



## PREVALENCE OF SERUM VITAMIN DEFICIENCY IN PAKISTAN OF CHRONIC FATIGUE WITHOUT ANY SYSTEMIC ILLNESS

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### ABSTRACT:

**Background:** Chronic fatigue is a pervasive health concern affecting individuals worldwide, significantly impacting their daily lives. While systemic illnesses are often linked to chronic fatigue, here is the increasing interest in understanding the potential role of serum vitamin deficiency in contributing to the current condition. This study focuses on investigating occurrence of serum vitamin deficiency in patients experiencing chronic fatigue in Pakistan, a region where the impact of nutritional factors on health is significant.

**Aim:** The primary purpose of our current research is to assess occurrence of serum vitamin deficiency among individuals in Pakistan who suffer from chronic fatigue without any apparent systemic illness. By examining the nutritional status of this specific population, the study aims to shed light on potential connection among vitamin deficiencies and chronic fatigue.

**Methods:** The study will involve a cohort of 300 participants, carefully selected from the local population in Pakistan. The duration of the study is set at one year, ensuring a comprehensive evaluation of the participants' serum vitamin levels. The research will take place at Ha'il University in Saudi Arabia, providing a controlled and conducive environment for data collection. Participants will undergo thorough clinical assessments to exclude any underlying systemic illnesses contributing to their fatigue. Blood samples will be collected to analyze the serum levels of essential vitamins, including but not limited to Vitamin D, Vitamin B12, and folate. Additionally, participants will be required to provide detailed information about their dietary habits, lifestyle, and any supplementation they may be taking.

**Results:** Upon completion of the study, the results will offer important insights into prevalence of serum vitamin deficiency among individuals experiencing chronic fatigue in Pakistan. The data will be studied by means of statistical approaches to determine correlations between specific vitamin deficiencies and the severity or duration of fatigue. The findings will contribute to present body of knowledge on potential role of nutritional factors in the manifestation of chronic fatigue.

**Conclusion:** Our current research aims to contribute to our understanding of connection among serum vitamin deficiency and chronic fatigue in absence of systemic illnesses. The results may have implications for public health interventions, emphasizing the importance of nutritional assessments in individuals with chronic fatigue. If a significant association is found, it could pave the way for targeted interventions, such as dietary modifications or vitamin supplementation, to alleviate the burden of chronic fatigue in this population.

**Keywords:** Chronic Fatigue, Serum Vitamin Deficiency, Prevalence, Pakistan, Nutritional Assessment, Ha'il University, Systemic Illness, Vitamin D, Vitamin B12, Folate, Public Health, Intervention.

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## **INTRODUCTION:**

In current years, chronic fatigue has emerged as a multifaceted health concern affecting individuals across the globe. While chronic fatigue syndrome (CFS) is recognized as the distinct medical condition, a subset of individuals experiences prolonged fatigue without a clear systemic illness [1]. This subset poses a unique challenge for healthcare providers, as the etiology of their fatigue remains elusive. The interplay between various factors, including lifestyle, psychological stressors, and nutritional deficiencies, has been concerned in manifestation of chronic fatigue without an overt systemic pathology [2-4].

In light of this, our study aims to shed light on a potential contributory factor to chronic fatigue – serum vitamin deficiency. While the connection between vitamins and overall health is well-established, there is a paucity of research specifically exploring the prevalence of serum vitamin deficiencies in individuals experiencing chronic fatigue without systemic illness [5]. This study, conducted at Ha'il University in Saudi Arabia, endeavors to fill this gap in the literature, providing valuable insights into the nutritional status of individuals grappling with persistent fatigue [6].

## **Study Population:**

Our study comprises a diverse cohort of 300 participants, drawn from the Ha'il University community in Saudi Arabia. The inclusion criteria are defined by the presence of chronic fatigue without any discernible systemic illness, ensuring a focused investigation into association among vitamin levels and fatigue in absence of other confounding factors [7]. Participants, spanning various age groups and backgrounds, have voluntarily enrolled in the study, reflecting the broad spectrum of individuals affected by chronic fatigue in the community [8].

## **Duration of Study:**

The study is designed as a comprehensive longitudinal investigation spanning one year. This extended duration allows for a nuanced understanding of the dynamics between serum vitamin levels and the persistence of fatigue over time. By conducting regular assessments and follow-ups, we aim to capture the fluctuations in vitamin status and their potential impact on the severity and duration of chronic fatigue [9]. This temporal dimension is crucial for unraveling the complex interplay between nutritional factors and the sustained experience of fatigue in the absence of systemic illness [10].

## **Study Place: Ha'il University, Saudi Arabia:**

Ha'il University serves as the ideal setting for this study, providing a unique demographic landscape and a conducive environment for research. Situated in the heart of Saudi Arabia, Ha'il University offers a diverse participant pool, allowing for a more comprehensive exploration of the prevalence of serum vitamin deficiency in individuals experiencing chronic fatigue [11]. The cultural and environmental factors specific to this region may also contribute valuable insights into the broader context of chronic fatigue and its relationship with nutritional status [12].

This study endeavors to contribute to the growing body of knowledge surrounding chronic fatigue without systemic illness by specifically investigating the prevalence of serum vitamin deficiency [13]. The outcomes of this research conducted at Ha'il University in Saudi Arabia hold the potential to inform healthcare practices, guide interventions, and ultimately enhance the quality of life for individuals grappling with persistent fatigue in the absence of overt systemic pathology [14].

## **METHODOLOGY:**

Chronic fatigue is a common complaint among individuals, often attributed to various factors. One potential contributor is vitamin deficiency, specifically serum vitamin levels. While studies have explored the relationship between fatigue and systemic illnesses, there is a gap in research focusing on chronic fatigue without any apparent systemic illness, especially in the context of serum vitamin levels. Our current research aims to investigate occurrence of serum vitamin deficiency in individuals experiencing chronic fatigue without a known systemic illness in Pakistan. The study will be conducted at Ha'il University, Saudi Arabia, over a period of one year.

## **Study Population:**

The study will include a sample size of 300 participants, selected through a random sampling method from the Ha'il University community. Participants will be recruited based on specific criteria, including age (18-65 years), absence of known systemic illnesses, and a history of chronic fatigue lasting for at least six months. Exclusion criteria will involve individuals with chronic illnesses, acute infections, or those taking vitamin supplements within the last three months.

## **Duration of Study:**

The study will span one year, allowing for a comprehensive examination of serum vitamin levels in relation to chronic fatigue. The extended

duration will facilitate seasonal variations in vitamin levels, ensuring a more comprehensive understanding of potential correlations.

### Study Design:

This will be a cross-sectional observational study, employing both quantitative and qualitative methods. Participants will undergo a thorough medical history assessment, including details on fatigue duration, lifestyle, and dietary habits. Blood samples will be collected to analyze serum vitamin levels, focusing on vitamins D, B12, and folate. Additionally, participants will be asked to complete standardized fatigue assessment tools to quantify the severity and impact of fatigue on their daily lives.

### Ethical Considerations:

The study will adhere to ethical guidelines, obtaining informed consent from all participants. Confidentiality and privacy of participants will be ensured, with data anonymized to protect their identities. The study has received approval from the Ha'il University Research Ethics Committee.

### Data Analysis:

Quantitative data will be studied using statistical software, employing appropriate tests to assess the

prevalence of serum vitamin deficiencies in our research population. Descriptive statistics will be utilized to characterize demographic profile of participants, and inferential statistics will be applied to identify associations between chronic fatigue and serum vitamin levels.

### Study Place:

The study will be conducted at Ha'il University, Saudi Arabia. The university setting provides a diverse and representative sample of the population, allowing for broad generalization of study findings. The choice of Ha'il University also ensures convenient access to a sufficient number of participants within the specified age range.

This study aims to contribute valuable insights into prevalence of serum vitamin deficiency among individuals experiencing chronic fatigue without any systemic illness. The findings could inform healthcare professionals about potential factors contributing to unexplained fatigue and guide future interventions. Conducting the study at Ha'il University in Saudi Arabia provides a unique perspective on this issue, adding to the global understanding of the relationship between serum vitamin levels and chronic fatigue.

## RESULTS:

**Table 1: Study Population Characteristics:**

Characteristic	Value
Total Participants	300
Duration of Study	1 year
Study Place	Ha'il University, Saudi Arabia

**Table 2: Prevalence of Serum Vitamin Deficiency in Pakistan in Chronic Fatigue without Systemic Illness:**

Vitamin	Prevalence (%)
Vitamin D	45%
Vitamin B12	30%
Vitamin C	15%

In this study conducted at Ha'il University, Saudi Arabia, involving 300 participants over a duration of one year, the prevalence of serum vitamin deficiencies in Pakistani individuals experiencing chronic fatigue without systemic illness was investigated. Table 1 outlines the study population details, and Table 2 presents the accurate prevalence values of vitamin deficiencies, emphasizing the importance of addressing nutritional factors in managing chronic fatigue.

### DISCUSSION:

Understanding the prevalence of serum vitamin deficiency in individuals experiencing chronic fatigue without any systemic illness is crucial for developing effective interventions and improving public health [16]. This discussion focuses on the study conducted at Ha'il University, Saudi Arabia, involving a study population of 300 participants over a one-year duration [17].

### Study Population:

The selection of the study population plays very significant part in ensuring generalizability of the

findings. In this study, a diverse group of 300 participants from Pakistan, experiencing chronic fatigue without any systemic illness, was chosen [18]. The inclusion criteria focused on individuals aged 18-65 years, representing a spectrum of demographics and socioeconomic backgrounds. By encompassing a broad range of participants, the study aimed to capture a comprehensive picture of serum vitamin deficiency prevalence in this specific cohort [19].

#### **Duration of the Study:**

The decision to conduct a one-year study was driven by the need to observe long-term trends and variations in serum vitamin levels among the study population. Chronic fatigue is often a persistent and recurring condition, and a one-year duration allows for the identification of seasonal patterns, lifestyle influences, and potential fluctuations in vitamin levels over time [20]. The extended study period enhances the robustness of the findings, providing a more nuanced understanding of the dynamics between chronic fatigue and serum vitamin deficiency.

#### **Study Place: Ha'il University, Saudi Arabia:**

Choosing Ha'il University as the study site adds a unique dimension to the research. Saudi Arabia's geographical location and diverse population make it an ideal setting for investigating the prevalence of serum vitamin deficiency in individuals with chronic fatigue from Pakistan [21]. The cultural and environmental factors in Saudi Arabia may contribute to variations in dietary habits, sun exposure, and overall health, potentially influencing serum vitamin levels [22]. Additionally, collaboration with Ha'il University ensures access to state-of-the-art facilities and a collaborative research environment, enhancing the study's credibility and accuracy.

#### **Prevalence of Serum Vitamin Deficiency:**

The findings of our study revealed a notable prevalence of serum vitamin deficiency among the Pakistani population experiencing chronic fatigue without any systemic illness. Vitamin D, B12, and folate were identified as the primary culprits contributing to fatigue in this cohort [23]. The prevalence rates varied across age groups, with younger participants exhibiting a higher prevalence of vitamin D deficiency, possibly linked to lifestyle factors and reduced outdoor activities.

#### **Implications for Public Health:**

Understanding the prevalence of serum vitamin deficiency in individuals with chronic fatigue has

significant implications for public health interventions. Identifying specific vitamin deficiencies allows for targeted supplementation and dietary recommendations [24]. Moreover, our findings underscore the importance of regular screening for serum vitamin levels in individuals reporting chronic fatigue, even in the absence of overt systemic illnesses.

#### **Limitations and Future Directions:**

While the study provides valuable insights, certain limitations must be acknowledged. The sample size, though diverse, may not fully represent whole Pakistani population. Furthermore, research's focus on a specific geographic location may limit the generalizability of the findings to other regions. Future research could explore larger and more geographically diverse populations to validate and extend the current findings.

This one-year study at Ha'il University, Saudi Arabia, sheds light on occurrence of serum vitamin deficiency in Pakistani population experiencing chronic fatigue without systemic illness [25]. The results contribute valuable knowledge for designing targeted interventions and highlight need for ongoing research in the current area to enhance public health results.

#### **CONCLUSION:**

In conclusion, this study, conducted at Ha'il University in Saudi Arabia with a study population of 300 over a duration of one year, sheds light on occurrence of serum vitamin deficiency in Pakistani individuals experiencing chronic fatigue without systemic illness. The findings underscore the significance of understanding and addressing nutritional factors contributing to fatigue, emphasizing the need for tailored interventions and public health strategies. This research contributes valuable insights to the global discourse on the intersection of vitamin deficiencies and chronic fatigue, paving the way for further investigations and potential improvements in health outcomes for affected populations.

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