Psychological Well-Being and Adjustment to Illness of Adolescents with Cancer

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Abstract: Psychological well-being differs from healthy people to chronic patients and a relevant factor involved in this difference is adjustment to illness. Adjustment to illness is essential for the life to continue, as some illnesses are either incurable or very serious, and the recovery process is long, painful and requires sacrifices. Our aims are to (1) investigate the association between psychological well-being and adjustment to illness and (2) identifying the factors of personality and copping strategies which can predict psychological well-being and adjustment to illness seen like the impact of chronic illness in social functioning. We questioned adolescents aged between 11 and 18 years, patients of Oncology Department of Children`s Hospital `Sf. Maria` Iasi. The results show significant correlations between psychological well-being and adjustment to illness in adolescents with cancer, a high level of psychological well-being is associated with a low impact of chronic illness in social function and it were found factors of personality and coping strategies which could predict psychological well-being and adjustment to illness.

Keywords: psychological well-being, adjustment to illness, cancer, adolescent, impact of illness in social function

Introduction

Nowadays we often hear the wish of "Health, Better Than All!". Indeed, health is one of the most valuable things a person has, and yet, awareness of value takes place only after his loss. Researchers have been concerned about the importance of health when it comes to people's happiness. The results of previous studies show that health influences people's happiness (Diener, 1998). The process of adapting to illness becomes even more challenging when sick people are teenagers.

In 2014 in America 15780 new cases of cancer and 1960 deaths were reported as a result of this illness. The annual incidence of cancer among children and adolescents is 168.6 cases per million (Ward et al., 2014). Cancer is the second leading cause of mortality in Europe, with 1 in 3 Westerners predisposed to life-long cancer (Buceta, Bueno, Mas, 2001). Romania occupies the 10th place among European countries as regards cancer patients (Martel et

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al., 2012). The adolescents with a chronic condition have a high degree of disability, distress, anxiety and depression (Eccleston, et al., 2004). Girls with a chronic illness report emotional problems, a negative state of mind, and feel that nothing can make them feel better, have suicidal thoughts, a depressive symptomatology, and have personal problems that require specialized help (Suris et al., 1996). Adults who have suffered a chronic illness in childhood have a lower rate of marriage and employment (Pless et al., 1989) and lower incomes (Gortmaker et al., 1993). Adolescents suffering of a chronic illness need support to adapt to the new condition (Adams et al., 2002). For this reason, we are interested to find the psychological factors which can improve the quality of life of the adolescents with cancer.

Psychological Well-Being of Adolescents with a Chronic Illness

Quality of life was defined as `individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad ranging concept affected in a complex way by the persons' physical health, psychological state, level of independence, social relationships and their relationship to salient features of their environment (The WHOQOL Group, 1995). Ryff (1989) proposes a multidimensional model of psychological well-being that captures six different areas of optimal personal development: Self-acceptance, Positive Relations with Others, Autonomy, Environmental Mastery, Purpose in Life, Personal Growth.

Adolescence is the period of transitions which implies a serious number of physical and psychological changes that occur with puberty as self-concept, identity, sexual orientation, sexual identity, self-esteem (Casullo, 2002). Adolescents with cancer face many challenges that can have a negative impact on their psychological well-being. They can acquire a modified self-image, caused by body changes and disease-specific symptoms. They associate their lives with that of a prisoner, an invalid, a zombie. They think they have the life of a child, of a foreign person, of a fool or a life that does not belong to them (Woodgate, 2005).

Psychological Adjustment to Chronic Illness

Chronic illnesses are prolonged, do not resolve spontaneously, and are rarely cured completely [Centers for Disease Control and Prevention (CDC) 2003]. In the case of adolescents, chronic disease can interfere with their development, making them even more vulnerable to psychological and social problems (Lavigne & Faier-Routman, 1992). Adolescence is characterized by a strong concern for the body and physical appearance. Any alteration of the physical appearance caused by a chronic illness can influence the adolescent's perception of body image and self-concept, making it difficult to express sexual

experiences (Falvo, 2005). Adolescents with a chronic illness also pose a risk for a second disability associated with psychosocial factors (Thoits, 1995).

Psychological adjustment to chronic illness is a multifaceted and dynamic process that includes: mastery of disease-related adaptive tasks, preservation of functional status, perceived quality of life in several domains, absence of psychological disorder, and low negative affect (Stanton et al., 2001).

Garnefsky et al. (2001) conceptualized nine cognitive emotion coping strategies to face with the life stress: *Self-blame*, *Other-blame*, *Rumination*, *Catastrophizing*, *Putting into perspective*, *Positive refocusing*, *Positive Reappraisal*, *Acceptance*, and *Refocus on planning*. Self-blame refers to making internal, stable, and global causal attributions for the experience of negative events and is related to higher levels of depression (McGee, Wolfe, & Olson, 2001). Other-blame presupposes blaming others for what you have experienced and it is associated with behavioural problems (McGee et al., 2001). Rumination refers to have repetitive thoughts and is related to decreased psychological well-being and depression (NolenHoeksema, 2000). Catastrophizing represents explicit thoughts that emphasize the terror of an experience. It is in association with maladaptation, emotional distress, and depression (Sullivan, Bishop, & Pivik, 1995). Putting into perspective refers to decrease the gravity of the event and emphasizing its relativity in comparation with others events (Allan & Gilbert, 1995). Positive refocusing, positive reappraisal, acceptance, and refocus on planning have moderately positive relationships with optimism and self-esteem and negative relationships with depression and anxiety (Carver, Scheier, & Weintraub, 1989; Janoff-Bulman, 1992). The literature supports the fact that all this nine cognitive emotion coping strategies are important for understanding of mental ill-health (Garnefsky et al., 2002).

Personality, Psychological Well-Being and Adjustment to Chronic Illness

Personality is seen as a product of five factors: *Extraversion*, *Agreeableness*, *Conscientiousness*, *Neuroticism* and *Openness* (Howard & Howard, 2004). Personality is responsible for how individuals react in different circumstances (Paunonen, Haddock, Forsteling & Keinonen 2003) and predicts life satisfaction among people less than 40 years old with a chronic illness (Cloninger & Zohar, 2011). Rassart et al. (2018) found important associations between extraversion, agreeability, conscientiousness and adjustment to illness. Emotional instability predicts increased stress, and a high level of stress predicts decreases in emotional stability and agreeableness (Rassart et al., 2018). The results of Boyce and Wood (2011) show that agreeability influences the way people adapt to the new condition. Agreeableness makes people open to indications and advice, these facts having important psychological benefits (Ingledew and Brunning, 1999) and influences the quality of social

relationships after illness onset. Agreeableness is associated with the use of helpful coping strategies (Lawson et al., 2010).

Other important elements of adjustment to a chronic illness are life satisfaction and well-being in various domains (De Ridder et al., 2008) although few studies have investigated this relationship (Carver et al., 2005). The factors that play an important role in predicting well-being both in the short and long term are psychosocial variables, the role of medical variables being small (Carver et al., 2005). Previous research showed positive relationships between the components of adjustment (personal achievement, self-determination and adaptation) and dimensions of well-being: positive affects (Tugade and Fredrickson, 2004); optimism (Grant and Higgins, 2003) and coping strategies focused on problem (Hatchett and Park, 2004). Because of this **the first aim** of this study is examining the relationship between psychological well-being and adjustment to illness; we expect a negative correlation between psychological well-being and impact of chronic illness on social function. **The second aim** is identifying personality factors and coping strategies that can predict psychological well-being and adjustment to chronic illness.

Method

Participants

All adolescents who were under medical care of the Children's Hospital "Sf. Maria "Iaşi for cancer were asked to participate the the study. The parents' consent was also obtained. The participants include 18 adolescents, 10 girls and 8 boys, aged between 11 and 18 years.

Measures

The cognitive emotional regulation (CERQ) is a scale built by Garnefsky et al. (2002b), which includes only the cognitive aspects of coping, in order to distinguish between "thinking" and "acting properly" with a negative life event. CERQ distinguishes between nine different coping strategies in nine subscales, each with four items (Garnefsky et al., 2002b): Self-blame, Other-blame, Rumination or focus on though, Catastrophizing, Putting into perspective, Positive refocusing, Positive reappraisal, Acceptance, Refocus on planning. The questionnaire contains 36 items, for each question the respondents choose one of the given answers: almost never, sometimes, usually, often, almost always. The coefficient of internal consistency of the scales varies from .63 to .84, with the exception of the Acceptance scale ($\alpha = .59$).

Living with Chronic Illness (LCI) was built by Adams et al. (2002) to assess the adjustment to the chronic illness, specifically the impact of chronic illness on social functioning in children with a chronic illness. LCI is a dichotomical scale (true/false) addressed to children and adolescents aged between 9 and 18 years and includes 29 items. If the respondent answer `false`

he is asked to respond to the next item. If he choose `true`, then he continues with the same item which also includes two variants: `yes` and `no`, in answer to the following question: "Is this due to illness or treatment?". If the respondent choose `yes` then he is asked to indicate how much it bothers him, having the following variants of answer `not at all`, `very little`, ` quite enough` and `very much`. Two scores are calculated: Illness-related social difficulties (ID) with the minimum score 0 and maximum 87 and Non-illness-related social difficulties (NID) with the minimum score 0 and the maximum 29. The coefficient of internal consistency of the subscale of Illness-related social difficulties (ID) is .76 and the value of internal consistency of the Non-illness-related social difficulties subscale (NID) is .82. Alpha Crombach for all items has the value .78.

Five Factor Personality Inventory - Children (FFPI-C) built by McGhee, Ehrler, & Buckhalt in 2007 investigate five dimensions of personality dispositions in children and adolescents. The FFPI-C is based on a theoretical model of personality developed by Allport and Odbert (1936) and includes five factors: Agreeability, Extraversion, Openness to Experience, Consciousness and Emotional Stability. Each item contains two opposing statements, the subject having the task of filling one of the five circles that are between the statements, coted from 1 to 5, where 1 means agree, 2 partially agree, 3 neither agree nor disagree, 4 partially disagree and 5 disagree.The coefficient of internal consistency of the subscales varies from .68 to .87 and the overall coefficient of internal consistency is .78.

Psychological Well-Being (BP) is an inventory built by Ryff and Keyes (1995) which includes statements on six areas of well-being: Self-Acceptance, Environmental Mastery, Purpose in Life, Positive Relations with Others, Personal Growth, and Autonomy. Respondents complete a 6-step Likert scale where 0 means strong disagreement and 5 strong agreement, the answer that fits them best. Psychometric properties: the coefficients of internal consistency calculated for each scale have a value greater than 0.70 (α self-acceptance .93, α positive relations with others .91, α autonomy .86, α environment mastery .90, α purpose in life .90; α personal growth .87)

Results

The Relationship between Psychological Well-Being and Adjustment to Illness

Using the correlations, the results show that there are significant correlations between the different components of psychological well-being and the dimension of impact of chronic illness on social functioning (adjustment to illness) as well as between the two global factors.

Table 1. Correlations between Psychological Well-being and Adjustment to illness

	Illness-related social difficulties	Non-Illness-related social difficulties	Living with Chronic Illness
Self-acceptance	-0,443*	-0,500*	-0,480*
Positive relations with others	-0,367*	-0,441*	-0,424*
Autonomy	-0,396*	-0,395*	-0,407*
Environmental Mastery	-0,393*	-0,467*	-0,444*
Psychological Well-being	-0,477*	-0,427*	-0,477*
Mean	12,90	12,91	67,97
Std. Dev	7,51	18,59	23,74

Note. *p<.05 **p<.001

Psychological well-being correlates significantly both with the total score obtained at the Living with Chronic Illness and with each subscale: Illness-related social difficulties and Non-Illness-related social difficulties. Moreover, four from six dimension of psychological well-being (Self-acceptance, Positive relations with others, Autonomy and Environmental Mastery) correlates significantly with the two dimension of the impact of chronic illness on social function (See table 1) and with the total score too.

The association between psychological well-being and the impact of chronic illness on social function, both generally and on dimensions is negative. Therefore, those who have a high score on psychological well-being, and its components have a low score on the impact of chronic illness on social function, on Illness-related social difficulties or Non-Illness-related social difficulties.

Personality Factors and Coping Strategies that Predict Psychological Well-Being and Adjustment to Illness

Before constructing the predictive models, the necessary conditions were checked and, following their examination, the following conclusions were reached: independent and dependent variables are quantitative and normally distributed, the relationship between them is linear, multicolinarity is avoided, errors are normally distributed, and there are no extreme cases.

Table 2. Predictive models of psychological well-being

Model	**Personality factors**	**B**	**β**	**t**
I	Extraversion	0,644	0,330	2,921*
	Openness	0,757	0,322	3,545**
68,4%	Conscientiousness	0,185	0,125	1,242
	Neuroticism	0,776	0,391	3,438*
F	Sig **R**	**R^2**	**R^2aj**	**Fch**	**Sig Fch**
32,377	< .001 .840	.706	.684	32,377	< .001
Model	**Personality factors and coping strategies**	**B**	**β**	**t**
II	Extraversion	0,619	0,317	2,685*
	Openness	0,669	0,282	2,872*
72,4%	Conscientiousness	0,162	0,109	0,934
	Neuroticism	0,840	0,423	3,886**
	Self-blame	0,518	0,098	0,865
	Acceptance	0,626	0,107	1,038
	Rumination	-0,540	-0,096	-0,769
	Positive refocusing	-0,650	-0,115	-0,971
	Refocus on planning	0,473	0,066	0,568
	Positive reappraisal	1,386	0,221	2,282*
	Putting into perspective	0,695	0,132	1,261
	Catastrophizing	-0,048	-0,009	-0,071
	Other-blame	-0,774	-0,170	-1,650
F	**Sig** **R**	**R^2**	**R^2aj**	**Fch**	**Sig Fch**
12,687	<0, 001 0,886	0,786	0,724	1,864	0,083

Note. *p<.05 **p<.001

The model that predicts the greatest variance of psychological well-being contain four personality factors: Extraversion, Openness, Consciousness and Neuroticism, and all of nine coping strategies: Self-blame, Acceptance, Rumination, Positive Refocusing, Refocus on Planning, Positive Reappraisal, Putting into Perspective, Catastrophizing and Other-blame and predicts the dependent variable in proportion of 72.4% [(Raj = 0.724; p <0.001); See Table 2].

Table 3. Predictive models of adjustment to illness

Model	**Personality factors**		**B**		**β**	**t**
I	Extraversion		-0,126		-0,051	-0,364
	Openness		-0,152		-0,055	-0,450
30,8%	Conscientiousness		-0,072		-0,041	-0,292
	Neuroticism		-1,151		-0,507	-3,320*
F	**Sig**	**R**	**R^2**	**R^2ch**	**Fch**	**Sig Fch**
10,018	<0, 001	0,585	0,342	0,308	10,018	<0,001
Model	**Personality factors and coping strategies**		**B**		**β**	**t**
II	Extraversion		-0,461		-0,185	-1,271
	Openness		-0,291		-0,105	-0,840
	Conscientiousness		-0,098		-0,056	-0,358
38,5%	Neuroticism		-0,990		-0,436	-2,826*
	Self-blame		-1,425		-0,237	-1,805
	Acceptance		-1,564		-0,214	-1,814
	Rumination		2,131		0,319	2,339*
	Positive refocusing		1,894		0,292	1,981
	Refocus on planning				0,043	0,301
	Positive reappraisal		-0,180		-0,025	-0,206
	Putting into perspective		-1,311		0,214	-1,775
	Catastrophizing		0,042		0,006	0,042
	Other-blame		1,472		0,255	2,182*
F	**Sig**	**R**	**R^2**	**R^2ch**	**Fch**	**Sig Fch**
4,900	<0, 001	0,695	0,484	0,385	2,069	0,045

Note. *p<.05 **p<.001

38.5% of the variance of the impact of chronic illness on social function is explicated by a prediction model composed of four personality factors: Extraversion, Openness, Consciousness, Neuroticism and nine coping strategies: Self-blame, Acceptance, Rumination, Positive Refocusing, Refocus on Planning, Positive Reappraisal, Putting into Perspective, Catastrophizing and Other-blame [(Raj = 0.385; p <0.001); See Table 3].

Discussion

The first aim of this study was to examine the relationship between psychological well-being and adjustment to illness; specifically, we expected a negative correlation between psychological well-being and the impact of chronic illness on social function. Our hypothesis is confirmed because a significant negative correlation has been found between psychological well-being and the impact of chronic illness on social function. These results sustain the conclusion of many researchers who proposed the fact that the studies should take into account both the significance of the psychological dimensions affected, as well as the subjective experience of pain, anxiety, depression, stress or adaptability (Diener et al., 1999). Omar, Uribe and Maltaneres (2005) have demonstrated significant relationships between subjective well-being and adaptability. Also Omar (2005) indicated significant positive correlations between the components of capacity of adjustment (personal achievement, self-determination and adaptation) and certain dimensions of subjective well-being. Jones et al. (2003) believe that adjustment to the new condition is mainly determined by personal, family, scholar and social factors. This factors are surprised the Living with Cronic Illness (LCI) Questionnaire. Other researchers reported positive correlation between capacity of adjustment and positive affects (Tugade and Fredrickson, 2004), optimism (Grant & Higgins, 2003), perception (Charney, 2004), expectations and achievements (Omar, Uribe & Maltaneres, 2005).

Similarly, negative associations between adjustment and anxiety (Feltsten, 2004), or negative impacts (Omar, 2005) have been found. The second aim is identifying personality factors and coping strategies that can predict psychological well-being and adjustment to chronic illness. It was found models that explain a significant percentage of psychological well-being and adjustment to illness. These findings are related to the previous researches. It seems that extraversion and neurosis have a significant influence on psychological well-being (Costa and McCrae, 1980; DeNeve and Cooper, 1998). According to this authors, extraversion influence positive affect, while neurosis has an important effect on negative affect. However, the relationship between personality and psychological well-being cannot be reduced to this two factors (Garcia, 2004). As evidence this study illustrate four factors of personality and nine coping strategies as significant predictors of psychological well-being. Regarding adjustment to illness, our results are consistent with the previous findings. Goetzman et al. (2005) find a significant percentage of social functioning of chronic patients explained by personality factors, neurosis, openness to new, extraversion, conscientiousness and agreeability. In his vision neurotisism is the most important predictor of social functioning in case of chronic illness. In adition, social functioning with its components, illness-related social difficulties and non-illness-related social difficulties can be

predict by the beliefs that the others are guilty for the clinical condition (blame the others) or rumination (Anderson, Miller, Riger, Dill & Sedikides, 1994, et al., Garnefski et al., 2001). These studies showed that this copping strategy is associated with depression.

Conclusions

In spite of numerous studies in the field, none have linked the components of psychological well-being with the impact of chronic illness in social function. Following the examination of relationship between psychological well-being and adjustment to illness seen as the impact of chronic illness on social function (objective 1), significant correlations are established between four of the six components of psychological well-being (self-acceptance, positive relations, autonomy, environmental mastery) and the two components of the impact of the chronic illness on social function (illness-related social difficulties and non-illness-related social difficulties). Moreover, it was find a significant correlation between the global results of the psychological well-being and adjustment to illness. The results are consistent with those obtained by other researchers (Omar, Uribe and Maltaneres, 2005).

The relationship between self-acceptance and adjustment to illness shows that a positive attitude towards one's self, knowledge and acceptance of the self, positive feelings about the past are associated with a low degree of difficulty and distress in terms of social functioning: attending classes at school, participation in various extracurricular activities, establishment of friendly relations with colleagues, neighbors, etc., projects at school, but also at home, etc. This relationship is set at 19, 62% of the population surveyed.

The correlation between relationships and impact of chronic illness on social function highlights the fact that a person who is open, satisfied, confident in dealing with others, interested in the well-being of others, empathic, affectionate, who understands the costs and benefits of a relationship has many good friends, work with them, practice sports together, meet with them both at school and under other circumstances. The relationship between autonomy as a dimension of psychological well-being and the impact of chronic illness on social function illustrates that some characteristics such as self-determination, independence, resilience to social pressures, regulation of behavior according to personal standards are associated with participation in various school and extra-curricular activities, initiating personal and group projects, at home and at school, maintaining relationships with the group of peers. This relationship characterizes 15, 68% of adolescents who participated in the study.

In terms of identifying personality factors and coping strategies that predict psychological well-being and impact of chronic illness of social functioning, objective 2 of the research, statistical analyzes have led to the construction of several significant predictive models. In the case of psychological well-being as

a criterion, the model predicting the highest percentage of its variance is represented by extraversion, openness, consciousness and emotional stability factors and the following cognitive coping strategies: self-blaming, acceptance, rumination, re-orientation to positive aspects, planning, positive re-evaluation, looking from a new perspective, catastrophe, blaming others The most powerful predictors are: emotional stablity, extraversion, openness to experience and positive re-evaluation. The most important predictors of the adjustment to the illness of chronic patients are: emotional stability, rumination and the accusation of others. These results are consistent with those of Nolen-Hoeksema, Parker and Larson (1994) and Garnefski et al. (2001), which focused attention on the thoughts and feelings associated with the illness which are associated with a high level of depression.

The main limitations of this study are that it did not take into account the stage of the illness, and the low number of subjects.

Practical implications

The investigation highlights the importance of psychological aspects of well-being and adjustment to illness of adolescents with cancer. The main beneficiaries of this study are the patients with a chronic illness because it seems very clear that the psychological factors are very important. In this sense it is necessary to create programs of intervention and support for the patients with cancer, as in other countries it is already exist (Buceta et al., 2001).

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