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Hypothesis of Prevalence of Mal De Debarquement Syndrome (MdDS) in Merchant Marines and Navy Employees

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Abstract: Objective: Mal de debarquement which is literally called "sickness of disembarkment", refers to prolonged and infelicitous sensation of movement after exposure to motion and has gained prominence for its attributes and impact on vestibular system. This study addresses the scarcity of research on MdDS's prevalence and severity on merchant navy, intending to exude flame on the unique challenges faced by this demographic in India.

Method: The study enrolled 30 merchant marines and naval officers, including 25males and 5 females aged 25-60 with no previous history of otological issues. The MdDS assessment questionnaire, consisting of 20 questions with a 4-scale rating response (0,1,2,3), assessed the emotional, psychological and behavioural response to sound. It's categorized via normal, mild, moderate, severe.

Results: The prevalence of MdDS was 36.6% among merchant marines and navy employees with 72.7% as categorized as mild, 18.18% as moderate and 9.09% as severe MdDS. A comparison with study on people in Chicago, revealed a higher prevalence of MdDS among women than men which may relate to vincible psychological states and emotional facts based on their daily life aspects.

Conclusion: This study effectively contributes to the originating understanding of MdDS through focusing its prevalence and severity among merchant marines and navy officers and workers in India. The study unfolds the importance of recognizing and addressing MdDS's impact on their lives on account of frequent cruise travel.

I. INTRODUCTION

Mal de debarquement syndrome is literally called "sickness of disembarkment which refers to prolonged and infelicitous sensation of movement after exposure to motion and has gained prominence of its attributes and impacts on the vestibular system. "Disembarkation" is a word to describe getting off of a boat or ship or aircraft. So it commonly happens after sea/air travel.

In 1979 Dr. Rphan and Cohen at Mount Sinai and robinson at John's Hopkins discovered its impact on our vestibular nuclei. MdDS has been noted by Erasmus Darwin in 1976 and Irwin in 1881, described as "pathology of sickness". It happens quite frequently in healthy individuals for several hours, means a short period of time. But if it remains for longer period of time then it will be complicated more. As it typically follows a sea voyage, so basically its described as motion sickness which can happen because of a long journey in sea via boat or cruise or ship.

Symptoms can continue for months and years, causing fatigue, insomnia, headache, imbalance, depression, anxiety, poor coordination. It's a very rare condition continuing feelings of swaying, rocking or bobbing. The trajectory of MdDS involves a series of emotional stages, psychological aspects as well as job profiling. This can lead a very problem for those who are in merchant marine, navy or aircraft service profession because they have to face a long term journey which can be the most effective aspect.

There remains a dearth of research on MdDS regarding its prevalence and underlying mechanisms. Following studies primarily focus on the retrospective reports from the merchant marines and navy employees, overlooking their profession as they have to travel frequently via cruise or ship. Existing studies have produced controrary results with regard to the gender distribution of MdDS. Recent study found that 44% of individuals who had experienced MdDS for 2 years were male.

It has been found that MdDS occurs inciting event was a ocean cruise which was approximately 45%, boating excursions which was less than 22%, aircraft travel which was approximately 15% and other travel was less than 8%. When sailors returned from voyage, this syndrome was reported at a higher rate in males.

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A. Need for the Study

In western countries there are several studies focusing on this vestibular disorder MdDS but the number of conducting research on this topic is very few and in India its very less as its not focused very actively. Keeping this fact in consideration there is a need to develop an assessment questionnaire for the individuals. Its crucial to do a estimation on prevalence for those who are in merchant marine, navy employee profession.

B. Aims of the Study

The study aims to fill this research gap by focusing and investigation of the prevalence, gender differences, job profiling at higher risk and severity of MdDS among the population containing merchants, sailors, navy officers etc. This research shed light on the unique challenges that have to face by the population of this professions in India. By conveying the methodologies, assessment tools intends to the crucial insights into the emotion and mental well being of this demographic, informing the identification and thereafter intervention processes as well.

C. Participants

This study was conducted on 30 individuals who were merchant marines, sailors, crews, naval officers (retired) and navy employees. 30 individuals include 25 males and 5 females of 24 to 60 age range and who has no previous history of ontological problems and surgical interventions.

D. Procedure

The number of participants were 30 consisting of Naval officers, merchant mariners, sailors or crews. Among those participants the number of females was 5 and male was 25. Their age range was 24-60. They don't have any otological issues and any surgical interventions before.

The MdDS Assessment Questionnaire was administrated to all the participants. Every participant was given a questionnaire through google doc format which was fully done in online and was recorded each and every response through their official and personal details. This full online procedure was done by verification of each individual.They were instructed to fill up the whole questionnaire format within mail-Id for future record.

The MdDS questionnaire has 20 questions with four descriptive options corresponding to the score where 0 = not present at all, 1 = little bit, 2 = frequent respite, 3 = almost all of the time. The questionnaire was self-administered with full verification of details of each and every individual. As the whole process was done online so each individual's response was recorded and retyped in a full questionnaire format for offline views with their full details as well as email-Id. Responses were analyzed and participants were grouped based on their score as Normal (<10), Mild (11-24), Moderate (25-50), Severe (50-70). These questions examine emotional and behavioural reactions based on their profession profiling. The total scores were calculated and the severity of MdDS was assigned accordingly. Individuals with mild MdDS were considered at risk of developing its signs and symptoms and individuals with moderate and above degrees were considered as individuals with MdDS.

Question no. 1 describes if the individual has balance issues, question no. 2 describes if he/she is having headache after sea voyage, question no. 3 describes the main problem that if the individual feels like moving when he/she isn't, question no. 4 describes pain sensation, question no. 5 describes their daily life aspects, question no. 6 describes affect on their relationship, question no. 7 describes psychological involvement, question no. 8 describes their feelings of having issues and other's involvement, question no. 9 describes their feelings of illusory rocking motion, question no 10.

Describes their sleeping problems, question no. 11 describes unsteadiness, question no. 12 describes Tinnitus problems if they are having because of psychological status, question no. 13 describes any bobbing sensation they can feel, question no. 14 describes if it is felt by them more while using elevator, question no. 15 describes facts of the problem they face, question no. 16 describes if their mood changing happens suddenly after continuous sea voyage, question no. 17 describes concentration breakages if happens, question no. 18 describes the presence of lightheadedness, question no. 19 describes pain in eyes, question no. 20 describes their vomiting feelings, nausea etc.

The other things which include general demographic details and case history of them for knowing otological problems and psychological problems.

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II. RESULTS

The findings of the study revealed a notable prevalence of MdDS among merchants, sailors, navy officers and employees, crew members with approximately 36.6% of the participants exhibiting symptoms of this disorder. This statistic underscores the substantial presence of MdDS within this population, indicating that its highly prevalent in India. Minutely 72.7% of those participants have mild MdDS, 18.18% have moderate MdDS and 9.09% have severe MdDS. After analyzing the statistical aspects we get that SD, means standard deviation is 11.93 and mean value is 39.1.

Moderate MdDS their emotional and psychological responses that potentially can shatter their daily life. Mild MdDS suggests that a higher risk and severe suggests the significant impact upon their profession which can lead to their crumbling in job in future. As the study was done on 25 males and 5 females so it can not be said that females are more affected than men regarding this profession so gender differences are not notable for that. The results of the prevalence of MdDS across severity for males, females and all total are shown in table 1.

Table 1 The results of the prevalence of MdDS across severity for males, females and all total.

Mal de debarquement syndrome (MdDS)	Males	Females	Total
Normal (no MdDS)	15	04	19
Mild MdDS	08	00	08
Moderate MdDS	01	01	02
Severe MdDS	01	00	01

III. SUMMERY

The present study was done to develop a self-assessment for the population of occupations like merchants, navy officers and employees, sailors, crew members who are at high risk of having or developing the symptoms of MdDS. As there was no estimation of prevalence of MdDS on any population before so this present study will be surely beneficial for better understanding about every aspect of this disease and the current research will arise future studies on making a proper assessment tools and the further intervention procedures as well. It has shown the prevalence of MdDS is notably higher among the following population compared to the other commonwealth or population in india.

This study contributes the combination of different aspects and factors which indicates the severity of having MdDS among those individuals. As they were asked to fill the questionnaire by themselves, means it was as like as a self-assessment for better understanding. The individuals were taken on a basis who have a higher risk means they are in a profession where they have to travel via cruise or ship for a long period which increases the risk of having vestibular issues, mainly focusing on having MdDS.

Demographic data was taken from each participant and the questionnaire assessment was given to them which has to be fulfilled by them and the whole scheme was recorded through google doc and there after retyped for a manual offline script of their responses. The result shows us that the taken population has sublime gamble of having this vestibular disorder. Understanding these all underlyings dynamics can facilitate the development of targeted intervention strategies to mitigate the effects of MdDS in professional capabilities. Thereafter a more comprehensive approach to understand MdDS's impact on other profession will enable us to develop further strategies for an early intervention and consummately improve the quality of life for coping up with MdDS.

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IV. CONCLUSION

This study avails the dedication to unfold the nuances of MdDS. By mollifies light on its prevalence and severity among the following population, consisting merchant marines, navy officers, crew members and sailors in India, it contributes the different aspects and shows the risk of having the disorder as per profession profiling. It will be so beneficial for the medical examination which can include this assessment further for avoiding such complications in professional life.

V. FUTURE RESEARCH

The Assessment Questionnaire can be converted into different languages to compare the data across populations speaking different Indian languages. In other hand in future the intervention procedure will be also developed as well for curing the sufferer and a proper prevention method will be done hereafter eventually for avoiding all the symptoms related to MdDS.

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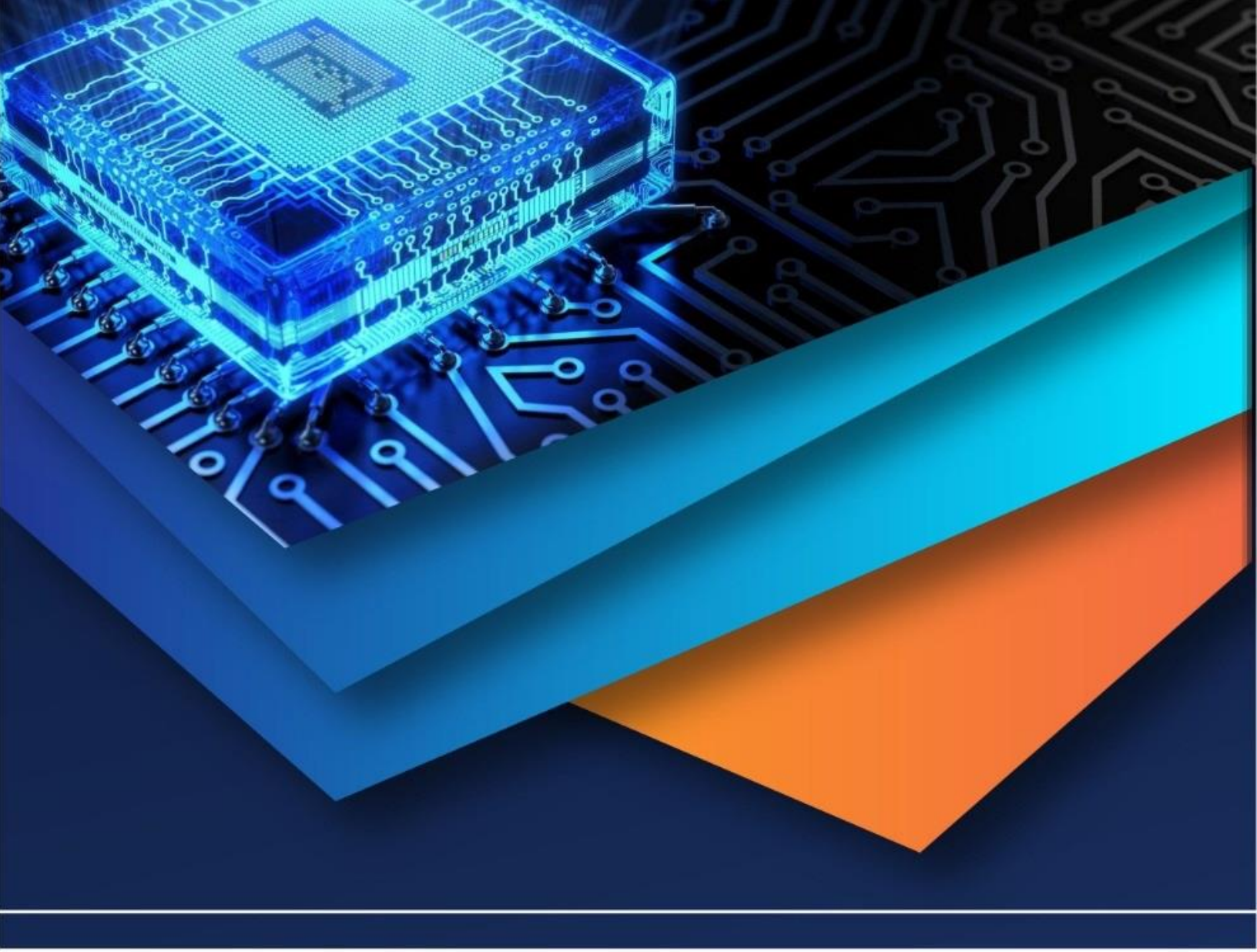

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