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MEASURING RESILIENCE AND SELF-EFFICACY DURING CANCER TREATMENT

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Abstract: Resilience is a psychological construct observed in some individuals that accounts for success despite adversity. Resilience reflects the ability to bounce back to beat the odds and is considered an asset in human characteristics. The individual's level of resilience seems to play a major role. Being diagnosed with cancer is extremely challenging. Many patients wish to be actively involved in treatment and seek therapy. However, each patient's coping ability and desire to be involved differ. The aim of the study is to learn more about the association between resilience, self-efficacy, and other factors such as demographic and psychological factors. The research was carried out in and around various hospitals in Chennai. 81 patients participated in this study. They were assisted with the Academic Resilience Scale (ARS-30) by Martin and Marsh (2006) and the General Self-Efficacy Questionnaire (GSE-10) by Matthias Jerusalem and Ralf Scehwarzer (1979). The sample consists of age groups between 15 and 17-year-old adolescents. The data was analyzed with correlation and t-tests. The result indicates that resilience plays an important role in the lives of cancer patients. Stabilizing or improving resilience is very important, and focus must be given to strengthening it according to one's own needs. There are several factors that influence resilience. However, there are some factors that are difficult to influence, such as educational background, low income, and other characteristics that are described as vulnerable.

Index Terms **- academic resilience, self-efficacy, cancer patients**

I. INTRODUCTION

The volume of adversities and hardships are a bit more burdened among cancer patients, especially for teenagers who are forced to flounder through life at such a tender age. This cathartic journey of pulling through one's hardships begins with believing that these hurdles can be overturned. Such a journey is made admissible with skillsets such as resilience and self-efficacy. Cancer is a chronic life-threatening disease and the second leading cause of child death. It is diagnosed through different methods such as physical exams, laboratory tests, imaging tests and biopsy. According to a statistical report by the National Cancer Registry reported on 2022, it revealed that among the age groups of 15-19-year-old adolescents, 29.2% of males and 28.5% of females were affected with cancer. During a physical exam, the doctor may look for abnormalities, such as changes in skin colour or enlargement of an organ, that may indicate the presence of cancer. Laboratory tests, such as urine and blood tests, may help the doctor identify abnormalities that can be caused by cancer. In the laboratory, doctors look at cell samples under the microscope. Imaging tests used in diagnosing cancer may include a computerized tomography (CT) scan, bone scan, magnetic resonance imaging (MRI), positron emission tomography (PET) scan, ultrasound and X-ray, among others. During a biopsy, your doctor collects a sample of cells for testing in the laboratory. The type of biopsy method used depends upon the type of cancer that the individual is affected with.

Normal cells look uniform, with similar sizes and orderly organization. Cancer cells look less orderly, with varying sizes and without apparent organization. Although there are some severe unfortunate cases of cancer that cannot be cured completely, there has been a development in the scientific world to enable an effective treatment for the disease. Cancer patients undergo several treatment procedures such as biomarker tester for cancer treatment, chemotherapy, hormone therapy, immunotherapy, photodynamic therapy, radiation therapy, stem cell transplant, surgery and targeted therapy.

Cancer is a disease in which some of the body's cells grow uncontrollably and spread to other parts of the body. Having a child affected by cancer has a revolting effect on the health of their parents and affects their physical and psychological well-being. In order for both the child and the parent to overcome this suffering, they cultivate and/or develop resilience as a part of coping. During cancer treatment, the undergoing procedures that they are subjected to tends to have a varied effect on their cognitive performance and hampers development in different arenas. Cancer patients are affected with a combination of several psychological problems. Due to their diagnosis, they commonly deal with issues such as stress, anxiety and depression among others. Their bodies also undergo some physiological effects such hair loss, pain, tiredness, nausea and vomiting.

I.1. ADOLESCENTS DIAGNOSED WITH CANCER

Adolescents diagnosed with cancer experience a withdrawal in certain aspects of their social life where they tend to be isolated from their social circle, which leads to an eventual worsened quality of life. Quality of life is an individuals' perception of their aims, expectations, interests and ideas, satisfaction and happiness among their cultural and values as a whole. It is a combined outcome of an individual/patient's physical, social and psychological well-being. Additionally, tiredness, anxiety, concern for the future and the family, difficulties to meet basic demands and changes in body image worsen the quality of life of cancer patients. An individual's social support, economic security and faith in recovery improve the quality of life. Thus, it is very important to have a close social circle that can provide and cater to their supportive needs in order to aid the individual to get through this difficult process. Every patient relayed the benefit and value of having a family member present throughout treatment. Although primarily described as physical presence or company during hospitalizations or at home, others also described the value in having family members emotionally available in the event they wish to process it with someone. This can be seen as giving assistance with everyday tasks at home or at the hospital, encouraging the individual with a positive attitude and the sole company of friends and family that provide them with a consistent and comforting company.

1.2. ACADEMIC RESILIENCE

Academic resilience is defined as the ability to effectively deal with setback, stress or pressure in the academic setting. Academic resilience contextualizes the resilience construct and reflects an increased likelihood of educational success despite adversity. It focuses on adaptive cognitive-affective and behavioral responses to academic adversity. There are four factors affecting academic resilience such as social support, emotional control, well-defined learning objectives, and perseverance in EFL learning. Study revealed that learners' emotional control and learning objectives are critical in preserving high academic resilience. Academic resilience plays an important role in coping with the setbacks that a cancer affected individual might face in the stream of academics. It is highly essential for them to adopt such skills to facilitate them to sustain the large-scale effects that the disease has on them.

I.3. SELF-EFFICACY

Self-efficacy refers to an individual's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments. It is a very important aspect of an individual's psychological coping. Self-efficacy reflects confidence in the ability to exert control over one's own motivation, behavior, and social environment. Unlike traditional psychological constructs, self-efficacy beliefs are hypothesized to vary depending on the domain of functioning and circumstances surrounding the occurrence of behavior. In addition to this, academic self-efficacy refers to the students' beliefs and attitudes toward their capabilities to achieve academic success, as well as belief in their ability to fulfil academic tasks and the successful learning of the materials. It has been proven that those with high levels of self-efficacy are more likely to rely on themselves when faced with complex issues to find a solution to the problem, as well as being patient during the process, making more efforts, and persisting longer to overcome the challenges. It is not just enough for the individual to be provided with the necessary resources needed for them to keep up with their academic performances during diagnosis or treatment. It is also pivotal that the individual fosters the right motivation and determination from within which is needed for the individual to want to rise even in the face of adversities. Therefore, it seems that self-efficacy is one of the most important factors in the students' academic success.

2. Developmental context of resilience and self-efficacy among cancer patients

The period of transition from adolescence to adulthood is an important stage of development which is very demanding and unique in nature. There are certain risk factors associated with adolescent cancer patients undergoing treatment. Being affected with a chronic disease such as cancer has an inevitable effect on the individual and causes an emotional distress. The individual may face several self-esteem issues, especially while undergoing chemotherapy. The effects of this may weigh down on an individual's social life as they feel the need to shy away from friends and family due to their diminished self-esteem. They worry about appearing differently to their social circle and tend to remain isolated. During this part of their lives, the individual's social support system is the most important factor of their coping. This affects individuals in the different stages of development such as growing awareness of their sexuality, abstract thinking, identity formation and inferiority complex among others. External factors such as a chronic disease, affects the stability that the adolescent is trying to achieve during development. Diagnosis of cancer has a potential of putting the individual on risk during development which gives rise to emotional, social and behavioral difficulties. While being affected with cancer is extremely stress inducing on its own, the diagnosis puts a burden on the treatment and hospitalization of the disease in addition to the threat of the disease by itself. The individual deals with an already challenging stage of identity development wherein diagnosis and treatment of cancer only disturbs or shakes the process all together.

Self-efficacy, which is subsumed under self-determination, self-regulation, and self-efficacy, is a positive skill-based resource. People's beliefs and expectations about their ability to control or overcome their behavior represent the underlying and central mechanism of human functioning and personal efficacy. Hence, the expectations of self-efficacy are precursors to improving the outcomes of many chronic diseases. The individual needs to cultivate positive health behavior in the occurrence of a chronic illness. Herein, self-efficacy permits an individual to overcome any physical or mental distress that they might encounter while undergoing cancer treatment. The individual also requires a sufficient amount of confidence to be able to adapt to the changes that it brings about. This is where the interference of self-efficacy and resilience plays a role. Resilience paves the way to modify an individual's existing beliefs and helps them tackle the challenges faced in such a way that it promotes positive health behavior. There is a general negative attitude that has been associated with cancer. The aim of using this skillset is to detach this negative attitude where the individual replaces it with a more progressive approach in the light of being able to overcome it. Thus, that is why it is an important factor in the age of adolescence.

3. Research on adolescents and adults affected with cancer

During the exploration of this study, researchers have established that cancer is more common among adolescents. However, researchers have taken more interest towards the psychological effects of cancer on the adolescent population and also want to compare this with the adult population. There is no doubt that the distress experienced varies in intensity among different age groups.

II.RESEARCH METHODOLOGY

The methodology section outlines the plan and method that how the study is conducted. This includes universe of the study, sample of the study, data and sources of data, study's variables and analytical framework. The details are as follows:

4.1 Aim

To assess the academic resilience and self-efficacy throughout cancer treatment

4.2 Objectives

1) To find out the relationship between academic resilience and self-efficacy with demographic details.
2) Analyzing the self-efficacy according to academic resilience.

4.3 Hypotheses

1) There is a significant relationship between self-efficacy and academic resilience with demographic variables.
2) The level of cancer affected academic resilience has predictor for general self-efficacy.

4.4 Resign design and techniques

The present research method used was 'ex post facto' research design. This study being ex post facto type was conducted through descriptive research strategy. The details of methodology and procedure are given below.

4.4.1 Tools Description

1) Academic resilience scale (ARS-30) was constructed in the year of (2006) by Martin and Marsh. In order to evaluate academic resilience, the mentioned test has 30 statements. This scale is a self-report that measures resilience in regards to academics. The Academic Resilience Scale contextualizes the resilience construct and reflects an increased likelihood of educational success despite adversity. This scale has an internal reliability and validity of 0.90.

2) General efficacy scale (GSE-10) was constructed in the year of 1979 by Matthias Jerusalem and Ralf Scehwarzer. In order to evaluate general and social efficacy, the mentioned test has 10 statements. This scale is a self-report that measures self-efficacy. The General Self- efficacy is correlated with emotions, optimism, negative correlation was found for health complaints and anxiety. This scale has the validity and the internal reliability of 0.76 and 0.90 respectively.

4.4.2 Participants

The sample of the present study consists of 81 adolescents, that included both the genders consisting of the age groups between 15-17 years. The participants were chosen from three hospitals in and around Chennai region. The samples were diagnosed with particular types of cancer such as lymphoma, leukemia, carcinoma and malignant bone tumor.

4.4.3 Sampling Procedure

Convenience sample technique was adopted for the selection of samples of 81 participants in which 33 were male and 48 were female.

4.4.3.1 Inclusion Criteria

1)The sample was taken only from cancer patients between age group of 15-17 years.

2) The sample was taken from patients who were undergoing treatment only.

3) It consisted of participants who were affected with cancer types such as lymphoma, leukemia, carcinoma and malignant bone tumor only and were diagnosed within a year.

4.4.3.2 Exclusion Criteria

1) No other cancer patients other than the above mentioned cancer groups were taken as samples.

2) Sample was not taken from patients who have discontinued or stopped treatment.

4.4.4. Data Collection Method

Three hospitals were approached in and around Chennai for data collection. Samples were collected from each individual who are diagnosed with leukemia, lymphoma, carcinoma and malignant bone tumorr. The age groups consist of 15-17 years who have been undergoing treatment from April 2022 to February 2023. They were assessed with academic resilience and self-efficacy and demographic characteristics such as age, types of cancer, treatment and education details were collected. Among 119 samples, only 81 have completed their questionnaires. A few of them did not complete their questionnaire as they felt emotionally disturbed and others handed back an incomplete questionnaire.

4.4.5. Methods Used for Data Collection

Pearson product moment was used to find out the relationship between academic resilience and self-efficacy with the demographic variables such as type of cancer, stages and type of treatment. Regression analysis were adopted for the study to analyse the self-efficacy according to academic resilience.

III. RESULTS AND DISCUSSION

5.1. Results of Descriptive Statistics of Study Variables

Table 1: Pearson's Correlation between academic resilience and self-efficacy with demographic variables

Demographic variable	Pearson's Correlation	P Value
Academic Resilience	0.324	0.003
General Self-Efficacy	0.370	0.0006
Gender	0.224	0.004
Stages of Cancer	0.384	0.0004
Age	0.038	0.032
Cancer Type	0.566	0.0001
Treatment	0.457	0.000

Table 2: Linear regression model of academic cancer resilience based on related factor.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	Resilience	7.734	.681		11.353	.000		
		-.003	.015	-.024	-.218	.828	1.000	1.000

a. Dependent Variable: ARS

5.1.2. Analysis

Table 1 shows The Pearson's Correlation between the scores of academic resilience and general self-efficacy with respect to demographic variables. Statistically, significant correlation was observed between academic resilience (r=.324, p>0.05), general self-efficacy (r=.370, p>0.05). According to the result of linear regression model, academic resilience has a direct relationship with general self-efficacy. Based on present results, academic resilience is associated with general self-efficacy. This shows the psychological states of adolescents diagnosed with cancer, the significant factor decreases with general self-efficacy. Evidences in 22 years show that general self-efficacy plays a crucial role in successful coping. For the purpose of stabilizing academic resilience, it appears to be helpful to introduce a basic programme where individuals adapt according to the patient's status and needs.

5.1.3. Conclusion

Academic resilience and self-efficacy are one of the most important factors in an individual's coping system. It aids individuals, especially those affected with cancer, to oversee all the turmoil and hassles that the illness comes with. This study has aimed at analysing the relationship between academic resilience and self-efficacy among adolescents undergoing cancer treatment. It has been understood that during cancer treatment, their interests, especially that in academics, tends to diminish. On that account, it is vital for the individual to not let go of their academic interests and aspirations. This research has found that there is a significant relationship between academic resilience and self-efficacy. This shows that when the individual exhibits an increase in self-efficacy, their tendency to adapt to gruelling situations also inversely decreases. Resilience is an important factor, particularly for academic resilience, which should be integrated into routine care during adolescence. Due to the fact that most patients' adaptation levels cannot be altered nor revived, self-efficacy and other psychological factors could be indirectly affected. Self-efficacy is the belief that one has mastery over events to meet the challenges as they occur. Enhancing general self-efficacy is associated with better academic resilience in adolescent patients. Interventions for families and cancer patients increases academic resilience and reduces stress by improving self-efficacy could be a helpful programme.

This can be fostered by motivating and encouraging adolescents into seeking group therapy and intervention. They must be made aware of the importance that these factors have, on helping them deal with the treatment process in a more efficient and smooth manner. Improving their general self-efficacy and adjusting their beliefs of treatment in a more positive manner enables them to overcome their fear of undergoing treatment which stabilizes the process. Families and friends can improve their self-esteem and hopes that they require by instilling in them positive and successful stories of cancer survivors.

5.1.4. Implication

Hospitals must provide therapy to cancer patients specifically for improving their adaptability.
Education is an important aspect for all adolescents, especially for cancer patients. Educators play a huge role in this as they can help the individual overcome the impact of the psychological factors.

Due to decreased levels of academic resilience, cancer patients perceive themselves as being unable to cope up with the cancer treatment.

5.1.5. Limitation

1) This study was limited to adolescents between the age groups of 15 to 17 years only.
2) Concerning our research, the study population of 81 participants were split into four different types of cancer, which made it difficult to further investigate the possible relationship between academic resilience and other psychological factors.

5.1.6. Further Research

1) Further research can be conducted using a larger population that can include patients diagnosed with other cancer types.
2) Further research can take into account other psychological variables such as self-esteem, anxiety, distress and also the effects faced by the caregivers than just academic resilience and general self-efficacy.
3) Further research can include participants who have also discontinued treatment. This can study the effects that treatment had on their coping methods.
4) Further research can take in participants who have undergone treatment methods other than what has been studied.
5) Further research can also involve samples from hospitals in rural areas.
6) Further research can widen their participant age groups.
7) Further research can be done that includes intervention programmes for cancer patients.

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