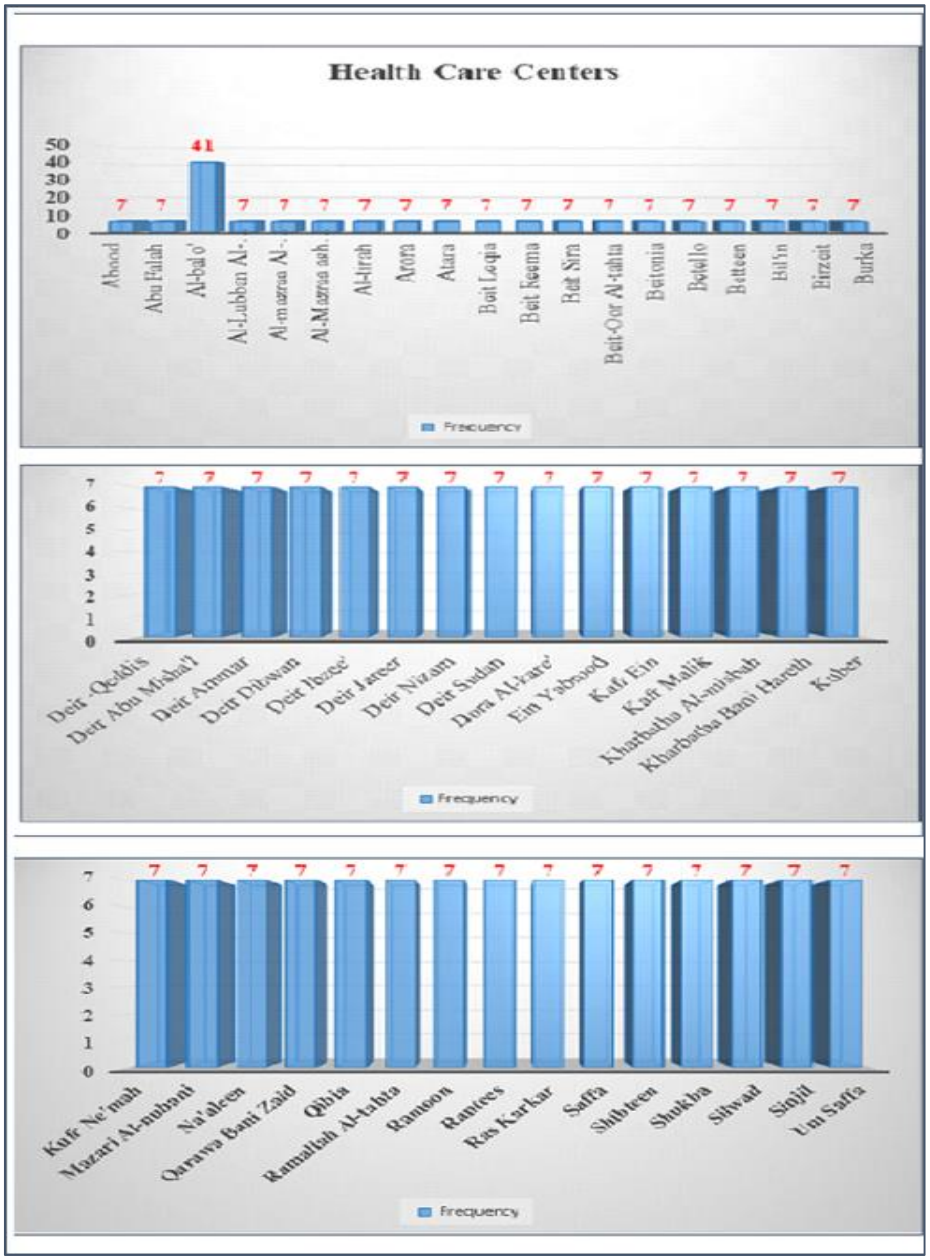
Appendix-F: Primary Construction of the Codebook:

Themes	**Subthemes**	**Code**	**File count (code)**	**Reference count (code)**
1-The Effectiveness of Health Education During Routine Clinic Visits	Negative perception	Bottling up	12	62
		Information doesn't meet needs	13	68
		No new gained skills or information	12	61
		Unmeaningful instructions	12	30
	Positive perception	Sharing ideas	3	13
		Information meets needs	3	11
		Acquired new skills or information	2	7
		Meaningful instructions	3	14
2-Barriers to provide Sufficient Health Education	Health team related barriers	Knowledge problem	10	22
		Involvement in routine services	8	11
Other Information Included in Interview		**Codebook**	**File count**	**References count**
Dealing with the Disease		Adherence to medication	8	9
	Adherence to Healthy life style	Healthy diet	10	22
		Physical activity	8	11
		Quit, reduce or avoid smoking	7	8
		Reduce alcohol consumption	2	4

		Stress relief	4	4
		Weight monitor and reduction	3	3
		Monitor blood tests	9	13
		Monitor blood pressure	3	3
		Do periodic screening tests	5	5
		Improve staff-patient communication skills	5	5
		Increase staff numbers	3	4
		Investigation and monitoring	8	9
		Patient home visits	3	3
		Assign nurse to provide health education	8	9
		Raise community awareness	10	14
		Training doctors and nurses	9	11
Sources of Gaining Knowledge about the Disease		Books and pamphlets	5	6
	Health care providers	In the clinic	4	10
		Outside the clinic	8	17
	Personal circle	Family	4	7
		Friends	4	4
		Neighbors	1	1
	Social network	Internet	9	14
		TV &Radio	3	4
Topics of Education Provided to Patients		Sufficient Information about Diet	3	7
		Insufficient Information About Diet	7	9
		Exercise –walk	7	7
		Lab Results Interpretation	7	10
		Medication Administration	3	5
Services Provided at the Clinic		Measure BP	15	24
		Measure Weight	10	15
		Do Lab Tests	14	21
		Distribute Pamphlets	2	2
		Dispense Medications	13	21
		Nutrition Counseling	4	5
Recommendations		Give Appointment for Patients	4	4
		Assign Special Nurse to Provide Education	8	9
		Attend the same doctor to get the service	1	1
		Motivate Health team	1	1

		Improve staff-patient communication skills	5	5
		Increase staff number	3	4
		Monitor and supervise the staff work	8	9
		Do patient home visits	3	3
		Raise community awareness	10	14
		Distribute pamphlets	5	5
		Give training workshops for doctors and nurses	9	11

Appendix -G: Primary Health Care Centers (Settings of study)



استكشاف وجهات نظر المرضى اتجاه بروتوكول التثقيف الصحي المخصص للأمراض المزمنة في خدمات الرعاية الصحية الأولية في الضفة الغربية : دراسة مختلطة الأساليب

مسرة محمد موسى خصيب

د. محمود خلالدة

د. عماد ثلثين

د. أحمد عايد

د. غادة أبو شوشة

د. جمال قدومي

ملخص

خلفية : الأمراض غير المعدية المعروفة أيضا باسم الأمراض المزمنة تقتل 41 مليون شخص كل عام ، 74٪ على مستوى العالم. يموت 17 مليون شخص كل عام قبل سن 70. 77٪ من الوفيات الناجمة عن الأمراض غير المعدية مع 86٪ من الوفيات المبكرة تحدث في البلدان المنخفضة والمتوسطة الدخل. الأمراض غير المعدية هي الأسباب الرئيسية للوفيات والمراضة في المجتمع الفلسطيني، وهي مسؤولة عن 68.5٪ من جميع الوفيات الفلسطينية في عام 2020. الأمراض غير المعدية الناجمة عن السلوكيات غير الصحية ؛ وبالتالي ، فإن تغيير هذه السلوكيات سيقلل من حدوث هذه الأمراض.

الهدف : استكشاف فعالية بروتوكول التثقيف الصحي المقدم للأمراض المزمنة في خدمات الرعاية الصحية الأولية في الضفة الغربية.

المنهجية: أجريت دراسة مختلطة بين كانون الثاني – آذار 2024 في عيادات الصحة الأولية التابعة لوزارة الصحة المختارة في محافظة رام الله. تم اختيار ما مجموعه 377 عينة تمثيلية من مرضى الأمراض غير المعدية بشكل ملائم لإكمال نهج STEP الحكيم لمنظمة الصحة العالمية المترجم. بالإضافة إلى ذلك ، تمت مقابلة 15 مشاركا في الأمراض غير المعدية كمجموعة تركيز بشكل هادف.

النتائج: قيمت النتائج الكمية سلوكيات المشاركين بما في ذلك: حالة التدخين للمشاركين وسلوك النظام الغذائي وسلوك النشاط البدني. أفاد المشاركون في الدراسة أنهم يستهلكون في المتوسط

حصتين من الفواكه والخضروات يوميا. قام (89.7٪) من المشاركين بدمج المشي في حياتهم اليومية بمتوسط تكرار خمسة أيام في الأسبوع ومتوسط وقت يومي يبلغ خمسة عشر دقيقة. فيما يتعلق بنصائح التدخين ، أفاد (85.6٪) من المرضى أنهم إما نادرا أو لا يحصلون عليها أبدا. هناك حاجة إلى مشورة غذائية أفضل لأن (95.5٪) من المرضى أفادوا بأنهم نادرا ما يتلقون المشورة بشأن النظام الغذائي أو لم يتلقوا أبدا المشورة فيما يتعلق بالنظام الغذائي. كما أظهرت النتائج أن (91.5٪) من المرضى لا يتلقون أبدا إرشادات حول النشاط البدني ولوحظ وجود حاجة إلى استشارة دوائية منتظمة حيث تلقى (84.9٪) من المرضى نصائح صيدلانية نادرة.

تم الكشف عن علاقة ذات دلالة إحصائية بين التعليم المقدم من قبل مقدمي الرعاية الصحية وسلوك النظام الغذائي بين ى($p = 0.000$) مرضى الامراض غير المعدية عند مستوى $\alpha = 0.05$. كانت هناك علاقة ذات دلالة إحصائية بين نصائح النظام الغذائي منخفض الدهون المقدمة من مقدمي الرعاية الصحيه وارتفاع مستويات الكوليستيرول ($p = 0.031$) . بالإضافة إلى ذلك ، كانت هناك علاقة ذات دلالة إحصائية بين نصائح النظام الغذائي منخفض السكر المقدمة من مقدمي الرعاية الصحية ومستويات السكر في الدم الصائم ($p = 0.014$) ، وكذلك مستويات الهيموجلوبين السكري (0.045 انبثقت النتائج النوعية عن ثلاثة محاور رئيسية تم استطلاعها من أصوات مرضى الأمراض غير الانتقالية المترددين على عيادات الصحة الأولية الحكومية في محافظة رام الله، وفقا لتصورات الأمراض غير المعدية من وجهة نظر المرضى في تحليل المحتوى النوعي الواضح وهي: فعالية التثقيف الصحي أثناء الزيارات الروتينية للعيادات؛ عوائق التي تحول دون توفير التثقيف الصحي الكافي المصادر البديلة للحصول على المعلومات.

الاستنتاج: توصي الدراسة بممارسة النشاط البدني المنتظم ، وتناول نظام غذائي صحي ، والتوقف عن التبغ ، والالتزام بالأدوية الموصوفة. و أوصت الدراسة ايضا بتحسين التواصل العلاجي بين العاملين الصحيين والمرضى مع ضمان حصول المرضى على مشورة شاملة مخصصة لاحتياجاتهم وحالتهم الخاصة.

الكلمات المفتاحية: الأمراض المزمنة ; أنماط السلوك الصحي, التعليم, التثقيف الصحي