



Case Study: Examining Academic Stress in Children: Insights from A Case Study

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KEYWORDS

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ABSTRACT:

Introduction: Stress has become a fundamental component of students' academic experiences, influenced by many internal and external demands. Ayurvedic literature identifies chinta (stress) and atichintan (over-thinking) as the causes of Rasavaha Srotodushti, leading to various diseases.

Objective: A female student, aged about 19, came to our college exhibiting symptoms of sleep deprivation, memory loss, and dysphoria. The student had under treatment with Shirodhara and Nasya. Outcomes were assessed utilizing stress biomarkers and the POMS score.

Methods: The POMS Score and stress biomarkers shown considerable improvement after the completion of Shirodhara and nasya, employed in this context due to their features and mechanisms of action, which influence both Vatadosha and stress.

Results: No negative effects were observed during or after her treatment.

Conclusion: The assessment of the POMS Score on the 7th and 14th days of Shirodhara and nasya markedly facilitated the process. It markedly enhanced the positive domain of the POMS score and substantially reduced the negative domain score.

1. Introduction:

The vitality of a living organism is significantly affected by its state of health. The World Health Organization (WHO) defines health as a holistic state of overall well-being, encompassing physical, mental, and social dimensions, rather than simply the absence of illness or disability [1]. For an extended period; it was assumed that students were the least susceptible to stress or other concerns. Currently, stress is acknowledged as a lifestyle crisis that impacts individuals at any developmental stage [2]. The maintenance of life in an ever-changing environment depends critically on the preservation of a stable internal equilibrium, referred to as "homeostasis." Stress can disrupt this balance, and inadequate or

prolonged responses to stressors may impair the body's growth and development, contributing to the onset of various endocrine, metabolic, immune, and psychological disorders [3- 4].

There is a profound connection between the body and the mind. Charaka's definition Chinta (stress) and atichintan (over-thinking) are the causal reasons of the impairment of Rasavaha. Srotas is a bodily channel that can lead to many ailments in the human body [5]. Chinta exacerbates Vata, and the disturbed Vata negatively impacts the heart, destabilizing both buddhi and smriti. In Ayurveda physiology, Tridosha (functional units of the body) governs the regular functioning of the human body, maintaining or disrupting its equilibrium [6, 7]. Research



has been undertaken to assess the efficacy of Shirodhara in addressing various conditions. Shiro refers to the head, whereas dhara is the Hindi term for drip [8]. During the shirodhara therapy, oil or another liquid is administered to the forehead in a continuous stream for a duration ranging from 36 minutes to 1 hour and 12 minutes [9]. The whole time of therapy in days is not delineated in classical literature, according to diverse customs in India. Shirodhara is performed for durations of 3, 7, 14, or 28 days [10]. Given that the majority of contemporary diseases are linked to stressful lives, it is imperative to mitigate the effects of stress to preserve lifelong health. Shirodhara alleviates tension and promotes relaxation and tranquility [11]. Shirodhara can alleviate the effects of stress for hours or days, even after a single session. Shirodhara therapy can significantly reduce physical and mental stress [12- 13].

Applying heated sesame oil to the forehead and doing a gentle massage induces relaxation, conserves energy, dilates blood vessels, and reduces heart rate [14]. Shirodhara is a notable Ayurvedic treatment technique that influences the body's neuro- immuno- physiological and psychological systems [15- 16]. Acharya Sushruta endorses the application of Nasya utilizing Vataharadravya Goghrita, regarded as the optimal Vatahara Dravya, chosen for Nasya [17].

2. Objectives:

For a diagnosis of severe stress, the required symptoms must be present usually daily. Based on the Profile of Mood Score (POMS) questionnaire, the diagnosis was made DHEA and Sr. Cortisol markers by the CLIA method [18–20]. The factor exacerbating the symptoms pointed to the student's predominance of the *Vata Dosha*.

a. Therapeutic focus and assessment:

Stress is acknowledged as a significant cause to the exacerbation of *Vata (Vatprakopa)*. Sesame oil has numerous advantageous features, including its *Ushna* (warming), *Vataghna* (Vata-reducing), *Tvachya* (skin-nourishing), *Medha* (intellect-enhancing), and *Agnivardhaka* (digestive-strengthening) effects. Due to these characteristics, sesame oil is especially appropriate for therapeutic uses like Shirodhara [21].

Goghritais considered as best *Vataharadravya*, *Vata-pitta shamaka*, *Sheetoshnaveerya*, *Snehana*, *Agnivardhaka* and *Rasayanain* naturehence we use it for

nasya.

b. Therapeutic intervention:

No medication during his period.

3. Materials and Methods:

The researcher made a meager attempt to analyze a case study. A semi-structured interview ensued subsequent to the conversation with her. The participant was a college student who consented to discuss her perceptions of potential causes of academic stress in an open and explicit manner. Additionally, she consented to disclose her experience solely on the condition that her identity would remain concealed. The following are the viewpoints and accounts that the investigator has discussed:

Table1: Student details

Name of the Student	Miss. Sabita Paul (Name changed)
Age	19
Sex	Female
Student's College name	Dept. of Pharmaceutical Sciences, Bir Bikram College of Pharmacy
Date of Admission	Nov-23
Mother's name	Mrs. Aburba Paul (Name is changed)
Father's name	Mr. Abhoy Paul (Name is changed)
Allergy	NO
Symptoms	Sleep deprivation, Impairment of focus, Irritable habits and mood fluctuations, weakness, lack of concentration, and Exhaustion.

The student consulted with a medical consultant prior to taken admission in our institution, as she had not yet received a diagnosis of a psychiatric disorder. She did not have any allergies that were identified. The student's written informed consent was obtained prior to the examination, and the Shirodhara procedure was conducted for a continuous period of 14 days using sesame oil. Nasya was performed once daily in the early morning with 2 droplets of warm ghee in each nostril.

**Table 2. Chronological orders of complaints and events.**

Sl. No.	Complaints/ Events	Duration/Date
01.	Sleep deprivation	1.5year
02.	Impairment of focus	1year
03.	Irritable habits and mood fluctuations	1year
04.	Weakness	6 months
05.	Exhaustion	1year
06.	Sr. Cortisol, DHEA increased, POMS Score 49	01.11.2023
07.	Started <i>Shirodhara</i> and <i>Nasya</i> procedure	20.11.2023
08.	Feeling of happiness at the end of therapy	02.12.2023
	Sr. Cortisol, DHEA decreased	

(All the signs and symptoms given above the table with duration also the time of procedure started and lab reports time mentioned.)

At base line, serum cortisol and DHEA levels were measured at 15.25 µg/dL and 46.05 ng/dL, respectively. Following the *Shirodhara* treatment, these levels decreased to 10.54µg/dL and 31.05 ng/dL. Additionally, Total Mood Disturbance (TMD), as assessed using the Profile of Mood States (POMS) scale, was 49 at baseline and significantly reduced to 21 after the combined *Shirodhara* and *Nasya* therapies. Furthermore, the positive subscale domains, Vigour (VIG) and Esteem-related Affect (ERA), showed a marked improvement in scores, while the negative subscales exhibited a reduction in their intensity post-treatment.

The assessment revealed a positive response to the treatment, with several symptoms showing significant alleviation even on the seventh day following the *Shirodhara* therapy. Numerous domains of the POMS scoring scale demonstrated enhancements. Significant improvements were observed in the negative subscale's nervousness, irritation, exhaustion, despondency, and disorientation. The scores across all domains showed a

significant reduction, while the positive subscales, Vigour (VIG) and Esteem-Related Affect (ERA), demonstrated a marked increase following the *Shirodhara* and *Nasya* treatments.

Table 3. Details on POMS Scoring

Scale	0 Score	Day7 th Score	Day14 th Day Score
Nervousness	12	09	01
Irritation	11	06	01
Exhaustion	05	08	05
Despondency	12	08	00
Disorientation	17	06	06
Vigour	10	10	12
Esteem related affect	13	19	12
Total	Mood32	08	-21
Disturbance (TMD)			

(In table no.3, 0-day, 7th day and 14th day result of student mention all the signs and symptoms and lab count of student decreases.)

The impact of *Shirodhara* and *Nasya* on the POMS

Scale: The student was experiencing anxiety. Her nervousness and other emotions, including hostility, irritation, exhaustion, despondency, disorientation, significantly decreased after they underwent *Shirodhara* treatments for 14days. The scores for the positive subscales VIG (Vigour) and ERA (Esteem- related effect) both increased significantly after *Shirodhara* and *Nasya*.

The final evaluation administered after the 14th day of *Shirodhara* and *Nasya* revealed a substantial decrease in tension and anxiety in the mood domain. The student's emotions sleep, and mental state all improved. The level of Sr. Cortisol experienced a significant decline following *Shirodhara* and *nasya*. A substantial decrease in DHEA levels was observed subsequent to the *Shirodhara*. There was no discernible impact on the student's pulse rate. She generally felt better, and her sleeping habits began to improve slightly toward the end of the day.



4. Discussion:

To avert sickness, it is essential to prevent Srotodushti. Chinta (stress) and atichintan (over- thinking) are causal causes of Rasavaha Srotodushti; hence, Shirodhara, a significant treatment therapy in Ayurveda, was employed. The non-invasive technique has proven to be as effective as or superior for treating insomnia, anxiety, stress, headaches, and hypertension. Numerous studies indicate a significant reduction in anxiety levels. Japanese researchers, conducted experiments indicating that nor adrenaline plasma levels significantly decreased following Shirodhara therapy. It may also be beneficial for managing anxiety problems and disturbances in mental state. The HPA axis is a crucial physiological stress mechanism. The Hypothalamic-Pituitary-Adrenocortical Axis regulates the predominant response to stress. The HPA axis of the stress response system is influenced by gluco-corticoid secretion. Elevated CRH production due to HPA activation augments the anterior pituitary glands synthesis of ACTH. Additionally, ACTH stimulates the secretion of gluco-corticoids from the adrenal glands. The bulk of gluco-corticoids contribute to stress management and regulate immunological, metabolic, and behavioral processes. DHEA and cortisol are synthesized in the adrenal cortex, situated above the kidney. In reaction to physical and significant psychosocial stress, blood levels of DHEA and cortisol both rises.

5. Conclusion:

The utilization of such biomarkers may assist in determining the efficacy of Shirodhara and nasya therapy on stress-induced ailments. This case study presents promising findings and may provide optimism for treatment strategies for other psychosomatic diseases. Serum stress indicators markedly improved following Shirodhara and Nasya, and are currently reduced. The assessment of the POMS Score on the 7th and 14th days of Shirodhara and nasya markedly facilitated the process. It markedly enhanced the positive domain of the POMS score and substantially reduced the negative domain score. It exhibited appropriate sensitivity to the stress system. The management of stress was found to be an advantageous intervention in this therapy. Additional study with a substantial sample size is necessary to validate its efficacy in assisting children with academic stress

management.

Suggestions for Stakeholders (Parents and Teachers):

1. It is not advisable for educators to assume that all students learn at the same rate and in the same manner. The online interaction class should consider the diverse requirements of the students.
2. Assignments and initiatives should be engaging. Ask a variety of questions, ranging from application-level to knowledge-level. Allow students to respond to the inquiries. Multimedia is promoted as an instructional and educational tool. Examine the internet applications that will foster inclusivity for children with a variety of abilities.
3. We, as educators and parents, are obligated to cultivate a diverse array of skills in our students, such as the capacity to listen, ask insightful questions, engage in humor, participate in mirth, and provide assurance and motivation.
4. Parents should recognize the significance of education. Removing the ward from the school will not resolve their issue; rather, it will exacerbate it. It will have a detrimental effect on the future of their ward and is a complete squandering of time, money, and resources.
5. It is imperative that parents establish a rapport with their children; we, as parents, are responsible for addressing the void that the majority of children encounter. Currently, the pandemic presents an ideal opportunity to re-establish our relationship with our offspring. We have the choice to relive our childhood with our offspring either now or never.
6. In order to save money and encourage their children to do the same, parents should adjust their priorities; for example, the acquisition of new shoes and apparel.

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7. Declaration by the Student:

Authors acknowledge that they have secured student consent forms, wherein student have granted permission



for the publication of the case, including any information for publication. The student acknowledges that their name and initials will remain unpublished, and reasonable measures will be implemented to protect their identity; nonetheless, complete anonymity cannot be assured.

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