



SURVEY ON STRESS TYPES USING DATA MINING ALGORITHMS

Mrs.D.Umanandhini

Research scholar, Assistant professor,
Department of computer science,
Kovai Kalaimagal College of arts and science, Coimbatore-109

Dr.G.Kalpna

Research supervisor, Associate professor
Department of computer science
Sri Ramakrishna College of arts and science for women, Coimbatore-46

Abstract: Stress will exist once operating or paying attention to somebody shouts at you. It is caused through conflicts, creating selections, or otherwise straining skills, or it will exist owing to various social demands on time. It's noted that emotional states tends to not be long lasting, whether or not they are unpleasant emotions like worry, or pleasant ones, like joy. Nonetheless infrequently such states might persist for long periods of your time, or they will reach too high levels. Once this happens, the result typically is labeled "stress", and it's psychological as well as physiological terms. Stress and its manifestations, such as anxiety, depression, and burnout, have always have been a common problem among people in different professions and occupations. In the last few decades, alarm has already been provoked by the proliferation of books, research reports, popular articles and the growing number of organized workshops, aiming to teach people how to cope up with it. The purpose of the study is to find out the level of academic stress among higher secondary students. The present study consists of students studying in higher secondary schools situated in Tamil Nadu, India. The sample was selected by using simple random sampling technique. The present study reveals that the higher secondary students are having moderate level of academic stress and irrespective of sub samples of the higher secondary students are having moderate level of academic stress. The male student's academic stress is higher than female students. The urban student's tutorial stress is higher than rural students. The government college student's tutorial stress is a smaller amount than school students. The science subject student's tutorial stress is over arts student. The scholars whose parents are literates, the educational stress is over their counterparts.

I. INTRODUCTION

Data Mining could be a promising and flourishing frontier in analysis of data and additionally the result of analysis has many applications. Data Mining can also be referred as Knowledge Discovery from Data (KDD). This system functions as the machine-driven or convenient extraction of patterns representing knowledge implicitly or captured in huge databases, data warehouses, the Web, data repositories, and information streams. Data Mining is a multidisciplinary field, encompassing areas like information technology, machine learning, statistics, pattern recognition, data retrieval, neural networks, information based systems, artificial intelligence and data visualization. The application of data mining is widely prevalent in education system. Educational data mining is an emerging field which can be effectively applied in the field of education. The education data mining uses several ideas and concepts such as Association rule mining, classification and clustering. Stress is viewed as a negative emotional, cognitive, behavioral and physiological process that occurs as a person tries to adjust to or deal with stressors (Bernstein, et al 2008). Stressors are defined as circumstances that disrupt, or threaten to disrupt, individuals daily functioning and cause people to make adjustments (Auerbach & Grambling 1998) regard stress as an unpleasant state of emotional and physiological arousal that individuals experience in situations that they perceive as dangerous or threatening to their well-being. However, stress is perceived in different ways and may mean different thing to different individuals. It is perceived as events or situations that cause individuals to feel tension, pressure, or negative emotions including anxiety and anger. Moreover, other people define stress as the response to existing situations, which includes physiological changes (increased heart rate, and muscle tension), emotional and behavioral changes (Bernstein, et al 2008).

Stress is always regarded as a psychological process that involves an individual's personal interpretation and response to any threatening event. It is important to note that stress can have both positive and negative effects on people. It means that stress may be a normal, adaptive reaction to threat. Its role is to signal and prepare individuals to take defensive action. Take for instance, fear of things that present realistic threats motivates individuals to deal with them or avoid them. Most psychologists assert that moderate stress motivates individuals to achieve and fuels creativity, although stress may hinder individuals from performance on difficult tasks (Auerbach & Grambling 1998). argue that stress can leads to serious problems if it is not managed effectively. Moreover, when a person is exposed to chronic stress, she or he is likely to experience both physical illness (including heart disease), and mental illness (e.g., anxiety disorders). The field of Health Psychology focuses in part, on how stress affects bodily functioning and on how people can use stress management techniques to prevent or minimize disease (Grambling and Auerbach 1998). Stress can be imposed on an individual by unusual physical condition such as excessive heat or cold, illness, deprivation of oxygen, or exposure to strong light. Standing at attention a long time, climbing a mountain, or continuous immersion in water can also place strong demands for adaptation on the individual.

STRESS TYPES

Stress results from the tension between an individual's reaction to difficulties or challenges and his or her ability to handle and resolve the stressful situation. How people cope with stress depends on the resources that are available to them and whether they have the skills to utilize these resources. The term *stressor* relates to a challenging occurrence that may produce stress.

Acute stress reflects short-lived stress or -eventfull experiences that occur once or multiple times. For example, acute stress can result from relocating to a new town or having a serious disagreement with a parent. Whether these experiences result in negative or positive impacts on health and development depends on how one perceives and copes with the stressful experience. Acute stress that results from an unforeseen external event or significant life changes (such as a death of a parent, changing homes or schools, or being in a car accident) can be particularly upsetting because the individual experiencing this stress does not have control over the event.

Chronic stress is an ongoing form of stress that occurs as a part of one's daily life and that continually taxes one's physical and mental resources. Types of chronic stressors that children and youth experience include frequent parental arguments, chronic illness, neighborhood crime, care giving for a parent or sibling, and trying to adapt to another culture.

SIGNS OF STRESS

When a child or adolescent is experiencing difficulties coping with stress, he or she is likely to show changes in mood, behavior, and/or physical appearance. **Physical** changes include muscle tension, headache, stomachache, lacking in sleep, lacking intake of food and lack of energy. **Emotional** changes include nervousness, anxiety, loss of enthusiasm about things he or she used to enjoy, anger, shyness, and feelings of helplessness and hopelessness. **Behavioral** changes include poor eating habits and excessive weight gain/loss over a short period of time. Being able to recognize the signs of stress is an important skill for practitioners working with children and youth.

WHO IS MOST VULNERABLE TO STRESS?

Children and youth who have one or more of the following characteristics may be particularly vulnerable to stress.

- * Lack of economic resources - A tendency to blame negative events on themselves.
- * Lack of psychological or behavioral disorder – It is related to problems or anxiety, or a low tolerance for stress.
- * Lack of social support, multiple co-occurring stressors - living in a family environment with high conflict and in a Neighborhood with high crime, or residence in a socially isolated neighborhood.

ACADEMIC STRESS

The definition of academic stress is the anxiety and stress that comes from schooling and education. Academic stress is especially hard on school students who are often living away from home for the first time. Teachers expect work to be completed on time. Students may underestimate the amount of time it takes to complete reading and writing assignments, to print out copies of their work. Stress and its manifestations, such as anxiety, depression, and burnout, have always been seen as a common problem among people in different professions and occupations.

II. REVIEW OF LITERATURE

(Keinan & Perlberg 1986):- In the last few decades, alarm has already been provoked by the proliferation of books, research reports, popular articles and the growing number of organized workshops, aiming to teach people how to cope with this phenomenon

Mckean et al. (2000):-Argue that the feelings of frustration, anxiety, and depression are among the potential consequences of high degree of stress.

(Shirom, 1986):-Maintain that stressors alone do not produce anxiety, depression or tensions. Instead, the interaction between stressors and the person's perception and the reaction to these stressors cause stress. Environmental stress occurs as a result of environmental stimuli or demands apprehended by a person are exceeding his or her ability to deal with them.

(Fairbrother & Warn, 2003):-Academic stress among students have long been researched on, and researchers have identified stressors as too many assignments, competitions with other students, failures and poor relationships with other students or lecturers.

(Carveth et al, 1996):-Academic stressors include the student's perception of the extensive knowledge base required and the perception of an inadequate time to develop it

(Abouserie, 1994):-Students report experiencing academic stress at predictable times each semester with the greatest sources of academic stress resulting from taking and studying for exams, grade competition, and the large amount of content to master in a small amount of time.

(Murphy & Archer, 1996):-When stress is perceived negatively or becomes excessive, students experience physical and psychological impairment. Methods to reduce stress by students often include effective time management, social support, positive reappraisal, and engagement in leisure pursuits.

(Erkutlu & Chafra, 2006):-He pressure to perform well in the examination or test and time allocated makes academic environment very stressful.

(Fairbrother & Warn, 2003):-This is likely to affect the social relations both within the institution and outside which affects the individual person's life in terms of commitment to achieving the goals.

Bernstein et al. (2008):- Define the sources of stress as every circumstance or event that threatens to disrupt people's daily functioning and causes them to make adjustments. These sources of stress are called "Stressors". Stressors are demands made by the internal or external environment that upset balance, thus affecting physical and psychological well-being and requiring action to restore balance.

(Lazarus & Cohen, 1977):-However, they differ from the degree of severity and duration of stress; what is stressful for an individual may not be a stressor for another. For example, missing some lectures may be stressful for the first year undergraduate students, but may not be stressful for another student depending on his or her degree of expectations. Taking his final exam or sitting in rush hour traffic is not equivalent to being attacked by an angry Lion, where high arousal could facilitate fighting or feeling. Catastrophic events, major life changes, and daily hassles are regarded as major categories of stressors that create demands to which people must adjust.

(Auerbach and Gramling (1998):-View catastrophes as an unexpected life-threatening calamity or disaster that cause individuals to be unable to cope with it. For instance, wars, floods, hurricanes, fires, earthquakes, sexual assaults and tornadoes are common catastrophes. Major life changes (e.g., losing a job, divorce, illness, death of a spouse or family member, and imprisonment) can be regarded as stressful situations for every adult. Most stress people experience in their everyday lives is caused by daily hassles. Daily hassles can also be viewed as the irritations, pressures, and annoyances that might not be significant stressors by themselves but whose cumulative effects can be significant. This can be related to individuals' jobs, every day living circumstances and personal relationships (Bernstein et al., 2008).

S.Sethuramalingam, Dr.E.R.Naganathan,- Has enumerated a method on Hybrid Feature selection for network Intrusion. A new algorithm proposed on hybrid method to identify the significance of features. The hybrid method combines Information Gain and Genetic Algorithm to select features. Clustering is applied on elite options for classification. Rough set and neural network based reduction has been modified by Thangavel .K, & Pethalakshmi et al, describes the reduction attribute with the assistance of medical datasets. Protocol based classifications has been explained by Kun-Ming Yu, Ming-Feng Wu, and Wai-Tak Wong et al, which describes the protocol based classification by using genetic algorithmic with the logistic Regression as the method and enforced implemented by KDD 99 dataset. Data Analysis methodologies were delineated by Shaik Akbar, Dr.K.Nageswara Rao, Dr.J.A.Chandula et al, deals with eleven data computing technique associated with IDS are divided groups into categories. Those strategies are based on computational Fuzzy logic and Bayesian networks, Artificial Intelligence, Expert Systems, agents and neural networks and other are biological ideas Genetics and Immune systems. Discernibility matrix was described by Chuzhou et al, gives a neat rationalization regarding the discernibility matrix function and reduction of features. Misuse and Anomaly detection exploitation using SVM, ANN approaches mentioned by T.Subbulakshmi et al, notifies the detection rate and warning rates. Multilayer Perceptrons, Naive ayes classifiers and Support vector machines with three kernel functions were used for sleuthing intruders. The Precision, Recall and F- Measure for all the technique were calculated.

Chun-Lang Chang (2007):- "A study of data mining to early intervention for development-delayed children", the aim of this paper is to study of applying data mining techniques for early intervention for developmentally-delayed children. The implementation of early intervention has close relation to the growth development of developmentally-delayed children.

The earlier the intervention is involved the more significant effects and results it will bring to the benefits of the young children. Stress is unavoidable and can occur in all facets of life. At some level, stress can be seen as a natural part of development and of adaptation to a changing environment. Yet the implications of stress for children and youth can be far-reaching, depending on its level and persistence. Stress that is prolonged and managed poorly can result in negative physical, mental, and cognitive outcomes for children and youth.¹ Experiencing high levels of stress or chronic stress can undermine physical health, for example, by increasing the likelihood of a weakened immune system, heart disease, obesity, and diabetes.² Other negative outcomes include anxiety, depression, poor memory and language skills, and lower academic achievement.^{3,4} Biological or genetic factors can increase one's vulnerability to stress, as can social and environmental factors. For example, although stress can be problematic for children and youth of all socioeconomic backgrounds, children and youth from high-conflict families and those who live in high-crime, low-resource neighborhoods may be even more likely to experience chronic and/or high levels of stress.⁵ To minimize the risk for negative health and behavioral development, it is important for families, schools, and program providers to be able to recognize and help children cope with stress. Child Trends produced this brief to assist program providers in these efforts. For programs seeking to reduce stress in children and youth, we also provide information about two well-validated measures of stress.

M. S. Mythili and A. R. Mohamed Shanavas (2014):- "autism Spector disorders using Classification Techniques", This paper shows the study of Autism Spector disorders using classification techniques. The data mining has been typically accepted as a decision making process to facilitate higher resource utilization in terms of autism students' performance. The academic establishments has undertaken variety of initiatives to support school boards, college authorities, special schools and colleges in teaching students with Autism Spectrum disorders(ASD). Autism Spectrum Disorders (ASD) is complex neurological disorders that have a lifelong effect on the event of assorted talents and skills. The foremost vital goal of the paper is to review the autism problem, to detect the levels of autism with the help of data mining classification algorithms. The data mining has been typically accepted as a decision making process to facilitate higher resource utilization in terms of autism students' performance. Children with autism spectrum disorder follow a special process pattern from other children and develop at a special rate. Educating children with autism is expounded to intensive endeavor, involving a team of professionals of assorted special instruction and therapies to subsume children behavioral and activity, biological process, social and academic needs. Students with autism usually need explicit teaching across a range of settings to generalize skills. The knowledge and information gained from analysis helps the parents and school teachers to convey decent learning surroundings for the autism children. Feature Selection is a very important topic in data mining, particularly for high dimensional datasets. Feature Selection is a method usually employed in machine learning, whereby subsets of the options accessible from the data are described for the application of a learning algorithm. The Main purpose of this paper is to propose the Improved Feature Selection algorithm. The Improved algorithm is developed by combining the filters and wrappers. The Correlation Based Feature Selection (CFS) with the best first search act as a filter for removing impertinent options. Wrapper Subset Evaluator with the best first search is employed as a wrapper and it absolutely reduces the redundant options. It is accustomed to improve the accuracy of the classification for the autism children by analyzing the four totally different classifiers such as SVM The present trends in education are moving toward further comprehensive educational experiences for children with autism spectrum disorder, totally different learning styles, and differentiated instructional practices to support all children to succeed. The very important goal of the paper is to predict and forecast the autism spectrum disorder children performance by applying data mining classification algorithms in Weka tool. The data mining tool is accepted as a decision making tool to facilitate higher resource utilization in terms of autism children performance. The classification algorithms may be specifically mentioned as J48 and Support Vector Machine. The results of the classification model deals with the accuracy level, error rate level, confusion matrices, efficiency of classifiers and additionally the execution time. Sequential Minimal optimization (SMO) algorithmic rule with Normalized Poly kernel used in performing classifier SVM and the J48 algorithmic rule is employed in constructing decision trees.

The occurrence of autism and other cognitive disorders like dyslexia and delirium among children of various age groups is one of the principal demanding situations confronted through the health professionals these days. Defining cognitive disabilities need broader research factors, as people with cognitive disabilities are determined to have issue with numerous forms of intellectual tasks. Despite the fact that the reasons behind those problems are not exactly diagnosed by the researchers on this area, there may be usually a high precedence for the prediction of these disorders at an early age. Children and individuals identified with cognitive disorders are found to reveal in problems towards society and people. These difficulties regularly bring about their reduced ability to easily and effectively engage in social and communication interactions. Capability to recognize emotions is also decreased, as there is a loss of attention to the facial region. However, face processing abilities can be advanced through effective training. The research work incorporates out the essential goal of disease prediction among children and in presenting support to maximize the possibilities of gaining knowledge. A vital predictive mechanism desires elements such as recognition and comprehension of verbal and non-verbal cues like facial expressions or eye contact. The research demanding situations embody diverse approaches to classify and categorize cognitive disorders affected children based at the intensity of their learning skills and knowledge in understanding a subject. The need for the early identification of this disorders and right treatment is very important for the growth of these children as well to their family who endures with such disorders.

DESCRIPTION OF ACADEMIC STRESS SCALE

One of the important objectives of the present investigation is to find out the level of academic stress among higher secondary school students for this purpose the investigator used the academic stress scale constructed and standardized by R.Balaji Rao. This scale consists of as many as 40 items and each item has five alternative responses i.e. “No Stress”, “Slightly Stress”, “Moderate Stress”, “Highly Stress” and “Extremely High Stress”. High scores are an indication of high stress and low scores on the scale are an indication of low stress.

III. CONCLUSION

In recent years, it is widely witnessed that a large number of adolescents suffer from behavior and emotional problems. Though several studies have indicated that stress is an important problem in adolescents, there is a dearth of studies that explore the behavior and academic problems in them. Considerable information is available on the academic problems of adolescents in developed countries but comparatively little is known about such problems in Asia. Adolescents find it difficult adjusting to challenges they face during schooling. To play their role effectively, they must have good physical and psychological functioning.

REFERENCES

- [1]. Auerbach, M.S., and Grambling S.E., Stress Management Psychological Foundations U.S.A: Prentice- Hall, Inc., 1998.
- [2]. Carveth, J.A., Gesse, T., & Moss, N. (1996). Survival strategies for nurse-midwifery students. *Journal of Nurse-Midwifery*, 41(1), 50-54.
- [3]. Cohen, F., “Coping” In J.D. Matarazzo, S.M. Weiss, J.A. Herd, N.E. Miller & S.M. Weiss (eds.), *Behavioral Health: A Handbook of Health Enhancement and Disease Prevention*. New York: Wiley, 1984.
- [4]. Deb, Sibnath, Esben Strodl, & Jiandong Sun (2014). "Academic-related stress among private secondary school students in India." *Asian Education and Development Studies*, 3,2, 118-134.
- [5]. Erkutlu HV, Chafra J (2006). Relationship between leadership power bases and job stress of subordinates: example from boutique hotels, *Manage. Res. News* 29(5): 285-297.
- [6]. Fairbrother K, & Warn, J. (2003). Workplace Dimensions, Stress and Job Satisfaction, *J. Managerial Psychol.* 18(1): 8-21.
- [7]. Keinan,G & Perlberg, A.(1986). Sources of stress in Academe: The Israeli Case. *Higher Eduv'cation*, Vol.15,No.1/2,73-88
- [8]. Laney, C., Morris, E.K., Bernstein, D.M., Wakefield, B.M., & Loftus, E.F.,(2008). Asparagus, a love story: Healthier eating could be just a false memory away. *Experimental Psychology*, 55, 291-300.
- [9]. Lazarus, R.S. & Cohen, J.B. (1977). “Environmental Stress”. In I. Altman and J.F. Wohlwill (eds.), *Human Behavior and Environment. (Vol 2)* New York: Plenum.
- [10]. Lazarus, R.S. & Cohen, J.B. (1977). “Environmental Stress”. In I. Altman and J.F. Wohlwill (eds.), *Human Behavior and Environment. (Vol 2)* New York: Plenum.
- [11]. Marwan Zaid Bataineh (2013). Academic stress among undergraduate students: the case of education faculty at King Saud University. *International Interdisciplinary Journal of Education – January 2013, Volume 2, Issue 1*, 82-88.
- [12]. McKean,M.,Misra, R., West, S, and Tony , R.(2000). *College Student Journal*. Vol.34 (2), 236-245
- [13]. Passer, M.W and Smith, R.E (2007) *Psychology: The Science of the Mind and Behavior* (3rd edition) Mc Graw-Hill International edition
- [14]. Rajasekar (2013). Impact of academic stress among the management students of AMET University – An analysis. *AMET International Journal of Management*. Jan-Jun 2013,32-40.
- [15]. Shirom, A.(1986). Students’ stress. *Higher Education*, Vol.15, No.6, 667-676.
- [16]. Help Guide: A trusted non-profit resource. (2009). *Stress relief: Relaxation practices that reduce stress*.
- [17]. Christensen, J., Fatchett, D. (2002). Promoting parental use of distraction and relaxation in pediatric oncology patients during invasive procedures. *Journal of Pediatric Oncology Nursing: Official Journal of the Association of Pediatric Oncology Nurses*, 19(4), 127-132.
- [18]. Zarrett, N., & Lerner, R. (2008, February). Ways to promote the positive development of children and youth (*Research-to-Results Brief*). Washington, DC: Child Trends.