

Treating Non-Communicable Diseases (NCDs): Beyond Medication Prescription - A Case Series

Nurzeti Shaik Ahmad¹, Siti Nordiana Dollah²

¹ DTHO Family Clinic, Kuala Lumpur, Malaysia

² Department of Psychiatry, Tuanku Mizan Armed Forces Hospital, Kuala Lumpur, Malaysia

ABSTRACT

Conventional care of NCDs primarily focuses on a biological approach via pharmacological intervention, often disregarding the patient's needs. Not only has this contributed to an increased economic burden, adherence rate among patients and satisfaction rate among clinicians have also been abysmal. Most clinicians believe lifestyle and psychological approaches are impractical due to the time constraint in their busy clinics. This case series aims to examine the feasibility and preliminary efficacy of a patient centred model based on psychological approaches in managing patient with NCDs in a primary care setting. This write up is a case series involving 5 gentlemen with military background, ages between 34 to 66 years old with 2 to 5 NCD diagnosis. All cases were seen by a military family medicine specialist, trained in motivational interviewing. Patients were empowered to practice a healthy lifestyle and their challenges were addressed at every visit. The average duration of follow up was 20 months. Marked improvements were seen in fasting blood glucose, HbA1c level, blood pressure, triglycerides, high density lipoprotein, low density lipoprotein and alanine transaminase. All patients were able to reduce their weight and medication. Patients reported better quality of life and ability to sustain their healthier lifestyle change. This article hopes to explore the idea of de-prescribing as an essential effort in supporting lifestyle change.

Keywords: Non-communicable Diseases, Primary Care, Case Series

BACKGROUND

The burgeoning rise of metabolic syndromes, diabetes, and obesity has been a global threat to the healthcare system for the past few decades¹. The morbidity and mortality associated with NCD is high with substantial economic burden. Despite the guidelines' emphasis on lifestyle intervention as the main interventions to care for NCD, despondently, most doctors are not formally trained to use lifestyle approach in their clinic practice. Thus, some may feel uncomfortable, or deem this approach as ineffective, difficult or time consuming especially in a busy primary care practice. Quite often doctors skip this part in fear of opening a Pandora's box in an all-too-short consultation. There might be an underlying lack of confidence or competence among the doctors to address such issues, resorting them to abandon this approach. These unmet needs later translate into poly-pharmacy, worsening wellbeing and dissatisfaction for both parties. Patients will be labelled as having poor insight or lack of motivation. The patient-doctor relationship will start to go downhill from this point on. This case series aims to examine

the feasibility and preliminary efficacy of a patient centred model based on psychological approaches in managing patients with NCDs in a primary care setting.

CASE PRESENTATION

This case series describes 5 gentlemen with military background and NCDs undergoing follow up at a military primary care clinic. Patient characteristics are summarized in Table 1.

Table 1: Patient Characteristics

Case Index	Age at First Consult (year)	Sex	Military Type	Non-Communicable Disease	Follow Up (in months)
Patient 1	34	Male	Serviceman Officer	Obesity Prehypertension	9 months
Patient 2	54	Male	Serviceman Officer	Obesity Type 2 Diabetes Mellitus Hypertension	21 months
Patient 3	54	Male	Ex-serviceman Other rank	Dyslipidaemia Obesity Type 2 Diabetes Mellitus	24 months
Patient 4	66	Male	Ex-serviceman Other rank	Dyslipidaemia Obesity Type 2 Diabetes Mellitus Hypertension	19 months
Patient 5	55	Male	Ex-serviceman Other rank	Dyslipidaemia Obesity Type 2 Diabetes Mellitus Hypertension Dyslipidaemia	22 months

They were seen by a Family Medicine Specialist trained in lifestyle and motivational interviewing techniques. They were reviewed as per regular NCD clinic follow up. However, if they experienced difficulty coping with their plans, they will be seen earlier than the customary three to six monthly visits. Chart reviews were completed in January 2021 which included the clinic notes and investigation results. The average duration of follow up was 20 months.

TREATMENT APPROACH

Traditionally, many patients with diabetes are given didactic information about how to manage their diabetes, and are sent

off to take care of their diabetes on their own. Here we use the MI approach, where the doctor and patients work together as a team to achieve patients' health goals. The doctor lets go of her expert role and lets the patient lead their own path with guidance.

Commonly, patients come with their outcome goals (what they want to get or have from seeking the treatment). For example:

Patient : I want to stop taking medication

The doctor moves away from intimidating patients on having “unrealistic” goals or threatening them with long lists of diabetes complications if they wish to stop their medication but instead coaches the patient to reframe their goal.

It was important to validate these outcome goals as they are often useful for motivational purposes. At the same time, we want to empower the patient, to focus on what is within their control. The fact is we all have zero control over what the outcome of our behaviour as there is never a guarantee that we will get the outcome we are hoping for. Thus, we assist the patient to convert their outcome goals into behavioural goals.

Doctor : I see....So part of our work here is to get you doing things differently that are likely to increase your chances to recover from diabetes

The consultation was conducted in a way the patient felt supported and empowered to decide his own management plan such as nutritional intervention, exercise, or medication. Further information or education was given only if the patient decided to attempt certain intervention. If a patient decides to control his blood glucose via diet, he will be educated on the possible options to restrict carbohydrate and sugar. There is no specific dietary regimen employed but the patient was guided to use diet variation to suit his living condition, preference and food accessibility. Fasting is encouraged if healthy food is not easily accessible or to ease financial constraint.

Conventionally physicians use blood investigation results as the goal of treatment. This is also categorized as an outcome goal. The fact is, we have no control over the outcome. In this approach, rather than focusing on the outcome goal, we focus on behavioural goals such as meal frequencies, fasting duration and food diaries. Related lifestyle issues like sleep and stress management were also addressed.

Special attention was given to the use of language. In any attempt to change the behaviour, the tendency is to focus on what to stop doing rather than what patient can do more. For example, we talked about how to fast, the duration of fasting or the frequency of fasting rather than “not eating”. Simply, the focus on fasting is easier than telling the patient to stop eating.

Next, we look at the function of behaviour. For any particular behaviour, we assessed whether the behaviour is ‘engaging’ or ‘avoidance’. Engaging behaviour is when we do something with the intention to achieve a certain goal, motivated by our values,

whereas the avoidance behaviour is when we do something with the intention to avoid or escape. If the patient comes to follow up to avoid being reprimanded by her physician, the ultimate avoidance could be by cancelling her appointment. Both avoidance behaviour and engaging behaviour can serve as coping skills. However, when these avoidance strategies are used excessively, they will become life-draining actions.

While emphasizing on behavioural goals, physical examination and blood investigation were done as regular NCD clinic review. Parameters such as weight, BMI and blood pressure were recorded at every clinic visit. As patients are inscribing into lifestyle change, deprescribing was necessary to avoid incidents of hypoglycaemia and hypotension.

Case 1

Patient 1 is a 34-year-old serviceman who came for weight management advice. He has been trying to lose weight for promotion purposes. He has been overweight for as long as he can remember with a strong family history of type 2 diabetes. On initial visit his BMI was 29.7kg/m² which is obese class 1 according to the Asian standards². He is motivated, well-educated and has a good understanding of his condition. He is concerned about his occasional high blood pressure reading upon monitoring at home. His biggest hurdle in adopting a healthy lifestyle is coping with shift work. Healthy food is inaccessible at his workplace during the night shift.

Using food diaries, his style of food intake was tracked. He tends to eat more fattening carbohydrate food during night shift and post night shift. Anticipatory anxiety over food deprivation during night shift was addressed. He finds it easier to fast, especially on busy night shifts. We suggested fasting aid options to ensure his hydration during his fasting period. At times, as he needs to eat with his colleagues to socialize, he opted to bring his own low carbohydrate option. We supported him by recommending resources such as recipes, websites supporting low carbohydrate lifestyle and list of low carbohydrate food providers.

Case 2

Patient 2 is a 54-year-old senior officer who was advised for insulin commencement due to poor response to oral medications. Other than type 2 diabetes, patient was also diagnosed with hypertension, dyslipidemia and obesity class 1. On initial consultation, he was on 6 types of medications. His nature of work involved frequent meetings, travelling and attending job-related events, where home cooked food was rather impossible to secure. He expressed learned helplessness as he thinks healthy eating or exercise was never an option in his hectic life. In addition, insulin commencement would interfere with his work nature.

We encouraged this patient to prioritise whole real food over fast food or highly processed food. Patient was guided on choosing satisfying nutrient dense food when eating out or getting store-bought food. He has no financial limitation to access a variety of high-quality food high in protein and vegetables. After a few

months it was noted that he was more satisfied after his meal, eating less frequently and able to stop snacking in between meals.

Case 3

Patient 3 is a 54-year-old ex-serviceman with type 2 diabetes, hypertension and obesity Class 1. He was planned for a major spine surgery and wished for better sugar control to ensure a good surgical outcome. He has been putting on weight after he stopped exercising due to his back pain. He was very particular about his diet since his young age. He dislikes sweet drinks and food and is thus frustrated at not being able to control his blood glucose.

Upon reviewing his food diary, we noted Patient 3 was consuming a large amount of grains and fruits in his diet. He was unaware that these foods despites being labelled as healthy might not be the healthy choice for his condition especially when taken in excessive amounts. We used food grouping to aid the understanding of this patient and to ease recall upon making his food choices.

Case 4

Patient 4 is a 66-year-old ex-serviceman with type 2 diabetes, hypertension, dyslipidemia and obesity class 2. He came with the outcome goal to reduce his medications. He was struggling to adhere to a healthy diet as he loves Malay delicacies as breakfast. He has strong religious values and was very keen to practice a Muslim fast. However, it has been a struggle for him to fast despite no previous history or documentation of hypoglycaemia.

We supported his decision to fast along with medication titration. He tolerated vildagliptin and metformin well during his fasting days. He has a supportive wife who cooks daily and fasts with him. He was able to stop taking Malay delicacies regularly as now he no longer feels the need to have breakfast, even when he is not fasting.

Case 5

Patient 5 is a 45-year -old ex-serviceman with type 2 diabetes, hypertension, dyslipidemia and obesity Class 1. His goal is to stop taking medication. During initial consultation, the patient had just retired from military service and was very concerned about his deteriorating health parameters. He was looking for a new job making his health status a great concern for him. During the first 6 months he was not motivated to change. His behaviour was avoiding rather than engaging. In order to escape from the discomforting feeling of worry and anxiety over his health, he frequently consumed sweet and junk food.

Rather than pushing him away for being unmotivated, the doctor rolled with his resistance to change. He was assisted to perceive how his current behaviour was moving away from his goal and subsequently guided to engage in behaviour that moves towards his goal. He cooks his own food. As he started to engage in healthy eating, his health parameters improved and his medication list was reduced. This will further enhance his motivation to maintain the new lifestyle. We took this opportunity to further solidify his understanding on which food is healthy, accessible and satisfying for him. This will create a more sustainable solution for his medical problems.

Table 2: Changes in Health Parameters and Medication at Baseline and Post-Intervention

Index Case	Blood pressure (mmHg)		Weight (kg)		BMI (kg/m2)		Medication lists	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Patient 1	173/ 106	139/ 92	83	73	29.7	26.2	Nil	Nil
Patient 2	124/ 76	106/ 66	78	68	28.6	24.9	Metformin 1000mg BD Sitagliptin 100mg OD Dapagliflozin 10mg OD Gliclazide MR 120mg OD Irbesartan 300mg OD HCTZ 12.5mg OD Rosuvastatin 10mg ON	Sitagliptin 100mg OD Irbesartan 150mg OD Rosuvastatin 10mg ON
Patient 3	107/ 74	110/ 67	99	93	28.9	27.1	Metformin 1000mg BD Gliclazide MR 30mg OD Simvastatin 20mg ON	Metformin 500mg BD Vildagliptin 50mg BD
Patient 4	133/ 70	133/ 82	85	80	30.1	28.3	Metformin 850mg BD Vildagliptin 50mg OD Irbesartan 150mg OD Simvastatin 20mg ON	Simvastatin 20mg ON
Patient 5	148/ 97	139/ 94	86	79	27.7	25.7	Metformin 500mg BD Amlodipine 10mg OD Perindopril 4mg OD Simvastatin 20mg ON	Metformin 500mg BD Amlodipine 10mg OD

Table 3: Changes in Blood Parameters from Baseline to End of Follow Up

Tests	Patient 1		Patient 2		Patient 3		Patient 4		Patient 5	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
FBS (mmol/L)	4.8	5.2	8.2	6.2	8.8	7.1	7.6	7.2	12.0	6.7
HbA1c (%)	5.9	-	9.2	6.2	9.2	6.7	8.1	6.9	9.2	6.6
TG (mmol/L)	2.2	1.8	2.5	0.8	1.9	1.8	1.1	0.7	3.4	1.1
HDL (mmol/L)	1.1	1.0	1.0	1.1	1.0	1.1	1.0	1.2	1.0	1.3
LDL (mmol/L)	6.5	5.1	1.9	2.1	1.1	3.3	2.4	2.8	2.4	2.1
ALT (U/L)	50.8	17.4	31.6	17.6	36.9	29.0	27.2	34.5	48.0	18.7

OUTCOME

There were 9 outcome measures in this case series - Body weight and body mass index (BMI); Blood pressure; Fasting blood glucose (FBS); Serum A1c level (HbA1c) ; Serum triglycerides (TG) ; Serum high density lipoprotein (HDL) ; Serum low density lipoprotein (LDL); Alanine transaminase (ALT) and Medication reduction. All five patients showed improvement in most of parameters as shown in Table 2 and Table 3 within a 6 months period.

All patients were able to shed at least 5% of their body weight and lowered their BMI. Improvement of glycaemic control was demonstrated in all diabetic patients with deprescription trend or dose reduction of oral hypoglycemic agents. We noted improvement of blood pressure control as glycaemic control got better, leading to reduction of antihypertensive medications as well. The patients reported medication reduction as a motivating factor to sustain their new lifestyle. All patients gave positive feedback regarding this approach. They felt supported in their efforts to change their lifestyle and were able to sustain their positive habits. Despite the novelty of this approach, each consultation lasted not more than 30 minutes.

DISCUSSION

It is undeniable that pharmacological intervention helps to a certain point but focusing management on medication is difficult to sustain. For example, increased usage of certain medications such as insulin or sulfonylureas can exacerbate the underlying insulin resistance, leading to poorer glycaemic control over time³. Furthermore, the disease progression in NCD will necessitate further increase in medication usage in the future. As years go by, it seems inevitable not to add on more medications to the list. Polypharmacy comes with more side effects, higher cost and poorer quality of life. A more intensive treatment such as frequent use or higher dosage of insulin may increase the risk of mortality due to cardiovascular disease⁴.

International and national health organizations all maintain that lifestyle therapy is the cornerstone of NCD management⁵. We have been seeing strong evidence in the efficacy and cost-effectiveness of nutritional therapy to treat diabetes, either used

alone or in combination with medications⁶. Whether we like it or not, it is impossible to manage NCDs without addressing patient's lifestyle issues such as poor nutrition, stress, and inactivity. Sadly, this is not translated into our daily practice as physicians. As we concentrate more on prescribing medication and screening for complications, we tend to concentrate less on facilitating our patients to adopt lifestyle change. This is reflected in many clinical practice guidelines both locally or internationally. The topics pertaining to lifestyle issues were never adequately addressed as compared to the detailed information provided on pharmacological management. A lot of time spent during clinic consultation is to talk about what is wrong with the patient i.e. their symptoms and possible risk to their health. A lot of effort is also placed on screening for complications and doctors continue to give warnings on impending disease progression. The repeated negative emphasis may lead to learned helplessness, anxiety, and unnecessary prescription.

Feeling powerless is one of the worst side effects of coping with chronic disease such as NCD. In this powerless situation, the last thing people need is the power struggle. Doctors are more concerned in achieving the target HbA1c or target blood pressure, whereas patients are more concerned on the number of pills they need to pop in everyday or the frequency of their insulin injections. Therefore, it is hard to work towards the target HbA1c by optimizing medication when a patient is not keen to add in more medications into their list. This will create conflict. When a patient expresses his concerns, he might be labelled as having poor insight, a difficult patient, or plain non-cooperativeness. This continued power struggle eventually leads to poor adherence and outcome.

Deprescribing is not impossible. Unwin and Tobin documented a case review on a 52-year-old diabetic patient who requested for the deprescribing of his medications⁷. He has been struggling with gastrointestinal side effect after being diagnosed with diabetes 14 years ago. Patient was guided on lifestyle changes and was able to achieve good blood glucose control without oral hypoglycaemic agent. In addition, he lost a total of 16kg and achieved his goal of being medication-free within 7 months.

When choosing the best workable intervention for a patient, it is very important to take into consideration other aspects

of human dimensions. Humans are not only biological. There are psychological, social and spiritual dimensions to them too. Fasting is generally well accepted in our population in view of the Muslim majority who practices Ramadhan fasting as part of their religious practice. Even non-Muslims in Malaysia are open to the idea of fasting especially since intermittent fasting has been trending in the media platforms. Therapeutic fasting is defined as voluntary abstinence from all calorie-containing food or drinks for a specified period of time. Fasting practices can be adopted as one of the diet variations in carbohydrate reduction as missing a meal or two would significantly reduce the amount of daily carbohydrate intake. This is especially so in the Malaysian context whereby breakfast is usually high in carbohydrate and sugar. Therapeutic fasting can offer similar caloric restriction and hormonal benefit without the cost or invasiveness of bariatric surgery ⁸. Randomized controlled trials of fasting have shown significant improvement in body weight and risk related outcomes ⁹. Besides all these promising results, fasting has the added advantage of being affordable and accessible to everyone. Traditional monitoring of NCD is focused on outcome goals such as related blood parameters or impending complications. Very commonly, doctors are fast to respond by increasing the medications without addressing other issues contributing factors like diet, stress or even compliance. Doctors who do attempt to explore these issues may sometimes not be tactful enough, and at times appear to be judgmental. Therefore, we believe monitoring should instead be geared towards empowering patients to make lifestyle changes. Rather than using glucose self-monitoring to ensure the dosage of medication is adequate, we should be using this tool to empower patients on their chosen food and dietary habits. Patient should be aware of his blood glucose response after the meal to give an idea of the glucose burden taken. This record will be a great guide to suggest diet improvement based on patients' preference and resources.

CONCLUSION

Modifying an approach based on a patient's needs and expectation is noted to be feasible in primary care settings with tremendous positive outcomes. Applying these approaches in clinical practice may promote patient's adherence to self-care, encourage motivation, improve patient doctor relationship and medication cost reduction. This study hopes to inspire future interventional studies to improve patient outcome and to create a reproducible procedure to encourage patient compliance in which it can be measured more accurately.

REFERENCES

1. Saklayen, M. G. (2018). The Global epidemic of the metabolic syndrome. *Current Hypertension Reports*, 20(2). <https://doi.org/10.1007/s11906-018-0812-z>
2. World Health Organization. Regional Office for the Western Pacific. (2000). *The Asia-Pacific perspective: redefining obesity and its treatment*. Sydney: Health Communications Australia. <https://apps.who.int/iris/handle/10665/206936>
3. Marín-Peñalver, J. J., Martín-Timón, I., Sevillano-Collantes, C., & del Cañizo-Gómez, F. J. (2016). Update on the treatment of type 2 diabetes mellitus. *World Journal of Diabetes*, 7 (17), 354–395. <https://doi.org/10.4239/wjd.v7.i17.354>
4. Skyler JS, Bergenstal R, Bonow RO, et al. Intensive glycemic control and the prevention of cardiovascular events: Implications of the ACCORD, ADVANCE, and VA diabetes trials. *Circulation*. 2009;119(2):351–357. <https://doi.org/10.1161/CIRCULATIONAHA.108.191305>
5. American Diabetes Association. 4. Lifestyle management. *Diabetes Care*. 2017;40(Suppl. 1):S33– S43. <https://doi.org/10.2337/dc17-S007>
6. Evert, A. B., Dennison, M., Gardner, C. D., Garvey, W. T., Lau, K. H. K., MacLeod, J., ... Yancy, W. S. (2019). Nutrition therapy for adults with diabetes or prediabetes: A consensus report. *Diabetes Care*, 42(5), 731-754. <https://doi.org/10.2337/dci19-0014>
7. Unwin D, Tobin S. A patient request for some “deprescribing”. *BMJ* 2015;351:h4023
8. Kroeger CM, Klempel MC, Bhutani S, Trepanowski JF, Tangney CC, Varady KA. Improvement in coronary heart disease risk factors during an intermittent fasting calorie restriction regimen: Relationship to adipokine modulations. *Nutr Metab*. 2012;9(1):98. <https://doi.org/10.1186/17437075-9-98>
9. Horne BD, Muhlestein JB, Anderson JL. Health effects of intermittent fasting: Hormesis or harm? A systematic review. *Am J Clin Nutr*. 2015;102(2):464–470. <https://doi.org/10.3945/ajcn.115.109553>

Colonel (Dr) Nurzeti Shaik Ahmad, DTHO Family Clinic, Kuala Lumpur, Malaysia, Tel: +60122241790 Email: drzeti@gmail.com