



DOSHA STATUS DISTRIBUTION OF THYROPRO39 SCALE DERIVED DATA FOR QUALITY OF LIFE IN HYPOTHYROIDISM PATIENTS - A CROSS-SECTIONAL STUDY

ANAND P.K.V. ^{*1}, VAISHALI DESHPANDE²

¹*PhD scholar, ²PhD guide & Professor, Department of Kayachikitsa, Parul Institute of Ayurveda and Research, Parul University, Vadodara, Gujarat-391760

Corresponding Author Email: pkvanand@gmail.com Access this article online: <https://jahm.co.in>

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ABSTRACT:

Background: Thyropro39 scale is widely used to assess quality of life in hypothyroid patients treated with Ayurvedic system of medicine. *Dosha* assessment is fundamental to *Ayurveda* at all stages of treatment. Methods: Research is conducted to detect the distribution of *Dosha* oriented features in a QoL study using Thyropro39 scale. This hospital based cross sectional study was conducted in Kerala between June 2021 to June 2022, where 47 (50%) of 94 patients recruited were on regular Levothyroxine supplement. The participants were interviewed and the distribution of features collected in various domains of Thyropro39 was analysed for *Dosha* related features. **Results:** The results showed predominantly the features of *Vata Dosha* in both intensity and distribution, while the features of both *Pitta* and *Kapha Doshas* were not noticeable with the Thyropro39 scale. Domain of symptoms, related to functions of different units of *Vata* like *Udana*, *Prana*, *Vyana* and *Samaana* and to the functions of *Pachaka*, *Alochaka* & *Bhrajaka Pitta* had affected 3.19% of the group, in quiet a bit intensity. The domains of tiredness (57.44%), nervousness & tension (61.69%), psychological well-being (57.45%), mood swings (59.59%) reported quiet and bit and very much intensity showing *Vata* aggravated status. The domains of vitality (37.23%), memory & concentration (66.44%), relationships (87.22%), daily activities (85.09%) reported not at all or some intensity, *Vata* showing its depleted status. **Conclusion:** The *Dosha* involvement derived out of quality of life assessment using Thyropro39 scale shows features of *Vata Dosha* in both intensity and distribution while features related to *Pitta* or *Kapha Doshas* regarding quality of life, were not focused or derivable by Thyropro39 scale.

Key words: Thyropro39, Hypothyroidism, *Dosha*, *Ayurveda*

INTRODUCTION:

The objective of life is to attain *Dharma*, *Artha* and *Sukha*. This is achieved only by healthy life. Those seeking a healthy life span, should be submissive to *Ayurveda* with highest respect. *Ayurveda* is thus defined as a means for attaining *Sukham*[1]. *Sukham* is defined as those which are experienced by all with agreeable feelings[2]. Assessment of this subjective feeling is difficult due to its varied nature of responses possible. Health is one of the basic determinants of the *Sukham*, its assessment becomes crucial to know efficacy of the health care provided. Since it is the final objective of health care, it has been a part of researches since many decades. An assessment of Quality of life is the commonest method used popularly in order to see the level of comfort and satisfaction the person and the society experiences. It has become a tool to match one's subjective experience of illness and the clinical care received for the same. It has also become an important assessment in those branches of medicine dealing with chronic suffering and disability. Hence quality of life tools becomes beneficial in assessing *Sukham* and to see how far *Ayurveda* was useful to those who followed it. Quality of life (QoL) is a concept that is spread over areas of physical, emotional and social well-being. The individual's degree of overall life satisfaction, influenced by his own views on certain important aspects of life, both related and unrelated to health status is the subject studied here. As the purpose of QoL study meets with objectives of *Ayurveda*, it becomes a useful way to find out the effectiveness of Ayurvedic care.

QoL means different things to different individuals, groups and cultures. The WHOQOL-BREF questionnaire looks into physical, psychological,

environmental and social relationships. Physical functioning, psychological status, social functioning, disease related symptoms and treatment related symptoms are considered to be the comprehensive components of QoL studies. In other words, these elements can be considered as basic measures useful for achievement of *Dharma*, *Artha* and *Sukha*. Thus, QoL studies can demonstrate the usefulness of *Ayurveda* to the society in achieving these three objectives of life.

Treatment of diseases is not the only intention of *Ayurveda*. Instead, it aims at a comprehensive guidance at all aspects of life. *Ayurveda* has a say in every domain of life which prominently includes physical, psychological, emotional, spiritual, social, financial and so on. It uses its own concepts and terminologies to discuss the subject. *Ayurveda* has set and optimum mark of health determined by a status of balance in the three *Doshas*, seven *dhatu*s, three *malas*, 13 *Agni*, *Atma*, *Indriya* and *Manas*. The resultant of maintaining the balance is a higher resource of *Ojas* in the body which is responsible for *Tushti* (happiness), *Pushti* (nourishment), and *Bala* (strength and immunity). *Ojus* is described as the final product of *Dhatu parinama* (metabolism) in the body. The most prevalent disease that affects the metabolism is Thyroid related diseases, especially hypothyroidism. It results in under activity of the thyroid gland and fails to produce T4 (Thyroxin) and T3 (Triiodothyronine) in sufficient quantities. These hormones have a catalyst role in oxidative metabolism and to maintain thermogenic and metabolic homeostasis. Estimates in India says that about 42 million people suffer from thyroid diseases. Hypothyroidism prevalence in India is 11% and the

highest prevalence is among people aged between 46-54[3].

There is no mention of the disease hypothyroidism in *Ayurveda* directly. The clinical management of hypothyroidism and various clinical studies in the subject are based on basic *Dosha* status assessment and mainly on the guidelines of management of under-functioning *Dhatwagni*, the disease *Galaganda* etc. Studies on better control of hormonal levels and good clinical management by symptomatic treatments, the quality of life assessments are also an important aspect that attracts researchers in this area. A healthy balance is always in compliance with the *Doshaprakruti* of the individual. The *Dosha* dominance right from one's birth determines most of his temperaments which reflects in every aspect of his life. Similarly, *Vikriti* or the illness affects all these temperaments negatively. Identifying the *Dosha* status in relation with every aspect of life is important in order to restore balance and to ensure *Sukham*. Hence the assessment tools of *Sukham* should also be able to recommend the *Dosha* status, with a view to correct the imbalance.

Various studies have reported the dominant *Doshas* and *Dhatu* level impairments from the clinical presentations of hypothyroidism. Many of studies show *Kapha* and *Vata Dosha* features as main manifestations. *Ayurveda*, describes the symptoms of hypothyroidism in terms of *TriDoshas* i.e. gastro intestinal symptoms i.e. weight gain (*Kapha Dosha*), constipation, anaemia (*Pitta Dosha*); Cardiorespiratory symptoms i.e. Bradycardia, hypertension (*Vata Dosha*), neuromuscular symptoms i.e. muscle/joint pain, memory impairment, depression, weakness in extremities, difficulty with concentration, myalgias and arthralgias, paraesthesia (*Vata Dosha*);

dermatological symptoms i.e. dry skin and hair, reduction in scalp, pubic and axillary hairs (*Vata-Kapha Dosha*); reproductive symptoms i.e. irregular menses and/or menorrhagia, sexual dysfunction, impaired fertility (*Vata – Pitta Dosha*); Ocular symptoms i.e. blurred vision (*Pitta Dosha*); Ear-nose-throat (ENT) symptoms i.e. hearing problems (*Vata Dosha*), feeling of fullness in throat (*Kapha Dosha*), hoarseness of voice (*Vata Dosha*); other general symptoms like fatigue, cold intolerance, sleepiness (*Kapha Dosha*)[4]. Among *Dhatu*s, *Rasa Dhatu* is affected in all subjects of Hypothyroidism with lesser ill effects in *Mamsa*, *Medas*, *Rakta*, *Asthi* and *Sukradhatu*s in subsequent order. When *Lakshanas* of hypothyroidism was correlated with 30 features listed for *Rasadhatu* dushti, 21 to 25 of them are seen in maximum number of hypothyroidism patients. The study also showed the predominance of *KaphaDosha* dushti associated with *Pitta* and *Vata* dushti. Both *VataKaphaja* and *KaphaVataja* along with or without *Pitta* association was observed. *VataKaphaja* predominance was identified with features of *Vataja Lakshanas* like *Angamarda*, *Roukshyatwa*, *Shwasa Kasa* along with mild *Kaphaja Lakshanas* like *Gourava*, *Agnimandya*, *Atinidra* was observed. *KaphaVataja* was identified with more of *Kaphaja* lakshanas and mild *Vataja* features[5].

In order to assess the effectiveness of Ayurvedic treatment for various clinical features and laboratory values structured questionnaires to derive *Dosha* related features are used. Usually they are created and tested for validity, considering the Ayurvedic aspects and also the Indian context. Quality of life scales are also used in various studies on hypothyroidism managed with *Ayurveda*. Unlike the clinical studies,

the QoL scales are not developed in relation to *Dosha* status influencing the individual's life.

Quality of life is measured using a self-reported questionnaire. It gives information about various domains that determine the quality of life. The healthy status and the happiness is dependent on the functionality of *Doshas*. Functioning in each of these domains are influenced by *Dosha* status. Hence the questionnaire should be able to provide a report on the functionality of *Doshas* involved. The changes in the domains determined in terms of *Dosha* imbalance, will be useful to identify the focus areas. An attempt to find out the effectiveness of the questionnaire to derive the *Dosha* status of the population under study is performed and presented as a research article.

MATERIALS AND METHODS:

Study design

This cross sectional, hospital based study was conducted in an outpatient unit of an Ayurvedic hospital at Thrissur, Kerala between June 2021 to June 2022. Signed written informed consent forms were collected from all the participants. Permission to use Thyropro39 for the study was sought from authors. Ethical approval from institutional committee was obtained and got the study registered (CTRI 2021/03/032428). Patients with the district, suffering from hypothyroidism were invited for the study and was initially selected by simple random sampling. Two trained medical officers interviewed the participants during the study period.

Settings

Thyropro 39[6] scale, developed by Torquil Watt is widely used for assessment of QoL in thyroid related clinical researches and to improve the efficacy of treatment in daily clinical practice. It is short questionnaire consisting of 39 items grouped in 11

scales which takes average 25 minutes to complete. The questions are searched for its relations with any *Dosha* manifestations with the help of textual descriptions. Each of the domains of the questionnaire is cross checked with the features related *Doshas* in order to identify its distribution in the data derived through Thyropro39, from the population under study.

Participants

After signing the informed consent, the participants were interviewed by the medical officers with a questionnaire that collected relevant clinical and laboratory details along with Thyropro39 scale. The 10th domain in Thyropro39 is about sex life, which is usually not revealed and considered very private in the community in Indian settings. Questions from this domain was included in the interview to avoid loss of cooperation from the participants.

Inclusion criteria followed was to include all known cases and newly determined cases of Hypothyroidism with or without levothyroxine supplementation, age group between 18 to 60 years and TSH levels between 4.5 IU/ml to 20 IU/ml. Pregnant ladies, body weight more than 90 kg, patients with post thyroidectomy status, ischemic heart disease, uncontrolled hypertension, myocardial infarction, cerebrovascular event, cardiac arrhythmias and active malignant diseases were excluded from the study.

Methods of assessment

The *Dosha & Dhatu* related features in the group in their first interview is considered for assessing distribution and prevalence. Both group of patients using thyroxine supplements and stabilised the dose for more than 3 months and those not using any medicine for hypothyroidism from any system of medicine for past 4 weeks are included in the study. The data derived out of Thyropro 39 questionnaire is

used for estimating the intensity of manifestation and its prevalence, which is then interpreted in terms of *Doshas* manifestations. The *Dosha & Dhātu* relation of questions of each of the 11 domains of Thyropro 39 are identified using relevant description of features in Ayurvedic classics.

Sample size and calculation

Normality assumption was tested using Shapiro-Wilk test and by plotting Histogram. Sample size was calculated based on the formula;

$$n = \frac{(r + 1)(Z_{1-\beta} + Z_{1-\alpha})^2 \sigma^2}{r((\mu_A - \mu_B) - d_{NI})^2}$$

Considering a 1:1 allocation ratio and expecting a power of 80% ($Z_{1-\beta} = 0.84$) and type I error fixed at 5% ($Z_{1-\alpha} = 1.96$) and variance of 13.3 and considering a mean difference of zero ($\mu_A = \mu_B$) and a non-inferiority margin of 2.1mIU/100 ml of TSH titre, the sample size is calculated to be 47 per group.

Statistical method

Normality for these continuous variables using the Shapiro-Wilk test was tested and found to be normally

distributed. Outcome of management of thyroid related clinical and laboratory features along with quality of life assessment were performed using a chi-squared test and student's t test where ever appropriate.

RESULTS AND OBSERVATIONS

A total number of 116 patients were screened for the study. Out of them 22 screening failures due to various reasons were excluded. Among 94 participants included in the study, 79 were females and 15 were males. There were 3 participants in between the age of 18 to 20, 19 participants in between the age of 20 to 30, 35 participants in between the age of 30 to 40, 22 participants in between the age 40 to 50 and 15 participants in between the age of 50 to 60. The average age of participants was 38. Out of 94 participants included 47 were taking Levothyroxine regularly and the remaining did not take any medicine for hypothyroidism in the past 4 weeks. The mean laboratory values and distribution of subjects based on dominant domains are as below;

Table 1 The mean laboratory values

	Mean	Std. Deviation
T3	106.46	21.39
T4	7.94	1.65
TSH	9.22	3.35
FBS	97.64	15.45
PPBS	132.48	13.11
Total Cholesterol	189.11	24.37
Serum Triglycerides	167.4	22.88
HDL Cholesterol	46.3	5.78

Table 2 Distribution of subjects based on dominant domains

	Domains	Avarage Intensity	No.of subjects	Percentage
1	Symptoms	0 -1	44	46.8
		1 - 2	47	50
		2 - 3	3	3.19
		3 - 4	0	0
2	Tiredness	0 -1	29	30.85
		1 - 2	11	11.70
		2 - 3	34	36.17
		3 - 4	20	21.27
3	Vitality	0 -1	35	37.23
		1 - 2	37	39.36
		2 - 3	16	17.02
		3 - 4	6	6.38
4	Memory & Concentration	0 -1	32	34.04
		1 - 2	22	23.40
		2 - 3	29	30.85
		3 - 4	11	11.7
5	nervousness and tension	0 -1	15	15.94
		1 - 2	21	22.34
		2 - 3	35	37.23
		3 - 4	23	24.46
6	psychological well being	0 -1	13	13.82
		1 - 2	27	28.72
		2 - 3	41	43.61
		3 - 4	13	13.84
7	difficulty coping or having mood swings	0 -1	14	14.89
		1 - 2	24	25.53
		2 - 3	46	48.93
		3 - 4	10	10.63
8	relationship with other people	0 -1	57	60.63
		1 - 2	25	26.59
		2 - 3	10	10.63
		3 - 4	2	2.12
9	daily activities	0 -1	49	52.12
		1 - 2	31	32.97

		2 – 3	12	12.76
		3 – 4	2	2.12
10	Thyroid diseases (or their treatment) may affect your appearance	0 -1	58	61.70
		1 – 2	23	24.46
		2 – 3	11	11.70
		3 – 4	2	2.12
11	Thyroid diseases (or their treatment) may affect your appearance	0 -1	72	76.59
		1 – 2	14	14.89
		2 – 3	7	7.44
		3 – 4	1	1.06
12	What extent your thyroid disease has affected you overall	0 -1	44	46.8
		1 – 2	16	17.02
		2 – 3	24	25.53
		3 – 4	10	10.63

DISCUSSION:

Hypothyroidism is a common condition with various causes like Autoimmune, Iatrogenic, Transient Thyroiditis, Iodine Deficiency, Stressful life style, Congenital or Infiltrative secondary Hypothyroidism. The clinical presentation depends on the duration and severity of the Hypothyroidism. A state of Hypothyroidism may be due to primary disease of the Thyroid gland itself or lack of Pituitary TSH [Thyroid Stimulating Hormone] or Hypothalamic TRH [Thyrotropine Releasing Hormone].

Iodine deficiency causing hypothyroidism is essentially shows the reduced nutrient function of *rasadhātu*. An essential nutrient like iodine is not sufficiently available at the site and the thyroid secretions are not supplied all over the body due to insufficient production. This leads to *Dhatukshaya* in subsequent dhatus triggering *Vatakopam* in those *Dhatus*. Due to reduced metabolic rate and overall physical activities *Vatakshaya* happens along with *kaphasanchayam* happening due to the lack of conversion at *rasadhātu*.

The clinical presentation is usually as an insidious onset. The demarcation of appearance of symptoms are not usually noticeable. This kind of presentation is seen in *vatavyadhi* where *avyakta poorvaroopas* does not warn about the impending illness. Both iodine deficiency and post thyroiditis damage to the thyroid glands obviously triggers a *vatavikaram* which might be the reason for the incognito presentation of *poorvaroopas*.

The clinical manifestations are mostly *Kaphadosha* and some are *Vatadosha* oriented. The pathophysiology points to reduced basal metabolic rate, which is *agnimandya* at *dhatwagni* level. Since *pitta and agni* are interrelated, *agnikshaya* denotes deficiencies in the *pitta dosha*. Thus the disease presentation of hypothyroidism is usually as *pittakshaya, vata samam and kapha vridham*.

The *Samprapthi* of the disease can be explained considering various components involved in its generation and its course as given in the table below.

Table 3 Predominant Samprapthi Ghatakas

<i>Dosha</i>	<i>Vata & Kapha</i>
<i>Dooshyam</i>	<i>Rasa dhatu & Medo dhatu</i>
<i>Agni</i>	<i>Rasa dhatwagni</i>
<i>Amam</i>	<i>Rasa dhatwagni gata & Medo dhatwagni gata</i>
<i>Srotas</i>	<i>Rasavahi & Medovahi</i>
<i>Srotodushti prakaram</i>	<i>Sangam</i>
<i>Udbhavastanam</i>	<i>Amasayam</i>
<i>Prasaram</i>	<i>Rasaynis</i>
<i>Vyakti stanam</i>	<i>Sarva sariram</i>
<i>Adhishtanam</i>	<i>Sarva sariram</i>
<i>Rogamargam</i>	<i>Bahya rogamargam</i>

Table 4 Dosha prevalence at the stage of Vyakti

Common clinical features of Hypothyroidism	<i>Dosha vikruthi</i>		<i>Dhatu vikruthi</i>	<i>Related samprapthi</i>	
<ul style="list-style-type: none"> • Edema • Dry and coarse skin • Breathlessness • Constipation • Weakness • Lethargy • Fatigue • Muscle ache • Menstual issues • Hair fall • Hoarseness of voice • Cold intolerance 	<i>Vata vridhi</i>	<i>Ushna kamitha</i>		<p>1) <i>Ashta ninditawa (Sthoulyam) - Sleshma in medas presenting Sthoulyam</i></p> <p>2) <i>Pandu – Sleshma in Rakta presenting Pandu related features</i></p> <p>3) <i>Galagandam – (Sleshma in Mamsa at Kandha presenting Galaganda)</i></p>	
		<i>Mala sanga</i>			
		<i>Soka</i>			
	<i>Vata kshaya</i>	<i>Alpavak cheshtata</i>			
		<i>Apraharsha</i>			
		<i>Sthambha</i>			
		<i>Angasada</i>			
	<i>Pitta kshaya</i>	<i>Saithya</i>			<i>Rasa vridhi</i>
		<i>Avipaka</i>			<i>Rakta kshayam</i>
		<i>Anga parushya</i>			<i>Mamsa vridhi</i>
		<i>Gourava</i>			<i>Medo vridhi</i>
	<i>Kapha vridhi</i>	<i>Sthoulyam</i>			<i>Asthi kshaym</i>
		<i>Alasyam</i>			<i>Majja kshayam</i>
		<i>Gourava</i>			<i>Sukra kshayam</i>
		<i>Angasada</i>			<i>Oja kshayam</i>
<i>Srothorodha</i>					
<i>Tandra</i>					
<i>Nidra</i>					
<i>Agnisada</i>					
<i>Saithya</i>					

The complaints and complications of the disease hypothyroidism can be discussed in relation to a number of ayurvedic classification of diseases, such as *galagandam, pandu, kshayam, agnimandiyam* etc. Treatment principles such different diseases mentioned in Ayurvedic texts are used while treating the patient with hypothyroidism as it does not fall fully into a textually mentioned *Samprapti*.

The first domain is about symptoms related to hypothyroidism. Various symptoms related to hypothyroidism was quite a bit for 3.19% and very much for 0 subjects. The remaining reported either not at all/a little/some. The questions in here are related to impairment of functions of different units of *Vata* like *Udana, Prana, Vyana and Samaana*. Some enquiries are related to functions of *Pachaka, Alochaka & Bhrajaka Pitta*. This shows the disease related symptoms regarding quality of life does not show much loss of *Dosha* related functions in the groups.

The second domain is about tiredness translated as *Srama* or fatigue. This is a resultant of exertion or *Ayasa* found associated with *mamsagataVatakopa, Rasavahi srothovikaras* like *Jwara, Pandu* and in depletion of *Rasa, Medas and Asthi Dhatu*. Exhaustion without exertion is *Klama* which is found in *Kaphakopa, Pittavrita Udanavayukopa, Pittavrutha vyanavayukopa, Vyanavrutha pranavayukopa* and mentioned in diseases of *Rasa & Rakta srothas*. Difficulty in getting motivated is lack of initiation is also a feature of *Rasavaha srothas* involvement and depleted *Ojus*. Intensity of tiredness was quite a bit for 36.17% and very much for 21.27% subjects. The remaining reported either not at all/a little/some. This shows the gravity of *rasadushti and Vatakopa* is of varied intensity in the group.

The domain of vitality deals with active life, being energetic (*Utsaha*) and fulfilling needs and wants (*Abhipreta Arthasaadhana*). 37.23% and 39.36% reported either not at all/a little/some while the remaining 23.4% reported quite a bit and very much. This shows the reduction in the functions of *VataDosha* which is responsible for *Utsaha* and reduction the functions of *Sadhaka Pitta* which does the function of *Abhipreta Arthasaadhanam*.

The domain of Memory & concentration is dealing with loss of memory (*smriti nasa*), loss of concentration (loss of orientation), speaking with uncertain words (*sandigdha vak*), confusion (*Vaichitya*), learning new things (*Abhipreta Artha sadhanam*) and concentration (*dhyanam*). This shows reduction in the functions of *Udana vayu* and *Sadhaka Pitta* and the involvement in *Rasavahi srothas*. 33.04% and 23.4% reported either not at all/a little/some while the remaining 42.55% reported quite a bit and very much.

The questions about nervousness and tension is about loss of mental strength (*Durmana*), anxiety (*outsukyam*), being afraid (*Bibheti, Bhayam*), becoming hypochondriac and being restless (*Arati*). These are mainly *Vatakopa* features described in various contexts like *Ojakshayam, vatika* and *paittika hridrogam* etc., and with involvement of *Rasa and Raktavahi srothas*. 15.94% and 22.34% reported either not at all/a little/some while the remaining 61.99% reported quite a bit and very much.

The 6th domain is about psychological wellbeing. Sorrowing disposition (*Soka*), depression (*vishada*), lack of zeal (*kshamata*), emotional lability and loss of mental strength (*alpasatwa, durmana*), unhappy disposition (*dukhaseelata*), level of confidence (*Dhriti*) and happiness are being noted here. These are

functions mainly related to *VataDosh*, *pranavahi*, *rasavahi*, *manovahi srothas* and an important feature of *Ojakshayam*. 13.82% and 27.72% reported either not at all/a little/some while the remaining 57.45% reported quite a bit and very much.

The 7th domain is about managing mood swings. Various kinds of expressions like feeling not like yourself, feeling irritable, feeling not in control etc. are used to elicit the features related mainly to *VataDosh*. All of them focus on either desire and aversion frequently or being unhappy about attention by others. They appear as a feature in *Rasavahi srothovikaras* like *Jwara* or *Mamsavahi srothovikara* like *arsas* respectively. 14.89% and 25.53% reported either not at all/a little/some while the remaining 59.53% reported quite a bit and very much.

The 8th domain is about relationship with other people. Intolerance or difficulty to face (*Asahishnutwam*), unhappy about attention by others (*Vishada*), fond of quarrel (*Kalaheccha*) were the areas they were enquired about. They are *Rasavaha srothas* and *Manovahasrthas* features dominant of *PittaDosh* and *VataDosh*. 60.63% and 26.59% reported either not at all/a little/some while the remaining 12.75% reported quite a bit and very much.

In the 9th domain the questions focus on indifference towards daily life routines. Indifference towards his routine work (*Achinta swadharmeshu – Jwara poorvaroopa*), Apathy or indifference to life around (lack of interest/enthusiasm or concern mainly seen in various *Vata vikaras*), and everything taking longer to do (*Pratipaata swakaryeshu*) were the main enquiries. 52.12% and 32.97% reported either not at all/a little/some while the remaining 14.88% reported quite a bit and very much.

The 11th and 12th domains are about the impression of subject about the impact of disease in his life like appearance and quality of life. The answers in this area depends on the individual's awareness about the features of thyroid diseases and responses of his family and friends towards his appearance and behavioural changes. 46.8% and 17.02% reported either not at all/a little/some while the remaining 36.16% reported quite a bit and very much.

In the domain of symptoms of hypothyroidism affecting the quality of life, Dosh involvement is very less. Tiredness, vitality, Memory & concentration, nervousness & tension, psychological wellbeing, mood swings, relationship with others and attitude towards life routines are the quality of life domains that are affected by Doshas.

CONCLUSION:

Various domains of Thyropro39 score questionnaire finds out how much does hypothyroidism affect the quality of life of patients. Hence, Doshas getting affected or becomes responsible for the quality of life can be searched in the data derived out thyropro39 questionnaire, by finding out the distribution of Dosh related features in it. Since every mental or physical activity is a result of function of normally or abnormally functioning Dosh, activities that affects the quality of life can be identified in relation to the Dosh involved. The Dosh involvement derived out of quality-of-life assessment in hypothyroidism patients, predominantly shows the features of Vata Dosh in both intensity and distribution. The features found are caused either by Vata depletion or by the increment of Vata. Any features related to Pitta or Kapha Doshas regarding quality of life, were not focused or derivable by Thyropro39 scale.

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