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Examining Lifestyle Transitions in Type 2 Diabetes

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Abstract

Lifestyle diseases are those diseases or ailments that are primarily based on the day to day habits of people. Type – 2 Diabetes is one such lifestyle disease, which is the most common type of diabetes in the world and is caused by modifiable behavioural risk factors. The purpose of the current research was to study the differences in the lifestyle of an individual before and after being diagnosed with Type – 2 Diabetes, a lifestyle disease. We used a Semi – Structured Interview Schedule to collect the data from an individual with Type – 2 Diabetes. The collected data was then analyzed using Thematic Analysis. Through this technique of analysis, codes were generated and themes were extracted from these codes. Upon analyzing, a total of 14 themes were obtained such as Symptomatology, Alternative Interventions, Post – Diagnostic Affects, Bodily Outcomes Resultant of Diabetes among others. From these themes, it was inferred that there were marked differences between the lifestyle patterns before and after being diagnosed with Type – 2 Diabetes. Implications and limitations of this study are discussed.

Keywords: Lifestyle, Diabetes, Semi – Structured Interview, Thematic Analysis, Themes

Introduction

Lifestyle diseases are ailments that are primarily based on the day to day habits of people. Habits that detract people from activity and push them towards a sedentary routine can cause a number of health issues that can lead to chronic non-communicable diseases that can have near life-threatening consequences. Type 2 diabetes mellitus is one such lifestyle disease, which is caused by lifestyle and genetic factors. The major symptom of this disease is very high levels of hyperglycemia. This disease can be managed through physical activity, weight control, balanced diet, proper sleep and regularly monitoring the blood sugar levels. Medications are also there to manage it. However, there are certain behavioural, psychological, emotional and physical differences that occur after this disease has been diagnosed. There are issues with accepting and sticking to changes in the lifestyle as suggested by physicians, constantly failing to incorporate changes, stress and worries about the disease and its impact on their health.

In a study conducted on the patients with nonalcoholic fatty liver disease (NAFLD), it was found that in the post – diagnostic lifestyle changes, even minor changes in the weight and even weight

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maintenance in conjunction with enhanced physical activity and diet can bring progress in the metabolic and liver test profiles of such patients and also have a positive influence on the co – morbid diseases. This provides support for practitioners to encourage patients with liver disease to undertake and maintain positive lifestyle changes irrespective of whether large weight loss occurs (Nobili et al., 2011). Neutel and Campbell (2008) in their research titled "Changes in lifestyle after hypertension diagnosis in Canada" attempted to understand the extent to which recently diagnosed hypertensive Canadians modify their lifestyles and to examine how lifestyle modification relates to antihypertensive medication use. There were a total of 9538 respondents who completed all five interviews as part of this study. The results revealed that smoking was the biggest practice which showed the highest significant decrease over the years and the next health practice was physical activity which witnessed an increase. Although there was also an increase in obesity among the hypertensive patients, the cessation of smoking and increased physical activity was seen in both the sexes and cessation of smoking was observed in all the age groups while increased physical activity was only observed in the lower and younger age group. The results also showed that individuals who did not consume any anti – hypertensive medicines were the ones who had the lesser probability of making any lifestyle improvements.

Lemon et al. (2004) in their research assessed the changes in health and lifestyle indicators over 6 months in persons with type 2 diabetes mellitus receiving nutrition counseling from a registered dietitian. Several physiological processes and constructs were measured such as Glycemic control, coronary heart disease risk, self-management behaviors, and quality of life. All of these were measured at the baseline, 3 months and 6 months. The study was conducted on 244 physicians–referred adults with Type 2 Diabetes Mellitus. There was a significant enhancement in the weight and between baseline and 3 months and baseline and 6 months. There was also significant progress in the weight, body mass index, and glycosylated hemoglobin value between 3 months and 6 months. There was also an association observed between weight loss and increased time and/or number of sessions one had with the registered dietician. Self-perceived health status and missed workday were significantly improved at 6 months. There was greatest enhancement between baseline and 3 months and there was stabilization between 3 months and 6 months suggesting ongoing intervention is needed to support continued clinical progress. This tells us about the difference between their pre – and post – diagnostic lifestyles in which the pre – diagnostic lifestyle involved increased weight, increased glycosylated hemoglobin and more missed workdays which significantly improved upon lifestyle interventions in the post – diagnostic lifestyle. In a study that was conducted to determine the feasibility of the patients to sustain intensive lifestyle changes for 5 years and the effect of these changes on coronary heart disease. A total of 48 participants were there who were randomly assigned to an intensive lifestyle change group or to a usual – care control group. The participants in the experimental group were given vegetarian and 10% fat whole foods, aerobic exercises, stress management training, group psychosocial support and smoking cessation for 5 years. The results revealed that there was a decrease in the average diameter stenosis by 3.1

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points after 5 years in the experimental group as compared to an increase in the diameter by 11.8 points in the control group. Moreover, in the experimental group, the participants experienced only 35 cardiac events in 5 years as opposed to the 45 cardiac events in the control group patients. This provides marked differences in the lifestyle of the individuals from their lifestyle prior to the diagnosis and the lifestyle which has been transformed after they have been diagnosed with CHD and the positive influences of these intensive lifestyle changes (Ornish et al., 1998).

In another study it was found that patients with type 2 diabetes reported decrease in consumption of vegetables, lost more weight, and had a higher chance of quitting smoking compared to those not diagnosed with type 2 diabetes. However, there were certain aspects that did not change in either of the groups such as consumption of fruits, amount of cigarettes smoked, and moderate to vigorous physical activity (MVPA). There was no significant change discovered in health behaviours based on time passed since diagnosis, however the magnitude of changes in behaviours such as walking and weight loss increased with the duration of diagnosis. On the other hand, changes in the number of cigarettes smoked, number of individuals who quit smoking and changes in MVPA witnessed a converse relationship with the amount of time passed since diagnosis (Chong et al., 2017). A study conducted to understand the struggles of female patients with lifestyle changes due to type 2 diabetes revealed that they experience problems like becoming a victim of pressurizing demands, experiencing a lack of knowledge deficits, feeling an urge to not change, and looking for reasons to justify not changing. This shows that it is important for healthcare professionals to treat such individuals with dignity and empathy keeping in view their inner struggles with the disease. Women have a different set of struggles and acknowledging them may facilitate them in bringing the required changes in their lifestyle to effectively manage their health condition and become healthy and have a better quality of life (Ahlin&Billhult, 2012).

Rationale

Lifestyle diseases like type 2 diabetes have a profound impact on the life of an individual as it completely brings a shift to their lifestyle, prompting urgent action to bring changes in various arenas of life. However, not everyone has the required level of mental preparedness to confront and embrace these challenges. This can take a toll on their physical and psychological well-being. This indicates a need to study the exact differences that are there before and after an individual is diagnosed with type 2 diabetes to better understand their challenges, struggles and coping. This will shed light on the actual coping strategies employed by patients and also help us understand the actual struggles of patients who are still trying to understand their diagnosis and its effects on their lives. This will also help us in developing interventions or skills needed to handle such cases effectively in the forthcoming time.

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Method

Objective

To examine the differences in lifestyle before and after the diagnosis of Type – 2 Diabetes using a Semi – Structured Interview.

Design

The present study followed a Qualitative Research Design in which the method for collecting the data was a Semi – Structured Interview and Thematic Analysis was used to analyze the data. The emphasis of Qualitative Research is on phenomena that occur in natural settings and there is no use of statistics in analysis of data.

Sample

Purposive Sampling also known as Judgmental Sampling was done in the present study, which is a non-random sampling technique through which those cases are taken who fit a particular criterion/criteria using various methods. We included only those individuals who have been diagnosed with Type – 2 Diabetes in the past 1 to 5 years. In the present study, a 38 years old female participant diagnosed with Type – 2 Diabetes was selected.

Procedure

Firstly, the Semi – Structured Interview Schedule was prepared upon reviewing the literature and revising the questions based on that. After the final schedule was made, the participant was approached for deciding a convenient and suitable date and time of conducting the Semi – Structured Interview as per the participant's convenience and comfort. After arranging the materials beforehand, the participant was called. The participant was greeted and was requested to sit down. After the participant was made at ease, rapport formation was carried out to ensure that the participant was calm and levels of nervousness were reduced. When the participant felt comfortable enough, she was provided with the Informed Consent Form and was asked to read it carefully and asked to sign it. All the rights and ethics regarding the participation in the practical

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were reported to the participant verbally also in order to ensure that there were no doubts or confusions. After the participant had signed the Informed Consent Form, the conduction of the Semi – Structured Interview. She was instructed to respond to the questions of the Interview Schedule honestly and truly and was requested to seek clarifications if she finds it difficult to understand any question(s). Firstly, permission was sought from the participant to record the responses of the participant which she will be giving to the questions of the Semi – Structured Interview. Post this, the researcher serially asked all the questions which were incorporated in the Semi – Structured Interview Schedule and sought responses to every question from the respondent. Probing was also done wherever the researcher felt that something important to the objective of the current research could be revealed. When the interview was completed by the participant, she was notified about her successful completion of the interview. Then, debriefing was carried out carefully in which the purpose of contacting her, objective of the research and the method used was informed to her. Debriefing was done to ensure that there remained no feelings of doubt or confusion and to ensure that the interviewee felt the same way she felt when she volunteered for the interview. The participant was also thanked for their participation.

Data Analysis

After the data was collected, the audio recording of the Semi – Structured Interview was transcribed so that the auditory responses of the participant could be read and analyzed further. The method of analysis employed in the present research is Thematic Analysis. This technique of analysis was given by Virginia Braun and Victoria Clarke (2019). Thematic analysis goes beyond simply counting phrases or words in a text and explores explicit and implicit meanings within the data. After the audio recording of the Semi – Structured Interview was transcribed, the researcher identified certain important patterns in the data and extracted the verbatims belonging to the important patterns identified in the transcription of the Semi – Structured Interview of the participant in a separate word document. These verbatims from the complete transcription were used to take out codes. The codes were taken out wherever the researcher felt a meaningful but basic segment was being revealed which could be analyzed meaningfully with respect to the phenomenon under study. Upon the extraction of codes from the transcription, the process of extracting themes began. The researcher identified from the scattered codes, certain significant patterns between the codes which were indicating something important with respect to the research objective. Once the themes were extracted, they were reviewed and revised. The researcher then defined them and understood the relationships between the different themes. It was also seen how different sub themes in a theme interact with each other.

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Results

Table – 1: Themes, sub themes and codes extracted from the semi-structured interview on understanding lifestyle differences before and after the diagnosis of type 2 diabetes.

Theme: Symptomatology	**Theme: Pre – Diabetic Lifestyle Pattern**	**Theme: Apprehensions related to Diagnosis**
Felt Weakness in the body all the time	**Sub – Theme: Sleep**	Very scared
Felt exhausted	Proper sleep at night	Thought it's a dangerous disease
Doctor told sometimes caused due to having fever or any other chronic disease	8 to 9 hours	Diagnosis disturbed her mentally
Urine infection	**Sub – Theme: Productivity**	Used to feel that she will even have to stop eating chapatis
Sub – Theme: Early Signs	Used to work the whole day without any problems	Used to feel bad but now feels okay
Problems in getting up	**Sub – Theme: Diet**	Used to think she will have to stop consuming wheat chapatis
Always felt sleepy	Never consumed sweets in large quantities	Thought she could only eat the items not restricted by the Doctor and she will have to leave the rest of the things
Always felt exhausted	Fond of consuming tea	
Inability to do anything	Not obsessed with sugary items	
Couldn't work properly just before the diagnosis	**Sub – Theme: Exercise**	
Used to not feel fresh	Never exercised	
Felt Exhaustion in body		
Always used to feel as if she just woke up		
Problems in working		
Used to leave the work		
Used to feel very weak		
No relief from medicines for symptoms even after 1 month; then tested for Diabetes and was diagnosed with it		
Sub – Theme: Risk Factor		
Had gained weight which is a risk factor for Diabetes		

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Theme: Post – Diabetic Lifestyle Pattern **Sub – Theme: Sleep** Less sleep Problem in sleeping Difficulty in sleeping even after lying for so many hours Sometimes able to sleep easily while sometimes can't **Sub- Theme: Diet** Normal appetite Reduced tea consumption Stopped consuming ice cream, fruits, etc.	**Theme: Challenges in Implementing Changes** Felt weird initially Doctor advised to stop plenty of things and used to feel as if it would continue her entire life Fond of mangoes and used to feel like eating them when others ate Very difficult to stop consuming tea but left it somehow Challenging to leave initially but it became her habitual gradually	**Theme: Medical Interventions** Advised to stop consuming fruits, tea, sugar completely Stopped consuming milk and pulses Morning walk Exercise Consume more water Consume buttermilk Doctor advised to reduce the dosage of medicines Doctor said that more anger is there because Hypertension is there in Diabetic patients
Sub- Theme: Diet Normal appetite Reduced tea consumption Stopped consuming ice cream, fruits, etc. **Sub – Theme: Exercise** Doesn't exercise regularly Does it for half an hour – 45 minutes on 3 – 4 days in a week Depends on availability of time		**Sub – Theme: Attitude towards Treatment** Doctors tell many things which can't be implemented practically They can be implemented only when the problem is severe Doctors tell such things which makes us sick Doctor scared me that it is a dangerous disease
Theme: Medications Took medicines for some time after diagnosis Currently fine and normal	**Theme: Alternative Interventions** Consumes Aloe Vera and Bitter Gourd Juice everyday	**Theme: Precipitating Factors** Sugar levels rise due to anger and tension

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even without consuming medicines Stopped consuming medicines as reports showed normal sugar levels Stopped medicines as others said that habit gets developed and kidney and heart get affected Metformin is the prescribed medicine	morning Consuming on her own and on suggestion from an acquaintance Takes breaks and resumes after sometime Curry leaves used to give her relief, used to give energy and helpful in removing weakness and used to consume everyday on empty stomach Drank Indrajau which was very beneficial and consumed for a long period Consumed Cinnamon/Daalchini water when sugar levels used to rise Prefers taking such things instead of medicines	Anger is also there in Diabetic patients which increases the sugar levels The effect of anger on sugar levels is even more than the effect from eating sugary items When weakness or anger is felt then levels rise to 150 or 160
Theme: Social Support Husband consoled Made to understand that it happens with many people and have to take care of things like diet and exercise Family and husband made her understand that stopping the consumption of sugar will help and this way of feeling is present initially Husband and Mother – In – Law supported Husband supported by not drinking tea Used to say that consume it later on and leave it now Others explained her that being strict benefits us and leniency makes the sugar levels high; Taking care of	**Theme: Post – Diagnostic Affects** Now feels stress quickly Earlier used to control it Unable to control anger now and experiences a lot of anger When gets tensed then gets back to normal after sometime	**Theme: Positive Health Outcomes** Report shows normal even after eating/drinking something Normal readings 112 to 119 Diet is not much controlled now, consuming fruits now Doctor advised her to stop consuming many things so she did due to which her reports used to show normal sugar levels Now habit has been developed so doesn't want to consume them now Changes in lifestyle helped her very much and brought difference Normal report even without medicines since 1.5 years

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diet and exercising is helpful		Because of normal reports the Doctor advised to eat the restricted food items but in a controlled manner

Theme: Physiological Indicators of Rising Sugar Levels	**Theme: Bodily Outcomes Resultant of Diabetes**
When heaviness in head or weakness in body is felt then goes for testing Body gives an indication of rising sugar levels Lethargy, not wanting to work, head ache are indicators of rising sugar levels Source of anger or tension is family, gets tensed regarding children Feeling of burning in heels in Diabetes Heels burn a lot when sugar level increases	Got Cervical after Diabetes Doctors said that nerves get weak in Diabetes which causes Cervical

Discussion

The present study aimed to study the differences in lifestyle before and after being diagnosed with a lifestyle disease. A semi – Structured Interview was conducted on a participant with Type – 2 Diabetes to study the differences between the pre and post – diagnostic lifestyle. Thematic Analysis was done to understand the differences in the lifestyle before and after the diagnosis was done.A Semi – Structured Interview Schedule was prepared to collect the data. There were several dimensions in the Semi – Structured Interview Schedule i.e., Diagnosis, Lifestyle, Management, Support Systems, and Outcomes. After data collection, the audio recording was transcribed and thematic analysis was done as the method for analyzing the collected data.

The following themes emerged from the data upon conducting the Thematic Analysis of the data. Symptomatology, Pre – Diabetic Lifestyle Pattern, Apprehensions related to Diagnosis, Post – Diagnostic Lifestyle Pattern, Challenges in Implementing Changes, Medical Interventions, Medications, Alternative Interventions, Precipitating Factors, Social Support, Post – Diagnostic Affects, Positive Health Outcomes, Physiological Indicators of Rising Sugar Levels and finally, Bodily Outcomes Resultant of Diabetes.

Regarding the Symptomatology theme, the participant described the symptoms due to which she had visited the Doctor. She reported feeling all the time, being exhausted and had infection in her urine due to which she had gone to see the Doctor. The participant herself mentioned in the interview that *"I used to feel weakness in the body and I used to feel exhausted. And there was plenty of infection in my urine because of which I went to the Doctor for the treatment".* This theme also included the sub – themes of Early signs and Risk actor. Early Signs sub – theme included the problems she faced which were some physiological indicators like she mentioned

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always feeling sleepy and inability to work. She also revealed during the interview that *"I was unable to do anything and before the diagnosis, I couldn't even work properly and used to feel very weak".* The Risk Factor sub – theme included the participant describing one of her risk factors which was her increased body weight that led her to acquire this disease. She mentioned *that "my body weight had increased and I had gained weight and at that time like it is said that if weight is more then there is a chance of having Diabetes".* A. Ramachandran (2014) validates these symptoms in his study where he mentioned that some of the symptoms of Diabetes are frequent fatigue and repeated infection in the urinary tract which the participant in the present study reported. Being overweight at some point of time and being above 35 years are some of the risk factors for acquiring Type 2 Diabetes which validate the responses of the participant. This theme is relevant to the research's objective as it is helpful in understanding the symptoms or the causes one has because of which Type – 2 Diabetes develops along with the physiological indicators and the risk factors which play a role in its development.

Regarding the next theme, Pre – Diabetic Lifestyle Pattern, the participant described her lifestyle as it was there before she was diagnosed with Type – 2 Diabetes. She mentioned that she used to work all day without any difficulties, never exercised, never consumed a lot of sugary food items and took a good amount of sleep at night. Regarding her sleep pattern, she reported that *"During the night, I used to take proper sleep…….It used to be 8 hours sometimes and 9 hours too sometimes……..yes."* She talked about being so productive as she mentioned that *"Earlier, I used to do work the entire day but did not encounter any problems".* Her diet patterns before her diagnosis was revealed when she said "I never consumed a lot of sweet items earlier but I used to consume tea sometimes but it was not like that I was obsessed with eating sweet food items". This theme's relevance with our objective is that it reveals how the participant had a different lifestyle before she was diagnosed with Type – 2 Diabetes. A sedentary lifestyle also pushes a person in their adulthood to acquire Type 2 Diabetes (Ramachandran, 2014), which is similar with our participant who mentioned never engaging in any physical activity before getting diagnosed with Diabetes. The same was validated by Alberti, Zimmet and Shaw (2007) in their research who talked about sedentary lifestyle as a risk factor. This is helpful in understanding the marked differences that become visible once an individual gets diagnosed with it and has to make intensive lifestyle changes post – diagnosis.

Subsequently, the Apprehensions related to Diagnosis theme, includes the reactions and the thoughts the participant had when she got to know about her diagnostic results. She reveals being scared about the disease and thought of it as an eternal disease which will continue till the time she is alive. She reported during the interview that *"I got very scared……it is a very dangerous disease…..when I was diagnosed with it at that time I was mentally disturbed".*Kunisset al. (2018) found that diabetic patients had fears and apprehensions related to Type 2 Diabetes. These fears include fear of getting blind, kidney complications, severe hypoglycaemia, amputation, stroke and cardiovascular diseases. This can be attributed to lack of proper knowledge about Type – 2 Diabetes. This reveals her apprehensions and fears with respect to the disease. This theme is actually useful to understand the psychological and behavioural responses

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of the participant to diagnosis and disease.

The Post – Diagnostic Lifestyle Pattern theme included the responses of the participant in which she mentioned about her lifestyle after she has got diagnosed with Diabetes. She talked about her problems with sleeping and that she doesn't get sleep even after lying down for so many hours which was revealed during the interview when she said that *"now I get less sleep, like earlier I used to sleep a lot but now I get less sleep….. here is a problem in sleeping".* She also talked about her diet which has been restricted by the Doctor and that her appetite is normal, just like before. This was revealed when she reported that *"When I got to know about it, I stopped consuming tea, ice cream, fruits, etc., altogether" a*nd *"I don't feel lack of appetite all the time, there is no issue. The way it was before, like the normal appetite I used to have, it is the same now"*. About her physical activity, she mentioned that she does it sometimes, depending on time availability as she mentioned that *"Whenever I do it, I do it for half an hour or 45 minutes but I am able to do it some days but some days I don't do it".*Alberti, Zimmet and Shaw (2007) reported a Finnish Diabetes Prevention Study in which the participants were followed for 3.2 years in which they were counseled for achieving and maintaining a healthy body weight, reduction in fat intake, increasing fibre intake and increasing physical activity. Components like weight loss, increase in physical activity, reduction of total and saturated fat intake, and increase in dietary fibre contributed to the risk reduction. This theme is very important with respect to the present research as it enables us to observe the marked differences one makes to their lifestyle upon being diagnosed with a lifestyle disease. This also indicates the extent to which one gets aware and conscious about their health and begins to make changes to their lifestyle.

The next theme is Challenges in Implementing Changes which includes the responses of the participant indicating the problems she experienced while bringing changes in her lifestyle suggested by her Doctor and family members. She responded that it was very difficult to stop consuming tea but left it somehow and found it challenging to leave initially but it became her habitual gradually. This was revealed when she mentioned that "I used to feel weird initially, like I love mangoes and during the season of mangoes when everyone used to eat mangoes so I also used to feel like eating them". This theme holds much importance as it indicates to some of the challenges that one has to deal with while an individuals is trying to bring intensive lifestyle changes.

The next theme called Medical Interventions talks about the treatments and the advices suggested by the doctor of the participant to improve her health. Her Doctor asked her to go for morning walks, engage in exercise and consume more water and buttermilk. She mentioned that *"My Doctor told me to stop consuming sugar, tea, fruits completely. So, I had completely stopped consuming these things like pulses, milk, fruits, tea."* This theme also had a Sub – Theme named Attitude Towards Treatment in which the participant mentioned that Doctors tell many things which can't be implemented practically and they can be implemented only when the problem is severe. The participant revealed that *"When you visit the doctor so even if you are not sick, the Doctor will tell you such things which will make you sick…… Because the way of their talking like they scare you like it is a very dangerous disease, this and that."*Fagerli, Lien and Wandel (2005) demonstrated some of the medical advises given by Doctors to newly diagnosed

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Diabetic patients. It was shown that Doctors generally advise avoiding food items containing sugar and fat, eating everything in smaller amounts, and stop consuming fruits, rice, yoghurt and milk and go for walks and physical exercise. This theme is significant as it talks about the advises given by the Doctors to the patients who get diagnosed with Type – 2 Diabetes which can be very beneficial for them to attain a state of good health as well as it mentions the thoughts of the patients towards the treatment they receive and their evaluation of the treatment and the Doctor.

Regarding the next theme, Medications, the participant reported about the pattern of consuming the medicines and the medications prescribed by the Doctor. She mentioned that she has been prescribed Metformin by her Doctor and she also mentioned that she took medicines only sometime after getting diagnosed and now she feels normal even without consuming any medicine. She reported during the interview *"Doctor had prescribed me medicines and advised me to take them regularly without any breaks but when my report comes normal so why should I consume medicines so I had stopped consuming medicines."*Alberti, Zimmet and Shaw (2007) in their research demonstrated that lifestyle modification along with Metformin consumption significantly reduced the incidence of Diabetes in Asian Indians which validates the reponses of our participant that she has been consuming Metformin. This theme is significant with respect to our research question as it throws light on the pattern of medicine consumption followed by the participant and their own decision with respect to consuming it.

The Alternative Interventions theme describes the other treatments that the participant took to resolve her issues and improve her health. The participant said that she started consuming Aloe Vera and Bitter Gourd juice and some herbs such as Curry Leaves, Indrajau, etc. She mentioned that *"I consume everyday in the morning, Aloe Vera juice and Bitter Gourd Juice of Patanjali……Better than medicines, I prefer taking such things, like don't stick to these medicines and get better."* Al-Ani and Colleagues (2017) demonstrated in their study the effects of consuming curry leaver on Diabetes. They fed Curry leaves to diabetic rats and saw its effects on various physiological mechanisms associated with Diabetes. The results showed that curry leaves have protective effects on hypoglycaemic activity and renal and endocrine in diabetic rats.This theme indicates the expectation of the participant from other methods of treatment and her responsibility of improving her health.

Subsequently, there is another theme named Precipitating Factors which describes the factors that worsen the condition of the participant. The participant mentioned that whenever she gets angry or tensed, her sugar levels used to rise up and even consuming sugary items won't bring such a huge difference which is brought by anger and tension. This was revealed when during the interview, the participant mentioned that *"whenever I eat something and I have got myself tested after eating – drinking something and the reports shows normal but sometimes I have observed that whenever I have any tension or I get angry, so I get a lot of anger and that increases my anger and that it increases my sugar levels."* Yi, Yi, Vitaliano and Weinger (2008) in their research demonstrated how being distressed is associated with glycemic control in which elevated stress hormones like corticotropin-releasing factor and cortisol are related to poorer health habits such as overeating and inactivity. These outcomes may result from higher distress

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levels and poorer health habits, as research in non-diabetics has found that these independently predict factors associated with insulin resistance. This theme holds relevance as it indicates to some of the factors that can negatively impact the levels of sugar in an individual and can worsen the condition.

Regarding the Social Support theme, the participant mentions how her husband, mother – in – law and other people around her helped her in making changes and improving her health. She told during the interview that her husband also stopped consuming tea to support her as she was fond of tea. Her Mother – in – law also helped her in bringing changes. She mentioned during the interview that *"my family explained and like my husband also made me understand that it is not like that and if you stop consuming sugar that will be fine and you are feeling in this way because it is the beginning."* Kaplan and Hartwell (1987) in their research reported that women who are more satisfied with their social support were in better control of Type II diabetes. This was also validated by Albright, Parchman, Burge and RRNeST Investigators (2001) in their study mentioned that social context, which was conveyed through a statement like *"My family understands my diabetes,"* was significantly linked to diet, exercise, and adherence to medications. This theme is very important for understanding the role of social support while one is going through a health issue. This explains the motivating role of the social support in bringing changes in the lifestyle to enhance our health.

About the next theme, Post – Diagnostic Affects, the participant revealed how she experiences anger and stress in her life after her diagnosis. She informed that earlier she used to control her anger and stress but now she experiences anger in a very high intensity and she has lost control over it. She mentioned that *"Yes, it comes quickly, like earlier when it used to come so I used to control it and tolerate it but now the anger which comes, I can't tolerate it".*Kolbasovsky (2004) in his study demonstrated that Diabetes was significantly linked to the degree of anger one experiences. The group with diabetes had a higher mean anger score than the group without diabetes which validates the response of our participant that in diabetes there are significantly greater levels of anger. This theme describes how Diabetes influences the experiencing of emotions and stress after one gets diagnosed with it. It tells about the emotional aspect of the consequences of Type – 2 Diabetes.

The next theme called Positive Health Outcomes talks about the benefits she experienced upon making these intensive lifestyle changes after being diagnosed with Type – 2 Diabetes. She mentioned that her reports show normal even after drinking or eating something and these changes helped her very much in bringing a difference. She herself mentioned during the interview that *"These things help a lot and bring a lot of difference…..it makes a difference*." According to Sone et al. (2002) lifestyle modifications are instrumental in bringing.The effect of lifestyle modification on improving conditions of Type 2 Diabetes. They demonstrated in their study that inducing lifestyle modifications enhanced the glycemic control of patients with established type 2 diabetes mellitus. The difference they found was although small but it turned out to be significant three years after initiation of the intervention. This is actually useful in understanding and explaining the influence of minor but healthy habits and health behaviours one implements in their lifestyles which can enhance the health of an individual suffering from a

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lifestyle disease.

With respect to the next theme called Physiological Indicators of Rising Sugar Levels, the participant mentioned about her body giving some physiological indications whenever her sugar levels begin to rise. She mentioned about having a headache different from a normal headache, about feeling lethargic and weak which indicates that her sugar levels are rising. She explained during the interview that *"when the sugar levels go high even then I get a feeling of burning in my heels like my heels burn a lot……I begin to feel lethargic, I don't feel like working, my head starts to ache……. the pain in my head when starts suddenly is different and when the head pains due to sugar, the pain is different and I get to know that it is happening due to sugar".* This explains the reasons behind and significance of some of the physiological and bodily problems which might seem minor and unimportant but might be indicating something about our health.

Finally, the Bodily Outcomes Resultant of Diabetes theme indicates the other physiological problems that the participant got due to Type – 2 Diabetes i.e. Cervical. The participant mentioned that she got Cervical which her Doctor says is due to Diabetes. She revealed during the interview that *"I got the problem of Cervical and it has happened after Diabetes. And the Doctor had said that nerves start to get weak so because of that it happens".*Kuo et al. (2015) in their study demonstrated that Type 2 Diabetes Mellitus is a factor which increases the risk of recurrence of Cervical Cancer (CC) and death of patients at early stages of Cervical Cancer even after treating them with curative treatments. This theme is of considerable importance as it throws light on the co – morbidity which might occur due to having a lifestyle disease like Type – 2 Diabetes in the present case.

Conclusion

We aimed to study the changes in the lifestyle of an individual before and after being diagnosed with Type – 2 Diabetes. A Semi – Structured Interview was employed to collect the data which was then analyzed using Thematic Analysis. A total of 14 themes were extracted from the data namely, Symptomatology, Pre – Diabetic Lifestyle Pattern, Apprehensions related to Diagnosis, Post – Diagnostic Lifestyle Pattern, Challenges in Implementing Changes, Medical Interventions, Medications, Alternative Interventions, Precipitating Factors, Social Support, Post – Diagnostic Affects, Positive Health Outcomes, Physiological Indicators of Rising Sugar Levels and finally, Bodily Outcomes Resultant of Diabetes. There were plenty of differences observed in the lifestyle of the participant before and after being diagnosed with Type – 2 Diabetes like the participant started encountering problems in sleep, has started exercising, started eating in a controlled manner and feels stress and anger quickly in an uncontrolled manner. All of this was not present in her Pre – Diabetic Life which indicates that these differences are attributable to Type – 2 Diabetes with which the participant was diagnosed. These findings are significant for healthcare professionals as attention can be devoted to the post-diagnostic lifestyle of such individuals to help them cope with these significant changes. Interventions can also be developed to facilitate adaptive and healthy coping in these individuals.

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Limitations

The current research had some limitations. Firstly, the results produced lacked the quality of generalizability as the present research was a qualitative research using a qualitative method for analyzing the data which is why it lacked in generalizability. There could be the presence of a language barrier as the Semi – Structured Interview Schedule was drafted purely in the English language and although the interview was conducted by mixing Hindi and English both, the creation of the schedule in English was a limitation as the study was done on an Indian sample where English is not the dominant language, which must have acted as a barrier in the smooth conduction of the Semi – Structured Interview. The sample included only the participants residing in the urban areas thus representing the experiences and perspectives of the urban population overlooking the experiences of the rural population with respect to the objective of the research.

Future Directions

The future researchers who are interested and eying to conduct a research in this domain are suggested to employ a quantitative or a mixed methods approach including the quantitative as well as the qualitative to assess the differences in the lifestyle before and after the diagnosis of a lifestyle disease. Other diseases such as Hypertension or Polycystic Ovary Syndrome (PCOS) can be included. Another suggestion is to include participants belonging to the rural settings in order to incorporate their experiences and regarding the research question and obtain rich contextual understanding.

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