A multidisciplinary Vision in Studying Minorities Health Status, the Sahelian Tuareg Women in the Lens of Syndemic Theory

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Abstract

This work examines the deteriorated health position Sahelian Tuareg minority have suffered from in comparison to Algerian Tuareg. Equally important, gender disparities in the context of health are being well considered as they clarify the complex jeopardy of gender and ethnic affiliations. This research depends on syndemic as a multidisciplinary theory approaching a measurement on how large-scale social factors can be entwined and biologically synergy to undermine health status in the target vulnerable group. To provide this explanation, the research work analysis relies on limiting the scope on a case study that associates life stresses, triggered from life discriminatory events, with diabetes prevalence among Sahelian Tuareg women. The work accentuates the role of narratives as a pathway to design a relevant measure of stress; then the paper depends on a mixed-methods study to complete a syndemic case in Sahelian Tuareg women who live in Ghardaia town, depending on a population-based quantitative survey (N = 30) and in-depth, qualitative interviews (N =30).Over all, the work shows that there is a positive association between perceiving discrimination experienced by Sahelian Tuareg women within their home countries with their unfavourable health condition in general, and their affliction with diabetes in particular.

Keywords: Syndemic Theory, Sahelian Tuareg women, Life Discriminatory Stress, Diabetes Prevalence

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INTRODUCTION

Ethnic Health disparities are commonly studied through the notion of socioeconomic status (SES) as they are variables worked in a relative way (Adler et al. 1994, P. 7-11). However, confining the subject of health into this direct and causal relationship requires a revision through which individuals, policymakers and health practitioners can conceive health inequities into even larger spectrum. Adopting new models, syndemics theory has been employed as a novice approach by which adverse health position among different minority groups, all over the world, has tackled from its larger structural scale to its tiny level.

This paper deals with adverse health care position that almost all the Sahelian Touareg community is exposed to. It shows, as well, that gender differences as another crucial agent in doubling the burdensome of diseases among Tuareg women, considering the fact that women are more in need to adequate health due to their reproductive health system (Weisman, 1997, p.182). The paper provides an introduction of the syndemic approach in understanding health inequalities among most of ethnic minorities as it puts Sahelian Tuareg women into the main aspects of the theory: the social and the biological ones, emphasizing on diabetes as the most prevalent diseases among others.

1. LITERATURE REVIEW

1.1. Sahelian Tuareg within Algerian Ethnicities

The most noticeable feature of the Algerian society is its miscellaneous cultural nature. A fresh look at the ethnic composition reveals the reality of its diversity as the Algerian social landscape covers a wide spectrum of minority affiliations (Khaldi & Abassi, 2014, p. 55). Taking benefits from the already existing surveys research centers such as CIA World Factbook, the current Algerian mosaic ethnicities present five top minorities distributed in the Algerian map as follows: The Arabs who present the majority of the population, settled in almost all regions of the country, from East to West and from South to North. The Amazigh which encompasses the Kabyles who are situated in the Djurdjura, the Soumam Tizi Ouzou, Béjaia, Bouira, Boumerdes, but also part of the wilayas of Setif, and Bordj Bou Arriridj, in the highlands. The Chaouias who are located through the territories of the Aurès Nemamchas namely the wilayas of Batna, Tébessa, Khenchela, Oum El Bouaghi, Guelma, and Souk Ahras. The Beni M'zab who trace their presence in the M'zab Valley, the Ouarglis who live in Ouargla. Last and not least, the Tuareg group which is divided into Algerian Tuareg who spread over the territory of southern Algeria, and who enjoy high social status whereas those who migrate from the extended Sahelian regions, creating Sahelian Tuareg ethnicity in Algeria (Khaldi & Abassi, 2014, p. 60). The latter despite the vast land they acquired, in their home countries, the minority in question, fled an extreme social prejudice seeking for better chances in Algerian lands.

It is worth stating that these ethnic locations do never grant equal access to living resources which is one of the Sahelian most severe problems. The misdistribution of wealth, across their geographical spread, disadvantaged Sahelian

Tuareg in the first place (Claudot-Hawad., 2016, p. 79) putting them in the least of each of the above affiliations in terms of all life needs recourses under the concept of structural discrimination (Farmer, 1996, p. 281). Additionally, in Algeria, there is no city and/or village where the notion of fiefdoms exists, meaning that, the mixing is total, and the whole population, can coexist, live, and work together (Khaldi & Abassi, 2014). As such, this minority finds a place within Algerian society.

Actually, Tuareg massive exodus from far Sahara to Algerian wilayas like, Ghardaia town, is a common place. Yet, the eventual transit does not offer as much as expected because Tuareg who live in Ghardaia have been inclined toward urban and far remotes where access to adequate life has been made nearly impossible (Boukhari & Akchich, 2017). Consequently, there is a general consensus among minority experts that the geographical distribution of Sahelian Tuareg in other Algerian towns like Ghardaia region reflects their illegal status which exacerbate their socio-economic status, that may equally undermine their health conditions in comparison to Algerian Tuareg minority.

1.2. Healthcare Status of Sahelian Touareg Women Minority

Even though the constitution of the World and Health Organization (WHO) claimed that health provision is one of the standard principles of human right all over the world without distinction of race, religion, political belief, economic or social condition (Adler, 1994, p. 19), health attribution seems to be guided by other social norms where certain groups of society enjoy privileges over others. Tuareg minority from Sahel to Algeria are considered to be the least advantageous group in terms of health status. "Health and poverty initiatives at national level neglect nomadic populations because of their geographic isolation/remoteness, poor communications, logistic requirements, uncertain civil status and their perceived low priority" (Zinsstag, Ouled Talbe , & Craig, 2006, p. 567), Yet, one of the governmental interventions to the issue was a mobile pastoralist healthcare intervention (k., January 2012). However, this healthcare plan could not meet with all forces influencing this minority (Montavon, et al., 2013, p. 1014). For example, the intervention faces the fact that Tuareg pastoralists are at a higher risk for zoonotic diseases due to their close contact with their livestock, nor could they fix the problem of remote where health centers are so far as such intervention comes at late stages of illness, with the result that many cases stayed untreated (ibid.).

In addition, when it comes to accounting for these health disparities, ethnic aspect alone has been recognized to not attenuate all these disparities as pastoralists, especially pastoralist women, have poor access to health services (Zinsstag, Ouled Talbe , & Craig, 2006, p. 566), taking into consideration the existence of a female proportion within the Sahelian Tuareg communities.

Tuareg females are more in need to emergency transportation as it is considered another driving force to maternal death and premature birth (Claudot-Hawad., 2016, p. 75). Recently, despite the massive spends, the Algerian state puts in its both health services provided, public and private ones, (Ali, 2016, p. 49), the sector is still working to reach the required level where it remains vulnerable to various inadequacies. The unequal geographical distribution of physicians is a common place as researchers report the prolific concentration of physicians in

urban and affluent areas (Zehnati, 2021, p. 987), putting rural remote into a so called "medical deserts" where under-medicalization is evident (Ali, 2016, p. 50).

1.3. Syndemic

At the terminological level, the term syndemic in sociology derives from Latin language divided into "Syn" which means working together and "Demo" that referred to the word epidemic (Merill, 2009, p. 90). However, Singer and Scott, in their article entitled "syndemics and Public Health: Re-conceptualizing Disease in Bio-Social Context", define the theory as follows "The term has been introduced recently by medical anthropologists to label the synergistic interaction of two or more coexistent diseases and resultant excess burden of disease" (p. 423). So, syndemic means an interaction of at least two diseases with a given adverse social condition such as gender-based violence, social isolation structural discrimination, racism or poverty. These situations accrue the burdensome of diseases' biological interactions (Merill, 2009, p. 96).

The theory of syndemics has been drawn on in many studies interpreting the existence of pandemics among several populations. Merill Singer played a pioneering role in illustrating the relationship between Substance use, Violence, gang activity, and Aids among low-income Puerto Ricans in the US. The model consequently was called SAVA syndemic which clarified that inner-city Aids epidemic was inseparably linked with a social context dominated by poverty, low rate of education, and unemployment and concurrent alcohol and drug addiction. These social adversities fueled youth Puerto Rican to participate in gang activities, drug use, violence that expose them to unprotected sex and risk factors for HIV/AIDS.

The list of acronyms has expanded into: SUMIC (Substance Use, Mental Illness, and familial Conflict non-negotiation) (Robinson et al., 2016), VIDDA (Violence, Immigration and associated isolation, Depression, type 2 Diabetes, and Abuse) (Mendenhall, 2012), (Adeniyi, 2017), and, lately, PHAMILIS (Physical Health problems, Abuse, Mental Illness, Loss, Instability, and Substance use) (Marcus, 2017, p. 107).

As such, diabetes has been chosen amongst other epidemics due to its concentration among Sahelian Tuareg women who live in Ghardaia, in order to move the work from generality to particularity. At this point, the importance of syndemics approach manifests in interpreting the concentration of pandemics (diabetes) within Sahelian Tuareg women (impoverished minority) as it sets out the interrelation between adverse social, structural as well as personal factors giving a coherent understanding on the prevalence of diabetes. As Singer defines "a syndemic has been theorized as a cluster of epidemics driven by harmful social and structural conditions" (Merill, 2009, p. 32)

2. METHODOLOGY

The present study adopts a mixed-methods approach and triangulation to deepen the investigation measures. Combining different methods and sources in collecting and analysing data provides broader perspectives about the phenomenon under investigation, enriches and confirms the study findings, and promotes the

research validity and reliability (Georgr, 2021, n.p.). This approach uses different instruments to collect data with different people to serve the same research work in order to compare the results obtained. A semi-structured questionnaire was administered to thirty poor Sahelian Tuareg women living in Ghardaia, and a semi-structured interview was conducted also with them.

The research seeks to address the following research questions:

1. How does structural discrimination form health inequality?
2. Does this type reflect health inequity against Sahelian Tuareg women who transit to Ghardaia town?
3. How can the effect of life discriminatory stresses be measured?

Is there any association between adverse social conditions, experienced within their home countries, and diabetes among Sahelian Tuareg women living in Ghardaia town through syndemics theory's perception?

2. 1. Participants

Thirty Sahelian Tuareg women who live in Ghardaia town, and who are diabetes patients at doctor Khirennas private clinic. The rationale behind choosing these women, in this study, lies in their unification profiles. In other words, they all fled discrimination from their home countries, have diabetes, living in poor conditions, living in far neighboring, and have diagnosed with chronic mental and physical health problems at the Ghardaia's largest public hospital Tirichine. In doing so, the study has been given a foreseen step in gathering a suitable sample to apply the principles of syndemics theory.

2.2. Data Collection

The process of collecting data is the first phase of the work. It allows to collect information from the participants of the study in order to be illustrated, compared and evaluated. The data was gathered from participants, using different materials, questionnaire and interviews.

2.2.1. Interviews

Semi-structured interviews (Appendix B) were conducted with Sahelian Tuareg women who live in different parts of Ghardaia city centre, most of their content would be treated qualitatively. These interviews were designed to get in-depth different sources of stresses gathered from the whole discriminatory life events which basically might be related with diabetes prevalence amongst them. In turns, exacerbate their health status. With this, on one hand, the work can grant pathway in order to come out with a suggested solution to Algerian Health Ministry in generating powerful predictions for program implementation and clinical intervention helping Sahelians Tuareg minority to plan for adequate healthcare.

The present researcher developed a list of semi-structured open-ended questions. The main concern of the researcher was to collect stresses from interviewees' narratives, in form of records. The latter stands as database from which the present researcher extracts major stressful themes that have been hypothesized as leading forces to diabetes affliction. Stressful themes are divided

into two categories: interpersonal and structural. The first category refers to stressful events resulting from interpersonal discrimination, such as interpersonal assaulting, work place abuse, neighbouring abuse. On the other hand, the second category refers to the structural stressful events resulted, for instance, from poverty, financial shortages, social isolation, severe health stress and unsecured neighbourhood.

2.2.2. Questionnaire

Semi-structured questionnaires (Appendix A) were administered to Sahelian Tuareg women and they were analysed mostly quantitatively. While interviews serve the researcher to collect the needed social stresses. The questionnaires approached the biological aspects of these women. After consulting both psychologists and endocrinologists as well as administering previous studies seeking the same purpose mainly the work of Mendenhall (2012). The work arrives at selecting the ultimate questions in order to arrive at a sample that would best serve the purpose and objectives of the study.

The questionnaire contained three sections: demographic and anthropometric, psycho-analytic, and endocrinological.

The Demographic and anthropometric contains subthemes including: Sahelian Tuareg women' personal and anthropometrics information – their age, weight (body mass), material status, education level, employment and place of residency, and acculturation performance, including the Arabic language use, ethnic interaction, and dress preferences.

The psycho-analytic part makes up of the psychological status of these women – their post-traumatic stress disorder that contains: suffering from one of the six PTSD symptoms over the past month, having repeated disturbing memories and dreams, feeling as though the stressful event were happening again, feeling upset and having physical reactions to events that remind of the past; having trouble sleeping and remembering events, feeling distant from family and friends; depression, including: suffering from one of the four depression symptoms over the past week, depressed mood, changes in appetite and sleep, low energy, and loneliness.

The endocrinological section seeks the followings – diabetes severity, suffering from one of eight diabetes symptoms in the past six weeks, pins and needles in both feet, hypoglycaemia (including sweating, weakness, anxiety, trembling, hunger, or headache), sight problems, kidney problems, diabetes distress; feeling that diabetes is taking up too much of my mental and physical energy, Feeling scared living with diabetes, feeling diabetes controls my life, feeling I will end up with serious long term complications.

3. RESULTS AND DISCUSSION

This section presents the findings of the empirical investigation including the data gathered from the questionnaire and the interviews delivered to the interviews.

3. 1. Interviews

The participants were asked to mention the most stressful events happened in their lives which they think are the reasons behind having diabetes affliction. All of them said that their lives were full of discriminatory stressful events as they started randomly mentioning some stresses to conceptualise their diabetes. Yet, once the present researcher categorized the possible stressful themes, their answers seemed more coherent especially that they were required to put them into narratives. The main results of the interviews are summarized in the table below:

Table 1. *Interviews Main Results*

Stressful themes narrated	Frequency	percentage
Transition' stress	7	25%
Social isolation/labelling stress	5	17%
Financial stress	6	20%
Neighbourhood violence stress	4	8%
Health stress	3	11%
Loss of family stress	2	8%
Work stress	2	8%
Interpersonal abuse stress: physical and emotional	1	3%

As the call of syndemic theory implies, the first category transition' stress, which represents the highest category with 25%, as well as the second-ranked category; financial stress with 20% should be understood under the umbrella of economic switch from socialization to privatization. Although, in Algeria, the transit to liberalized market has moved smoothly, in most Sahelian countries, the economic switch deprived the employment ladders from skilled and handmade jobs replacing them with wage earning sectors. As Hamouchene explained, "This process of liberalization and transition to the market economy was accompanied by the destruction of the theoretical and practical know-how, resulting from the liquidation of institutes specialized in strategic sectors such as energy, steel, and textile industries" (2013, n. p.)

Sahelian Tuareg minority who are pastoralists used to work in skilled jobs with raw materials usually taken from their livestock. "The Tuareg had excellent artisans who worked metal, wood, and leather, making and maintaining domestic and pastoral goods, as well as weapons and jewelry" (Bernus, 1990, p. 156). Now, they had to live elsewhere in different countries and cities for wage earning jobs. In Ghardaia city for example, the unskilled low-income jobs such as, cleaning, farming and constructing are usually remained either to illegal immigrants from Mali and Niger. Yet, Sahelian Tuareg females are usually found in smaller textile factories and restaurants usually as cleaners, waiters, cook assistants, of course, the distribution will be guided accordingly with the rate of acculturation they can show along their services. All of which may increase the possibility of work place insults and labeling which may be so stressful for 8% of the interlocutors. Though the

percentage demonstrated as low in comparison to others, it might be interpreted as the low percentage of Sahelian Tuareg women participation in public workforce, their participation might not last for long, or they might work as home maids where the statistics cannot reach them.

The aftermath of this transit is the leading force to the third powerful theme in this interview which is the social isolation that showed up as a third-ranked category of stress severity in about 17%. Sahelian Tuareg who used to live within the most protective kinship system, full of proud and sense of belonging (Bleeker, 1964, p. 63), they are now pushed to live in social isolation. Also, the latter might be understood through the concept of residential alienation. Tuareg who live in Ghardaia are concentrated in Bouhraoua, Noumerate and Atef which are ones of Ghardaia city center locations where large under constructed far remote mountain areas are inhabited by Sahelian Tuareg. This remoteness is more likely to be unsafe as such Neighborhood violence stress counted for 8%. This type of stress is usually described in form of gang and stealing stories that mentioned in the lives of the interviewees.

Health stress category represents 11% among interlocutors. During interview sessions, the present researcher has realized that diabetes management showed to be in itself a stressful event, along with other diseases these women had to manage. In addition, health stress should be understood via the invisible hand of structural discrimination that mis-distributed health facilities between north and south of Sahara in general and the inequality of healthcare facilities within rural remotes where Sahelian Tuareg live in particular. Also, via the uncovered costs that these women had to pay once headed to private clinics.

Equally important, the loss of family stress exhibited with 8%, Sahelian Tuareg women who mentioned this theme as the most severe one due to the deep wound it left in their souls. However, in many cases the loss of a family member would strongly correlate with health stress because interviewees mentioned that they lost those beloved ones since they had severe health problems ranging from diabetes, kidney problems to cancer.

Though Sahelian Tuareg social network has been broken in Ghardaia, interpersonal abuse has been reported by only 3% participants of this study. It can be that even the social break, Tuareg women still remained with that powerful position within their family. As Bleeker (1964) states, "Tuareg women are very much respected, they enjoy equality in the household with the men. The head of a household consults with his wife on all important decisions. He trades the camels and livestock only after talking to her" (p. 42). In all, the results of the investigation displayed the first principle of syndemic theory which insists on the structural and social elements as strong mediators to disease interactions.

3. 2. Questionnaire

Having captured the structural and socioeconomic elements that operate as major functionals in escalating stresses among Sahelian Tuareg women who live in Ghardaia, the present researcher administered a semi-structured questionnaire in order to meet the second principle of syndemics. The latter is the clue through

which those narrative stressors will move from their social interpretations to the biological interactions. As Singer (2013) claims that "dynamic relationship involving two or more epidemic diseases or other disorders and the socioenvironmental context that promotes their interaction" (p. 29). Therefore, the questionnaire has focused a great deal on post-traumatic stress disorder (the first diseases) and depression (the second epidemic) as two disorders which interact (promote) in exacerbating diabetes prevalence among Sahelian Tuareg women. Thus, grasping the burdensome of these diseases, from macro (structural factors) to micro (biological) levels, is the core of syndemics theory.

In this study, the whole participants are female representing 100% of gender affiliation, whose ages ranged between 30 and 63 years old as a majority. The body mass is generally overweight 57%, the percentage of married represents more than 63% while 10% are widowed. Yet, 17% are single. The education level among the participants in this study varied between 67% as illiterate and 23% with associated degree as the largest shares, while 3% and 7% go to less than higher school and less than middle school respectively. The overworking status represents 40% of employment status among Sahelian Tuareg women. However, the strongest percentage goes to unemployed status with 47%. They all distributed in the three remoted locations with the following percentages: Numerate 40%, Atef 17% and Bouhraoua 43%.

Table 1. *Sahelian Tuareg women' Demographic and Anthropometric Information*

Participants	*n*	%
Gender		
Female	30	100%
Age		
18-29 years old	3	10%
30-49 years old	17	57%
50-63 years old	10	33%
Weight (body mass)		
Medium weight 56-70 kg	13	43%
Overweight 79-100 and over kg	17	57%
Marital status		
Single	5	17%
Married	19	63%
Divorced	3	10%
Widows	3	10%

Educational level		
Less than high school	1	3%
Less than middle school	2	7%
Associated degree	7	23%
Illiterate	20	67%
Employment		
1-39 working hours week	4	13%
1-42 working hours per week	12	40%
Unemployed	14	47%
Place of residency		
Atef remotes	5	17%
Numerate remotes	12	40%
Bouhraoua remotes	13	43%

When asked about their acculturation level concerning Arabic language use, ethnic interaction – whether they make visit and/or celebrate with other ethnic groups living in the same town, dressing *Tisighnest* (female dress in Tuareg society). The majority of the respondents seemed to fail acquire Arabic or at least a dialect by which Ghardaia people communicate 10% to never 60%. In what concerns ethnic interaction, 50% of them said they had never visited non-Tuareg speaking women, 18% said they had always celebrated with non-Tuareg speaking women. Yet, the greatest share of participants 95 % showed their attachment to their cultural belonging through wearing *Tisighnest*.

Table 2. *Sahelian Tuareg Women' Acculturation Level*

Acculturation practices		Always	Rarely	Never
Arabic language/dialect use		10%	30%	60%
Ethnic interactions				
	Visiting non-Tuareg women	15%	35%	50%
	Celebrating with non-Tuareg speaking women	18%	25%	57%
Dressing *Tiseghnest*		95%	5%	0%

Participants were questioned then, to count up the frequency of the post-traumatic stress disorder symptoms over the past month and to rate each along a 5-point scale from 0-1 (rarely or never) to 5 (most or all of the time) – having repeated disturbing memories and dreams, feeling as though the stressful event were happening again, feeling upset and having physical reactions to events that remind of the past, having trouble sleeping and remembering events, and feeling distant from family and friends. The extreme 5-point scale points are gathered as follows: 40% considered as the highest one where women mentioned both having repeated disturbing memories and dreams, and feeling distance from family and friends, all the time. Feeling that stressful events happening again considered the second referred to as 34%, and 33% went for feeling upset, while 32% for having trouble sleeping as frequent symptoms.

Table 3. *The Frequency of Post-Traumatic Stress Disorder symptoms/month*

PTSD	0 to 1	2	3	4	5
Repeated disturbing memories/ dreams	7%	9%	16%	28%	40%
Feeling stressful events happening again	17%	13%	16%	20%	34%
Feeling upset	2%	9%	18%	38%	33%
Having physical reaction to past events	4%	11%	15%	34%	36%
Having trouble sleeping	19%	5%	24%	20%	32%
Feeling distance from family and friends	2%	5%	25%	28%	40%

Depression was administered by measuring the frequency of the following symptoms including: depressed mood, changes in appetite and sleep, low energy, and loneliness. Respondents were asked to consider the presence of each item/symptom over the past week and to rate each along a 5-point scale from 0-1 (rarely or never) to 5 (most or all of the time) – having depressed mood, changes in appetite and moods, low energy, and loneliness. 46% of women had depressed mood all time, the second extreme category ranked changes in appetite and moods with 38%. The remained categories, according to their positions, went to low energy and loneliness rating as extremely mentioned by 32% and 30% of participants respectively.

Table 4. *The Frequency of Depression symptoms/week*

Depression	0 - 1	2	3	4	5
Depressed mood	5%	5%	20%	24%	46%

Changes in appetite & moods	8%	16%	18%	20%	38%
Low energy	10%	18%	20%	20%	32%
Loneliness	2%	13%	25%	30%	30%

When the present researcher inquired about the frequency of the following diabetes symptoms over the last six weeks and to rate each along a 5-point scale from 0-1 (rarely or never) to 5 (most or all of the time): pins and needles in both feet, hypoglycemia (including sweating, weakness, anxiety, trembling, hunger, or headache), sight problems, kidney problems. The results were the followings: the highest frequent symptoms in this study rates for all time, went to sight problems with 48%, hunger 41% to foot pins in about 40%. For other hypoglycemia symptoms in general, they showed up depending on their extreme frequency ranged from sweating 34%, weakness 33%, anxiety 36%, and 39 % for both trembling and headache. However, the second sever diabetes problem (kidney problem) that interlocutors in this study were polled about, marked by significant percentage demonstrated in the table below with 33%.

Table 5. *The Frequency of Diabetes symptoms/6 weeks*

Diabetes severity	0-1	2	3	4	5
Foot Pins	14%	10%	13%	23%	40%
Sweating	17%	13%	16%	20%	34%
Weakness	2%	9%	18%	38%	33%
Anxiety	4%	11%	15%	34%	36%
Trembling	19%	5%	13%	24%	39%
Hunger	2%	7%	20%	30%	41%
Headache	8%	9%	16%	28%	39%
Sight problems	9%	10%	13%	20%	48%
Kidney problems	9%	14%	16%	28%	33%

During the interview sessions, it has been noticed that diabetes in itself stands as a stressful event. Thus, interlocutors were polled to rate the stressful aspects in dealing with diabetes. 60% of Tuareg women in this study said that they scared living with diabetes, and that feeling that diabetes taking too much from their energy was given another striking majority representing 49%. An approximate percentage; 42% was declared when questioned whether diabetes controls their lives. However, 62% of interviewees feel, all time, that they will end up with serious long-term complications

Table 6. *Sahelian Tuareg Women's Diabetes Distress*

Diabetes distress	A*	B*	C*
Diabetes taking too much from your energy	20%	31%	49%
Scared living with diabetes	17%	23%	60%
Feeling that diabetes controls my life	20%	38%	42%
Feeling that I will end up with serious long-term complications	10%	28%	62%

A*: Not at all B*: Occasionally C*: All the time

In all, the results of the investigation indicated that the existing social stresses functioned in exacerbating diabetes prevalence among Sahelian Tuareg women. Analysing the psych-analytical side among interviewees, in this study, revealed that the mentioned social stresses created an imbalance in memories stabilization, sleeping disturbance, and having physical reaction to past events which are all symptoms of PTSD. The latter, in turns, enhanced the possibility of developing depression within the same women. It was observable that the majority of the interlocutors had depression mood, changes in their appetite and feeling fatigue, as a consequence of depression. The results insisted on the causational relationship between post-traumatic stress and depression that both exacerbate the prevalence of diabetes among Sahelian Tuareg women. Though diabetes was expected to be the ultimate results of interaction between post-traumatic stress disorder and depression, the present researcher noticed that the opposite situation is also true. Interviewees showed up high percentages of stress when they think of living with diabetes, feel that diabetes controls their lives, and when they predict their lives ending up with serious long-term complications.

CONCLUSION

This study attempted to examine the adverse health position that many Sahelian Tuareg women minority live, especially those who live in Ghardaia town, the place where the present researcher situates. Although the greater supports the Algerian government granted to different African and Maghreb marginalized ethnic groups, this research initiated in order to meet a suggested solution to Algerian Health Ministry in generating powerful program and adequate clinical intervention helping Sahelian Tuareg minority to equal adequate health status as their Algerian Tuareg counterparts. The findings of the study revealed that under the concept of structural discrimination, the current structural as well as medical factors exacerbate the prevalence of diabetes affliction among the minority under study. To illustrate, the misdistribution of wealth between north and south necessitate Sahelian Tuareg minority to migrate from far Sahara to look for better economic conditions in Algerian Wilayas like; Ghardaia town. The transit fuels forms of discrimination as the displacement escalates interpersonal discrimination

against Sahelian Tuareg women who by fair means or foul will keep attached to their cultural features: language, beliefs and appearance.

Within the eventual milieu, the circle of structural factor in which an enchained conventionnel rules and regulations tied the status of Sahelian Tuareg minority to certain kinds of occupation that offer inadequate income which in turns limited both healthful nutrition and health access. Also, as occupation, income and education are much enchained construct, they distribute their disadvantaged outcomes in linear pathway i.e., Sahelian Tuareg women who live in adverse localities where there is a limited education, are the ones will be limited to access adequate occupation and ultimately to unhealthy status. Simultaneously, these adverse localities are generally shaped with unsafe neighborhood and poor health care access.

Analyzing the subject of health inequality via the perception of syndemic theory helped the present researcher gains in-depth insights into the Sahelian Tuareg women health's requirements and necessities. It is necessary to relate these structural deficiencies with health status not only through health access but in terms of how these social adversities can be met under the skin of individuals. As such, stressful narrative themes permit such connection, and funnel these social events in terms of social stresses. In biomedical side, post-traumatic stress disorder and depression are approved to be melt with diabetes incidences. Ultimately, the association of life discriminatory experiences and Sahelian Tuareg women's diabetes afflictions is approved through the lens of syndemics theory.

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