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Functional and dysfunctional beliefs in relation to adolescent health-related quality of life

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ABSTRACT

While existent data emphasizes the need to improve children's transition to adulthood, health professionals are confronted with lack of knowledge regarding mechanisms underpinning adolescent health-related quality of life (HRQOL). Recent research indicates that there is a link between individuals' dysfunctional beliefs and physical symptoms. The current study investigated the roles of functional and dysfunctional beliefs in adolescent HRQOL, while also taking into account age- and gender-related differences. A sample of 14- to 17-year-old adolescents ($N = 238$) was included in the analyses. HRQOL was measured with an instrument assessing adolescents' perceptions of their well-being and behaviors promoting or threatening their health. The results emphasized that: (1) functional beliefs played a protective role for the vast majority of HRQOL aspects including well-being, resilience, exposure to risk factors, acute major disorders, and academic achievement; (2) dysfunctional beliefs were associated with higher odds of presenting diagnosed acute minor and major disorders. In addition, increasing age was related to health-related discomfort and risk-taking, and girls generally reported poorer HRQOL. Findings reveal that functional and dysfunctional beliefs may constitute an important mechanism underpinning adolescent HRQOL and suggest that cognitive behavioral methods, designed to enhance the functional belief system, could ameliorate health-related outcomes.

1. Introduction

The multidimensional construct of health-related quality of life (HRQOL) comprises individuals' physical and socio-emotional well-being, as well as their behaviors and activities that affect or are affected by their health. Although adolescence is strongly associated with an increase in risk-taking and reckless behaviors which often lead to significant health consequences (Dahl, 2004), few studies have investigated HRQOL in this developmental period. Consequently, health professionals are confronted with a lack of knowledge concerning factors that promote adolescent HRQOL. Understanding these factors is crucial for helping to reduce the 200% increase in overall morbidity and mortality rates in adolescence (Dahl, 2004). In this respect, recent research provides support for a link between having a dysfunctional thinking pattern and physical symptoms (David, 2015; Smith, Herman, & Smith, 2015), emphasizing the possibility that adolescent HRQOL could be explained by individual differences in functional/dysfunctional thinking patterns. To our knowledge, this is the first study investigating the roles of functional and dysfunctional beliefs in adolescent HRQOL.

1.1. Health related-quality of life in adolescence

Existing research on adolescents suggests that, with increasing age, there is also an increase in physical and emotional symptoms (Michel, Bisegger, Fuhr, & Abel, 2009), possibly mirroring augmented levels of stress imposed by the transition to adulthood (Hampel & Petermann, 2006). In light of this idea, older adolescents are generally found to experience greater physical and emotional distress (Jörngården, Wettergen, & von Essen, 2006), and to engage in more risky behaviors (Rajmil et al., 2003).

However, most of these differences surface when comparing groups of early adolescents, who just transitioned from childhood, to late adolescents, individuals closer to transitioning to an independent, adult life. Consequently, less is known about HRQOL trends occurring within the late adolescence period. A longitudinal study revealed that, over the course of one year, 15- to 16-year-olds' physical health was the only HRQOL aspect that had deteriorated (Gillison, Skevington, & Standage, 2008). Hence, the previously described HRQOL decrements across adolescence should be less evident within the late-adolescence period.

Studies also report gender differences in adolescents' HRQOL, with girls being more prone to poorer general outcomes (Michel et al., 2009). Specifically, girls were generally found to report lower levels of health-satisfaction (Goldbeck, Schmitz, Besier, Herschbach, & Henrich, 2007), more health problems and internalizing symptoms (Michel

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et al., 2009; Torsheim et al., 2006). Additionally, boys were found to more frequently engage in risky behaviors and act in ways that threaten social relationships (Starfield et al., 1995).

1.2. Functional and dysfunctional beliefs

Over the last two decades, clinical research has not only emphasized the crucial role of cognitive vulnerability in the development and maintenance of psychopathology (Browne, Dowd, & Freeman, 2010), but has also provided indication that functional and dysfunctional thinking patterns could play valuable roles in explaining individual differences in physical well-being (David, 2015; Smith et al., 2015).

Core beliefs, either *functional* or *dysfunctional*, represent general, strongly held views about ourselves, others, and the world, influencing the way we react in different circumstances (Ellis, 1994). Dysfunctional beliefs are irrational thinking patterns that have no factual support (e.g., *I am worthless*) and negatively affect individuals' daily functioning, whereas functional beliefs refer to rational and more accurate thinking patterns that are generally helpful for individuals in achieving their goals. According to cognitive behavioral therapy (Beck, 1995; Ellis, 1994), psychopathology is sustained by dysfunctional beliefs that generate dysfunctional feelings and promote maladaptive behaviors. Conversely, mental health is sustained by functional beliefs generating functional feelings and consequently, facilitating adaptive behaviors. These assumptions have been extensively supported, research showing strong links between functional/dysfunctional beliefs and psychopathology such as anxiety, depression, or addictions (Browne et al., 2010). More recently, research has focused on the link between beliefs and physical health, results indicating that some physical symptoms are associated with dysfunctional beliefs (e.g., Sucală, Schnur, Brackman, David, & Montgomery, 2014). At the same time, functional beliefs were found to have a beneficial role in terms of satisfaction with physical aspects such as self-perceived body image (Spangler, 2003).

To our knowledge, research directly investigating the role of functional and dysfunctional beliefs in adolescents' HRQOL is absent, yet related studies suggest that beliefs are associated with specific dimensions of adolescent health-related outcomes. Most studies were conducted to emphasize the negative influence of dysfunctional beliefs on adolescents' emotional well-being, as they were particularly linked to depression and anxiety (Jacobs, Reinecke, Gollan, & Kane, 2008; Muris & Field, 2008). Nevertheless, presenting dysfunctional beliefs has also been linked to physical complaints, such as greater distress and disease severity in adolescents with bronchial asthma (Silverglade, Tosi, Wise, & D'costa, 1994) or higher levels of perceived pain in adolescents with idiopathic arthritis (Thastum & Herlin, 2011). Therefore, we can expect dysfunctional beliefs to represent a risk factor in adolescents' HRQOL. Conversely, having a functional thinking pattern could constitute a protective factor in adolescent health-related outcomes.

1.3. Current study

The current study aimed to investigate the roles of functional and dysfunctional beliefs in adolescent HRQOL. We aimed to investigate whether dysfunctional beliefs are associated with reduced HRQOL in late adolescents, and whether functional beliefs constitute a protective factor. The study was conducted on a sample of 14- to 17-year-old adolescents and the effects of functional and dysfunctional beliefs were investigated while also examining potential interactions with age- and gender-related differences.

Given the outlined evidence regarding the role of dysfunctional beliefs in adult and adolescent physical health (Sucală et al., 2014; Thastum & Herlin, 2011), dysfunctional beliefs were expected to be associated with lower HRQOL such as more physical complaints, medical conditions, and higher levels of discomfort and dissatisfaction. Conversely, functional beliefs were expected to represent a protective factor against health problems, dissatisfaction, and discomfort. Regarding age-related effects, given the previously found differences between young and late adolescents, we expected a less evident HRQOL decrement during the 14 to 17 years period. Older adolescents were expected to report only an increase in physical discomfort and engage in more risky behaviors. Based on the previous research documenting gender-related differences, girls were expected to report lower levels of satisfaction, physical fitness, and comfort, but also to be less prone to engage in health threatening behaviors.

Additionally, we conducted a validation analysis for the Child Health and Illness Profile-Adolescent Edition (Starfield et al., 1995) in a Romanian 14- to 17-year-old adolescent sample.

2. Method

2.1. Participants

Participants were adolescents from both urban and rural communities in 16 counties all over Romania. Twenty-nine adolescents were excluded from the analyses due to incomplete data, while two other withdrawn from the study.

The final sample consisted in 238 (151 females) 14- to 17-year-old adolescents (mean age = 15.9 years): $N_{14\text{-year-old}} = 47$ (19.7%), $N_{15\text{-year-old}} = 34$ (14.3%), $N_{16\text{-year-old}} = 63$ (26.5%), $N_{17\text{-year-old}} = 94$ (39.5%). All participants had Romanian as their primary language, attended public high-schools, and had similar socioeconomic backgrounds: 89% reported not receiving welfare, 90.5% of the participants' mothers having a high-school diploma.

2.2. Materials

2.2.1. HRQOL

The Child Health and Illness Profile-Adolescent Edition (CHIP-AE) is a generic health-status instrument developed to measure HRQOL in adolescents, based on their self-report (Starfield et al., 1995). It is a comprehensive HRQOL instrument as it is based on a broad conceptual framework, comprising both perceptions of well-being and health status and developmentally appropriate behaviors that promote or threaten adolescents' health. It includes a total of 20 subdomains, organized into six domains measuring adolescents': (1) satisfaction with health and well-being (Satisfaction), (2) physical, emotional discomfort, and limitations of activity (Discomfort), (3) resilience factors: family involvement, social problem-solving, physical activity, and home safety (Resilience), (4) risks to increase the likelihood of illness or injury: individual risks, threats to achievement, peer influences (Risks), (5) academic and work-related achievements (Achievement), and (6) diagnostic history of acute minor, acute major, recurrent, long-term medical, long-term surgical, and psychosocial disorders (Disorders).

Respondents are required to provide answers on a Likert-type scale with 3 to 5 response categories. Scores are obtained by averaging each adolescent's response to items included in the specific subdomain. Higher scores designate better health-related outcomes.

For specific validation analyses of the Romanian CHIP-AE (see Supplementary material), the Romanian version of the Depression Anxiety Stress Scales—21R questionnaire (Lovibond & Lovibond, 1995; Perţe & Albu, 2011) was used. This questionnaire measures negative emotional states experienced over the past week.

2.2.2. Functional and dysfunctional beliefs

The *Shortened-General Attitudes and Beliefs Scale* (Lindner, Kirkby, Wertheim, & Birch, 1999) is a 36-item standardized instrument used to assess functional and dysfunctional beliefs in adolescents and adults. Separate subscales evaluate levels of functional beliefs, and of dysfunctional beliefs (e.g., self-downing, demands of fairness). The Romanian