Determining Correlation Between Pediatric Cancer and Mental Health Outcomes in Adult Survivors

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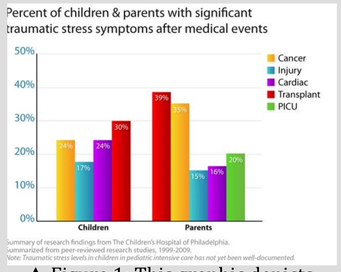
INTRODUCTION

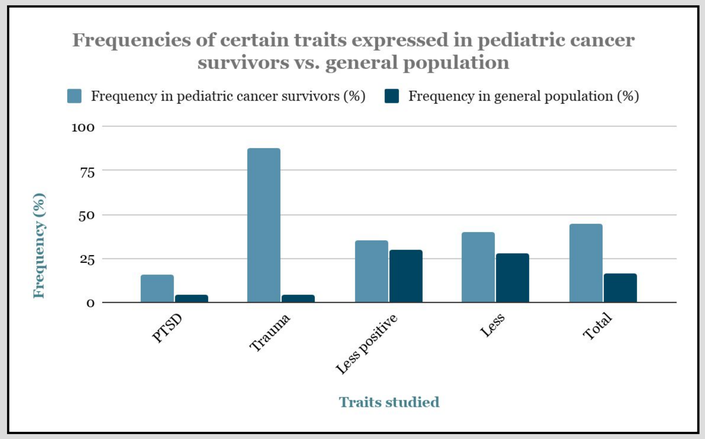
In the U.S., an estimated 15,780 children under 19 are diagnosed with cancer each year (ACCO, 2019). There is a problem with lasting effects on adult survivors of pediatric cancer. Despite the fact that most adult survivors remain healthy for decades, the psychological effects persist (Kazak, 2010), (Sands, 2005). This problem has negatively impacted victims of pediatric cancer because of increased rates of mental illnesses in adulthood (Rourke, 2007). Results from clinical studies showed that pediatric cancer survivors achieved less milestones in adulthood (Stam, 2006), and many of them demonstrated traumatic symptoms (Erickson, 2001), (Shah, 2015), (see Figure 1). Perhaps a study that investigates how these experiences lead to adverse effects such as mental health problems later in life, conducted by a collaborative team of researchers and doctors, could remedy this situation. In addition, the results of this research can help medical professionals best determine the way to lower the rates of traumatic mental health problems, which can potentially improve their quality of life. These reasons illustrate why it is important to determine the correlation between pediatric cancer and mental health outcomes in adult survivors.



▲ Figure 1: This graphic depicts how cancer is among one of the medical events that lead to the trauma in both the children and their parents (Children's Hospital of Philadelphia, 2009).

DATA AND FINDINGS

Traits studied	Sample size	Frequency of trait in pediatric cancer survivors (%)	Frequency of trait in general population (%)
PTSD symptoms	182	16	4
Trauma symptoms	40	88	4
Less positive health beliefs	167	35	30
Fewer milestones achieved in the transition to adulthood	650	40	28
Total	1039	45	17



▲ Figure 2: This bar graph shows how the frequencies of certain traits expressed in pediatric cancer survivors compared to the rest of the population.

◀ Figure 3: This table is a compilation of quantitative data regarding the frequency of certain traits in pediatric cancer survivors and the general population.

CONCLUSIONS AND ANALYSIS

The hypothesis for this study was that there would be a statistically significant difference between the frequency of specific traits in pediatric cancer survivors compared to the general population. However, for purposes of the chi-square test that will be conducted for statistical analysis, the null hypothesis is that there is no statistical difference between the mental health conditions of pediatric cancer survivors and that of the general population.

Four main factors were evaluated: PTSD symptoms, trauma symptoms, less positive health beliefs, fewer milestones achieved in the transition to adulthood. Collected data indicate that the frequency of demonstrating certain traits associated with a lower level of mental health was considerably higher in the pediatric cancer survivors.

The chi-square test is a statistical test that is commonly used on quantitative data. This allows us to determine how much the mental health conditions of pediatric cancer survivors have deviated from the general population. The chi-squared value is calculated to be 1806. The p-value, 0.05, is the probability that the observed results of the test will be obtained. The degree of freedom (total number of traits - 1), is 3. Using the chi-square table, the critical value is 7.82. Since the chi-squared value, 1806, is larger than the critical value, 7.82, at p = 0.05 and df = 3, it can be concluded that the null hypothesis is rejected. Thus, the mental health conditions of pediatric cancer survivors are statistically different from the mental health conditions of the general population.

RESEARCH METHODOLOGIES

Methodology: Quantitative data
Data Collection Tool: Analysis of pre-existing studies

1. Research → **2. Data Collection** → **3. Analysis**

Abstracts of over 20 studies were read ato determine whether the study was relevant to this project.

This phase was conducted by reading through the results of the experiments.

A chi-square test was conducted to analyze the data and show whether the results regarding certain traits were statistically significant.

IMPLICATIONS AND NEXT STEPS

These findings are important because they identify the correlation between the experience of pediatric cancer and the mental health of its survivors. Unlike previous studies, which only focus on one mental health aspect at a time, my study targets a variety of mental health factors. By compiling data from multiple studies, it is possible to draw connections between pediatric cancer and how it affects these children not just after they have finished treatment, but also their development later in life. This means that the findings of this study have much broader implications in relation to its psychological toll on its victims. In addition, the results of this research can help medical professionals best determine the way to lower the rates of traumatic mental health problems that these survivors encounter later in life. Potential changes include providing counseling resources for pediatric cancer patients after their treatment. Many past patients may only develop negative mental health symptoms after they are no longer struggling with cancer. Therefore, increasing the support available to them after cancer treatment may provide beneficial effects to mental health struggles that they experience later in life.

ACKNOWLEDGEMENTS

***Special thanks to the guidance of my mentor Bela Singha, and my AAR teacher Erin Angell. Without your support, this project would not have been possible. I had a great time throughout this entire experience!

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