Analysis of The Reintegration into the Schools of Origin of Teenagers With Cancer In Romania

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ABSTRACT: *The present study aims to analyze the reintegration of adolescents with cancer in the schools of origin in Romania using the preparation scale for the reintegration of adolescents with cancer, which has 8 sub-scales and 71 items after the adolescents have completed the hospital school courses. It was necessary to use this scale because in Romania there is no reintegration scale for adolescents with long hospitalization experience. In June 2023, through a survey, 36 teenagers (15 girls, 21 boys), who lived a long-term experience in a hospital, answered the 71 items of the reintegration preparation scale (RRS) of pediatric oncology in Bucharest Romania, who were students in the hospital school and returned to the school of origin. The scale contains 8 subscales, namely: Self-management of behavior (10 items), Relationships between the student and others (10 items), Self-awareness (5 items), Self-confidence (5 items), Self-organization (12 items), Attitude (10 items), Learning Skills (11 items), Reading Skills (8 items).The study emphasizes the importance of using the reintegration preparation scale (RRS) for adolescent patients in Romania, the results obtained being able to make the interventions of the psycho-educational reintegration team of adolescents with cancer more efficient.*

KEY WORDS: reintegration, adolescent, cancer, school

INTRODUCTION

Pediatric oncology hospitalization can increase children/adolescents' sense of isolation and affect their social-emotional and educational well-being (Pahl et al., 2021). Educational strategies, the level of involvement of educators, teachers, psychologists and practitioners in multidisciplinary teams in hospitals can make a difference in what the educational future of a child treated for a chronic condition will look like and can create an appropriate environment for psycho-development - its educational (Capurso et al., 2021). School reintegration for the student with a serious diagnosis has become a major concern of education specialists, as the phenomenon requires preparation and

coordination between the student, family, health care providers, and school professionals (Hayutin et al., 2019).

The student has different medical needs, cognitive, academic, social and emotional problems such as: fatigue, pain, depression, anxiety, post-traumatic stress, poor psychological functioning, poor physical functioning, etc. (Niță&Popa, 2023). A study from 2021 (Burns et al., 2021) shows the importance of attending school in the hospital by children and adolescent patients, for their psycho-emotional life, as well as the need for adequate planning of their optimal reintegration in the school of origin (Burns et al., 2021).

In the spirit of objective research into the most effective way to achieve the reintegration of children and adolescents who have benefited from hospital education, we believe that the Reintegration Readiness Scale for children and adolescents with hospital experience (RRS) with 71 items and 8 subscale developed by Jane McSherry and John Ivens (McSherry, 2012) is a viable tool for quantifying real data. Its 8 subscales, which served us as support in our approach, are: Self-management of behavior (10 items), Relationships between the student and others (10 items), Self-awareness (5 items), Self-confidence (5 items), Self-organization (12 items), Attitude (10 items), Learning skills (11 items), Reading skills (8 items).

METHODOLOGY

The study was conducted in June 2023 through a survey, and the number of respondents was 36 teenagers (15 girls, 21 boys), who lived a long-term experience in a pediatric oncology hospital in Bucharest, Romania.The working hypothesis was that the adolescents have good reintegration skills in the educational activities that were to be carried out, once they leave the school from the hospital and return to the school of origin.

To assess the reintegration capacity, the RRS scale with 71 items highlighted above was used, after obtaining the consent of its author, John Ivens, and carrying out the translation. The author presented this scale and a study at the hospital school conference in Milan 2023, organized by HOPE (Hospital Organisation, Pedagogues Europe). After the agreement to translate the reintegration preparation scale was obtained, the translation was carried out by two authorized Romanian translators into English. The differences between the two translations were discussed, then a Romanian version was finalized. Another authorized translator retranslated this version into English and there were no intelligible differences from the original English version. The JASP 0.16.1 statistics program (Goss-Sampson, 2022) and excel were used for the statistical analysis of the obtained results. The following psychometric approaches were used: internal consistency reliability and factorial structure of the instrument (Sousa&Rojjanasrirat, 2011).

The association between response categories was analyzed using linear regression between items, to identify which variables are particularly significant predictors of the outcome variable, and to explain the relationship between a dependent variable and one or more independent variables. Regression analysis helps us understand how much the dependent variable changes with a change in one or more independent variables, and in this analysis the following indicators were used: Coeffcient - the regression coefficient that represents the average change in the response variable for a single unit change in the predictor variable while holding other predictors in the model constant; std error - the standard error is an estimate of the standard deviation of a coefficient; P -value a predictor with a low p -value is a significant addition to the model because changes in the predictor value are correlated to changes in the response variable; Constant - ensures that the residuals do not have an overall positive or negative trend and serves as a dustbin for any bias not explained by the terms in the model; Correlation Coefficient: r^2- expresses the intensity of the connection between the regression series, and r>0 indicates direct connections and r close to +1 indicates a close connection between the variables; Sum of Squares- gives information about how long the estimated regression line is from the horizontal "no relationships" line; Mean Square - provides information about the differences between the samples; F-statistic- tells if a group of variables are jointly significant; Residuals - the difference between the observed value and the predicted value (Sava, 2011).

RESULTS/FINDINGS

36 adolescents participated in the study (M=16 years +- 5 SD, CI 95%) of which 15 are girls and 21 are boys, of which 33 attend the hospital school. The content validity of the scale was analyzed from item-scale correlations. The item-scale correlation coefficients related to the items in the 8 subscales indicate a significant relationship between the answers to the items and the total score of the test because they vary between 0.71 and 0.88, the average being r_{it}=0.80 (Popa, 2011). Results support the content validity of the subscales of the reintegration readiness scale for adolescent Cancer. For the convergent criterion validity, the subscales from the PedsQL quality of life questionnaire (Stirbu&Nita, 2019) that refer to cognitive problems and communication were used, the correlation coefficient being 0.02. For divergent criterion validity, the anxiety and depression assessment test of adolescents with cancer HADS (Stirbu&Nita, 2019) was used, the correlation coefficients being 0.19 and 0.31, respectively. Criterion validity results indicate that the School Reintegration Readiness Scale and the subscales of the PedsQL Quality of Life Questionnaire that relate to cognitive and communication problems measure common aspects of the experiences of adolescents with cancer in the context of school reintegration, and the scale readiness for school reintegration and the anxiety and depression scale measure distinct aspects of the experiences of adolescents with cancer in the context of school reintegration.

For the fidelity of the statements, the internal consistency (α Cronbach) was calculated in Excel, and the internal consistency has a value of 0.98, which is a very good result

(Popa, 2011) for the reliability of the internal consistency that confirms that the elements in the test are correlated with each other. The factor analysis of the eight sub-scales, namely self-management of behavior, relationships between the student and others, self-awareness, self-confidence, self-organization, attitude, learning skills and reading skills indicates a strong influence of the variables in the analyzed data ($\chi 2$=49, 601; df=20; p<0.01). Exploratory analysis ($\chi 2$=47.680; df=20; p<0.01) and confirmatory analysis ($\chi 2$=55.381; df=20; p<0.01) rejected the null hypothesis that there is no significant association between the measured variables (Sava, 2011).

The total score of the reintegration readiness scale indicates a good level, and the dimensions with the best level are: attitude, self-confidence, relations between the student and others. (table 1)

Table 1- Results of the preparation for reintegration scale on each subscale

Subscale	Result	% of maximum result
Self-management of behavior	32	80
Relations between the student and others	35	**88**
Self-awareness	16	80
Self-confidence	14	**88**
Self-organisation	45	87
Attitude	36	**90**
Learning skills	37	84
Reading skills	27	84
Total	248	86

The interaction between the dependent variable *learning skills* and the independent variable *attitude* (table 2) was analyzed through the regression model, the result obtained is statistically significant p=0.00 (p<0.05, F-test), and 60% of the variance *learning skills* can be determined by *attitude*.

Table 2- Linear Regression- Learning skills

Variable	Coefficient	Std Error	t-stat	P-Value
Attitude	0,87	0,13	7,14	0.000
CONSTANT	12,85	4,39	2,93	0.000
Correlation Coefficient:		**r^2**=0.60		

Source	df	Sum of Squares	Mean Square	F-statistic
Regression	1	456,10	456,10	51,03
Residuals	34	303,81	8,94	
Total	35	760		

The interaction between the dependent variable *relations between the student and others* with the independent variable *reading skills* (table 3) was analyzed through the regression model, the result obtained is statistically significant, p=0.00 (p<0.05, F-test), and 60% of the variance in *relations between the student and others* can be accounted for by *reading skills*.

Table 3- Linear Regression- Relations between the student and others

Variable	Coefficient	Std Error	t-stat	P-Value
Reading skills	0,94	0,13	7,21	0.000
CONSTANT	10,36	3,51	2,95	0.000
Correlation Coefficient:		r^2=0.60		
Source	df	Sum of Squares	Mean Square	F-statistic
Regression	1	448,05	448,05	52,00
Residuals	34	292,92	8,62	
Total	35	740,97		

The interaction between the dependent variable *self-management of behavior* and the independent variable *self-awareness* (table 4) was analyzed through the regression model, the result obtained is statistically significant p=0.00 (p<0.05, F-test), and 39% of the variance of *the self-management of behavior* can be determined by *self-awareness*.

Table 4 - Linear Regression – Self-management of behavior

Variable	Coefficient	Std Error	t-stat	P-Value
Self-awareness	1,20	0,26	4,66	0.000
CONSTANT	13,01	4,19	3,10	0.000
Correlation Coefficient:		r^2=0.39		
Source	df	Sum of Squares	Mean Square	F-statistic
Regression	1	444,09	444,09	21,69
Residuals	34	696,13	20,47	
Total	35	1140,22		

The interaction between the dependent variable *self-confidence* and the independent variable *self-management of behavior* (table 5) was analyzed through the regression model, the result obtained is statistically significant p=0.00 (p<0.05, F-test), and 25% of the variance *self-confidence* can be determined by *self-management of behavior*.

Table 5- Linear Regression- Self-confidence

Variable	Coefficient	Std Error	t-stat	P-Value
Self-management of behavior	1,20	0,26	4,66	0.000
CONSTANT	13,01	4,19	3,10	0.000
Correlation Coefficient:		r^2=0.25		
Source	**df**	**Sum of Squares**	**Mean Square**	**F-statistic**
Regression	1	56,63	56,63	11,33
Residuals	34	169,92	4,99	
Total	35	226,55		

DISCUSSION

The disease, in the essence of its development, as well as the effects generated by the treatment such as pain, fatigue, physical damage, decreased immunity) or cognitive ones developed later (such as decreased attention, memory) can be new barriers or challenges for students, parents, peers or for classroom teachers, and the period of adolescent reintegration must take into account all these aspects (Jacola et al., 2016; Reddick et al., 2014).

At the end of the treatments of a student with a chronic diagnosis, the reintegration process must take place in 5 stages, of which the first 4 can be concurrent or successive:
1. the preparation of the student, former patient and former student in the hospital school, for returning to his school,
2. training the teachers from the school of origin to work with the student returned from the hospital school,
3. preparing the group of students for readjustment with it, with its new physical, psycho-emotional and behavioral characteristics,
4. preparing the parents of the students to support the parents of the returned child and himself,
5. the actual reintegration, monitored by a teacher from the school of origin, designated by the institution's management, who will collaborate with the tutor teacher from the school in the hospital, with the student's classmates, with his teachers and parents, with the other parents.

Our study only follows the way in which the reintegration of the hospitalized student was achieved in the school of origin, as perceived by him. From the analysis of the obtained data, it appears that, although the reintegration process of many children or adolescents with cancer is within optimal parameters, the process of transition and readjustment and regaining the status of student and colleague in the school of origin requires a lot of effort on their part , colleagues, teachers, parents. From this, we deduce that, after the end of the treatment, the students should be intensively and effectively supported to facilitate this back to school process in the most natural way (Inhestern et al., 2020). A 2015 meta-analysis highlighted that cognitive, behavioral and problem-solving interventions have the potential to improve school reintegration of children and youth with acquired brain injury (Lindsay et al., 2015). At the same time, a 2017 study (Lum et al., 2017) offers two recommendations for standards of educational care in health and education systems:

-In collaboration with parents, school-aged youth diagnosed with cancer should receive school re-entry support that focuses on providing school staff with information about the patient's diagnosis, treatment, and implications for the school environment, and providing recommendations to facilitate the experience school of the child.

-Pediatric oncology programs should identify a team member with the necessary knowledge and skills to coordinate communication between the patient/family, school, and health care team.

At the same time, we consider it important that, in the reintegration process, the needs of the staff of the school of origin should be explored at several times, in order to manage the unique academic needs, possibly of career change or reorientation, the social-emotional, physical and medical needs of children/adolescents with cancer in the classroom (Klein et al., 2022; Braun et al., 2023). In the psychosocial standards of care of Pediatric Blood & Cancer, the obligation of the hospital school, of the attending physician to provide information to the staff of the school of origin about the patient's diagnosis, the treatment performed, its impact on learning, as well as recommendations regarding the way to support the student is emphasized in the classroom (Thompson et al., 2015). The aim is to alleviate the challenges of the re-entry process after diagnosis and treatment; even if, in most cases, the school staff is well-intentioned in relation to the student who returns to the bank after hospitalization, they do not have the necessary medical and psychological knowledge to ensure his educational needs, citing the obvious lack of training.

A 2022 study underlines the need of teachers from schools of origin of cancer children/adolescents for individual communication with a professional from the school in the hospital in addition to the various written information they receive regarding the disease, educational and emotional needs (Otth&Scheinemann, 2022). Just as in the hospital school, the teaching process is carried out on the basis of an individual training and education plan, all interventions and reintegration assistance must be personalized

for former patients, to reduce stigma and differentiation from other students, ensuring academic assistance discrete (Fotheringham et al., 2021).

CONCLUSION

The results obtained from this study can support the psycho-educational reintegration team in schools in Romania, to make individual intervention plans more efficient, because the variance of learning skills can be determined by attitude, the variance of relationships between students and others can be determined by reading skills, behaviour variance can be driven by self-awareness and self-confidence variance can be driven by behaviour.

Future Research
The limits of the study are the small number of adolescents with cancer who participated and the fact that these participants were only from pediatric oncology hospitals in Bucharest. Future research is needed with children and adolescents with cancer and from other pediatric oncology hospitals in Romania, possibly in those researches to use other psychoeducational assessment and intervention tools in addition to the reintegration preparation scale.

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