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# Psychology Applications & Developments II

Edited by Clara Pracana



Advances in Psychology and Psychological Trends Series

*Psychology Applications & Developments II*  
Advances in Psychology and Psychological Trends Series

Edited by: Prof. Dr. Clara Pracana



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## FOREWORD

InScience Press is pleased to publish the book entitled *Psychology Applications & Developments II* as part of the Advances in Psychology and Psychological Trends series. These series of books comprise authors and editors work to address generalized research, albeit focused in specific sections, in the Psychology area.

In this second volume, a committed set of authors explore the Psychology field, contributing to the frontiers of knowledge. Success depends on the participation of those who wish to find creative solutions and believe their potential to change the world, altogether, to increase public engagement and cooperation from communities. Part of our mission is to serve society with these initiatives and promote knowledge, therefore it requires the reinforcement of research efforts, education and science and cooperation between the most diverse studies and backgrounds.

Contents show us how to navigate in the most broadening issues in contemporary education and research, in the broad Psychology field. In particular, this book explores four major divisions within general Psychology, divided into four sections: Clinical Psychology, Cognitive and Experimental Psychology, Educational Psychology and Social Psychology. Each section comprises chapters that have emerged from extended and peer reviewed selected papers originally published in the proceedings of the International Psychological Applications Conference and Trends (InPACT) conference series (<http://www.inpact-psychologyconference.org/>). This conference occurs annually with successful outcomes. Original papers have been selected and invited to be extended significantly, then reviewed, and authors of the accepted chapters requested to make corrections and improve final submitted chapters. This process has resulted in the final publication of 14 high quality chapters organized into 4 sections. The following sections' and chapters' objectives provide information on the book contents.

**Section 1**, entitled “Clinical Psychology”, provides reviews and studies within various fields concerning relationship processes in clinical practice. Each chapter is diversified, mainly addressing thematics in mental health patients, their well-being and quality of life. It also explores motivations and cognitions.

Chapter 1: *Posttraumatic Growth and Psychological Well-Being of Georgian Citizens: A Comparative Study of Internally Displaced Persons and other Citizens*; by Lili Khechuashvili. This chapter summarizes a study of psychological well-being, based on the multidimensional model proposed by Ryff, and posttraumatic growth as described in the transformational model by Tedeschi and Calhoun. The study explores psychological well-being and posttraumatic growth

indicators based on self-report measures, and aims to answer two questions: are there indicators that differentiate internally displaced persons (IDPs), who emerged after armed conflict with Russian troops in 2008, and other citizens of Georgia (non-IDPs), and if so, can the differences between these groups be predicted by other variables measured in the study? The study was planned as a two-step process: preparatory procedures — cross-cultural adaptation and validation of the instruments, and the main study. The Stressful Life Event Checklist, The Posttraumatic Growth Inventory, the Scales of Psychological well-being, and a demographics measure were administered to 1189 participants. Data showed no differences between IDPs and non-IDPs regarding psychological well-being and posttraumatic growth totals. However, IDPs scored lower on the New Possibilities factor. Further, significant within group differences were revealed: non-IDPs with low social-economic status and IDPs with poor conditions reported significantly less psychological well-being than other subgroups. The level of psychological well-being can be reliably predicted by socio-economic status and self-perceived health condition.

Chapter 2: *Psychological Distress and Coping Strategies among Women who Undergo Cancer Genetic Testing*; by Valentina Di Mattei, Martina Bernardi, Fabio Madeddu, & Lucio Sarno. Carriers of BRCA mutations (BRCA1 and BRCA2) have a higher risk for breast and ovarian cancer. Although cancer genetic testing is an effective instrument for cancer prevention, little is known about the psychological impact it may have on its users. The aim of the present study is to investigate the effect of coping strategies on the prediction of psychological distress among women who decide to undergo cancer genetic testing; distinguishing them by their reasons for undertaking genetic testing. The study included three groups of women: breast and/or ovarian cancer patients (N = 33), breast and/or ovarian cancer survivors (N = 22) and people with strong family histories for breast and/or ovarian cancer (N = 10). All cancer patients (both in/out of remission) were affected by breast or ovarian cancer. Assessment of psychological distress and coping strategies were respectively obtained with the administration of the SCL-90-R and the COPE-NVI questionnaires. ANOVA and multiple regression models were carried out. Groups of participants significantly differed with regards to somatization, depressive symptoms and hostility. The use of avoidance coping strategies predicted higher levels of psychological distress. Results from the present study suggest the importance of coping strategies on the prediction of psychological distress, allowing psychologists to draw up appropriate intervention strategies during cancer genetic testing.

Chapter 3: *Inception of an Instrument on Health Capability of Family Caregivers*; by Barbara Bucki, Elisabeth Spitz, & Michèle Baumann. The health capability of family caregivers has already been studied through eight factors: physical and psychological functioning, lifestyle value, self-efficacy towards health services, family support, social capital, socio-economic conditions and access to health

services. Our aim was to identify new factors. Family caregivers of stroke victims living at home were recruited in the Lorraine region (France; n=8) and Luxembourg (n=6). Semi-structured interviews about their health statuses, how they currently take care of their health, and the internal resources they need to achieve optimal health were conducted face-to-face. Verbatim transcriptions were open-coded and grouped into new factors of health capability. Items reflecting the main idea of the categories were formulated. Seven women and seven men (age 63.6±10.1) participated. Statements were regrouped together into new ways, giving rise to seven new emergent factors: health knowledge, health self-efficacy, health value, life skills, health decision-making, motivation, and attitude towards the future. Of them, 76 items were generated, 51 reflecting generic abilities while 26 being specific to family caregiving. Content analysis of these factors first allows guiding the preparation of innovative supports to promote health capability. Second, this list can serve as a basis to elaborate a guide to which clinicians can refer to, in orienting family caregivers according to their needs. Further research is needed to complete the validation of the HCFC instrument.

Chapter 4: *Mental Health in Japanese Parents Living Abroad: A Case Involving a Japanese School in Nairobi*; by Eriko Suwa, Minoru Takahashi, & Hirofumi Tamai. As the number of Japanese citizens living abroad has increased, mental health care for such individuals has become an important concern. Due to the language and culture peculiar to Japan, a number of Japanese schools that offer a Japanese curriculum for Japanese expatriate children have been founded to not only maintain their academic ability but also facilitate cultural transition. Moreover, these schools often have a role in the community for parents and other Japanese residents in the country. Therefore, supporting Japanese schools assists Japanese expatriates. This project involved the development of a psychological support system for a Japanese School in Nairobi. The first step involved exploring the needs of Japanese adults in Nairobi (N = 33) via the administration of a brief questionnaire survey. The results showed different types of stress reaction, which may have developed as a result of living in Nairobi, in this group relative to those of their counterparts in Japan. Although they tended to be preoccupied with the anticipation of stress, this did not always interfere with their mental health. In addition, the frustrations of daily life were assumed to generate their stress symptoms.

Chapter 5: *Depressive Symptoms and Suicidal Ideation among Czech Adolescents*; by Helena Klimusová, & Iva Burešová. The incidence of suicide and suicide attempts in Czech adolescent population are among the highest in Europe. Based on the data of crisis hotline counselors for children, the frequency of suicidal callers doubled in the last five years. There seems to be many reasons for this increase; the depression in children and adolescents being the major one besides socio-demographic factors, family-related factors, substance abuse etc. The aim of our study was to investigate the incidence of depression symptoms during the

period of early adolescence and to compare them with Czech normative data from 1997. The study was conducted on a large sample (N=1708) of Czech adolescents aged 11-16 years (m = 13.65; 52% female), utilizing the Children's Depression Inventory (CDI - Kovacs, & Beck, 1977; Kovacs, 1992). The CDI evaluates the presence and severity of specific depressive symptoms in youth; depression is seen as a syndrome, not a specific behavior. The proportion of the adolescents with the total score indicating higher risk of clinical depression was between 17,8 - 42,9 % in our sample, depending on the cut-off score. Regarding the incidence of suicidal ideation, almost 2 % expressed a commitment to suicide and further 21 % admitted ideation without a firm intention (the latter being twice more common in girls than in boys). Significantly higher scores both in CDI total score and in the scale scores were found when compared to Czech norms constructed more than 15 years ago. Detailed pattern of gender differences and the correlations of CDI scores and family-related factors or relationships with peers including belonging to a subcultures as emo or goth are also presented.

**Section 2**, entitled “Cognitive and Experimental Psychology”, delivers chapters concerning, as the title indicates, studies and research in the area of behavior from the point of cognitive aspects. Memory, decision making, functioning, and cognitive approaches are used to compile these works.

Chapter 6: *The Role of Cognitive Bias Distortions in Pathological Gambling*; by Franca Tani, Alessio Gori, & Lucia Ponti. Several factors are related to the onset and the maintenance of pathological gambling. An important role is carried out by cognitive bias distortions, which represent real “errors” in the reasoning processes. The aim of this study is to analyze these cognitive errors in two groups of gamblers. A total of 323 gamblers (131 males and 192 females), average age 25.31 (SD = 10.55), was recruited in various gambling rooms, and at the University of Florence. All participants completed the Italian version of the *South Oaks Gambling Screen (SOGS)* and were divided in two groups on the basis of their questionnaire score: a clinical sample composed of 62 pathological gamblers (SOGS score above 5); and a non-clinical sample composed of 261 non-problematic gamblers (SOGS score below 3). All participants completed the Italian version of the *Gambling Related Cognitions Scale (GRCS)*, which assesses 5 dimensions related to cognitive distortions: *Illusion of control*, *Predictive control*, *Interpretative bias*, *Gambling expectancies*, and *Perceived inability to stop/control gambling*. *Results*. Our findings support the results of previous investigations on gambling-related cognitive biases. Specifically, pathological gamblers showed higher levels in all cognitive bias distortions considered when compared to non-problematic gamblers.

Chapter 7: *Psychopathology: The Cognitive Orientation Approach*; by Shulamith Kreitler. The objective of the chapter is to reintroduce into the scene of psychopathology the psychological perspective by describing the cognitive orientation approach to mental disorders. This cognitive-motivational approach emphasizes the role of meanings, beliefs and attitudes in promoting specific behaviors in the normal or abnormal range. A large body of empirical studies showed the predictive power in regard to behaviors of cognitive contents referring to themes identified as relevant for the particular behavior and presented in terms of four belief types (about self, about others and reality, about rules and norms, and about goals and wishes). The chapter presents a brief theoretical approach to psychopathology based on the cognitive orientation approach and describes its application to the following three disorders: paranoia, schizophrenia and depression. The presented studies describe questionnaires based on the cognitive orientation theory that enabled to differentiate between patients with specific diagnoses and healthy controls. The themes that contributed most to the differentiation are presented. These included, for example, non-conformity, perfectionism, extreme distrust of others, and rejection of compromise. The findings provide new insights into the underlying dynamics of the specific psychopathological disorders and enable delineating the blueprints of a general theoretical approach to psychopathology. The results may also be applied for assessment, prevention and therapeutic interventions in psychopathology.

Chapter 8: *Meaning – Its Nature and Assessment: The General Approach and the Specific Case of Body Image*; by Shulamith Kreitler. The purpose is to introduce the theory, applications and assessment of a new conception of meaning and to illustrate one of its empirical application by means of the multi-dimensional questionnaire of the body image. The first part is devoted to meaning. Meaning is often regarded as an elusive and subjective construct. The meaning theory of Kreitler and Kreitler provides a new way of defining the nature of meaning and exploring how it affects our cognitive and emotional functioning, our personality tendencies, and our worldview and construction of reality. This approach complements and expands previous approaches to meaning in psychology and other disciplines. It is based on characterizing contents in terms of the provided information and the manner of expression. It is based on a very large body of empirical studies. The major concepts of the meaning theory are meaning system, referent, meaning value, meaning unit and meaning variables. The assessment technique enables assessing meaning of different kinds (e.g., verbal and nonverbal), and identifying meaning assignment tendencies of individuals of different ages. Applications of the meaning system include clarifying constructs, exploring the underlying dynamics and constituents of personality traits and cognitive acts, comparing worldviews of different groups and producing changes in states of consciousness. The second part is devoted to describing a particular application of the meaning system to the dimensional assessment of the body image. The questionnaire, its characteristics and applications are described.

Chapter 9: *The Usefulness of Phantom Latent Variables in Predicting Changes in the Effects among Structural Relations - An Example of Modeling Food Attitude and Human Values*; by Marco Vassallo. The goal of this study was to examine the usefulness of phantom latent variables of models with structural relations. Phantom latent variables are defined as latent variables with no observed indicators (Rindskopf, 1984) and take form by making constraints on structural relations into latent variables path models. The constraints in applied psychology have the purpose to explore and simulate unrevealed aspects of psychological theories with latent variables. As a consequence, the phantom latent variables have the purpose to model the respondents' *alteration* to such constraints and to provide proxy of new effects that take into account the constraints and the alterations, simultaneously. In this respect, an example of the application of phantom latent variables was proposed to an attitude model towards buying sustainable food products in Italy, with second-order dimensions of Schwartz's taxonomy of basic human values (1992) as predictors. To this end, phantom latent variables were introduced as mediators into the model with the purpose of simulating what would have happened to the model respondents if the openness to change dimension of the Schwartz's taxonomy had been restricted to be greater than, less than, or equal to, specified constants in predicting the attitude.

**Section 3**, entitled "Educational Psychology", offers a range of research about teachers and students, the learning process, as well as the behavior from a psycho-educational standpoint.

Chapter 10: *Constructive and Apparent Nonconformists at School*; by Ryszarda Ewa Bernacka. The article explores two specific types of nonconformists, with reference to nonconformity as a personality dimension based on an original theory of a human creative attitude (Popek, 1989). The aim of the present study was to determine the occurrence of constructive and apparent nonconformity among students at middle school, secondary school and undergraduate level, among girls and boys. Studies performed on 2239 school students in Poland employed the Creative Behavior Questionnaire (CBQ III) (Bernacka, 2009). The study provides evidence that constructive nonconformists are predominant at all of the three stages of education and there are more constructive nonconformists among girls than boys, especially in middle schools. The study has shown that nonconformity as a personality trait is a mechanism of motivation and emotion which strongly stimulates the conduct and mental functioning of adolescent students in the school environment.

Chapter 11: *Vocational Identity in the Context of Values and Career Motivation*; by Katarína Baňasová, Tomáš Sollár, & Eva Sollárová. Vocational Identity is one of the core components of identity construction in adolescence. The suitability of using the Vocational Status Assessment for population of Slovak adolescents was explored via comparing results of the cluster analysis conducted on American

students. Our chapter describes relations among Vocational Identity, career motivational orientation and values, and explores their contribution to clarifying each other. The research was conducted on 136 grammar school students. The sample was composed of 50% men and 50% women with a mean age of 17.7 years ( $SD = .64$ ). The results show that the structure of six types of Vocational Identity is highly similar to the original American sample. The second part of the study shows statistically significant positive correlations between career motivational orientation and the dimension of the Vocational Identity – Career Commitment and negative significant correlations between the dimension of the Vocational Identity – Career Reconsideration and career motivational orientation. The results show statistically significant differences in the level of Intrinsic and Extrinsic Career Motivation and in the level of Achievement value and value of Hedonism among six Vocational Identity statuses. Applying the Vocational Identity Status Assessment as a useful tool for determining Vocational Identity status of Slovak adolescents is recommended.

**Section 4**, entitled “Social Psychology”, gives a glance on projects from a psycho-social perspective. Themes vary from life satisfaction, career, as well as health promoting habits.

Chapter 12: *Life Satisfaction in Undergraduate Students: The Role of Dispositional and Situational Factors*; by Lilly E. Both, & Lisa A. Best. Satisfaction with life is related to positive mental health outcomes and people who are satisfied with their lives report lower levels of distress (Wang & Kong, 2014) as well as higher levels of happiness (Peterson, Park, & Seligman, 2005). The purpose of this research was to determine factors that predicted life satisfaction in university students. Three hundred and eighty-six participants completed a series of questionnaires to measure personality, attachment, coping styles, loneliness, social connectedness, and life satisfaction. In this sample, participants used the full range of life satisfaction scores, with over 50% of the participants reporting that they were satisfied with their lives. A series of hierarchical regression analyses was used to predict life satisfaction. In the first regression using personality factor scores, satisfaction with life was predicted by higher Extraversion, Conscientiousness, and social connectedness, coupled with lower Neuroticism, fearful attachment, and family loneliness. A second regression model using personality facet scores indicated that higher Positive Emotions, Impulsiveness, and Self-Discipline as well as lower Depression, Assertiveness, and Altruism predicted higher life satisfaction. Higher levels of social connectedness and lower levels of family and romantic loneliness also made significant contributions to the model. Overall, the quality of personal relationships (i.e., loneliness and social connectedness) rather than general coping styles was predictive of well-being in adulthood. It should be noted that there was a large proportion of variance unaccounted for and future researchers should focus on adding to the predictability of the model.

Chapter 13: *Disparities in Career Attitudes among Postgraduate Students*; by Senad Karavdic, Angela Odero, Chrysoula Karathanasi, & Michèle Baumann. The preparation of students' future career trajectories is a dynamic process in relation to social and educational determinants. Our objective is to analyze the associations between generic employment capabilities, career attitudes and related factors among postgraduate students. All masters' students registered at the Centre for Documentation and Information on Higher Education (CEDIES) database in Luxembourg were contacted by post, to participate in an online questionnaire. The five point scale questionnaire was scored as follows: 1) Dynamic Career Attitudes (DCA); 2) Employability Soft-Skills (ESS); 3) Search for Work Self-Efficacy (SWSES); 4) Quality of Life domain Autonomy (QLA); and 5) Socio-demographic characteristics. The data were analyzed using bivariate tests, correlations and multiple linear regression models. 481 of the volunteers (26.4 years; SD=5.5) were predominantly women, Luxembourgish, unemployed or had less than or equal to six months of job experience. The higher the ESS, SWSES and QLA scores, the higher the DCA score was. Nationality, being unemployed, having less than six months job experience and being in the first year of a Master's degree programme were associated with a lower dynamic career attitude score. The Dynamic Career Attitudes scale seems to be an appropriate instrument to evaluate the efficacy of the university career services programme.

Chapter 14: *Subjective Health Problems in the Context of Personality Characteristics and Health-Related Behavior in Czech Adolescents*; by Iva Burešová, Helena Klimusová, Martin Jelínek, & Jaroslava Dosedlová. This chapter reports partial results of an extensive research project called Health-Enhancing and Health-Threatening Behavior: Determinants, Models, and Consequences. This project involves a detailed analysis of select variables reflected in the process of self-regulation with respect to health. Its goal is to create models of health-promoting and health-threatening behavior applicable among the Czech population. This is made possible by means of a cross-section research study carried out using sample groups of adolescents, young, middle and advanced aged adults as well as seniors. The presented results focus on the explored selected factors of health-promoting behavior in adolescents, the level of commitment that adolescents invest in taking care of their health, and their cognitive evaluations and perceptions of their own health. In addition, the role of personality characteristics in relation to maintenance, loss or restoration of one's health was also explored. The data from the following instruments were utilized in this study: Health-Related Behavior Scale (Dosedlová, Slováčková, & Klimusová, 2013); Subjective Health Problems Inventory (modified version of the inventory by Osecká, Řehulková, & Macek., 1998), and the Big Five Inventory (John, Donahue, & Kentle, 1991). The sample consisted of 835 adolescents (47.4% female) aged 12-19 years (35.3% were in the period of early and middle adolescence and 64.7% were in the period of late adolescence). A principal component analysis of the items of the Health-Related Behavior Scale yielded five factors: healthy eating habits,

exercise and lifestyle, avoidance of addictive substances and other risks, regular daily routine and emotional well-being. To predict subjective health issues, we used a hierarchical regression analysis with demographic variables entered in the first block, personality factor scores entered in the second block, and health-related behaviors entered in the third block. The results indicated that girls, compared to boys, scored higher on the subjective health issues scale; among personality characteristics, higher neuroticism and lower conscientiousness predicted more subjective health issues. Furthermore, lower scores on emotional well-being, regular daily routines and healthy eating habits predicted more health issues.

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February 2016

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**Section 1**  
**Clinical Psychology**



## Chapter #1

# POSTTRAUMATIC GROWTH AND PSYCHOLOGICAL WELL-BEING OF GEORGIAN CITIZENS: A COMPARATIVE STUDY OF INTERNALLY DISPLACED PERSONS AND OTHER CITIZENS<sup>1</sup>

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### ABSTRACT

This chapter summarizes a study of psychological well-being, based on the multidimensional model proposed by Ryff, and posttraumatic growth as described in the transformational model by Tedeschi and Calhoun. The study explores psychological well-being and posttraumatic growth indicators based on self-report measures, and aims to answer two questions: are there indicators that differentiate internally displaced persons (IDPs), who emerged after armed conflict with Russian troops in 2008, and other citizens of Georgia (non-IDPs), and if so, can the differences between these groups be predicted by other variables measured in the study? The study was planned as a two-step process: preparatory procedures — cross-cultural adaptation and validation of the instruments, and the main study. The Stressful Life Event Checklist, The Posttraumatic Growth Inventory, the Scales of Psychological well-being, and a demographics measure were administered to 1189 participants. Data showed no differences between IDPs and non-IDPs regarding psychological well-being and posttraumatic growth totals. However, IDPs scored lower on the New Possibilities factor. Further, significant within group differences were revealed: non-IDPs with low social-economic status and IDPs with poor conditions reported significantly less psychological well-being than other subgroups. The level of psychological well-being can be reliably predicted by socio-economic status and self-perceived health condition.

*Keywords:* psychological well-being, posttraumatic growth, internally displaced persons.

## 1. INTRODUCTION

Georgia (საქართველო — *Sakartvelo*) is a country in the Caucasus region of Eurasia. Located at the crossroads of Western Asia and Eastern Europe, it is bounded to the west by the Black Sea, to the north by Russia, to the south by Turkey and Armenia, and to the southeast by Azerbaijan. The capital and largest city is Tbilisi. Georgia covers a territory of 69,700 square kilometers, and its population is almost 5 million. Georgia is a unitary, semi-presidential republic, with the government elected through a representative democracy. Like most native Caucasian people, Georgians do not fit into any of the main ethnic categories of Europe or Asia. The Georgian language, the most pervasive of the Kartvelian languages, is neither Indo-European, Turkish, nor Semitic. The present day Georgian or Kartvelian nation is thought to have resulted from the fusion of aboriginal, autochthonous inhabitants with immigrants who infiltrated into South Caucasus from the direction of Anatolia in remote antiquity. Ethnic Georgians form about 84% of Georgia's current population of 4,490,500 (2014). Other ethnic groups include Abkhazians, Ossetians, Armenians, Azerbaijanis, Greeks, Jews, and Russians. Today 83.9% of the population

practices Eastern Orthodoxy, with the majority of these adhering to the national Georgian Orthodox Church. Religious minorities include Muslims (9.9%), Armenian Apostolics (3.9%), and Roman Catholics (0.8%) (GeoStat, 2010).

During the classical era, independent kingdoms became established in what is now Georgia. In the early 4<sup>th</sup> century, the kingdoms of Colchis and Iberia were among the first nations in the region to adopt Christianity (in AD 337, or in AD 319 as recent research suggests) (Kekelia, Gavashelishvili, Ladaria, & Sulkhaniashvili, 2013). A unified Kingdom of Georgia reached the peak of its political and economic strength during the reign of King David IV and Queen Tamar in the 11<sup>th</sup>–12<sup>th</sup> centuries. After this time, the area was dominated by various large Empires, including the Safavids, Afsharids, and Qajar Persians. In the late 18<sup>th</sup> century the Kingdom of Kartl-Kakheti forged an alliance with the Russian Empire, and thereafter, it was annexed by Russia in 1801. After a brief period of independence following the Russian Revolution of 1917, Georgia was occupied by Soviet Russia in 1921, becoming the Georgian Soviet Socialist Republic and part of the Soviet Union. After dissolution of Soviet Union in 1990, Georgia declared independence in 1991. Post-communist Georgia suffered from civil unrest and economic crisis for most of the 1990s. This unrest lasted until the Rose Revolution of 2003, after which the new government introduced democratic and economic reforms.

In August, 2008, Georgian citizens experienced a short but intense armed conflict, known as the Russo-Georgian War that challenged their national as well as personal identity, regardless of whether they were directly or indirectly introduced to the War Theater. Preliminary observations, multiple case studies, and day-by-day experience of working with affected people made obvious the ongoing changes in almost all domains of their functioning, and in particular in their perception of their psychological well-being as well as the experiences of posttraumatic conditions. Due to the combat operations, thousands of people were forced to flee from their homeland, and then lost their houses and property. In a few months it became possible to some of them to return to their homes but up to 19,000 persons were displaced in newly constructed settlements provided by the state. These people are known as internally displaced persons<sup>2</sup> (IDPs). Thus, seven years ago people who lost everything, found themselves in new places, having very limited resources to start their lives over again. This experience turned out to be traumatic for the majority of people: they searched for new ways of living, and went through a meaning-making process in order to find strength and resources inside themselves to adjust to the new reality in new places. The loss they experienced seven years ago<sup>3</sup> still remains central in their lives resulting in various conditions and/or symptoms in their everyday life, and affects their level and quality of functioning, quality of life, mental health, interpersonal relationships, and self-perception.

The major objective of this study was to empirically examine the psychological well-being and posttraumatic growth indicators in Georgian citizens. Indicators and/or predictors of psychological well-being and posttraumatic growth (among the many factors) are crucial and beneficial for those in the helping professions (clinicians, psychologists, social workers). Furthermore, there are no accumulated and published empirical data on posttraumatic growth and psychological well-being in Georgian citizens. Hence, this study hopes to inspire more research in the field. There is a large volume of literature on trauma and posttraumatic experiences following traumatic events. These experiences include natural disasters, wars and combat actions, chronic illness and dramatic changes in life course such as property loss, losing one's job, marital changes, child birth, or death of loved one(s). These (and many other) events may be perceived as stressful and traumatic, and may cause a long list of changes in one's physiological, psychological and/or social

functioning. Many of these changes are negative; however, a growing body of research (e.g. Taku, et. al., 2007; Tedeschi & Calhoun, 2004b) shows that positive changes can arise from negative events. In particular, there are at least some positive changes people report in the aftermath of trauma (Powell, Rosner, Butollo, Tedeschi, & Calhoun, 2003; Tedeschi & Calhoun, 1996), a phenomenon known as “*posttraumatic growth for nowadays*” (Tedeschi & Calhoun, 1996). Given that elaboration of traumatic experience affects all domains of one’s existence and functioning, particularly on psychological health conditions (Tedeschi & Calhoun, 2004a), it is reasonable to address the influences and changes in perceptions of one’s psychological well-being.

## **2. BACKGROUND**

The study uses Ryff’s (1995; 2014) six factors model for the concept of psychological well-being and transformational model by Tedeschi and Calhoun (1996) for the concept of posttraumatic growth.

### **2.1. Posttraumatic Growth: Transformational Model**

There are several terms that are interchangeably used in literature to denote positive changes that trauma survivors experience. Among them are concepts such as positive changes in outlook, thriving, stress-related growth, benefit-finding, flourishing, perceived or construing benefits, positive change, discovery of meaning, and positive by-products (Joseph & Bulter, 2010; Tedeschi & Calhoun, 2004b). However, “posttraumatic growth” (Tedeschi and Calhoun, 1996) is the most widely-used term which describes the field of study and clinical practice. Posttraumatic growth represents positive changes experienced as a result of the psychological and cognitive efforts made in order to deal with challenging circumstances. It is a process in which individuals struggle with a new reality in the aftermath of trauma. Posttraumatic growth describes the experience of individuals, whose development, at least in some areas, has surpassed what was present before the struggle with the crises occurred. The individual has not only survived, but has experienced changes that are viewed as important, and are not simply a return to baseline; they are an experience of improvement that for some persons is deeply profound (Tedeschi & Calhoun, 2004b).

There are two leading theories of posttraumatic positive change - namely the organismic valuing theory (Joseph & Linley, 2005) and the transformational model (Tedeschi & Calhoun, 2004b). The former approach attempts to provide an account of positive changes rooted in humanistic psychology wherein posttraumatic stress is viewed as indicative of normal, natural cognitive processes that have the potential to generate positive change. The latter, which serves as the theoretical framework of the present study, states that posttraumatic growth refers to a change in people that goes beyond their ability to resist and not be damaged by the highly stressful event. It involves a movement beyond pretrauma levels of adaptation. Hence, it has a quality of transformation or, in other words, a qualitative change in functioning. Growth, however, doesn’t occur as a direct outcome of trauma and the fact that growth occurred to some extent does not prevent the individual from experiencing negative effects. Moreover, this growth does not signal that the trauma itself stops to be a distressing event. Posttraumatic growth is most likely a consequence of attempts of psychological survival, and it can easily coexist with the residual distress of the trauma.

This model conceptualizes posttraumatic growth as the process which is triggered by the occurrence of a major life crisis that severely challenges and perhaps shatters one's understanding of the world and his/her place in it. Particular personality traits, such as extraversion, openness to experience and optimism may make growth a bit more likely. From the beginning, an individual typically must engage in coping responses needed to manage the overwhelming emotions, but intense cognitive processing of the difficult circumstances occurs as well. The degree to which the person is engaged cognitively by the crisis appears to be a central element in the process of posttraumatic growth. His/her social system may also play an important role in the general process of growth, in particular, through the provision of new schemas related to growth, and the empathetic acceptance of disclosures about the traumatic event and about growth-related themes. Posttraumatic growth seems closely related to the development of general wisdom about life, and the development and modification of the individual's life narrative. Although there are findings indicating that posttraumatic growth correlates with a reduction of distress, some degree of psychological distress is necessary not only to push the process of growth towards motion, but also to enhance and maintain this posttraumatic growth (Tedeschi & Calhoun, 2004b).

Calhoun and Tedeschi (2006) have identified three broad categories of perceived benefits from qualitative and quantitative data: changes in the perception of self, changes in the experience of relationships with others, and changes in one's general philosophy of life. Subsequently the Posttraumatic Growth Inventory (PTGI) was designed (Tedeschi & Calhoun, 1996), and a factor analysis yielded a five-factor solution (personal strength, new possibilities, relating to others, appreciation of life, and spiritual change). However, Calhoun and Tedeschi (2006) state there can be some alterations beyond this common core that vary by culture or are specific to the struggle with particular stressors. The factor structure of the inventory has been examined in several non-English languages, including Bosnian (Powell, et. al., 2003), Chinese (Ho, Chan, & Ho, 2004), German (Maercker & Langner, 2001), Hebrew (Lev-Wiesel & Amir, 2003), Italian (Prati & Pietrantonio, 2013), Japanese (Taku, et. al., 2007), Persian (Rahmani et. al., 2012), Portuguese (Lamela, Figueiredo, Bastos, & Martins, 2014), Spanish (Weiss & Berger, 2006), and Turkish (Karanci, et. al., 2012). The studies show that the factor structure of PTGI varies cross-culturally. For instance, in Italian, Turkish and Portuguese versions, the original five factors are retained; in German and Japanese translations only four out of five original factors were replicated, whereas the Bosnian version found a three factor solution corresponding to three broad domains identified by Tedeschi and Calhoun (1996).

## **2.2. Psychological Well-Being: Multidimensional Model**

The concept of psychological well-being has been examined in the field of positive psychology (Ryff, 2014) and addresses the question: what does it mean to be well psychologically? Classic approaches of 20<sup>th</sup> century psychology include Erikson's (1963) psychosocial stages, Buhler's basic life tendencies (1935), and Neugarten's personality changes (1973), all of which describe wellness as trajectories of continued growth across the life cycle (Ryff, 1995). Clinical psychologists offer further descriptions of well-being, for instance Maslow's conception of self-actualization (1968), Allport's (1961) formulation of maturity, Rogers (1951) fully functioning person, and Jung's (1933) account of individuation.

Since the 1970s the study of psychological well-being has been guided by two major conceptions of positive functioning. Bradburn's (1969, as cited in Ryff, 1995) seminal work distinguished between positive and negative affect and defined happiness as the balance between the two. The second conception, which has been popular among sociologists, emphasizes life satisfaction as the key indicator of well-being. Viewed as a cognitive component, life satisfaction was seen to complement happiness, the more affective dimension of positive functioning (cf. Deci & Ryan, 2008).

According to Ryff (1989), a unified theory was needed to encompass this multidimensional construct. Hence, the convergence of these multiple frameworks of positive functioning served as the theoretical foundation to generate a multidimensional model of psychological well-being (Ryff, 1995). Ryff (1989, 1995, 2014) proposed the multidimensional construct of psychological well-being that is composed of six distinct components. In combination, these dimensions encompass a breadth of wellness that includes positive evaluations of oneself and one's past life (self-acceptance), a sense of continued growth and development as a person (personal growth), the belief that one's life is purposeful and meaningful (purpose in life), the possession of quality relations with others (positive relations with others), the capacity to manage effectively one's life and surrounding world (environmental mastery), and a sense of self-determination (autonomy).

### **3. RESEARCH OBJECTIVES**

The main purpose of this research was to examine how Georgians (IDPs and non-IDP citizens) perceive their psychological well-being and experience their posttraumatic growth after the armed conflict in 2008. This research was planned as a two-step process: preparatory procedures — cross-cultural adaptation and validation of the instruments, and the main field work for obtaining empirical data on the variables under the investigation. Hence, research tasks covered in this chapter are as follows: (1) preparation of final Georgian versions of the Posttraumatic Growth Inventory (PTGI-Geo) and the Scales of Psychological Well-being (SPW\_Geo) for further administration; (2) establishing posttraumatic growth and psychological well-being levels in IDPs and non-IDP research participants, and comparing the two groups; and (3) searching for reliable predictors for both posttraumatic growth and psychological well-being.

### **4. METHOD**

#### **4.1. Research Participants**

1189 persons (recruited from the general population via simple probability sampling combined with available sampling procedures) volunteered to participate in both steps of the study, of whom 72.7% were female (average age=37.8; SD=16.8, min=19, max=84). Single and married participants were distributed evenly (45.3% and 44.3%, respectively), 4.7% were divorced, and 5.7% widowed. As for education of participants, 56% of the group held at least some degree (Soviet style five years higher education diploma, undergraduate, and graduate education – 30.3%, 13%, and 12.7% respectively). Of the remaining, 24% were students, 2.7% reported incomplete secondary school education, 9.3% finished high school, and 8% held a professional education diploma. Unemployed participants constituted almost one third of the sample, namely 27.4%, and 16.7% of the unemployed were students. Of those who worked, 23% were employed in public sector, 21.3% in private sector, 3% self-employed, 8% were retired, 10.3% were housewives, and 2% registered as other. All participants were ethnic Georgians. The majority of them identified

as Orthodox Christians (85.6%). The remaining of the group had no affiliation to any other religion with the exception of one participant who reported herself to be a Jehovah's Witness. Among Orthodox participants, 12% were engaged in religious rituals on a systematical base, 34% sometimes followed religious rituals, 27.7% did this rarely, and 24% gave no response.

Of all research participants, 16.3% reported their socio-economic status as high income, 18.3% reported more than average income, 32.3% reported average income, 18.7% identified themselves as having low income, and 14.4% indicated they were poor. Participants reported their living condition as good (29%), more good than bad (50%), more bad than good (15.3%), and bad (5.7%). One third of participants (35%) reported that their self-perceived health condition was good, 44.3% reported it as more good than bad, 13.7% said more bad than good, and 7% reported bad.

The majority of participants were urban inhabitants (82.7%) and the rest (17.3%) lived in rural areas. These latter participants were IDPs living in settlements provided by state. Others lived in buffer zones, which appeared on the Georgian territory after the armed conflict with Russia in 2008 (for more details see Khechuashvili, 2014).

As for the most intense traumatic experience during last two years, 46.7% of participants reported the death of close person, 21% reported separation with spouse/partner, 12.3% indicated trauma or illness, and the remaining 20% stated "other" (which included experiences such as personal achievements, changes in one's financial state, family structure, education, place of residence or sleep pattern).

Two issues should be stressed concerning the sample of this study. First, According to the latest census (GeoStat, 2010), more than the half (57.4%) of the Georgian population lives in urban areas, and the disproportion of urban vs. rural residents, mentioned above resulted from availability of the research participants. In particular, those living in urban areas were more reachable and ready to participate. And second, overrepresentation of females (73%) in the sample is another concern, since females represent 52.3% of general population (GeoStat, 2010). The composition of the sample of this study is partly determined by the more readiness to participate and talkativeness of women in Georgian culture. Both issues set boundaries to this study, and are regarded as limitations.

## 4.2. Measures

The *Posttraumatic Growth Inventory* (Tedeschi & Calhoun, 1996) is based on transformational model, which consists of three major domains: changes in self-perception, changes in relation to others, and changes in overall philosophy of life. In the original version of the inventory, these three domains are represented by five factors or subscales: Relation to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life. The original version of the Posttraumatic Growth Inventory includes 21 items. Respondents are asked to choose the most influential crisis on the trauma checklist and to read each of the 21 statements and indicate the degree to which change occurred in their lives as a result of this crisis. Responses were scored on a six-point Likert format scale, where 0 = "I did not experience this change as a result of my crisis" and 5 = "I experienced this change to a very great degree as a result of my crisis". Items are grouped in five factors (with eigenvalues greater than 1) and these are scored by adding up the responses to items on each factor (Jayawickreme & Blaikie, 2014).

The *Scales of Psychological Well-Being* is a theory-guided instrument, based on the multidimensional model of psychological well-being (Ryff, 1989, 1995, 2014) which is composed of six dimensions: the extent to which respondents felt their lives had meaning, purpose and direction; whether they viewed themselves to be living in accord with their

own personal convictions; the extent to which they were making use of their personal talents and potential; how well they were managing their life situations; the depth of connection they had in ties with significant others, and the knowledge and acceptance they had of themselves, including awareness of personal limitations. These dimensions, accordingly, are represented by six scales.

The full original version of the inventory is an 84 item self-report measure consisting of six separate scales of Autonomy, Environmental Mastery, Personal Growth, Positive Relations with Others, Purpose in Life, and Self-Acceptance. Each scale is comprised of 14 items. The items on the inventory are presented in a mixed format (by taking one item from each scale successively and merging them into one continuous self-report instrument). Some items are framed positively whereas others are framed negatively to reduce a response set bias. Participants respond using a six-point format: *strongly disagree* (1), *moderately disagree* (2), *slightly disagree* (3), *slightly agree* (4), *moderately agree* (5), *strongly agree* (6). There are no specific cut-points for defining high or low well-being. These distinctions are best derived from the distributional information from the data collected. Ryff (2014) states, for example, that high well-being could be defined as scores that are in the top 25% (quartile) of the distribution, whereas low well-being could be defined as scores that are in the bottom 25% (quartile) of the distribution. Another alternative would be to define high/low well-being as scores that are 1.5 standard deviations above or below the mean, respectively.

*Georgian version of the Life Stress Scale* (Khechuashvili, 2014) is 23-item list (Cronbach's alpha,  $\alpha = .76$ ) used to determine the presence and the type of stressful/traumatic event that precipitated posttraumatic growth. It was adapted from *The Social Readjustment Rating Scale* by Holmes and Rahe (1967). It contains a list of the events, (some traumatic and others pleasant) that require some effort of change in one's life to readjust to the situation. These events include items such as death of a spouse, change in responsibilities at work, and beginning or ending school. Participants indicate those events that are relevant to her/him and rate the listed potential stressors in accordance with their life situations and past experience.

*Demographics.* Participants filled out a demographic measure which included items such as gender, age, marital status, education, type of education, average monthly income, faith and habits associated with it, general health condition, and place of residence and living conditions.

## 5. RESULTS

### 5.1. Inventory Preparation

Two inventories were translated from English to Georgian, back translated, compared and modified, and went through several pilots (Beaton, Bombardier, Guillemin and Ferraz, 2000; Translating and Adapting Tests, 2010), with the permission of the authors of the original versions. The process resulted in the Georgian versions of the *Posttraumatic Growth Inventory* (PTGI\_Geo) and the *Scales of Psychological Well-being* (SPW\_Geo). Cronbach's alphas for individual scales as well as total scale ranged between .70 and .91 (Khechuashvili, 2014, 2015). As for the factor structure for the inventories, the 84 items of the Georgian version of the SPW replicated the six scale structure of the original inventory, whereas the 21 items composing the PTGI loaded on four factors (for more details see Khechuashvili, 2015). In particular, the first and fourth factors from original English PTGI merged into one factor on the PTGI-Geo.

## 5.2. Main Study

The results are presented in two sections. First the possible differences in posttraumatic growth and psychological well-being between two samples are examined. Next we examined the predictors of psychological well-being and posttraumatic growth.

*IDPs vs Non-IDPs.* The two samples were similar in terms of mean age, gender, and religious background. However, non-IDP citizens were more educated, held higher positions in the workplace, had higher socio-economic status, living conditions and self-perceived health conditions (all  $p$ 's < .001).

There were no significant differences between IDP and non-IDP citizens on the subscales and total score of the SPW\_Geo, and the total score and three of four factors of the PTGI\_Geo. IDPs ( $M=9.54(SD=7.2)$ ) scored lower on New Possibility than non-IDPs ( $M=13.72(SD=6.53)$ ) ( $t(1187)=-4.282, p<.001$ , (see Table 1).

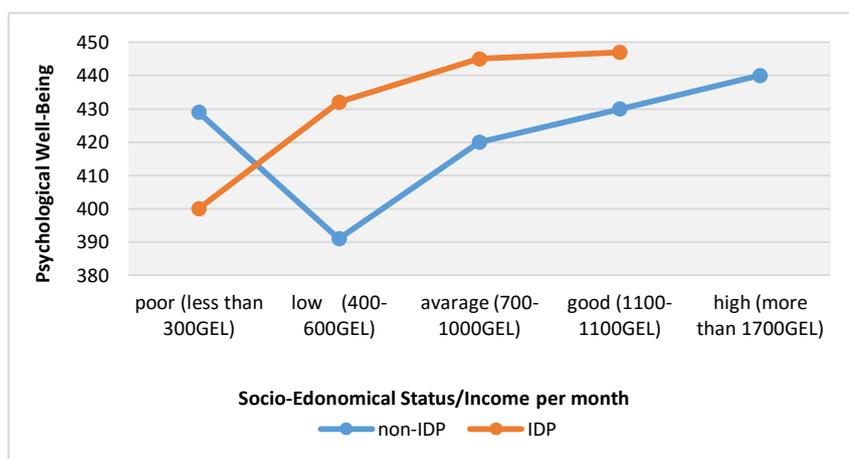
Table 1. Descriptive Statistics for the Georgian versions of the Posttraumatic Growth and Psychological Well-Being Scales.

Variable	Group	
	IDPs	Non-IDPs
Posttraumatic Growth Inventory	<i>M (SD)</i>	<i>M (SD)</i>
Relation to Others/ Spiritual Change	18.29 (10.14)	16.45 (8.73)
New Possibilities*	9.54 (7.19)	13.72 (6.53)
Personal Strength	11.40 (6.97)	12.33 (5.1)
Appreciation of Life	5.35 (3.76)	4.65 (3.391)
Posttraumatic Growth Total	50.54 (26.21)	52.43 (20.84)
Psychological Well-Being Scales		
Autonomy	57.69 (10.663)	58.26 (10.861)
Environmental Mastery	56.42 (9.722)	54.76 (10.964)
Personal Growth	60.44 (10.353)	62.45 (10.361)
Positive Relation to Others	63.81 (2.327)	61.06 (10.830)
Purpose in Life	62.81 (10.953)	62.92 (9.801)
Self-Acceptance	54.35 (10.004)	55.29 (11.972)
Psychological Well-Being Total	419.33 (53.424)	415.82 (53.077)

A 2 (IDP status) x 5 (income level) ANOVA revealed an IDP status by income interaction ( $F(6)=2.791, p=.041$ ) on well-being. For IDP citizens, well-being scores increased as income level increased; a similar pattern occurred for the non-IDP citizens, with the exception of non-IDP citizens who self-identified as being the poorest (less than 300 GEL) - they had higher well-being scores than those individuals with the next lowest income (400-600 GEL). Indeed, the non-IDPs who were the poorest had well-being scores similar to individuals of average income (see Figure 1).

A 2 (IDP status) x 5 (income level) ANOVA revealed no statistically significant results. Furthermore, there were no significant main effects or interactions of living condition or health condition by status on both psychological well-being and posttraumatic growth (all  $p$ 's > .05).

Figure 1. Means of Psychological Well-Being (Total) in Different Income<sup>4</sup> Groups.



*Predictors.* A series of hierarchical multiple regression analyses were conducted predicting psychological well-being, and posttraumatic growth. Socio-economic status and self-perceived health were reliable predictors of psychological well-being (see table 2). However, none of the variables reached significance in predicting posttraumatic growth. The combination of above mentioned variables (socio-economic status and health condition) explained only 8% of variance in posttraumatic growth scores, but predicted 20% of the variance in psychological well-being scores.

Table 2. Multiple Regression Model Predicting Psychological Well-Being.

	Unstandardized B	SE B	Standardized $\beta$
<b>Step 1</b>			
Constant	516.762	40.069	
Socio-Economic Status/Income	-22.720	9.197	-.33*
<b>Step 2</b>			
Constant	544.854	40.242	
Socio-Economic Status/Income	-18.979	8.958	-.28*
Health Condition	-17.654	7.566	-.30*

Note:  $R^2 = .109$  for Step 1,  $\Delta R^2 = .09$  for Step 2 ( $p < .05$ ) \* $p < .05$ .

## 6. DISCUSSION

There are no statistically significant differences in psychological well-being or posttraumatic growth between IDP and non-IDP participants. However the two groups responded differently to the items about opening new possibilities in the aftermath trauma. Taking into account IDPs' everyday lives and living conditions, this outcome fits into the context. People left without anything and were forced to build their lives over again, and they may not have seen the value in searching for new possibilities around them, either in their immediate or broader surroundings.

However, there were interesting within group differences: non-IDPs reported lower psychological well-being if their income was low in comparison to other income brackets, including those who earned less than 300 GEL and qualified as poor. With IDPs, although none reported high income levels, well-being scores increased as income levels increased.

These results suggest that psychological well-being was, by and large, associated with one's socio-economic status regardless of IDP or non-IDP status. However, there was an interesting exception in case of the one of the non-IDP group, namely non-IDP citizens in the poorest income bracket score higher than those the low income bracket, and at the same time they scored similar to those in the average income bracket; this was a reversal of the pattern in the rest of the data. One of the possible explanations here might be that people in the poorest income group had different understanding of the concept of well-being. They subjectively interpreted their own well-being as higher than participants from average income group due to this change in meaning of the very concept of well-being. This assumption was more-or-less proved in frame of broader study of life stories and experiences of the part of the sample. Another verification of this explanation came from the study of happiness and well-being (Tsuladze, Chitashvili, Bendeliani, & Arutinovi, 2013), where participants from lower socio-economic groups indicated that they need less to feel happier than participants from higher income groups. In short, it may hypothesized that when one (at least in Georgia) has almost nothing and earns almost nothing, he/she has to accommodate priorities in life, needs, and criteria to the current conditions in order to survive, to keep striving, and to be able to function further. Furthermore, socio-economic status was a good predictor of psychological well-being (along with health condition) and explained about 20% of variance in well-being scores. This outcome corresponds to data obtained in the scope of the nationwide study of the perceptions and correlates of reported overall happiness, which found that the highest predictive value for well-being and perceived happiness was the evaluation of the current economic situation of the household (Tsuladze, et. al. 2013). One of the explanations for strong linkage of well-being and income can be found in the recent history of Georgia; the post-soviet country experienced socio-economic and political turmoil, economic downturns and wars during last two decades. The amount of income earned per household had a direct impact (among other factors) on quality of life, life satisfaction and psychological well-being.

## 7. FUTURE RESEARCH DIRECTIONS

Given that the data presented in this chapter are drawn from a larger mixed method study of posttraumatic growth and psychological well-being of internally displaced persons (and ordinary citizens), further investigation aims to bridge self-reported data with data gained through a qualitative life story interview. Our goal is to reveal and understand the connections and links research participants make between explicitly stated conditions of well-being and growth, on the one hand, and implicitly narrated stories of changes due to internal displacement, on the other hand.

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<sup>2</sup>A person or a group of persons is/are named as internally displaced if she/he or they were forced to flee from their place of residence due to natural (earthquake, flooding, etc.) disasters or man-made big scale events (armed conflicts, wars, etc.), and have to settle down in other places. IDP is distinguished from refugee in that the former doesn't cross the national border of the country she/he lives in, whilst the latter moves beyond the officially acknowledge state border to live in another country (Gogishvili, 2015).

<sup>3</sup>Data were collected in August, 2014, exactly six years after the displacement.

<sup>4</sup>1 EURO = 2.57 GEL (GEL – Georgian Lari), available at <https://www.nbg.gov.ge/index.php?m=582>, last seen 12.11.2015. But for the moment of the field work (summer, 2014), 1 EURO = 1.83GEL.

## Chapter #2

### PSYCHOLOGICAL DISTRESS AND COPING STRATEGIES AMONG WOMEN WHO UNDERGO CANCER GENETIC TESTING

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#### ABSTRACT

Carriers of BRCA mutations (BRCA1 and BRCA2) have a higher risk for breast and ovarian cancer. Although cancer genetic testing is an effective instrument for cancer prevention, little is known about the psychological impact it may have on its users. The aim of the present study is to investigate the effect of coping strategies on the prediction of psychological distress among women who decide to undergo cancer genetic testing; distinguishing them by their reasons for undertaking genetic testing. The study included three groups of women: breast and/or ovarian cancer patients (N = 33), breast and/or ovarian cancer survivors (N = 22) and people with strong family histories for breast and/or ovarian cancer (N = 10). All cancer patients (both in/out of remission) were affected by breast or ovarian cancer. Assessment of psychological distress and coping strategies were respectively obtained with the administration of the SCL-90-R and the COPE-NVI questionnaires. ANOVA and multiple regression models were carried out. Groups of participants significantly differed with regards to somatization, depressive symptoms and hostility. The use of avoidance coping strategies predicted higher levels of psychological distress. Results from the present study suggest the importance of coping strategies on the prediction of psychological distress, allowing psychologists to draw up appropriate intervention strategies during cancer genetic testing.

*Keywords:* cancer, genetic counseling, cancer genetic testing, hostility, coping.

#### 1. INTRODUCTION

In the field of genetic oncology, the clinical process that leads to the diagnosis of hereditary tumors and to the management of genetically high-risk subjects is called Cancer Genetic Counseling. Presently, it is estimated that 7-8% of breast cancers and 10% of ovarian cancers are hereditary forms of the disease (Vuttariello et al., 2013): the genetic basis of the Hereditary Breast and Ovarian Cancer (HBOC) syndrome is, in most cases, a germline inherited mutation in either the BRCA1 or BRCA2 genes (Vuttariello et al., 2013; Brédart et al., 2013), which are found respectively on chromosomes 17 and 13 (Miki et al., 1994; Wooster et al., 1995). A mutation of these oncosuppressors is usually an alteration or suppression of gene function (a loss of function), which leads to uncontrolled cellular proliferation and, as a consequence, a tumor develops. In these cases the mutation involves germline cells and is inherited as an autosomal dominant trait with incomplete penetration. Inheriting these germline alterations means a higher risk of developing breast or ovarian cancer compared to the general population, but this does not equate to certainty of disease. When a patient's individual and family clinical history is characterized by multiple cases of tumors (breast and/or ovarian), which usually develop at a young age and in various family

generations, we hypothesize the existence of a mutation of the BRCA1/2 genes and we advise they undergo the Cancer Genetic Counseling process.

Due to the increasing need of Cancer Genetic Counseling and its subsequent availability, it is important to understand the psychological impact that it can have on its users. Patients being tested may experience some psychological distress during the testing process or after receiving the test results, owing to the individual and familial implications of carrying a BRCA mutation. Carriers of BRCA mutations show a higher risk of developing breast (60-70%) and ovarian (10-40%) cancer (Antoniou et al., 2003). Women with BRCA mutations then have to decide whether to pursue a specific cancer risk management strategy, such as screening, chemoprevention or prophylactic surgery (such as a mastectomy or oophorectomy), weighing up the negative consequences on procreation and body image. Furthermore, BRCA mutation carriers have to choose whether to share the newly obtained genetic information with their families: the possibility of having transmitted the genetic mutation to one's children could generate anger and guilt in an individual.

Every patient faces the genetic test and the possibility of a positive result differently. Patients may have varying degrees of awareness, based on their way of confronting stressful life events; these are called coping strategies. These strategies or efforts to tolerate certain stressful events can be more or less adaptive and can influence the psycho-physical balance of the patient, as well as the adherence to screening to reduce oncological risk.

Based on these premises, genetic testing is part of a dynamic process that encourages a comprehensive care of the patient. The most evident benefit is the chance for a better understanding of disease risk.

The multistep Cancer Genetic Counseling Model (Contegiacomo et al., 2004) tries to meet the patient's physical, mental and social needs. This in turn promotes awareness of the patient's condition in the multidisciplinary treating team (which includes an oncologist, a gynecologist, a geneticist and a psychologist). The entire process consists of three phases: pre-testing, testing and post-testing phase.

During the pre-testing phase, the subject learns about the hereditary, familial and sporadic forms of cancer and the methods available to identify the risk of developing them. The pedigree construction for at least three generations allows the geneticist to estimate the patient's risk profile. By examining the individual's clinical history, the geneticist takes into account: the age of onset of the disease, the presence of bilateral breast and ovarian tumors, multiple ovarian or breast tumors, a diagnosis of triple negative breast cancer as well as a diagnosis of male breast cancer in the family. The probability of being a carrier of a genetic mutation increases in families with a pedigree characterized by: multiple cases of breast cancer which present at a young age and in multiple generations, multiple tumors in the same individual, male breast cancer and belonging to the Ashkenazi Hebrew population. For patients who have already been diagnosed with breast or ovarian cancer, genetic testing can often help determine the prognosis and can help the treating team decide which treatments will most likely work for the patient (American Cancer Society, 2013).

Many people who undergo cancer genetic testing are anxious even before getting their test results, which may also have implications for their families. The pre-test psychological interview aims at identifying users who experience cancer genetic counseling as more stressful, assessing their coping strategies and psychological distress and at programming a possible intervention of personalized psychological support. In the case of suspected inherited risk, a genetic test is offered (testing stage) and users then have to wait at least three months for test results.

Once the molecular analysis is complete, the interdisciplinary team communicates the test results to the patient (post-test phase): here the multidisciplinary team helps the patient to read and understand the test results and also to comprehend the implications these may have on the individual and their family.

There are three possible genetic test results: positive, negative or uncertain. If the result is positive, it is identified as a pathogenetic mutation of the genes BRCA1 or BRCA2. The negative result means that no pathogenetic mutation was identified. The result is defined as “true negative” only in cases where the no mutation has been identified previously in other family members (test for the search of the “known mutation”). Lastly, the “inconclusive” or uncertain result appears in the presence of an unusual form of the BRCA gene. In a family with characteristics that are typical of hereditary cancer, this result cannot exclude the possibility of a genetic predisposition with absolute certainty.

The cause of a negative test within these families could be tied to the presence of alterations on other genes or of mutations of the gene examined, but which could not be recognized by the current laboratory procedures. The subject receives an “uncertain result” even if an unknown variant mutation is identified, for which the risk associated to developing a tumor is not known. Although cancer genetic testing is an effective instrument for cancer prevention, little is known about its psychological impact and implications. Studies in the past have shown contradictory and mixed results (Meiser, 2005). In general, the literature that has focused on psychological reactions of patients who have been subjected to genetic testing for the BRCA1 and BRCA2 genes agrees that clinically significant increases in distress are not frequent (<10%) if the patient is inserted in a Cancer Genetic Counseling program (Coyne, Benazon, Gaba, Calzone, & Weber, 2000; Smith et al., 2008; Halbert et al., 2011; Graves et al., 2012). One of the most salient limitations of the research in this field is the lack of psychological importance given to the pre-test counseling phase. However, a recent study conducted on women with and without breast cancer histories demonstrated that the result of the genetic test had no effect on the distress levels in subjects measured in the pre-test phase (Smith et al., 2008). Although in Italy the requests for Cancer Genetic Counseling are increasing, there is no Italian data that focuses on the psychological impact that the genetic testing procedure could have on its users.

## **2. DESIGN**

This is an explorative study that focused on the psychological adaptation of patients to the Cancer Genetic Counseling process for BRCA gene testing. Subjects who requested counseling were referred by their physician or arrived spontaneously to the Cancer Genetic Counseling Unit of a hospital in Northern Italy, between 2012 and 2014. After deciding to undergo genetic testing for BRCA1 and BRCA2, subjects were informed by the doctor on how the counseling service was structured at the hospital. The process involves three different phases: in the pre-test phase the patient meets with the psychologist and then separately also with the geneticist; once the subject has been deemed suitable for genetic testing, a blood test is carried out (testing phase); lastly, the third phase involves the restitution and communication of the genetic test results.

Sixty-five women took part in the study; they were all over 18 years old and provided written informed consent before undergoing genetic counseling and testing. The women were advised to take part in Cancer Genetic Counseling by their treating oncologist or gynecologist. Using health status as an objective criterion, we distinguished between three subsamples of participants: 33 breast and/or ovarian cancer patients

(mean age = 49, SD = 11,21), 22 breast and/or ovarian cancer survivors (mean age = 50, SD = 10,41) and 10 women with strong family histories of breast and/or ovarian cancer (mean age = 41, SD = 9,93).

### **3. OBJECTIVES**

Using these criteria as a starting point, the objective of the study was to assess the sample's psychological vulnerability experienced in the context of Cancer Genetic Counseling. Furthermore, the present study evaluated the existence of differences in distress and coping strategies between the three subsamples (breast and/or ovarian cancer patients, breast and/or ovarian cancer survivors and women with strong family histories of breast and/or ovarian cancer).

In order to identify users who experience Cancer Genetic Counseling as more stressful and to program a possible intervention of personalized psychological support, the ultimate goal of this study was to investigate the effect of coping strategies on the prediction of psychological distress among women who decide to undergo BRCA testing.

### **4. METHODS**

#### **4.1. Procedures**

In the pre-test phase, before meeting the geneticist, subjects participated in a 45-minute psychological interview, consisting of three steps. Firstly, socio-demographic information was collected by the counselor, as well as the individual and family cancer histories, and lastly, information regarding the participant's social, religious, cultural and family resources were investigated. Thereafter, a psychologist explained the genetic counseling process and its implications; lastly, subjects completed two questionnaires, the SCL-90-R and the COPE-NVI.

The Symptom Checklist-90-R (SCL-90-R) is a self-report questionnaire that measures the presence and intensity of psychopathological symptoms and psychological distress. It is made up of 90 items that run on a 5-point Likert scale (0="Not at all"; 4="Extremely") (Derogatis, 1994). It is used widely to measure psychological distress in clinical practice and research and has demonstrated excellent validity and reliability (Derogatis & Savitz, 2000).

The Coping Orientation to Problems Experienced- Revised Italian Version (COPE-NVI) is made up of 60 items measured on a 4-point Likert scale (1="I usually don't do this at all"; 4 = "I usually do this a lot"). This self-report questionnaire measures how people respond when they confront difficult or stressful events in their lives. It takes into consideration five coping styles: Social Support, Avoidance Strategies, Positive Attitude, Problem solving and Turning to Religion (Sica et al., 2008).

#### **4.2. Statistical analysis**

Statistical Analyses were conducted using SPSS Version 20 (IBM Corp., 2011). Descriptive statistics were generated to characterize the entire sample and the three subsamples in terms of demographics, resources, cancer history and psychological factors.

To evaluate the presence of statistically significant differences between the three subsamples regarding distress and coping strategies, the Kruskal-Wallis test and subsequently, the Mann-Whitney test for independent samples were used.

Finally, multiple regression analysis was run to study the relation between psychological variables and coping strategies.

## 5. RESULTS

The statistical analysis showed that 7.7% of the total sample experienced a clinically significant level of psychological distress.

Groups of participants significantly differed in relation to somatization (Figure 1), depressive symptoms (Figure 2) and hostility (Figure 3). In particular, breast and/or ovarian Cancer Survivors present a higher vulnerability to feelings and thoughts of a state of anger; significantly higher in comparison to other subsamples.

The regression analysis identified those who use the coping strategy of avoidance, predictive of an increase in symptoms of depression, anxiety and somatization, as the most vulnerable to psychological distress.

Figure 1. Somatization: mean scores between three subsamples.

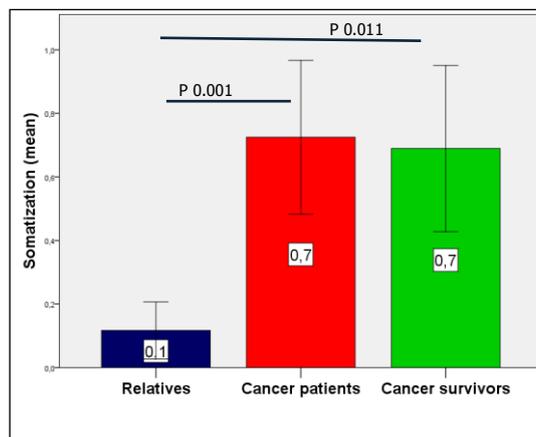


Figure 2. Depressive symptoms: mean scores three subsamples.

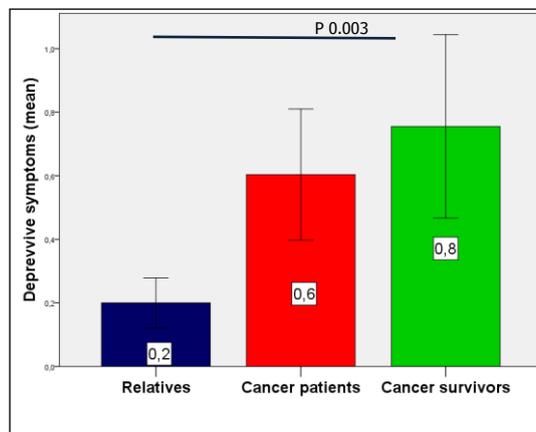
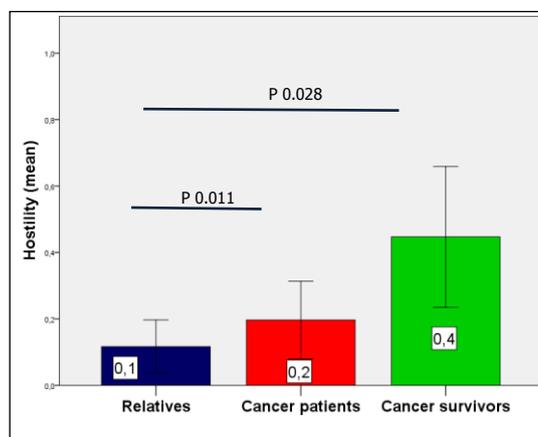


Figure 3. Hostility: mean scores between three subsamples.



## 6. DISCUSSION

The results of this research confirm the findings currently present in the literature. Previous research shows that abnormal psychological reactions to Cancer Genetic Counseling seem to be infrequent: in most cases, the BRCA gene test and its positive result only temporarily change the levels of psychological distress (Graves et al., 2012). Only a minority of patients (< 10%) experience a clinically significant level of psychological distress that persists over time (Coyne et al., 2000; Schwartz et al., 2002) and this was also true for our sample.

Cancer Survivors seem to have a higher risk of experiencing feelings and thoughts of a state of anger. The high level of hostility in this subsample could be explained by the fear of disease relapse. It is possible that this anger is triggered by the prospect of having a positive test result which would force the individual to face important decisions, such as a decision to undergo prophylactic surgery, which can interfere with a person's daily functioning. Therefore the risk of re-acquiring the *status* of cancer patient, because of a relapse or because of the possible preventative interventions, could make the subject feel as though they were re-living the negative experience of disease and treatment, which he or she thought they had overcome. As a consequence, it would be advisable to refer Cancer Survivors to genetic counseling at the beginning of the course of disease and treatment. Participants using avoidance coping strategies seem to be more vulnerable to psychological distress (anxiety, depression and somatization) compared to those who use problem-oriented ones, since they are hypothetically inclined to deny the mutation risk condition. Denial and mental detachment of the problem correlate with an increase of psycho-emotional distress, they also constitute a psychological vulnerability factor as they predict an increase in depressive, anxiety and somatization symptoms. Previous research has also found that the use of avoidant coping was reliably and positively associated with distress over time independent of cancer history and test results (Dougall et al., 2009). It is possible that people who use avoidance as a coping mechanism are trying to protect themselves from situations that invoke strong emotional responses; these clients may be hoping not to hear the information about their cancer risks, they may even go on to interrupt cancer risk discussions and defer genetic counseling appointments (Schneider, 2011).

Psychological intervention should therefore be focused on evaluating and strengthening levels of awareness in the patient with regards to the possibility of being a carrier of the BRCA1 or BRCA2 gene mutations, so that one does not collude with the patient and reinforce this denial through false reassurances.

## 7. CONCLUSIONS AND FUTURE RESEARCH

An important clinical implication of our study is that ovarian and breast Cancer Patients, Survivors and their Relatives can be actively approached and referred for Cancer Genetic Counseling without a threat to psychological functioning as only a small percentage of individuals present psychological distress during this process and these clients can be identified in the pre-testing phase and counseled through the genetic testing process.

Due to the limitation of a small sample size it was not possible to compare subsamples of female and male patients with regards to the psychological variables examined in the study. At present, to our knowledge, no study has focused on psychological adaptation of male patients during the Cancer Genetic Counseling procedure. If in the future we reach a sufficient sample size for male subjects we could create a comparison group to see if there are any significant differences between the two gender groups regarding levels of psycho-emotional distress and its respective predictors. Alternatively, we could try to compare female patients who undergo Cancer Genetic Counseling and male patients suffering from another type of cancer which has similar psychological characteristics to those measured in the female sample so that we can identify specific factors that can predict psychological distress in these two groups. The explorative study carried out focused on the psychological evaluation of the patients in the pre-test genetic phase: to strengthen the support offered it would be desirable to extend the psychological evaluation to all three phases so as to include the pre-test phase after the visit with the geneticist and the post-test phase. The exploration of psycho-emotional distress at these three phases would allow a careful monitoring of the progress of the psychological distress during the entire genetic testing process and it would allow us to see the impact that the session with the geneticist and the communication of the test results would have on the emotional functioning of an individual. Furthermore, through the use of a questionnaire that measures subjective risk, it would be possible to analyze the effect that the sessions with the psychologist and the geneticist have on the ability of estimating risk. In this way we could offer the patient a much desired, much needed, global personalized care while the subject undergoes Cancer Genetic Counseling.

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## KEY TERMS AND DEFINITIONS

**Cancer Genetic Counseling:** a trained health care worker carries out genetic counseling. It is important to help women make informed decisions about genetic testing. In a genetic counseling session for breast and ovarian cancer, the genetic counselor will typically collect a detailed family and

medical history and then discuss questions that may arise with regards to the testing procedure. Following the genetic counseling session, a client may decide not to undergo *BRCA1/2* testing, or the client may learn that testing is not appropriate for his or her circumstances. Counseling can also help better understand the meaning of test results after genetic testing.

**Cancer Genetic Testing:** is a medical test to search for mutations in a patient's genes. It is a form of predictive gene testing to see if a person has a certain risk of developing cancer.

**BRCA1/BRCA2:** these are oncosuppressor genes that code for Breast Cancer Type 1 and 2 susceptibility proteins that are involved in repairing DNA. If these two genes are mutated then the subject is at higher risk for developing cancer.

**Coping Strategy:** effort or strategy that a person employs to better tolerate or master certain stressful situations.

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## Chapter #3

### INCEPTION OF AN INSTRUMENT ON HEALTH CAPABILITY OF FAMILY CAREGIVERS

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#### ABSTRACT

The health capability of family caregivers has already been studied through eight factors: physical and psychological functioning, lifestyle value, self-efficacy towards health services, family support, social capital, socio-economic conditions and access to health services. Our aim was to identify new factors. Family caregivers of stroke victims living at home were recruited in the Lorraine region (France; n=8) and Luxembourg (n=6). Semi-structured interviews about their health statuses, how they currently take care of their health, and the internal resources they need to achieve optimal health were conducted face-to-face. Verbatim transcriptions were open-coded and grouped into new factors of health capability. Items reflecting the main idea of the categories were formulated. Seven women and seven men (age 63.6±10.1) participated. Statements were regrouped together into new ways, giving rise to seven new emergent factors: health knowledge, health self-efficacy, health value, life skills, health decision-making, motivation, and attitude towards the future. Of them, 76 items were generated, 51 reflecting generic abilities while 26 being specific to family caregiving. Content analysis of these factors first allows guiding the preparation of innovative supports to promote health capability. Second, this list can serve as a basis to elaborate a guide to which clinicians can refer to, in orienting family caregivers according to their needs. Further research is needed to complete the validation of the HCFC instrument.

*Keywords:* health capability, family caregiving, stroke, qualitative approach.

#### 1. BACKGROUND

Demographic changes (increased life expectancy), a declining economic outlook (increasing social inequality), and the current way of managing chronic diseases call for intergenerational solidarity and yet they act to undermine the health of family caregivers. As shown by two meta-analytic studies family caregivers have a higher risk of developing problems with their physical health, compared to non-caregivers (Vitaliano, Zhang, & Scanlan, 2003) and to suffer from stress and depression (Pinquart & Sörensen, 2003).

Health capability defines the capacity to achieve one's optimal health (Ruger, 2010b). Adapted from the capability approach (Nussbaum, 2011; Sen, 1992), the health capability paradigm aims to conceptualize a right to health. The approach assumes that it is the duty of the society, on the one hand, to create environments which are favorable for the health of the individual, and, on the other hand, to develop personal health-related skills. In this framework, a 'capable' person is able to make informed health choices. Health capability is a complex capacity which requires a set of simpler capabilities (Venkatapuram, 2011) such as those defined in Ruger's paradigm: having sufficient health-related knowledge, a health-oriented attitude, benefitting from social networks to help in everyday life, or living in a safe environment, and in a country where

health care systems are enabling (Ruger, 2010a). Despite the need to understand the capacities required to develop health capability among family caregivers who daily support relatives with chronic diseases (Bucki, 2014), little psychological research has based their works on this approach, to date.

Identifying the main factors of health capability and their content is also needed to help construct a measurement instrument relying on the capability approach. The strength of such an innovative instrument would be to enlarge the classical spectrum of analysis (quality of life, health-related quality of life) to aspects not directly related to health variables (Al-Janabi, Keeley, Mitchell, & Coast, 2013).

Based on the correspondence between this paradigm and the content of a national survey conducted among family caregivers in Luxembourg, eight factors of health capability have already been identified (Bucki, 2015): physical health, psychological functioning, lifestyle value, self-efficacy towards health services, family support, social capital, socio-economic conditions and access to health services. This first eight-factor model has been operationalized by 20 items (HCFC-8 factors) with satisfactory psychometric properties (Bucki, 2015). The analyses showed that the factors which impacted health capability the most, were physical functioning and lack of family support; i.e. fatigue and feeling abandoned by the family impeded health capability the most. The 8-factor model covers psychological, social, and environmental aspects. However, in reference to Ruger's internal dimensions of the paradigm, psychological aspects seem to be under-represented. A deeper knowledge is thus needed to understand what intrinsically contributes and impedes the health capability of family caregivers.

Operationalizing health capability in a unique instrument of measurement has also become a need to the development and applications in this field (Al-Janabi et al., 2013). The challenge is to make the instrument illustrate the large spectrum of concepts covered under "health capability", while taking into account the specifics of the family caregivers' lifestyles, yet not being too long for respondents.

## **2. METHODS**

### **2.1. Study design, sample and recruitment**

After being informed about the survey, family caregivers were invited to participate in a face-to-face interview at their homes:

- In the Lorraine region (France) –Family caregivers aged 45-80 years and caring for a stroke victim living at home for at least one year, were contacted by two local associations: '*France AVC Lorraine*' and the '*Ecole des Parents et Educateurs de Moselle*'.

- In Luxembourg - Family caregivers who participated in a national survey, four years earlier, about life two years after a stroke were recontacted. A preliminary verification of deaths having occurred among the stroke patients and family caregivers was made at the Luxembourgish death registry.

### **2.2. Procedure**

Informed consent was obtained from family caregivers willing to participate. Semi-structured interviews were held between February and May 2013 at the homes of the participants. The interviews focused on their health statuses, how they take care of their health (including what helps/impedes a better agency), and the internal resources they would need to achieve their optimal health. Three researchers trained in qualitative methods

conducted the interviews, so that diverse individual sensitivities were represented, thus avoiding an interviewer-related bias. Interviews were recorded and transcribed.

### 2.3. Data analysis

Analysis was conducted with the help of Nvivo 8 software. In the first step, verbatim from the transcripts were open-coded and similar ideas grouped together to form categories related to the aim of the study. Verbatim were selected in accordance with the categories originally formulated in Ruger's paradigm. Verbatim which seemed not to belong to this generic classification, especially if related to specific experiences of family caregivers, were inserted into new categories. This method allowed developing a stepwise theoretical interpretation grounded in the collected data. In the second step, the content of the categories was refined and adjusted by two researchers, thus guaranteeing the quality criteria of reliability (Mays & Pope, 1995). The third step consisted of formulating items that would potentially be integrated into the new version of the HCFC instrument. To form the items, the most relevant and comprehensible statements emerging from the participants were selected within each identified factor and were validated by consensus with an expert group.

## 3. RESULTS

### 3.1. Socio-demographic profile of the participants

Seven women and seven men (age  $63.6 \pm 10.1$ ) volunteered to participate. They cared for the stroke victims for an average of 7.3 years ( $\pm 2.9$ ). Twelve were the partners of the stroke victims, one cared for her mother and another accompanied her daughter. While most were retired, three caregivers were employed at the time of the survey (table 1).

Table 1. Characteristics of the participating family caregivers.

	Country	Sex	Age	Relationship	Working	Time since stroke	Last position
A.01	Fr	F	64	Spouse	No	3 years, 6 months	Schoolteacher
A.02	Fr	F	61	Spouse	No	8 years	Housewife
A.03	Fr	M	66	Spouse	No	8 years, 4 months	Laboratory technician
A.04	Fr	F	80	Mother	No	4 years, 9 months	Typist
A.05	Fr	M	79	Partner	No	2 years, 4 months	Director
A.06	Fr	F	65	Spouse	No	9 years	Officer at the Post
A.07	Fr	M	67	Spouse	No	15 years	Paper delivery person
A.08	Fr	M	48	Spouse	Yes	6 years, 2 months	Foreman
A.09	Lux	F	64	Daughter	No	7 years, 8 months	Secretary
A.10	Lux	M	45	Spouse	Yes	7 years, 1 months	Teacher
A.11	Lux	F	70	Spouse	No	7 years, 9 months	Accountant
A.12	Lux	M	64	Spouse	No	7 years, 4 months	Mechanic
A.13	Lux	F	51	Spouse	Yes	7 years, 6 months	Sales assistant
A.14	Lux	M	66	Spouse	No	7 years, 3 months	Airline pilot

### 3.2. Analysis of the transcriptions

The following section details the categories identified by their items and illustrated by a selection of verbatim.

#### 3.2.1. Health knowledge

Three items related to health knowledge emerged.

The first regrouped the causal relationships between behaviors or lifestyle and health. While several caregivers declared e.g. *“You cannot really influence your health, either you*

*have it, or you do not*" (A.06), others cited a varied range of physical, recreational activities and nutritional behaviors that help maintain their health.

Second, the causal attribution of symptoms like pain, sleeping problems and fatigue was mentioned by all the participants. Discourses ranged from "*I don't really know where my pain comes from*" (A.08) to "*anyway I am sometimes a little more tired than normal because [...] I must do eight hours*" (A.05), reflecting that some symptoms directly derive from being a caregiver.

Third, TV, journals and internet were described as the means to acquire health-related information and knowledge.

### **3.2.2. Self-efficacy and health-related skills**

Self-efficacy has been mentioned as one of the contributors to achieving an optimal health status: "*What's important is that I feel capable of being in better health*" (A.10). Other skills comprise the implementation of healthy behaviors "*now I pay attention to what I eat, I am a very good cook*" (A.05), adapting installations in the house in order to be relieved, and the ability to adopt protecting behaviors: "*By car, I was a little...I loved to drive very fast, very... I calmed down [...] telling me I have no right to accident*" (A.01).

### **3.2.3. Health value**

The value of health emerged as an essential part of health capability in two ways.

The first was general, as mentioned by A.01: "*I attach great value to health*" or conversely by A.04: "*I am not concerned about my health*".

Second, according to some participants, the value placed on health was directly influenced by becoming a caregiver. Either health became more important: "*now I have to take care of her so I am more careful*" (A.03), either less of a priority: "*I should now go to the physio for a problem of sciatica etc. As my husband goes to the hospital every morning, I realize that my back problems are not the priority*" (A.01).

### **3.2.4. Life skills**

The participants mentioned a set of skills to manage everyday life.

The ability to manage personal situations is put to the test, as shown by the following statements: "*Friends who drifted away after the stroke, I threw them out*" (A.05), "*I feel torn between him and others*" (A.06).

The aptitude to call for someone to solve problems or for relief from the caregiving role was considered as beneficial to maintain their health: "*Given my health, I asked a nurse to come for his personal hygiene*" (A.01) or conversely "*I won't bother anyone*" (A.06).

The aptitude to get arrangements from health services was expressed in statements which reflected their capacity to express their needs: "*Sometimes it was necessary to grumble for information*" (A.05) or "*I am the one who asked to place her in a nursing home because it was becoming more difficult [...] and after 10 years, I could not make her stand anymore*" (A.09).

The capacity to express their needs and limits to the relatives for whom they were caring was also cited by the caregivers as facilitating: "*He knows that on Thursday mornings, don't ask me anything!*" (A.01) and is also well illustrated by the following statement from A.06: "*it was already a habit not showing when I am sick, unless I'm lying on the ground*".

Finally, three coping strategies were mentioned for attempting to cope with the situation: denial, as shown by the following statement "*It's been more than ten years or*

*fifteen years, anyway I always ignored that and that's all, it does not exist*" (A.05). Others illustrated their acceptance of the situation as *"I say to myself, it is like that, some will experience it earlier, some later, it is like that"* although A.07 stated the contrary: *"I have never accepted my wife's disease"*. Finally, some caregivers tried to put things into perspective by reinterpreting their situation positively: *"it is not something that has been proposed to us and we think it could have been worse"* (A.06) or *"other relatives have more important health problems"* (A.13).

### 3.2.5. Health decision-making

This domain regroups the aptitude to identify health problems and to pursue an efficient prevention or treatment. This pattern was especially emphasized when speaking about doctor consultations. *"I go to see my doctor every three months"* (A.04; A.05) or on the contrary: *"I go to see my doctor when it goes wrong. I don't go for prevention"* (A.13).

Other contexts of decision-making were cited, as the prevention of back pain (*"I have serious back problems so I try to go slowly. Gardening, not more than one hour at a time"*; A.06), trying to eat better (*"I eat less, I hardly drink anything"*; A.10), taking medicines for prevention (*"if I stay here, I don't necessarily take my painkiller but if I go to my daughter for example twice a week, I always take it before leaving"*; A.04), and deciding to do activities outside the caregiving role. These activities mainly consist of walks, physical activities and yoga, but it can sometimes also consist of activities like: *"At the moment, I avoid a little bit [about visiting her mother] because [...] I want to protect myself"* (A.02).

### 3.2.6. Motivation

Two types of motivation emerged from the analyses: the motivation to maintain health and the motivation to be a caregiver.

The sources of motivations to maintain health were diverse: material reasons (*"I earn the most money so it is not very romantic, but be it only for money, it is very important that I am in very good health"*; A.05), extrinsic motivation (*"my daughters, they say 'don't force mom, stop, we need you to stay healthy'"*; A.06) or the responsibility of being a caregiver (*"in those moments, his presence allows me not to let go, because I have to act for me and for him"*; A.06). Some caregivers were motivated by the desire to be here for their grandchildren: *"I want to see my grandchildren grow up [...] to often see them, play with them, all that, it motivates me and it gives me strength"* (A.06) and others were just intrinsically motivated *"it has to be your own choice. It's like you don't stop smoking because somebody tells you to. You stop smoking because you want it yourself"* (A.14).

The motivation to be a caregiver was particularly present among French participants with statements like *"I was advised not to visit him every day, but if I don't I just feel guilty"* (A.02). The reasons to care ranged from internal reasons like the *"need to see"* (A.02) the relative or love *"This is all about love. I think if I did not care about my wife, I would have gone"* (A.07) to a perception of the duty to care *"I'm not separated from my wife because I got engaged, I must hold on"* (A.07).

### 3.2.7. Attitude towards the future

Two types of attitudes towards the future were expressed: perspectives about health, and perspectives about one's personal life. Health perspectives were, on the one hand, optimistic. Some caregivers said they felt *"positive"* (A.06) or, as A.10 about reaching his optimal health, *"I think it is still feasible and I'm sure next year will be close"*. And on the other hand, some caregivers felt concerned about the recurrence of a disease that had already occurred in the past, such as depression or cancer.

Regarding the perspectives about their personal life, caregivers explained they make efforts to think about the present rather than worrying about the future “*I decided that I won’t ever worry about olden days*” (A.01). Whether optimistic or pessimistic about their future life, they feel that the most important for the future would be that the situation stabilizes: “*that’s all I’m asking for, that it won’t get worse*” (A.06). Anxiety is present for some respondents, as A.09 who said “*Now it’s over, I have had enough [...] an anguish of the future*”. Finally, some envision the future with projects, but this view is tempered by the constraints associated with the state of the stroke patient such as new habits to take, or lack of time: “*we have projects, but what we need is time*” (A.10).

### 3.3. Item generation

In total, 76 items were generated (table 2); of them, 51 reflect generic abilities and 26 are specific to family caregivers.

Table 2. List of 76 potential items completing the instrument of Health Capability of Family Caregivers.

<b>Health knowledge</b>
<i>Causal relationships between behaviors / lifestyle and health status</i>
1. One cannot really influence one’s own health. 2. According to me, physical activity really contributes to good health. 3. According to me, eating well really contributes to good health. 4. Going on holiday is good for my health.
<i>Causal attribution of fatigue, pain, and sleep disorders</i>
5. I do not really know where my pain comes from. 6. I do not really know where my sleep problems come from. 7. I do not really know where my weight problems come from. 8. Some symptoms (fatigue, pain) come directly from the fact that I am a family caregiver.
<i>Means of acquiring health-related information and knowledge</i>
9. When I need information, I sometimes go and look on my computer. 10. I regularly read articles / books on health. 11. I made material changes at home by adapting what is done in institutions. 12. I usually read the package leaflets.
<b>Health-related beliefs, skills, and self-efficacy</b>
13. I feel able to be more physically fit. 14. Since I am a family caregiver, I developed new behaviors to protect my health. 15. To keep me healthy, I take the example of people I admire. 16. I do not feel so necessary for my (sick / invalid /) relative. 17. I inherited my temperament from my parents. 18. I feel strong enough to be a family caregiver. 19. I sometimes exaggerate when I make efforts for my health. 20. Since I became a family caregiver, I have acquired skills which I try to keep.
<b>Health value and health goals</b>
<i>Value of health and healthy behaviors</i>
21. I attach great value to my health. 22. I am not concerned about my health.
<i>Value of health conditioned by the caregiving role</i>
23. As all depends on me, I pay more attention to my health since I became a family caregiver. 24. Since I am a family caregiver, my health comes second to others. 25. Since I am a family caregiver, I do not have time to take care of my health.



Table 2. List of 76 potential items completing the instrument of Health Capability of Family Caregivers. (cont.)

<b>Motivation</b>
<i>Motivation to maintain health</i>
58. Being able to work in order to support us motivates me to be healthy.
59. Not being sick is enough of a reason to motivate me to stay healthy.
60. Seeing my grandchildren grow up and taking care of them motivates me to stay healthy.
61. I need to be healthy to take care of my relative; it motivates me to stay healthy.
62. No one else could (can?) take care of him/her, I must stay healthy.
63. I do not feel especially motivated to take care of my health.
<i>Motivations to care</i>
64. I would feel like I abandoned him/her if I did not take care of him/her – I would feel guilty.
65. I need his/her presence.
66. Taking care of him/her is a duty.
67. I take care of him/her because I love him/her.
68. I want him/her to have the most enjoyable life.
69. I do not want to disappoint him/her.
<b>Expectations, perspectives, attitudes towards the future</b>
<i>Health perspectives</i>
70. When I imagine my health status in one year, I am positive.
71. I am afraid of the recurrence of a disease (depression, cancer...).
<i>Personal life perspectives</i>
72. I try to live in the present, and not to think about the future.
73. All I am asking for is that my life does not get worse.
74. Even if I do not really believe it will, I hope the future will be better.
75. I fear the occurrence of a new problem.
76. We are positive people, we have projects.

#### 4. DISCUSSION

Seven new factors of health capability have emerged: health knowledge, health self-efficacy, health value, life skills, health decision-making, motivation, and attitude towards the future. The aim of this exploratory study was to complete the first eight-factor model of health capability of family caregivers (HCFC) with new facets based on internal skills. Together, the HCFC completed model contains 15 factors which take into account psychological as well as social and environmental aspects.

Stroke was an event that forced family caregivers to test how they cope with situations. Some refer to leisure activities; others appeal to their social networks or use their ability to express their needs to the victims.

Most motivations to maintain own health were intrinsic; this finding is encouraging since the studies based on self-determination theory (Ryan & Deci, 2000) show that self-determined motivation promotes the adoption of healthy behaviors. However, an ambivalence towards the value accorded to health persists. Indeed, on the one hand, health is not the family caregivers' priority anymore since they have to care for their relative's well-being. But on the other hand, they feel a duty to stay in good health in order to fulfill their caregiving role, and thus preserve themselves. Motivational interviews (Miller & Rollnick, 2012) may help to clarify this ambivalence so that they can act according to the actual place of health in their lives. Besides, most motivations to keep caring refer to a sense of duty. This finding confirms the influence of the altruistic norm of

our societies (Schwartz, 1977) that may impede their capability of making the informed choice to be and remain a family caregiver, as they are partly guided by this caregiving norm.

The participants evoked in detail, the preventive behaviors they adopt for themselves, which represents the health decision-making category. However, literature about health decision-making among family caregivers mostly analyses the decision-making process occurring during transitional phases such as a relative's institutional placement (Mamier & Winslow, 2014; Ducharme, Couture & Lamontagne, 2012) or end of life (Edwards, Olson, Koop, & Northcott, 2012). Our finding reinforces the need to enlarge research to health decision-making that allows focus to be placed on how family caregivers make decisions about their own health while caring for someone else

The study revealed that self-efficacy towards health was a contributor of health capability. Among family caregivers, self-efficacy is shown to guard against the perception of burden (Gonyea O'Connor, Carruth, & Boyle, 2005), and to promote psychological well-being and vitality (van den Heuvel, de Witte, Schure, Sanderman, & Meyboom-de Jong, 2001). Thus, actions promoting health capability could contain modules on self-efficacy reinforcement.

Our findings highlight the necessity to implement interventions that will help family caregivers develop diverse aspects of their health capability. For example, improving their knowledge of the causal relationships between lifestyle or behaviors and health status can influence their decision-making process. Increasing their intrinsic motivations to maintain health can improve their health value. Since our sample size was limited and did not reach saturation, a second wave of interviews will be conducted to complete and adjust the content of the list.

To date, 76 potential additional items reflecting seven new factors have been selected (Bucki, 2015). Among them, 51 reflect generic capacities such as the ability to cope with personal situations, health perspectives, knowledge about causal effects between behavior/lifestyle and health, and motivation to maintain one's health; and 26 refer to aspects directly related to caregiving conditions such as the motivation to care and the ability to seek help or relief from caregiving tasks. In order to strengthen the conceptualization of health capability of family caregivers, it would be beneficial that this study be made by more research teams.

## **5. FUTURE RESEARCH DIRECTIONS**

Together, the model of HCFC contains 15 factors (8 previously identified + 7 new potential factors). The relevance of each new factor will be verified: Modes of response will be selected for the 76 newly created items. The complete list (76 new items + 20 first formulated) will be administered to a new and independent sample of family caregivers. A procedure of item reduction (Goetz et al., 2013) will be conducted, combining content validity and psychometric properties. This will allow the adaption of a more complete (exhaustive / inclusive) model and to operationalize HCFC in a final validated measurement instrument. . Afterward, the relationships between the different factors of the completed model of HCFC will be determined.

The HCFC instrument would have several topical utilities. First, it would guide the preparation for innovative support systems to promote health capability, and second, could serve as a basis to elaborate a guide which clinicians can use to orient family caregivers according to their health capability needs. Finally, it can be used among other indicators to assess the efficacy of complex health interventions.

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## Chapter #4

### MENTAL HEALTH IN JAPANESE PARENTS LIVING ABROAD: A Case Involving a Japanese School in Nairobi

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#### ABSTRACT

As the number of Japanese citizens living abroad has increased, mental health care for such individuals has become an important concern. Due to the language and culture peculiar to Japan, a number of Japanese schools that offer a Japanese curriculum for Japanese expatriate children have been founded to not only maintain their academic ability but also facilitate cultural transition. Moreover, these schools often have a role in the community for parents and other Japanese residents in the country. Therefore, supporting Japanese schools assists Japanese expatriates. This project involved the development of a psychological support system for a Japanese School in Nairobi. The first step involved exploring the needs of Japanese adults in Nairobi (N = 33) via the administration of a brief questionnaire survey. The results showed different types of stress reaction, which may have developed as a result of living in Nairobi, in this group relative to those of their counterparts in Japan. Although they tended to be preoccupied with the anticipation of stress, this did not always interfere with their mental health. In addition, the frustrations of daily life were assumed to generate their stress symptoms.

*Keywords:* Japanese, expatriate, cultural adjustment, mental health, Japanese school.

#### 1. INTRODUCTION

Since the 1950s, the number of Japanese families living overseas has increased consistently, and their mental health is a primary concern. Families with children tend to face greater difficulties. According to the Ministry of Education, Culture, Sports, Science and Technology in Japan (MEXT, 2014), the proportion of children aged within the ages at which they attend compulsory education at primary or secondary school reached 71,000 in 2014. The Japanese government, Japanese private firms, and other relevant organizations have established schools in foreign countries to maintain educational standards for Japanese children. These Japanese schools are full-day primary or secondary schools that offer Japanese standard curricula. There are currently 88 Japanese schools in 51 nations worldwide.

The schools not only offer Japanese education to expatriate children but also have another important role in providing mental health support to Japanese residents in the surrounding area. Moving to a new culture usually has a detrimental impact on one's mental health (Caligiuri, Hyland, Joshi, & Bross, 1998; Haslberger & Brewstwe, 2008). The cultural adjustment is challenging, particularly for expatriate children, who are required to learn a new language and adapt to a new culture whilst simultaneously dealing with developmental issues. These Japanese schools can reduce language and cultural confusion in expatriate Japanese children. Another advantage of the schools is that there is no need for children to establish an international peer group to support them during periods of stress,

which would be necessary in a foreign school (Yeh, 2003). Therefore, Japanese schools provide a tranquil transition for expatriate children, which reduces stress. They also help parents by alleviating their concerns about both academic and social aspects of their children's school lives. Furthermore, the Japanese schools are often open to other Japanese residents, as well as children and their parents, and serve as community centres. The residents can help and encourage each other and exchange information and Japanese goods, such as food and other products, there. The Japanese schools therefore contribute to the maintenance of residents' mental health both directly and indirectly.

However, the schools are subject to specific difficulties. They do not receive financial support from the Japanese government; therefore, they often face problems resulting from staff shortages and lack of funding. Moreover, the teachers are under pressure and strain, because they also undergo their own cultural adjustment. Usually, Japanese school teachers are dispatched from Japan by the government for 2 or 3 years. They are therefore required to meet pupils' needs and manage their own adjustment to a new environment simultaneously. In addition, as the schools are isolated and far from Japan, it is difficult to access resources such as information, opportunities for professional development, and other specialized social institutions (Mizuno, 2013).

Therefore, it is fair to say that supporting these Japanese schools not only maintain certain educational standards for children but also increase psychological well-being in children, parents, teachers, and other Japanese residents in the surrounding communities.

## **2. BACKGROUND**

### **2.1. Previous Studies Examining Expatriates' Mental Health**

In spite of the rise of the global community, there have been few studies conducted to examine mental health in expatriates. Truman, Sharar, and Pompe (2012) found that expatriates face a higher risk of mental health issues including the internalization and externalization of problems and substance use disorders. Their empirical study included American subjects and was the first to compare mental health problems between expatriates and individuals resident in their countries of origin. Black and Stephens (1989) defined adjustment as the degree of psychological comfort experienced in new situations and identified three cultural adjustment factors experienced by expatriates: adjustment to work, adjustment to general conditions in a new environment, and adjustment to interaction with the host nation. Caligiuri, Hyland, Joshi, and Bross (1998) claimed that adjustment involves adaptation to stressors, which involves positive perceptions of living in a host country and a lack of concern regarding present difficulties. They identified two aspects of cultural adjustment: adjustment to home life and adjustment to work life. They posited that adjustment to home life occurs first in the cultural adjustment process and predicts adjustment to work life. Van der Bank and Rothmann (2006) reported that the relationship between perception of the situation (i.e. the stressors experienced) and personal traits determined cultural adjustment, and the stressors experienced were both organizational and cultural. These previous studies all found that cultural adjustment is the key to psychological well-being in expatriates and is contingent on stressors, motivation, expatriates' characters, and the existence of support. In other words, an external stressor itself does not directly cause mental problems, and the expatriate's perception of the stressor is essential; therefore, understanding the socio-psychological burdens they face is crucial to providing effective support.

As the experiences of expatriates vary widely between cultures, studies examining Japanese expatriates were considered. Egawa (2001) found that promotion and treatment upon returning to Japan, educational problems in children, and the management ability of the overseas workplace were significantly related to overall social stress levels in Japanese expatriates. Katsuda (2008) and other clinicians reported that language, food, and lifestyle differences; relationships with those in the host country; uncertainty upon returning to Japan; and security issues were major stressors in Japanese expatriates. Fukuda and Chu (1994) found that family-related problems are the most crucial explanation for Japanese expatriates' failure in the workplace, leading to problems such as mental disorders and withdrawal from work. Although these findings suggest psychological burden or stressors, there have been no empirical studies conducted to examine these issues. Moreover, it is not clear how these stressors relate to expatriates' mental health.

## **2.2. Our Goal**

As stated above, offering effective support for Japanese schools not only contributes to the maintenance of children's educational levels but also increases emotional well-being in children, parents, teachers, and other Japanese residents in the surrounding communities. The authors initiated the Nairobi Japanese School Project in 2013 to explore ways in which to assist Japanese Schools and develop a support system prototype. There were two aspects to the project: exploring expatriates' difficulties and needs and offering support programs. The Nairobi Japanese School is comparatively small (50 students and 8 teachers) but is subject to specific difficulty with respect to security. The school has a central role in the Japanese community. The first step of the project focused on the stress experienced by expatriate Japanese adults in the community. We examined their stressors and how they perceived them. Thereafter, the ways in which those stressors were related to their stress symptoms were examined. This study focused on cultural rather than work stressors, because 1) many adults in the community (e.g. housewives) did not have a workplace and 2) supporting Japanese schools, which was our aim, would not address work stressors directly.

## **3. METHODOLOGY**

### **3.1. Overview of the Entire Project**

Aside from providing distant online consultations, Japanese clinical psychologists undertake annual visits, during which they stay at the Nairobi Japanese School for a week. The aim of these visits is to understand the school's actual circumstances and needs whilst providing practical and effective support for children and their parents and teachers. The first visit occurred in October 2014. The visit included 1) individual consultations with the teachers or parents on demand, 2) observation of the children to assess their needs, and 3) a psycho-education seminar for adults. As the first step of the study, we used questionnaires to examine the stressors and concerns experienced by Japanese adults in Nairobi. In particular, we examined whether they experienced a greater degree of stress relative to adults resident in Japan, their specific concerns, and how these concerns were related to their mental health.

### **3.2. Procedure and Participants**

We offered a psycho-educational seminar, which was open to all Japanese community members, at Nairobi Japanese School. Subsequent to the seminar, we explained the questionnaire surveys to those present and recruited participants. Two questionnaires were

completed by 33 of 38 adults (9 men, 24 women; mean age: 44.9 years; mean length of residence in Kenya: 49.0 months) who attended the seminar. Twenty-one of the subjects were parents of school children.

### 3.3. Tools

#### 3.3.1. Public Health Research Foundation Stress Check List (PHRF-SCL) Short Form

To examine subjects' mental health, we used the Public Health Research Foundation Stress Check List (PHRF-SCL) Short Form, which had been standardized in Japan (Imazu, Murakami, Ueda, & Kodama, 2005). The questionnaire is an easily administered self-report rating scale consisting of 24 items concerning symptoms of stress. Responses are provided using a 3-point Likert scale (1 = hardly ever, 2 = sometimes, 3 = often). They are divided into four stress reaction domain: anxiety/uncertainty (6 items), tiredness/physical responses (6 items), autonomic symptoms (6 items), and depression/feelings of insufficiency (6 items).

#### 3.3.2. Current Concerns Questionnaire

We created a second questionnaire concerning the perception of stressors relevant to living abroad, in order to explore subjects' perception of such stressors. The questionnaire included nine items regarding concerns that had often been expressed by Japanese expatriates in previous reports: language differences, food differences, public security, medical services, lack of Japanese goods, children's futures upon returning to Japan, family in Japan, personal relationships in Nairobi, and their own careers. We did not include children's school adjustment, as children's social and academic lives at the Japanese school were not influenced strongly by cultural differences. The participants were asked to indicate the extent to which they were worried about each topic and responded on a 4-point scale (1 = not worried at all, 2 = not very worried, 3 = fairly worried, 4 = very worried). The questionnaire also included an open-ended question for each topic, to allow subjects to explain the reasons for their answers. In addition, a question requiring a descriptive response concerning the advantage of living in Nairobi was included at the end of the questionnaire.

## 4. RESULTS

### 4.1. Stress Symptoms (PHRF-SCL)

To compare participants' stress levels with those representing Japanese standard scores, one-sample t tests were performed for each subscale. The mean and standard scores are shown in Table 1. Their mean anxiety score was significantly higher than the Japanese standard ( $t(31) = 2.74, p < 0.01$ ), whilst their mean score for autonomic symptoms was significantly lower than the Japanese standard ( $t(31) = -3.92, p < 0.001$ ).

Table 1. PHRF-SCL scores.

Stress Symptoms	Expatriate in Nairobi (N=33) Mean Scores (SD)	Japanese Standard Scores
Anxiety	4.16 (2.20)*	3.09
Physical Responses	5.52 (3.09)	4.68
Autonomic symptom	1.22 (1.33)**	2.14
Depression	4.16 (2.03)	3.63
Total	15.54 (6.23)	13.54

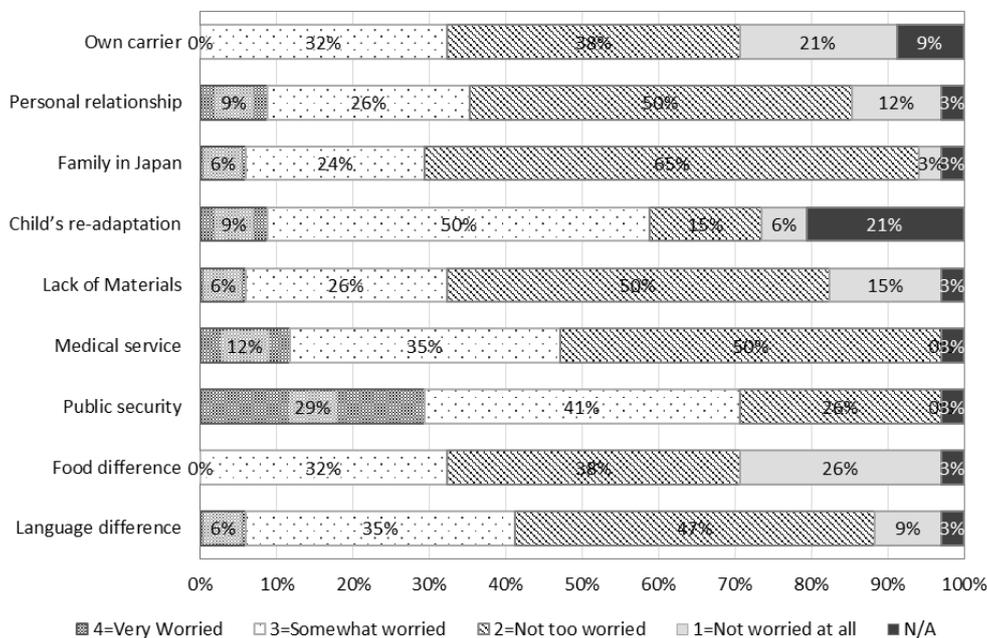
Note: One sample T-test, \*  $p < .01$  \*\*  $p < .001$

## 4.2. Current Concerns

The majority of participants were concerned about public security and children’s re-adaptation to Japan (Figure. 1). With respect to public security, 70% of participants rated their worry at 4 (very worried) or 3 (worried), and they expressed fear regarding terrorism and manslaughter in their responses to the open-ended question. In response to the item concerning children’s re-adaptation, 59% of participants reported being very worried or worried, and 29% did not respond, as they did not have a school-age child. With respect to the open question, some participants expressed the concern that their children’s ‘different experiences’ in Kenya would be noticed by peers. Others worried about their children’s lack of experience of large peer groups and the possibility that their children’s difficulties would become obvious in a large group. Approximately half of the participants expressed concern regarding medical services. In contrast, few participants worried about language differences, food differences, lack of Japanese goods, family in Japan, or their own careers. In response to the open-ended question concerning language differences, most participants communicated only with their maids and drivers and Japanese community members and did not require much language skill. In addition, personal relationships are often limited to those between members of the Japanese community in Nairobi. Moreover, participants also stated they often ate Japanese food; therefore, food differences did not cause concern, and participants expressed low levels of worry (1 = not worried at all or 2 = not too worried).

Regarding the advantage of living in Nairobi, whilst 6 of the 33 participants did not respond, 17 cited an increase in private or family time. Their answers included ‘it tightens family ties’ and ‘more time to spend relaxing or resting’.

Figure 1. Distribution of Current concerns by the topics.



### 4.3. Associations between Current Concerns and Stress Symptoms

Relationships between participants' current concerns and stress symptoms were evaluated using Spearman's correlation coefficients. The results are shown in Table 2. Concern regarding food differences was correlated with physical responses ( $r = .519$ ) and total scores ( $r = .515$ ). Concern regarding security was significantly correlated with anxiety ( $r = .402$ ), physical responses ( $r = .371$ ), autonomic symptoms ( $r = .492$ ), and total stress symptom scores ( $r = .503$ ). Concern regarding medical services was associated with autonomic symptoms ( $r = .502$ ) and total score ( $r = .389$ ). Concern regarding lack of goods was correlated with physical responses ( $r = .379$ ), autonomic symptoms ( $r = .361$ ), and total score ( $r = .392$ ). Concern regarding personal relationships was correlated with autonomic symptoms ( $r = .413$ ), depression ( $r = .463$ ) and total score ( $r = .497$ ).

Table 2. Association between current concerns and stress symptoms.

Stressors	Stress Symptoms				
	Anxiety	Physical symptoms	Autonomic symptoms	Depression	Total
Language difference	.009	.117	.219	.089	.146
Food difference	.336	.519 **	.299	.195	.515 **
Public security	.402 *	.371 *	.492 **	.283	.503 **
Medical service	.247	.316	.502 **	.303	.389 *
Lack of goods	.288	.379 *	.361 *	.207	.392 *
Child's re-adjustment in Japan	.321	.179	.232	.367	.313
Family in Japan	-.296	.131	.174	.127	-.034
Personal relationship	.330	.329	.413 *	.463 **	.497 **
Own career	.367	.068	-.036	.277	.120

Note: Spearman's rank order correlation coefficients, \* $p < .01$  \*\* $p < .001$

## 5. DISCUSSION

The results showed that Japanese adult expatriates in Nairobi tended to experience a greater degree of anxiety relative to that of their counterparts in Japan, while they reported fewer autonomic symptoms. This is assumed to reflect their different social environment or lifestyle in Nairobi. Firstly, the anxiety score was related to concern regarding public security in Nairobi. Anxiety is a cognitive-affective response that is based on the appraisal of threat (Lazarus & Averill, 1972). Therefore, the results indicated that people who were concerned about security (i.e. those threatened by poor public security), tended to exhibit anxiety. However, unless anxiety is excessive or occurs within an inappropriate context, it is not clinically significant. As a sign of danger, it could be considered an adaptive protective mechanism, involving preparatory reaction to the danger. Given the difficult conditions in Nairobi, high levels of anxiety could be expected. Meanwhile, many of the participants reported improved regulation of their lifestyles and an increase in spare time as a result of freedom from hectic schedules since moving to Nairobi. Although chronic stress in everyday life can interfere with autonomic regulation, it constitutes a combination of psychosocial issues, lifestyle choices, behaviours, and general health (Lucini, Fede, Parati, & Pagani, 2005). Thus, those lifestyle factors may have reduced their autonomic symptoms.

With respect to the perception of stressors, the greatest concern was that of public security. The crime rate in Nairobi is much higher relative to that of Japan, and the city is plagued by terrorism. Obviously, these are life-threatening issues and may therefore constitute the most serious concern. This is also true for concern regarding medical services.

In particular, people with a higher number of autonomic symptoms, who experience insecurity regarding their health, tended to be more concerned about medical services. The second-greatest concern involved children's futures upon returning to Japan. As Nairobi Japanese School is small, it is able to provide sufficient supervision, and studying in small classes is beneficial. Therefore, parents were worried about whether their children would be able to adjust to larger schools in Japan. In addition, they were under the impression that their children could experience discrimination due to experiences peculiar to living in Kenya.

In contrast, the majority of participants were not concerned about language differences, food differences, lack of Japanese goods, family in Japan, personal relationships, or their own careers. This finding is incongruent with those of the studies mentioned above. Nairobi Japanese School may contribute to this lack of concern. For example, the school allows people to share numerous Japanese goods, including food, and talk to each other in Japanese in the community surrounding the school, which may help to reduce excessive concern. Although justification is required via further research, this could constitute a means of supporting Japanese people abroad. Even though food differences, lack of Japanese goods, and personal relationships were not considered large concerns, they were associated with stress symptom scores. This could be interpreted as an indication that daily inconvenience and dissatisfaction may be less conscious concerns but accumulate and lead to stress reactions. In addition, language differences, children's futures upon returning to Japan, family in Japan, and participants' own careers were not related to stress symptoms, in that negative perception of stressors did not always lead to stress reactions. Relative to others, some stressors may exert a stronger influence on psychological function. It is possible that concern regarding children's futures, family in Japan, and participants' own careers may be categorized as anticipatory stressors rather than daily life frustrations. The future outcomes of these issues are uncertain but contain the possibility that one or more will be negative. According to Brosschot, Gerin, and Thayer (2006), the anticipation of stress is an attempt to engage in mental problem solving and laden with affect but less closely related to psychopathology. In other words, individuals manage stress by preparing for it. Language differences normally cause expatriates to experience frustration resulting from communication difficulties; however, this issue may not have been related to stress symptoms in this community, because the need to communicate in the host country's language seldom arises. In contrast, food differences, lack of Japanese goods, medical services, and personal relationships are not only affective substrates but also frustrations that expatriates are currently facing. Therefore, these stressors may be directly related to their symptoms. However, another interpretation is also possible. As found in previous studies, mental health results from collaboration between stressors, support, and personal traits. The stressors that are not correlated with symptoms may be compromised by support and personal traits. This area is in need of further research.

In conclusion, Japanese adults in Nairobi tended to be preoccupied with public security and their children's futures upon returning to Japan. However, these worries do not always interfere with their mental health. In fact, frustration in daily life, regardless of whether they are aware of it, is assumed to generate stress symptoms. It is difficult to address and reduce stressors, such as security and lack of Japanese goods, directly. Nevertheless, we can help expatriates to cope with stress by providing psycho-education and consultation. Through the abovementioned surveys, we were able to roughly capture their psychological needs and state of mind. Using this information, we could develop efficient support.

The study was subject to a number of limitations. The sample size was small; therefore, the results of the statistical analysis should be interpreted cautiously. Moreover, although we examined only 9 stressors, we should consider more diverse stressors and verify their factor structure. Furthermore, expatriates' personal traits exert an impact on their stress symptoms. Therefore, further studies involving more variables are required. However, such studies would demand a large sample, and it is difficult to increase the sample size in the small Japanese community in Kenya. To address these limitations, more precise qualitative analysis is required in future.

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## Chapter #5

### DEPRESSIVE SYMPTOMS AND SUICIDAL IDEATION AMONG CZECH ADOLESCENTS

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#### ABSTRACT

The incidence of suicide and suicide attempts in Czech adolescent population are among the highest in Europe. Based on the data of crisis hotline counselors for children, the frequency of suicidal callers doubled in the last five years. There seems to be many reasons for this increase; the depression in children and adolescents being the major one besides socio-demographic factors, family-related factors, substance abuse etc. The aim of our study was to investigate the incidence of depression symptoms during the period of early adolescence and to compare them with Czech normative data from 1997. The study was conducted on a large sample (N=1708) of Czech adolescents aged 11-16 years (m = 13.65; 52% female), utilizing the Children's Depression Inventory (CDI - Kovacs, & Beck, 1977; Kovacs, 1992). The CDI evaluates the presence and severity of specific depressive symptoms in youth; depression is seen as a syndrome, not a specific behaviour. The proportion of the adolescents with the total score indicating higher risk of clinical depression was between 17,8 - 42,9 % in our sample, depending on the cut-off score. Regarding the incidence of suicidal ideation, almost 2 % expressed a commitment to suicide and further 21 % admitted ideation without a firm intention (the latter being twice more common in girls than in boys). Significantly higher scores both in CDI total score and in the scale scores were found when compared to Czech norms constructed more than 15 years ago. Detailed pattern of gender differences and the correlations of CDI scores and family-related factors or relationships with peers including belonging to a subcultures as emo or goth are also presented.

*Keywords:* depression, suicidal ideation, adolescents, CDI.

#### 1. INTRODUCTION

In the Czech Republic, suicide is among the most frequent death causes of the children and adolescents (Czech Statistical Office, 2014) and the suicide rate of the children aged 0-14 years is above the mean of EU (e.g. five times higher than in Austria or Great Britain). The findings of the present study are particularly important from a prospective point of view because the increased level of depressive symptoms can contribute to the development of major depression disorder, or to contribute to the development of a number of forms of risky behavior such as substance abuse.

#### 2. BACKGROUND

Early onset depression can have serious negative impact on further development, with tendencies of being recurrent and frequently associated with other mental health problems. The initial study and recognition of depressive disorders in children and adolescents dates back to the 1970s (Lewinsohn, Hops, Roberts, Seeley, & Andrews, 1993). In the following decades, correspondence in adult and childhood depression symptoms was observed.

The underlying assumption about the identical nature of the adult and childhood/adolescent depression is reflected in similar diagnostic criteria for the major depression disorder in DSM IV, with one important exception - it is possible to substitute the irritability for depressed mood in children and adolescents (Rao & Chen, 2009). Kovacs (1996) in her analysis of empirical studies of phenomenological features of the depression disorder in subjects ranging from 6 to 80+ years concluded that depression in youth was in many aspects similar to the depression in adults, representing the identical diagnostic entity. Carlson and Kashani (1988) compared four samples - preschool, prepubertal, adolescent and adult subjects, and despite of 12 of 17 depression symptoms being different across the age groups, they concluded that age modified symptom frequency but not the basic phenomenology. The symptoms of increasing frequency with age included anhedonia, diurnal variation, hopelessness, psychomotor retardation, and delusions; on the other hand, depressed appearance, low self-esteem, and somatic complaints decreased with age. Ryan et al. (1987) found differences in the symptoms frequency between children and adolescents but a similar factor structure of the symptoms for both groups. The reasons for the developmental differences in depressive symptoms are not known but it is believed that maturational effects on emotional and behavioral regulation and cognitive functions might play role (Rao & Chen, 2009). The developmental differences has been found also in the neurobiological correlates and treatment response of depression in children, adolescents, and adults (Kaufman, Martin, King, and Charney, 2001), such as basal cortisol secretion, corticotropin stimulation postcorticotropin releasing hormone (CRH) infusion, response to several serotonergic probes, immunity indices, and efficacy of tricyclic medications. Somewhat similar situation can be observed in the area of gender differences in depression. Higher incidence of depressive disorders in women (and adolescent girls) is well documented (e.g. Compas et al., 1997; Worchel, Nolan, and Wilson, 1987). Rao and Chen (2009) in their review article argue that although gender differences have been established with respect to the severity and symptom profiles of unipolar depression, there were found no convincing differences in the salient features.

### **3. OBJECTIVES**

The main objective of our study was to explore the prevalence of depressive symptoms in Czech early adolescents, with respect to demographic factors as gender, age or urban settlement (city, town, village). We also aimed to compare our results with the Czech normative data of CDI from 1997. Furthermore, the relationships of depressive symptoms with family-related factors or relationships with peers were explored.

### **4. METHOD**

#### **4.1. Design**

The study was a part of extensive survey research, conducted within a project focused on self-harm behavior screening.

#### **4.2. Instruments**

The Child Depression Inventory (CDI - Kovacs, & Beck, 1977; Kovacs, 1992) assesses the presence and severity of specific depressive symptoms in youth; it is based on adult depression syndrome model. The instrument yields five subscales (Negative Mood, Interpersonal Problems, Ineffectiveness, Anhedonia, and Negative Self-Esteem) and the

total score ranging from 0 to 54. Kovacs (1992) recommended 13 as a cut-off score for clinical populations and 19 as the cut-off score for community samples. All the scales had a good internal consistency in our samples (see Table 1). The set of items asking about the quality of respondents' relationships with their parents and peers was a part of the instrument constructed only for this study).

#### 4.3. Sample and Procedure

The 68 schools in randomly selected municipalities in the Czech Republic were asked to participate in the survey; the 7th, 8th and 9th grade's classes were randomly selected in the 20 schools who agreed to participate. The questionnaires were administered by trained research associates and school psychologists and completed anonymously by the participants (group administration in the classroom). The characteristics of the resulting sample were as follows: N = 1708; age 11-16 years (m = 13.65; sd =0,96); 52,3% female.

#### 4.4. Data Analysis

The cut-off scores of 19 or 20 points in CDI total score is recommended by Kovacs (1992) for non-clinical samples (13 for clinical ones). Reaching that point indicates possible risk of clinical depression syndrome. Recent Belgian-Dutch study (Van Beek, Hessen, Hutteman, Verhulp, & Van Leuven, 2012) suggests a cut-off score to reach maximal balance between sensitivity and specificity at 16 points. There is also possibility to use either cut-off score 20 points and/or presence of suicidal ideation indicated by item 9 as a criterion for the risk of clinical depression.

The mean scores in CDI scales and total score were compared with respect to gender and family environment, dichotomized as either divorced/single parent family or both parents family, by General Linear Model.

### 5. RESULTS

#### 5.1. Prevalence of depressive symptoms and suicidal ideation

The mean of the total score was almost 13 points (see Table 1). The Anhedonia scale mean was the highest but it is due to the 8 items contributing to the scale. When taking the number of items into consideration, the adolescents had the highest scores in the Ineffectiveness scale.

*Table 1. Cronbach's alpha and descriptive statistics of CDI scales.*

<i>CDI scale</i>	<i>Cronbach's alpha</i>	<i>number of items</i>	<i>mean</i>	<i>sd</i>
Negative Mood	0,715	6	2,66	2,30
Interpersonal Problems	0,516	4	1,04	1,26
Ineffectiveness	0,565	4	3,18	1,54
Anhedonia	0,682	8	3,35	2,59
Negative Self-Esteem	0,668	5	2,35	1,75
<b>CDI Total Score</b>	<b>0,886</b>	<b>27</b>	<b>12,62</b>	<b>7,67</b>

The proportion of our sample above the cut-off score 19 points was almost 22% (see Table 2); when using the combination of the criteria, it was almost 35% of the adolescents, with higher proportion of the girls. Regarding the suicidal ideation, 1,7% of the sample agreed with 'I want to kill myself' and 20,8 % with 'I think of killing myself but I would not do it' (27% among girls and 14 % among boys).

Table 2. Proportion of the sample above cut-off scores for clinical depression risk.

cut-off score	boys	girls	all
>=13	31,9 %	51,8 %	42,9 %
>=19	13,8 %	27,2 %	21,8 %
>=20	11,2 %	23,1 %	17,8 %
>=20 or suicidal ideation	25,9 %	42,4 %	34,9 %

## 5.2. Age and gender differences

Although the incidence of depressive symptoms generally increases with age in adolescence, there were no age differences found in our study. That may be attributed to our relatively homogenous sample - most of the subject were aged 13 or 14 years. There were also no differences in the CDI scores among adolescents from cities, towns and villages. Regarding gender differences, girls scored significantly higher in all scales and also the total score (see Table 3). Although the differences in both Interpersonal Problems and Ineffectiveness scale scores were statistically significant, they were rather small. On the other hand, the differences in Negative Mood, Anhedonia and Total score were substantial (around half of the standard deviation).

Table 3. Gender differences in CDI scales scores.

CDI scale	boys mean (sd)	girls mean (sd)	t	p
Negative Mood	2,0 (1,9)	3,2 (2,4)	10,20	0,001
Interpersonal Problems	1,0 (1,3)	1,1 (1,2)	1,95	0,05
Ineffectiveness	3,1 (1,5)	3,3 (1,6)	2,45	0,05
Anhedonia	2,8 (2,5)	3,9 (2,6)	8,31	0,001
Negative Self-Esteem	2,0 (1,7)	2,7 (1,8)	7,27	0,001
<b>CDI Total Score</b>	<b>10,8 (7,0)</b>	<b>14,1 (7,9)</b>	<b>8,02</b>	<b>0,001</b>

## 5.3. Comparison with Czech norms from 1997

Czech norms were constructed on a random sample of 369 of Prague children in 1997. The means for both the scales and total score were found to be somewhat lower than in USA normative samples; there were no gender differences found. As there are only norms for 13-14 years available, we took a subsample of our sample in that age range for the comparison and compared boys and girls separately. In the sample of boys, the total score was 2 points higher than in 1997 norms, mostly due to the differences in the Ineffectiveness scale. However, the increase in girls' scores was much more significant: the total score of our sample almost doubled the total score of 1997 normative sample and there was a considerable increase in all scales scores. The results of one-sample t-tests are presented in the Table 4. There were only 4 % of girls above 20-point cut-off score in 1997 but 17.8 % in our sample.

Table 4. Comparison with Czech norms (sub-sample of adolescents aged 13-14 years).

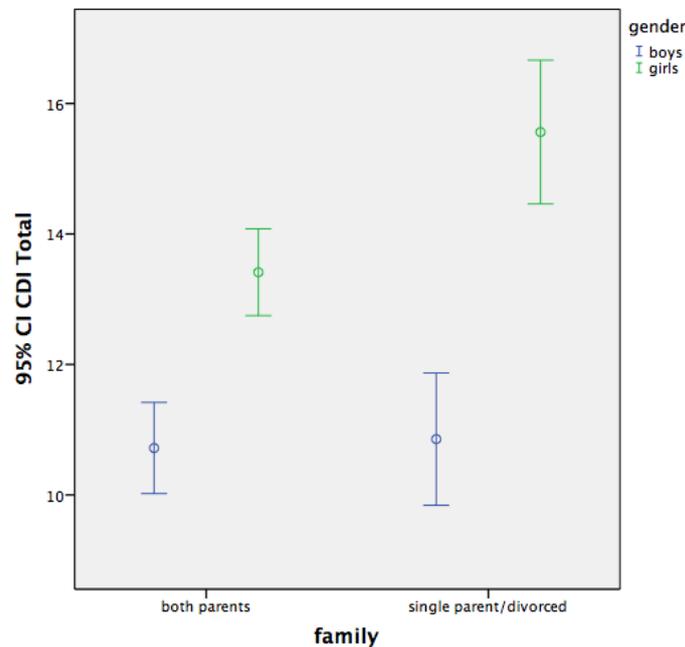
CDI scale	boys 1997 mean (sd)	boys 2013 mean (sd)	t	girls 1997 mean (sd)	girls 2013 mean (sd)	t
Negative Mood	1,6 (1,4)	2,0 (1,9)	4,38***	2,5 (1,6)	3,2 (1,9)	14,12***
Interpersonal Problems	0,8 (1,0)	1,0 (1,3)	2,62**	0,6 (0,8)	1,1 (1,2)	9,29***
Ineffectiveness	1,9 (1,4)	3,1 (1,5)	16,83***	1,8 (1,5)	3,2 (1,6)	22,13***
Anhedonia	2,4 (1,8)	2,7 (2,4)	2,50*	2,4 (1,9)	3,8 (2,6)	12,97***
Negative Self-Esteem	2,1 (1,2)	2,1 (1,7)	-0,51	2,1 (1,3)	2,8 (1,8)	8,83***
<b>CDI Total Score</b>	<b>8,7 (5,0)</b>	<b>10,7 (7,3)</b>	<b>5,37***</b>	<b>8,7 (5,4)</b>	<b>14,1 (7,9)</b>	<b>15,03***</b>

\* p&lt;=0,05; \*\* p&lt;=0,01; \*\*\* p&lt;=0,001

#### 5.4. Family environment, peer relationships as correlates of depressive symptoms

Both main effects and interaction effect were significant ( $F=4,9$ ;  $p<0,001$  for the total score). Boys had generally lower total scores regardless family environment category; girls with divorced/single parents had the highest scores (see Figure 1 with 95% confidence intervals for means). The same pattern of the differences was also found for scale scores. Correspondingly, worse relationships with parents, especially when combined with good relationship with peers, as well as belonging to subcultures as emo or goth meant higher CDI scores.

Figure 1. Comparison of CDI Total score means for gender and family environment.



#### 6. FUTURE RESEARCH DIRECTIONS

Significant differences in CDI scores, both in the total score and in the scale scores, were found when compared to Czech norms constructed more than 15 years ago. Either the revision of the Czech norms or the adaptation of a new revision of the CDI - Children's Depression Inventory 2 - is highly recommended. Moreover, CDI 2 is available as a self-report, parent and teacher form (Kovacs, 2011) therefore it offers multiple informant perspective in the assessment of depression symptoms.

On basic research level, the future research should examine developmental trends of depression in children and adolescents, including its components and correlates. The developmental differences should be studied not only on individual symptom level but also on a syndrome level, i.e. the differences in relationships among the symptoms, as suggested by Weiss and Garber (2003). Furthermore, the relationship of depressive symptoms with comorbid conditions and other correlates should be explored as well.

## 7. CONCLUSION/DISCUSSION

The high prevalence of depression symptoms among Czech adolescents were found in our study, especially compared to normative data from 1997. The comparison must be interpreted with caution because the population for the normative data was exclusively urban, whereas children from both cities and villages are included in our sample. Scores in our sample were more similar to e.g. Swedish adolescents results (Ivarsson, Svalander, & Litlere, 2006). Based on our findings, we would suggest establishing new norms of Czech version of CDI or even an adaptation of CDI 2, which contains parent and teacher form as well, allowing multi-informant assessment. We were not able to find age differences; that may be due to a relatively homogenous sample. In comparison with Czech normative data, gender differences were found in both scale scores and total score; it is not clear whether they are real differences or more an artifact of the measure. Carle, Millsap, and Cole (2007) found measurement invariance with respect to gender on the Children's Depression Inventory administered to a sample of 3rd and 6th grade pupils, while Van Beek et al. (2012), when using the same instrument on a sample of 4048 children aged 8-17 years detected measurement bias with respect to both gender and age for each of the scales of CDI and a differential item functioning for many items; their findings indicate that the phenomenology of depression varies with both age and gender.

In our study, we also found a relationship of depressive symptoms in adolescents with family environment, which, due to the growing number of families with divorced/single parents may partly explain the increase in these symptoms in the population of Czech adolescents. Girls appear to be particularly at risk: they are either more sensitive to family situation than boys or they react to family related stress with depressive symptoms, while boys are more prone to display externalized problems, e.g. conduct disorders. Preventive measures targeted at adolescent population should take these findings into considerations.

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**Section 2**  
**Cognitive and Experimental Psychology**



## Chapter #6

### THE ROLE OF COGNITIVE BIAS DISTORTIONS IN PATHOLOGICAL GAMBLING

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#### ABSTRACT

Several factors are related to the onset and the maintenance of pathological gambling. An important role is carried out by cognitive bias distortions, which represent real “errors” in the reasoning processes. The aim of this study is to analyze these cognitive errors in two groups of gamblers.

A total of 323 gamblers (131 males and 192 females), average age 25.31 (SD = 10.55), was recruited in various gambling rooms, and at the University of Florence. All participants completed the Italian version of the *South Oaks Gambling Screen (SOGS)* and were divided in two groups on the basis of their questionnaire score: a clinical sample composed of 62 pathological gamblers (SOGS score above 5); and a non-clinical sample composed of 261 non-problematic gamblers (SOGS score below 3). All participants completed the Italian version of the *Gambling Related Cognitions Scale (GRCS)*, which assesses 5 dimensions related to cognitive distortions: *Illusion of control*, *Predictive control*, *Interpretative bias*, *Gambling expectancies*, and *Perceived inability to stop/control gambling*.

*Results.* Our findings support the results of previous investigations on gambling-related cognitive biases. Specifically, pathological gamblers showed higher levels in all cognitive bias distortions considered when compared to non-problematic gamblers.

*Keywords:* gambling, cognitive distortions, cognitive bias.

#### 1. INTRODUCTION

Pathological gambling (PG) is a behavioral addiction that has been associated with cognitive distortions in the processing of chance, probability and skill (Michalczuk, Bowden-Jones, Verdejo-Garcia, & Clark, 2011).

In particular, the studies conducted according a theoretical cognitive model, which constitutes the theoretical framework of this study, emphasize the irrational thought processes underlying the typical behavior of the gambler (for example, not being able to stop gambling) and assume that these cognitive distortions are responsible for the maintenance of the excessive gambling behavior (Ladouceur & Walker, 1996). Cognitive distortions could be defined as real “errors” of thinking processes, due to the cognitive limits of the intellect, and to the necessity of making quick decisions. In general, the gamblers’ cognition is the tendency to overestimate the chances of winning, caused by different cognitive distortions in the processing of chance, skill and probability (Ladouceur & Walker, 1996; Clark, 2010). Other cognitive biases associated with gambling involve selectively remembering wins while not considering losses experienced, overestimating the odds, superstitious behaviors, and the belief that a future win or loss is related to past gambling experiences (“gambler’s fallacy”) (Xian et al., 2008).

According to this theoretical model, cognitive distortions have been thought to play an important role in the development and maintenance of pathological gambling

(Cunningham, Hodgins, & Toneatto, 2014; Goodie & Fortune, 2013; Myrseth, Brunborg, & Eidem, 2010).

A substantial amount of literature has shown that irrational beliefs characterize casual, regular, and pathological gamblers (Gaboury & Ladouceur, 1989; Blaszczynski & Nower, 2002; Toneatto, Blitz-Miller, Calderwood, Dragonetti & Tsanos, 1997; Walker, 1992), and that they are present both in people who choose to play games determined totally by chance and in people who like games in which ability is combined with the component of chance (Baboushkin, Hardoon, Derevensky, & Gupta, 2001; Myrseth et al., 2010).

Using the “thinking aloud method”, many studies have identified the main existent gambling related biases and distorted cognitions (Raylu & Oei, 2004; Toneatto, 1999). In particular, an interesting study by Gaboury and Ladouceur (1989) verified that individuals outside the game session (before and after) perceived and described adequately that the game was influenced by chance and luck. The erroneous verbalizations were focused during the game session. The researchers then hypothesized the existence of two cognitive structures about the game in the minds of gamblers: one rational, outside the game session, and one irrational, stimulated by the characteristics of the game itself. Outside of the game session, people denied having so many misperceptions while they were playing (Ladouceur, 2001).

Walker (1992) found that 77% of regular slot machines gamblers claimed that there were no skills in the game. He also reported that gamblers expected that they would lose money in the long run. At the same time, during the game session, they emitted many erroneous perceptions about the outcome of the game.

These results were also supported by a subsequent study by Moore and Ohtsuka (1999). These authors found that a majority of their young participants (80%) were able to realistically assess having partial (or minimal) control on the outcome of the game, but this was not sufficient to make them less vulnerable due to cognitive distortions while they were playing.

All these findings support the Gaboury & Ladouceur study (1989), in which two different, rational and irrational, processes of thought are active in the minds of gamblers, and the most likely process that leads a person to move from a rational to an irrational thought operates at a subconscious level.

More recently, Ladouceur and Sévigny (2003) suggested the “double-switching” theory to explain the transition from a rational and correct perception of the outcome of a game (switch on) to a behavioral manifestation of irrational beliefs on gambling during a session of the same game (switch off). Authors argued that during the game sessions, rational thoughts are denied, and that if this did not happen, the gambler would be forced to admit that the outcome of the game would depend on chance and, consequently, would diminish the excitement it brings.

Using the “think aloud method”, Ladouceur (2004) investigated the difference in cognitive distortions among a sample of non-pathological gamblers (NPG) and a sample of pathological subjects (PG). Findings showed that, although pathological gamblers had issued a higher number of erroneous beliefs, the difference between the two samples was not statistically significant. However, the most relevant difference between pathological and non-pathological gamblers was the degree of belief in the wrong perceptions: pathological gamblers seemed to process information in a way that would increase their belief in their own misperceptions. Therefore, after a series of consecutive losses, the pathological gambler feels the need to continue to play, or to return the next day to play, to recover losses (Blaszczynski, 2000; Ladouceur, Sylvain, Boutin, & Doucet, 2002; Milton, 2001). Despite the fact that this study by Ladouceur (2004) did not show a

statistically significant difference in the number of misconceptions between pathological and non-pathological gamblers, other studies did find a positive association between the irrational and excessive activity of gambling (Walker, 1992), showing how irrational beliefs are more prevalent in pathological gamblers, or gamblers at risk, than in recreational gamblers, with statistically significant differences (Blaszczynski & Nower 2002; Joukhador, Blaszczynski & Maccallum, 2004; Toneatto et al., 1997).

## 2. BACKGROUND

At present, the role of cognitive biases and distortions in the etiology, maintenance, and treatment of pathological gambling has received wide attention in research (Goodie & Fortune, 2013).

Using psychometric measures, such as the Gambling-Related Cognitions Scale (GRCS; Raylu & Oei, 2004), or the Gambling Beliefs Questionnaire (GBQ; Steenbergh, Meyers, May, & Whelan, 2002), several studies have consistently shown that problematic or pathological gamblers are more likely to endorse cognitive distortions, and present a greater number of erroneous ideas and higher trust in these ideas than non-problematic gamblers. Moreover, cognitive distortions are found to be correlated with game intensity. Therefore, a greater level of gambling activity corresponds to higher levels of distorted beliefs (Cunningham et al., 2014; Emond & Marmurek, 2010; Joukhador, Maccallum, & Blaszczynski, 2003; Joukhador et al., 2004; Miller & Currie, 2008; Myrseth et al., 2010). In particular, one of the defining features of gamblers' cognition is the tendency to overestimate their chances of winning (Ladouceur & Walker, 1996; Clark, 2010).

Cognitive distortions can be considered real "errors" of reasoning processes, due both to the "natural" cognitive limits of the mind and the need to make decisions in the shortest possible time, in order to adapt to environmental demands.

The first of these cognitions, named *Illusion of Control*, reflects the belief that the gambler could control gambling outcomes via personal skill, ability, and knowledge. This cognitive distortion includes both active and passive illusion of control. The active one consists in illusionary belief relying on superstitious behaviors; therefore, the possession of particular objects, or performing specific rituals, could influence gambling outcome. The passive illusionary control refers to the tendency of interpreting luck or success in some field of life as signs of success equivalent to gambling, as well as the tendency to glorify personal gambling skills, or the ability to win, and therefore minimize the skills or abilities of other gamblers to win.

The second cognitive distortion, named *Predictive Control*, refers to errors regarding the nature of probability, and includes the beliefs of the gambler and the ability to accurately predict gambling outcomes, starting from salient past wins or losses, so the gambler predicts that, after a series of losses, a series of winnings will surely follow.

The third cognition, named *Interpretative bias*, consists of attributing wins to one's own skills, and losses to external influences, or in recalling successes more easily than losses.

Another cognitive distortion, the *Gambling Expectancies*, includes all expectancies related to gambling developed through exposure to gambling models, as well the media and cultural rituals, and through one early gambling experience. On the basis of these experiences, expectancies make gambling the only way to cope with stress and motivate the individual to continue to play, despite persistent and heavy losses.

The last cognition, *Perceived Inability to Stop Gambling*, is very similar to one's perceived inability to resist drinking or other addictive behaviors, and the incapacity to stop

gambling, especially when they become aware of the problem (Oei & Burrow, 2000; Sharpe, 2002). Ladouceur and Walker (1996) suggested that gamblers tend to have a biased perception of randomness linked to the gambling. They develop an illusion of control and superstitious beliefs that would allow them to control and predict events, which in reality are random. Also, these biases motivate them to develop strategies and skills to increase their winnings (Xian et al., 2008). Therefore, the gamblers fail to recognize the lack of a causal link between their behavior and gambling outcomes. Other gambler cognitive biases include selectively remembering wins, without, however, taking into account the many losses, and the “gambler’s fallacy”, that is, the belief that a future win or loss is related to past payoffs, when, in fact, each gambling event is discrete (Xian et al., 2008). These concepts are presumed to contribute to gambling problems by affecting the gamblers’ interpretations of their chances of winning, their subjective feeling of control over outcomes, their attributions for failure, their justifications for continuing, and their estimations of their skills or abilities (Breen, Krudelbach, & Walker, 2001; Toneatto, 1999).

Despite the comprehensive and consistent literature discussed before, there are few studies that examine these aspects in the Italian context. The present study aims to replicate existing data in a sample of Italian gamblers. In particular, the main focus of this study was to analyze the specific cognitive distortions that characterize pathological gamblers. In line with a majority of previous research (Blaszczynski & Nower 2002; Joukhador et al., 2004; Toneatto et al., 1997; Myrseth et al., 2010), we expected that pathological gamblers, in comparison to non-pathological gamblers, would have greater difficulty in stopping gambling, and present a higher tendency to overestimate their chances of winning due to the false belief that gambling outcomes can be influenced and controlled by developing strategies related to their superstitious beliefs.

### **3. METHOD**

#### **3.1. Participants and procedures**

A total of 323 participants, average age 25.31 (SD = 10.55), was recruited for the present study and divided in two groups: I) a clinical group composed of 62 pathological gamblers (55 males and 7 females); and II) a control group of 261 (76 males and 185 females). All participants came from the central part of Italy, specifically the area around Florence. Ninety-six percent were Caucasian and 92% were Catholic. They came from a middle socio-economic level with more than 60% having a high school diploma or university degree. In addition, 71% of the participants have a stable job or are university students.

All participants were recruited from different gambling rooms and from the University of Florence. Inclusion criteria for the pathological gamblers group and social gamblers group was the score obtained on the South Oaks Gambling Screen, described below. Specifically, the pathological gamblers group is composed of gamblers whose scores were greater than 5, and the control group included students whose scores were less than 3.

All participants completed the questionnaires anonymously after signing an informed consent form. Several trained researchers assumed the task of data collection. Researchers went to different gambling rooms and university departments and asked for volunteers to collaborate. Participation in the survey was voluntary, and no monetary reward was given. In addition to the questionnaire on gambling, used to create the two groups, all subjects were measured to assess the presence of possible cognitive distortions.

### 3.2. Measures

*Pathological gambling:* The Italian version (Capitanucci & Carlevaro, 2004) of the South Oaks Gambling Screen (SOGS) developed by Lesieur and Blume (1987) was employed to assess the severity of gambling problems. The SOGS is a 20-item questionnaire based on Diagnostic and Statistical Manual (DSM)-III criteria to screen for life-time pathological gamblers that provides a range of information, such as the type of game preferred, frequency of gambling activities, difficulty to play in a controlled way, awareness about the problem of the game, attempts to return to play to recover money lost, leaving work or school, amount of loans requested, etc. The internal consistency coefficient was satisfactory, with a Cronbach's alpha of .69 in the general population and .86 in gamblers' samples (Stinchfield, 2002).

*Cognitive distortions:* The Italian version (Iliceto & Fino, 2014) of the Gambling Related Cognitions Scale (GRCS), developed by Raylu and Oei (2004), was administered in order to measure cognitive distortions. The GRCS consists of 23 items which assess five dimensions, plus a total score of cognitive distortion: Predictive Control (e.g. "Losses when gambling is bound to be followed by a series of wins"); Illusion of Control (e.g. "Specific numbers and colors can help increase my chances of winning"); Interpretative Bias (e.g. "Relating my losses to bad luck and bad circumstances makes me continue gambling"); Gambling Expectancies (e.g. "Having a gamble helps reduce tension and stress"); and Inability to Stop Gambling (e.g. "It is difficult to stop gambling as I am so out of control"). Each item was rated on a seven-point Likert scale from 1 (strongly disagree) to 7 (strongly agree). Internal consistency coefficients (Cronbach's alpha) for the Predictive Control, Illusion of Control, Interpretative Bias, Gambling Expectancies, and Inability to Stop Gambling were .77, .87, .91, .87, .89, respectively (Raylu & Oei, 2004).

### 3.3. Data analysis

In order to investigate whether social and pathological gamblers differ on cognitive bias and distortions, a single-factor between subjects multivariate analyses of variance (MANOVA) was performed with the variable Group (social gamblers vs. pathological gamblers) as independent variable, and the five cognitive bias subscales (*Illusion of control*, *Predictive control*, *Interpretative bias*, *Gambling Expectancies*, and *Perceived inability to stop/control gambling*) and the total score of the GRCS as dependent variables. All analyses were performed through IBM.SPSS 22.

## 4. RESULTS

MANOVA showed a significant multivariate effect, Wilk's  $\Lambda = .43$ ,  $F(317, 5) = 82.50$ ,  $p < .001$ . As subsequent univariate analyses of variance (ANOVAs) indicated, this main effect was due to a main effect of group on all variables considered. More specifically, pathological gamblers have significantly higher scores on illusion of control, predictive control, interpretive bias, gambling expectancies, perceived inability to stop/control gambling, and total score of the scale than social gamblers. Table 1 shows the descriptive and statistic results of MANOVA analysis.

Table 1. Differences in the GRCS mean scores between the two groups of Social and Pathological Gamblers.

	Social gamblers (n=261)		Pathological gamblers (n=62)		F(1,321)	p	$\eta^2$
	M	SD	M	SD			
Illusion of control	4.82	2.25	8.37	4.80	74.44	.000	.19
Predictive control	7.81	3.89	13.73	6.87	82.53	.000	.21
Interpretative bias	5.03	2.76	11.14	6.12	140.83	.000	.31
Gambling expectancies	5.01	2.87	11.71	5.96	167.80	.000	.34
Perceived inability to stop/control gambling	5.77	2.24	17.63	8.27	412.28	.000	.56
Total cognitive bias	28.44	11.71	62.58	26.36	240.05	.000	.43

#### 4. CONCLUSION

Past research has consistently shown that cognitive distortions are typical characteristics of gamblers. These erroneous beliefs in the processing of chance, skill, and probability affect the gamblers' tendency to overestimate their chances of winning (Ladouceur & Walker, 1996; Clark, 2010). Moreover, such cognitive distortions contribute to the false belief that gambling outcomes can be influenced (Toneatto, 1999).

Therefore, gamblers attempt to control and predict events by developing superstitious beliefs that motivate them to develop strategies to increase their winnings (Xian et al., 2008). These concepts are presumed to contribute to gambling problems by affecting the gamblers' interpretations of their chances of winning, their subjective feeling of control over outcomes, their attributions for failure, their justifications for continuing, and their estimations of their skills or abilities (Breen et al., 2001; Cunningham et al., 2014; Toneatto, 1999).

Many studies have highlighted the positive relationship between both gambling and cognitive biases in many samples of gamblers from different settings, such as gamblers in treatment or in rehabilitation centers (Joukhador et al., 2003; Myrseth et al., 2010; Toneatto et al., 1997), or in the general population (Cunningham et al., 2014). These studies have demonstrated the key role that cognitive distortions play in gambling behaviors.

Following this premise, this study aimed to verify if pathological gamblers present higher levels of cognitive distortions than non-pathological gamblers in an Italian sample, a context in which pathological gambling has received less attention from scientific literature compared to the Anglo-Saxon context.

According to existing data, our results revealed that pathological gamblers have higher levels of cognitive distortions than non-pathological gamblers, suggesting that gamblers think that they can control gambling outcomes via personal skill, ability, and knowledge (*Illusion of control*). Such belief is the most prevalent and destructive cognitive distortion linked to gambling behaviors (Toneatto et al., 1997). Moreover, pathological gamblers tend to predict gambling outcomes starting from salient past wins or losses, and believe that a series of losses foretells an imminent win (*Predictive Control*). They tend

to attribute wins to one's skills and losses to external influences (*Interpretative bias*), and to believe that gambling is the only way to cope with stress, in order to justify their behavior (*Gambling Expectancies*). In particular, this study identified the impact of the variables *Perceived Inability to Stop Gambling* and *Gambling expectancies* on gambling behaviors. These results suggest that attention should be paid to these cognitive distortions in the treatment of pathological gambling, in order to improve the efficiency of intervention.

## 5. FUTURE RESEARCH DIRECTIONS

Despite the documented relationship between gambling behaviors and cognitive distortions, the direction of this relationship remains unknown, and little is known regarding the role that cognitive distortions play in the onset, development and maintenance of gambling behaviors. Recently, Xian and colleagues (2008) examined the onset and development of gambling behaviors and the co-occurrence of gambling-related irrational beliefs and attitudes, suggesting that these cognitive distortions could be considered significant risk factors of pathological gambling. However, little is known about the existence and functioning of these cognitive biases, and, in particular, if irrational beliefs are consequent or pre-existent to the pathological gambling onset, and which is the causal link between these erroneous thoughts and the gambling behaviors.

Beginning with this consideration, it would be useful to explore such issues. To this purpose, it would be desirable to implement a longitudinal study allowing further exploration into the relationship between cognitive distortions and biases and gambling behaviors, following a sample of gamblers in the transition from social to pathological gamblers. A broader understanding of the relationship between cognitive distortions and gambling behaviors could facilitate the implementation of interventions for prevention and treatment of gambling problems.

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## **Chapter #7**

### **PSYCHOPATHOLOGY: THE COGNITIVE ORIENTATION APPROACH**

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#### **ABSTRACT**

The objective of the chapter is to reintroduce into the scene of psychopathology the psychological perspective by describing the cognitive orientation approach to mental disorders. This cognitive-motivational approach emphasizes the role of meanings, beliefs and attitudes in promoting specific behaviors in the normal or abnormal range. A large body of empirical studies showed the predictive power in regard to behaviors of cognitive contents referring to themes identified as relevant for the particular behavior and presented in terms of four belief types (about self, about others and reality, about rules and norms, and about goals and wishes). The chapter presents a brief theoretical approach to psychopathology based on the cognitive orientation approach and describes its application to the following three disorders: paranoia, schizophrenia and depression. The presented studies describe questionnaires based on the cognitive orientation theory that enabled to differentiate between patients with specific diagnoses and healthy controls. The themes that contributed most to the differentiation are presented. These included, for example, non-conformity, perfectionism, extreme distrust of others, and rejection of compromise. The findings provide new insights into the underlying dynamics of the specific psychopathological disorders and enable delineating the blueprints of a general theoretical approach to psychopathology. The results may also be applied for assessment, prevention and therapeutic interventions in psychopathology.

*Keywords:* psychopathology, cognitive orientation, schizophrenia, depression, paranoia.

#### **1. GENERAL INTRODUCTION: COGNITIVE ORIENTATION IN THE DOMAIN OF PSYCHOPATHOLOGY**

##### **1.1. Cognitive approaches to psychopathology**

The attempts to understand and treat psychopathology are based on constructs from the most diverse scientific disciplines, including the genetic, biological, sociological and the variety of psychological approaches ranging from behavioral to affective and from familial to spiritual (Blaney & Millo, 2013). Within this variegated network of causal factors the cognitive models have played an increasingly salient role. They have been developed primarily in contrast to the dynamic psychoanalytically-based approaches that attributed psychopathology to unconscious drives and processes transformed by a variety of defense mechanisms (Fonagy & Target, 2003). The major cognitive models of psychopathology include such well-known approaches as cognitive behavioral therapy (Beck, 1976), rational emotive behavior therapy (Ellis, 1994), stress inoculation training (Meichenbaum, 1985) dialectical behavior therapy (Linehan, 1993), cognitive vulnerability models (Gibb & Coles, 2005), problem solving therapy (D'Zurilla & Nezu, 2010), and reality therapy (Glasser, 1998; Wubbolding, 2000). The cognitive models of this kind assume that faulty thinking is the cause of psychopathology. Faulty thinking refers to faulty cognitive processes and faulty contents. The faulty processes include, for example, rigidity,

arbitrary inferences, polarized thinking, selective abstraction, overgeneralization, magnification or exaggeration, and personalization (e.g., Schwartz & Caramoni, 1989). Faulty contents refer to negative thoughts, and nonadaptive rules of behavior concerning oneself and reality, such as pessimism, overambitious goals, as-if thinking, or exaggerated self-criticism, based on wrong assumptions and irrational beliefs (David, Lynn, & Ellis, 2010; Ledley et al., 2005; Mathews & MacLeod, 2005).

There are several major limitations of these approaches: first, the factors assumed to play a causal role in regard to psychopathology are mainly conscious and mostly even under voluntary control of the subjects, which contrasts with most of the evidence indicating also the impact of non-conscious material (Shevrin, Bond, Brakel, Hertel, & Williams, 1996); second, the cognitive factors considered as responsible for psychopathology are not specific to a certain kind of psychopathology (Coyne & Gotlib, 1983); third, the cognitive beliefs presumed to be at the root of psychopathology have simply been posited and assumed but are not based on a careful analysis of findings and exploration with subjects; and fourth, the beliefs presented as responsible for psychopathology have been declared to be "irrational" which in many cases is not the case (Newmark, Frerking, Cook & Newmark, 2006). In addition, many of the cognitive distortions assumed to underlie psychopathology have been extensively studied in cognitive and social psychology under the heading of cognitive biases (Bradley & Mathews, 1983; Wilke & Mata, 2012). These distortions depend on characteristics of information processing and are rather common in all domains of life. While some may be responsible for faulty decisions and behaviors, many are undoubtedly adaptive and necessary for adequate daily behavior. For example, they enable more effective actions in given contexts (Gigerenzer & Goldstein, 1996) or faster decision making when speed is of paramount importance (Tversky & Kahneman, 1974). It is not fortuitous to assume that the cognitive distortions may occur in abnormally behaving individuals not necessarily more often than in so-called normal individuals. In sum, the mentioned limitations may be responsible for the fact that meta-analyses showed very small therapeutic effects for the cognitive therapies (Lynch, Law, & McKenna, 2010).

## **1.2. The cognitive orientation theory**

The cognitive orientation (CO) approach to psychopathology is designed to overcome most of the cited limitations of the cognitive approaches. The CO is a model of behavior designed to describe major processes intervening between input and output and to enable understanding, predicting and changing behavior. It resembles the other cognitive models in assuming that cognitive contents, viz. beliefs, meanings or attitudes guide behavior, but does not share with them the assumptions of rationality, realism, reasonableness, decision making, and voluntary control characterizing presumably the generation of behaviors. Instead, it uses the construct of meaning, and shows how behavior proceeds from meanings and clustered beliefs which orient toward a specific output. The beliefs as well as the outcome may or may not be rational. The various phases of progression from input to behavioral output consist of different kinds of elaboration of meanings. These may be represented in terms of questions and answers. The first phase is focused on identifying the input. Hence, the question is "what is it?" and the answer is either an identification of the stimulus or partial or failure of identification which lead to transfer to the next phase. The second phase is focused on elaborating the identified input in terms of its implications for action. Thus, the question is "is action required" and the answer emerges from clarifying the involvement of the individual in the situation and its meaning. In case action is required, the question is "what action". Beliefs of different kinds are evoked and if a

sufficient number of beliefs orient toward a specific course of action, a motivational disposition is formed, which specifies the direction of action. The final phase is focused on the question "how to do it", answered in terms of a behavioral program (Kreitler & Kreitler, 1976).

The CO theory has first been developed in regard to everyday kinds of behavior and only later was applied to further domains, including cognitive behaviors, emotions, physical health and psychopathology (e.g., Kreitler & Kreitler, 1991; Kreitler & Margaliot, 2012). At present CO is a basic cognitive-motivational approach, including a theory, a methodology and a large empirical body of data. The basic research methodology of the CO model is presented in the next paragraph.

A large body of research demonstrates the predictive power of the CO theory in regard to actually observed behaviors in a variety of domains (see references in Kreitler, 2004, 2013; Kreitler & Kreitler, 1982). In each prediction study the procedure consists in assessing the motivational disposition for the output by means of a CO questionnaire and examining the availability of a behavioral program for implementing the intent. A CO questionnaire assesses the degree to which the participant agrees to beliefs orienting toward the behavior in question. The beliefs differ in form and contents. In form they refer to four types of beliefs, namely, beliefs about goals, about rules and standards (norms), about self, and about others and reality (or general beliefs). In contents they refer to themes which represent meanings underlying the output in question. The themes are identified by means of a standard procedure applied to pretest participants. It consists in interviewing the participants about the meanings of the key terms and then in turn three times sequentially three times about their responses. Repeating the questions about meanings leads to deeper-layer meanings, out of which those that recur in at least 50% of the interviewees are selected for the final questionnaire. Thus, the motivational disposition assessed by the CO questionnaire is not conscious, and is not liable to voluntary manipulations. It represents contents that are relevant for the assessed output while the subject is unaware of the connections between the contents and the output (Kreitler & Kreitler, 1988, 1990b).

The CO theory has also enabled modifications of behavior, such as rigidity, impulsivity, curiosity and eating disorders. The procedure consists in mobilizing sufficient support for the desired course of action by evoking in the participant beliefs orienting toward this course of action (Kreitler, 2004; Kreitler & Kreitler, 1990a).

### **1.3. The cognitive orientation approach to psychopathology**

The CO model of psychopathology assumes that psychopathological behaviors (or symptoms) are a function of a motivational disposition implemented by a behavioral program, which are manifested in the presence of or due to a specific stimulus or situation that act as a trigger. However, the motivational disposition defined in terms of the CO approach cannot be considered as the sole determining factor of psychopathology. It is only one set of determining factors within a network that includes also other factors, most probably biological and genetic, as well as familial and cultural. Accordingly, the issue is not whether the psychologically-based CO disposition is the cause for a psychopathology but what precisely is its independent contribution to understanding, predicting and changing the symptoms of interest

There are several components or aspects that play a role as determinants of psychopathology within the context of the CO theory. The primary and most important determinant is the motivational disposition. There are motivational dispositions orienting toward depression, paranoia, schizophrenia and other syndromes (see 2.). A motivational disposition orienting toward a particular syndrome may be characterized by nonrealistic or wrong beliefs i.e., so-called irrational beliefs (e.g., "only if one is clean from evil emotions, such as jealousy or anger, one is allowed to wash one's body") that may cluster with other irrational or even some rational beliefs supporting the same output so that the overall result is a motivational disposition to avoid hygienic behavior. An early publication about the world view of schizophrenics presents many examples of beliefs about oneself and others concerning themes such as perfect justice and the ideal world that may orient toward abnormal behaviors (Kreitler & Kreitler, 1965). By applying the CO theory specific sets of beliefs have been identified that orient toward particular psychopathological behaviors, such as expressive communicability in interpersonal situations by schizophrenics (Kreitler, Schwartz & Kreitler, 1987), aggressive behaviors in children (Carmel & Kreitler, 2010), addictions (Kreitler, 2014), cancer diseases (Kreitler & Kreitler, 1998), obesity (Kreitler & Chemerinski, 1988), anorexia (Kreitler, Bachar, Canetti, Berry, & Bonne, 2003) and other eating behavior pathologies (Kreitler, 2011).

Another possibility for psychopathology arises when the beliefs of the four belief types are mostly or even all of them rational and acceptable but the overall direction supported by all of them may be psychopathological, e.g., withdrawing from others (supported by beliefs, such as if your get too close to others one may inadvertently harm them). Thus, one should consider psychopathology in this respect based on inadequate beliefs or adequate ones clustered in terms of inadequate processes. Notably, the pathology may originate even earlier, in the stage of identifying the stimulus or situation which may be distorted or unrealistic. Thus, if a person identifies a tree as a threatening person, then all beliefs that the individual may have for defending oneself may be rational and acceptable as well as the clustering processes, although the final outcome of hitting the tree may be inadequate. Processes supporting different distortions in assigned meanings have been identified in schizophrenics in different stages of meaning assignment (Kreitler & Kreitler, 1986; 1967; Kreitler, Kreitler, & Wanounou, 1987-1988). Additionally, it is of special interest to note that beliefs identified by the CO methodology were shown to predict tendencies to apply specific defense mechanisms, such as projection or denial (Kreitler & Kreitler, 2004). Defenses of this kind were shown to support various personality disorders (e.g., Larsen et al., 2010; Valliant, 1994)

Further possibilities for psychopathology that need to be considered include situations when in many domains no action is possible because the individual does not have enough beliefs supporting any course of action; or no action is possible because the clustering process of beliefs culminates too often in different sets of contrasting motivational dispositions which result in conflicts or obsessive ruminations. Another possibility of no action may be due to the formation of a strong motivational disposition opposing the standard action expected in some given situation, for example, there arises a motivational disposition opposing the greeting of people or going to bed at night or continuing to go on a road after having started to walk. Finally, it is appropriate to highlight the role of behavioral programs in psychopathology. The individual may not have learned enough or adaptive or adequate behavioral programs for implementing one's motivational dispositions. Also conflicts between different behavioral programs may arise, that prevent adaptive

action. Another possibility would be when a person's motivational disposition that could be quite normal, for example, to get attention, is implemented by a behavioral program that is not considered as quite normal, for example, hitting or biting other individuals (Gelkopf, Kreitler & Sigal, 1993).

In view of the accumulating evidence about the adequacy of the CO approach for describing psychopathological phenomena and predicting specific symptoms, it was considered important and justified to apply the CO theory to major diagnoses in the domain of psychopathology, i.e., paranoia, schizophrenia and depression. It was expected that studies of this kind would enable to extend the application and theoretical understanding of psychopathology in terms of the CO approach. The choice of diagnoses was guided by various considerations. First, they are major psychopathological disorders, second, they represent main classes of disorders, namely the psychotic (viz. schizophrenia and paranoia) and mood disorders (viz. depression), third, they exemplify deviant phenomena in different domains (viz. schizophrenia in behavior, paranoia in cognition and depression in affect). Notably, in regard to all three diagnoses the present studies could rely on previous empirical findings based on the CO theory.

## **2. THE COGNITIVE ORIENTATION OF PARANOIA**

### **2.1. Objectives**

The objectives of this study were to cross validate the results of a previous study in which the motivational disposition for paranoia was studied (Kreitler & Kreitler, 1997). The participants were paranoid patients (n=29) and three control groups (30 schizophrenics, 27 depressives and 64 healthy subjects) who were administered the CO questionnaire of paranoia which included beliefs of four types (goals, norms, about self and general) referring to 44 themes (e.g., masculinity, strength). Discriminant analyses showed that the four belief types enabled significant discrimination among the four groups and that there is a CO based on themes and conflicts characteristic for paranoia. Since the described study served for the original validation of the CO questionnaire of paranoia it was considered necessary to cross validate it in a new sample with a shorter version of the CO questionnaire.

### **2.2. Design**

The study was based on a two-group posttest-only design. One group included patients diagnosed as paranoid, the other included healthy controls, matched in age, gender and education.

### **2.3. Methods**

The number of participants was 40: 20 in each group, with a similar gender distribution (13 men and 7 women). The subjects in the two groups did not differ in age (means paranoids 41.3 yrs and controls 45.5 yrs,  $p = .566$ ). All paranoid patients had a certified diagnosis of paranoia or schizophrenic paranoia established in a major hospital for mental diseases and were living in a hostel for psychiatric patients. Their disease duration was at least 5 years. Both patients and controls had at least 12 years of education. The control subjects were recruited from workers in the hostel or a nearby hotel. The inclusion criteria for the control group were age (35-50 years, as in the paranoid group), both genders, at least 12 years of education (as in the patient group), no evidence of psychopathology in the volunteers themselves or their closest blood relatives, and sufficient

knowledge of Hebrew to respond to the questionnaire. Participation was voluntary. All subjects were administered the CO questionnaire of paranoia which included 71 items (32.13% of the original number), selected as those that differentiated best between paranoids and normal's: 20 beliefs about self, 21 general beliefs, 13 norm beliefs and 17 goal beliefs. The items referred to the following 15 themes: Existence of absolute truth, limited quantity of resources, need for understanding everything, guarding one's rights, keeping rules and regulations, not changing one's mind, admiring/accepting authority, rejecting authority, upholding masculinity, doing unto others as they do to you, controlling one's emotions, low control of one's life and fate, reacting to slights and offenses, no consideration for others, rejecting help from others. The Cronbach's alpha reliability coefficients of the four belief types ranged from .75 to .88.

#### **2.4. Results**

Mean comparisons of the four types of beliefs between the two groups by t-tests yielded significant results for all four belief types and for 13 of the 15 themes ( $p < .01$ ) showing that the group of paranoid patients scored higher than the controls, as expected. Table 1 shows the means and SDs as well as the t-test results of mean comparisons for each of the four types of beliefs, which in all cases were significant. A discriminant analysis showed that the scores of the four belief types enabled a correct classification of the subjects in 77.5% of the cases, which represents a significant deviation of 27.5% from the 50% expected by chance (see Table 1). The finding proves that it is possible to identify correctly paranoid patients to a degree above chance only on the basis of their scores in the CO questionnaire of paranoia.

#### **2.5. Conclusions**

The major finding of the study is that a shorter version of the CO questionnaire of paranoia proved to be adequate for differentiating between a group of paranoid patients and normal controls. This finding confirms the validity of the questionnaire. Moreover, it lends further support to the conclusion that there exists a CO of paranoia that may be considered as a set of cognitive tendencies potentially functioning as psychological risk factors for paranoia. The constituents of the CO of paranoia may best be conceptualized in terms of the differentiating themes that characterize the paranoid group in contrast to the controls. The themes cluster mainly around the following five foci: (a) rigidity (themes of absolute truth, nor changing one's mind); (b) Safeguarding one's status (themes of guarding one's rights, reacting to slights and offenses); (c) Upholding justice (themes of keeping rules and regulations, doing unto others as they do to you); (d) feeling strong (themes upholding masculinity, admiring authority, rejecting authority); (e) control (themes of need to understand everything, control of one's emotions, control of one's life and fate, limited quantity of resources), and (f) distancing oneself from others (themes of no consideration for others, of rejecting help from others). Notably, the set of themes characterizing paranoids includes two kinds of potential conflicts. One kind of conflict is in regard to authority (admiring authority vs. rejecting it) and the other in regard to one's strength (feeling strong vs. low control of one's life and fate). The attempt to resolve these conflicts may be responsible in part for some of the pathological behaviors manifested by paranoid patients, such as defending oneself against others.

*Table 1. Means and SDs and t-test comparisons of the four belief types in the samples that were administered the CO questionnaire of paranoia, the CO questionnaire of schizophrenia and the CO questionnaire of depression.*

Type of Questionnaire	Samples	Beliefs about self	General beliefs	Norm beliefs	Goal beliefs	Correct identification by discriminant analysis
CO of paranoia	Paranoid patients	M=51.2 SD=11.2	M=55.6 SD=13.8	M=46.2 SD=10.3	M=54.3 SD=12.8	77.5% p=.01
	Healthy controls	M=43.5 SD=10.3	M=41.4 SD=8.3	M=37.1 SD=9.5	M=39.9 SD=8.3	
	No. of items	20	21	13	17	
	t-test	2.263 p=.029	3.943 p=.0004	2.904 p=.006	4.221 p=.0002	
CO of schizophrenia	Schizophrenic patients	M=145.3 SD=36.1	M=117.6 SD=30.2	M=147.9 SD=28.6	M=144.9 SD=31.9	76% p=.01
	Healthy controls	M=119.5 SD=20.2	M=99.7 SD=21.9	M=121.5 SD=21.7	M=125.3 SD=23.5	
	No. of items	49	49	51	50	
	t-test	3.118 p=.0034	2.394 p=.0204	3.677 p=.0006	2.473 p=.0174	
CO of depression	Depressive patients	M=60.9 SD=14.3	M=64.8 SD=12.9	M=68.6 SD=13.5	M=74.9 SD=16.1	70.6% p=.01
	Healthy controls	M=42.8 SD=10.4	M=52.5 SD=11.8	M=54.3 SD=14.2	M=59.5 SD=12.4	
	No. of items	21	25	24	26	
	t-test	4.221 p=.002	2.901 p=.0064	3.009 p=.005	3.125 p=.004	

### 3. THE COGNITIVE ORIENTATION OF SCHIZOPHRENIA

#### 3.1. Introduction

The first attempt to study the CO of schizophrenics has been done years ago (Kreitler & Kreitler, 1965), actually predating the formulation of the CO theory. Hence it was mandatory to repeat the study of the CO of schizophrenia in a new format, applying the standard methodology.

#### 3.2. Objectives

The goal was to construct a CO of schizophrenia that would prove adequate to characterize schizophrenic patients of different kinds and would constitute a valid tool for the assessment of schizophrenia and for exploring some of its underlying dynamics in psychological terms.

#### 3.3. Design

The design consisted in comparing two groups, one of schizophrenic patients and one of normal controls, matched in age, gender and education. .

### 3.4. Methods

The number of participants was 50: 25 in the group of schizophrenics, and 25 in the healthy control group. The subjects in the two groups did not differ in age (mean 38.2 yrs for schizophrenics and 42 for controls,  $p=.437$ ) and gender distribution (13 men and 12 women in each group). Both patients and controls had at least 12 years of education. The schizophrenic subjects were living in a hostel for psychiatric patients and had a certified diagnosis of one of the types of schizophrenia made in a major psychiatric hospital in Israel where they were hospitalized prior to being transferred to the hostel. Their disease duration was above 10 years. The control subjects were recruited from healthcare workers in a general hospital that was not connected in any way to the psychiatric hospital or the hostel where the patients stayed. The inclusion criteria were age (30-50, as in the group of schizophrenics), both genders, at least 12 years of education (as in the patient group), no evidence of psychiatric pathology in themselves or their closest blood relatives, and sufficient knowledge of Hebrew to respond to the questionnaires. Participation was on a voluntary basis. All participants were administered the CO questionnaire of schizophrenia. It was based on items concerning themes defined on the basis of interviews with pretest subjects conducted according to the standard procedure (1.2). The questionnaire included 49-51 items in each belief type, referring to the following 24 themes: keeping emotional distance from others, distancing oneself from emotions, concealing one's feelings from others, not letting oneself to be convinced by others, avoiding of giving to others, avoiding commitments in relationships, avoiding undertaking responsibilities, avoiding harming others in any way, avoidance of any form of violence, not caring about being consistent, believing that one has a higher mission/purpose in life, striving for extraordinary achievements, believing in an ideal world, believing in the existence of absolute truth, love etc., being pure and good in the highest sense of the words, nurturing one's inner life, doing with very little for oneself, being respected for what one is and not because of one's deeds, living in complete freedom, difficulty in getting orders from others, safeguarding one's energies, looking for the deeper underlying meanings, believing the world is a dangerous and threatening place, feeling that one carries death within oneself. The Cronbach's alpha reliability coefficients of the four belief types ranged from .73 to .81.

### 3.5. Results

Mean comparisons between the two groups by t-tests showed that the group of schizophrenic subjects scored significantly higher than the controls on all four belief types) and on 20 of the 24 themes (in 8 themes,  $p<.01$ , in 12 themes  $p<.05$ ). Table 1 presents the means, SDs and the results of the t-test mean comparisons of the two groups for all four types of beliefs. A discriminant analysis showed that the scores of the four belief types enabled a correct classification of the subjects in 76% of the cases, which represents a significant deviation of 16% from the 50% expected by chance (see Table 1).

### 3.6. Conclusions

The findings support the conclusion that there exists a CO of schizophrenia. The clearly delineated thematic clusters points toward the following foci as characteristic of schizophrenia: emotional distancing from others (which may also serve as a safeguard against harming others), striving for complete freedom, striving for high achievements, distancing oneself from the external world (which is supported by several themes focused

on avoidance of action of different kinds), considering the world as impure and dangerous while striving toward an ideal world of absolute truth and love. Notably, this set of themes contains many components corresponding to former descriptions of the schizophrenic view of life (e.g., Arieti, 1974).

## **4. THE COGNITIVE ORIENTATION OF DEPRESSION**

### **4.1. Introduction**

Depression is a major diagnosis in psychopathology, with cognitive, emotional and behavioral manifestations, some of them as serious as suicide. A questionnaire of CO of depression was prepared in the context of depressive patients treated in mental health clinics (Kreitler, 2012). It was first administered to 100 women immediately after delivery and it predicted significantly the occurrence of postnatal depression assessed a month later (Buzaglo, 2014). It was therefore considered advisable to extend the testing of this new instrument.

### **4.2. Objectives**

The goal was to test the validity of the CO of depression in a sample of patients diagnosed with depression as compared to healthy controls.

### **4.3. Design**

The design consisted in comparing two groups, one of patients diagnosed with depression and one of normal controls, matched in age, gender and education.

### **4.4. Methods**

The number of participants was 34: 17 in the group of depressive patients, living in a hostel for psychiatric patients, all with a certified diagnosis in a major public psychiatric hospital, and 17 in the healthy control group. The control subjects were recruited from the administrative workers in the university and a general hospital completely separated from the psychiatric hospital. They were first screened for depression by the Beck Depression Inventory and only those who scored in the lower 35% were included in the sample. The subjects in the two groups did not differ in age (mean 62.2 yrs for the patients and 59 yrs for controls,  $p=.22$ ) and gender distribution (11 women and 6 men in each group). All participants were administered the CO questionnaire of depression. It was based on themes defined on the basis of interviews with pretest subjects conducted according to the standard procedure (1.2). The questionnaire included 21-26 items in the different belief types, referring to 19 themes, such as avoidance of harming anyone, avoidance of active initiative, controlling one's emotions. A factor analysis of the responses in the study by Buzaglo (2014) showed that the themes formed four factors (accounting for a total of 61.506% of the variance) labeled as: striving for complete and perfect success as a condition for becoming at all engaged (accounted for 24.009% of the variance), assuming responsibility for anything that goes wrong (13.013% variance), doing what is required and expected rather than what is desired (12.897% variance), striving for complete control over situations (11.587% variance). The reliability coefficients of the four belief types were in the range of .75 to .82

#### **4.5. Results**

Table 1 presents the means, SDs and t-test mean comparisons for the four belief types in the two groups. The table shows that the group of depressive patients scored significantly higher than the controls on all four belief types. They also scored significantly higher on 15 of the 19 themes ( $p < .01$ ). A discriminant analysis showed that the scores of the four belief types enabled a correct classification of the subjects in 70.6% of the cases, which represents a significant deviation of 20.6% from the 50% expected by chance (see Table 1).

#### **4.6. Conclusions**

The findings provide additional support for the validity of the CO of depression. The thematic clusters highlight the following foci as playing a role in regard to depression: extreme approach toward success, assumption of responsibility, fulfilling expectations of others, and control. These tendencies provide deeper insight into the origin of the cognitive depresso-genic tendencies identified by other investigators, mainly the negative view of themselves and reality (Beck, 1976).

### **5. GENERAL SUMMARY AND CONCLUSIONS**

The three briefly presented studies should be considered as preliminary. Each of them provides evidence for the existence of a CO of the studied particular psychopathological disorders: paranoia, schizophrenia and depression. Some of the characteristics of the identified COs may be noted. The first is that they consist of sets of themes rather than of single themes, however dominant or important these may be. Hence, it is evident that the psychopathological nature of the COs consists not only in one or another theme but in the set as a whole. Secondly, the themes as such do not seem pathological or irrational or illogical. In some cases they may appear to be unrealistic, such as the schizophrenics' striving for an ideal world, but in no way can a striving of this kind, that is being shared by many generations and cultures, be considered pathological. Thirdly, although the themes cannot be subsumed under the heading of pathology, many of the themes in all three studied cases express tendencies that render it difficult to live a normal satisfactory life. This would apply to themes such as the avoidance of any harm to others, strict control of oneself, and assuming responsibility for everything that goes wrong or fails. Fourthly, while most of the themes in the COs of pathological disorders are not pathological as such, they may form pathology-generating conflicts when viewed jointly with other themes in the same CO. This holds for example for pairs of themes, such as extreme harm avoidance, which would indicate refraining from any action, coupled with extreme achievement motivation, which would require some action. Finally, it is to be noted that none of the identified themes or tendencies making up the COs becomes manifest directly in action, pathological or not. Behavioral manifestations can be expected only when the theme is supported by beliefs of the four types (about self, reality, norms and goals) and when the individual endorses beliefs of the four or three types of beliefs referring to at least several of the themes in the relevant CO. In that case, the expected behavioral manifestations would resemble those diagnosed as part of the symptomatic behavior of the specific psychopathological disorder.

The COs are basically unique for each disorder. However, they also share some of the constituent themes. The major recurrent themes are a tendency toward assuming extreme positions, namely, an-all-or-nothing approach; keeping an emotional distance from others,

for different reasons, such as harm avoidance or keeping one's freedom; and a very high achievement orientation. If these and other themes prove to recur consistently in further COs of psychopathological disorders, it would be justified to examine the hypothesis that they constitute the core of a general possibly phenotypical tendency for psychopathology.

Notably, the motivational disposition for each set of psychopathological outputs is specific for that output. Even if there is some overlap in the themes correlated with different outputs, further themes specific for the particular output are likely to be discovered. However, the span between specific and general motivational dispositions in psychopathology may be bridged by a further potential paradigm. According to this paradigm, there exists a general motivational disposition for a certain cluster of symptoms which is complemented by specific clusters orienting toward particular symptoms within that cluster. There is already evidence supporting this paradigm in regard to at least two domains: one domain is eating disorders where the general motivational disposition is complemented by themes supporting bulimia or overeating or anorexia nervosa (Kreitler, 2011); another domain is addictions where the general motivational disposition for addictiveness is complemented by themes representing addictions for example for drugs or alcohol or internet or shopping (Kreitler, 2014). It is likely that a similar situation would characterize also the domain of schizophrenia. It should further be mentioned that even when there is a specific motivational disposition for a particular syndrome, such as schizophrenia, it is further complemented by motivational dispositions for specific pathological behaviors such as not taking care of oneself, not working, not taking medications, etc.

The information provided by the CO questionnaires about each of the studied diagnoses may be of applied for identifying individuals at risk and instituting programs of prevention. This possibility may be of great value particularly in situations evoking stress or for populations exposed to crises. Detecting individuals with a CO vulnerability may be of great value in averting the development of pathology or at least minimizing its intensity.

It needs however to be reiterated that the COs are not the causes for psychopathology. They are merely predispositional tendencies of psychological risk factors that may enhance the probability of developing a psychopathological disorder as part of a network of other biological, genetic and environmental factors, when one is exposed to a specific instigating trigger. As such the COs may be considered as likely risk factors of psychopathological diagnoses that can be used for assessment, early detection, and as the basis for psychological preventive measures and therapeutic interventions.

The major limitations of the studies based on applying the CO approach to psychopathology are the small size of the samples, the absence of information about responses of patients with other diagnoses to the same CO questionnaires, and the exclusive dependence on correlational designs. Future studies should enlarge samples, test the same questionnaires also with patients of other diagnoses than those for which they have been originally designed, and add research designs based on prospective prediction and interventions.

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## **Chapter #8**

### **MEANING – ITS NATURE AND ASSESSMENT: THE GENERAL APPROACH AND THE SPECIFIC CASE OF BODY IMAGE**

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#### **ABSTRACT**

The purpose is to introduce the theory, applications and assessment of a new conception of meaning and to illustrate one of its empirical applications by means of the multi-dimensional questionnaire of the body image. The first part is devoted to meaning. Meaning is often regarded as an elusive and subjective construct. The meaning theory of Kreitler and Kreitler provides a new way of defining the nature of meaning and exploring how it affects our cognitive and emotional functioning, our personality tendencies, and our worldview and construction of reality. This approach complements and expands previous approaches to meaning in psychology and other disciplines. It is based on characterizing contents in terms of the provided information and the manner of expression. It is based on a very large body of empirical studies. The major concepts of the meaning theory are meaning system, referent, meaning value, meaning unit and meaning variables. The assessment technique enables assessing meaning of different kinds (e.g., verbal and nonverbal), and identifying meaning assignment tendencies of individuals of different ages. Applications of the meaning system include clarifying constructs, exploring the underlying dynamics and constituents of personality traits and cognitive acts, comparing worldviews of different groups and producing changes in states of consciousness. The second part is devoted to describing a particular application of the meaning system to the dimensional assessment of the body image. The questionnaire, its characteristics and applications are described.

*Keywords:* meaning, assessment, cognition, body image, the multidimensional body questionnaire.

#### **1. INTRODUCTION: THE NATURE OF MEANING**

This chapter deals with describing the theory, assessment and functions of meaning in general and its application to the construct of the body image. The general approach exemplifies the implicit form of the manifestation of meaning whereas the application to the construct of body image exemplifies the explicit form of meaning manifestation.

Meaning is a construct with a very long history, which has added to its complexity, multiplicity of definitions and its ambiguity. Psychology turned its attention to meaning initially only reluctantly, mainly because of its apparent mental character and attendant difficulties of assessment. The meaning system (Kreitler & Kreitler, 1990) is an approach to defining and assessing meaning, which has been reached on the basis of empirical studies with a great number of subjects in different cultures.

Meaning is a basic construct with manifestations in many domains, including personality, cognition, emotions, education and communication. In all these domains performance depends on identifying stimuli and on the kind of meaning assigned to them. Thus, if two stimuli are identified as similar on the basis of meaningful features spotted in both, then it is likely that the response to both may be similar.

The impact of meaning may become manifest in two different ways. One is the implicit way, whereby the meaning assignment tendencies of an individual impact that individual's potential of comprehending or experiencing some material or situation. If for example an individual enters a lecture hall and the first thing he or she notice is the structuring of the seating and the material of the seats, one may assume that structure and material are aspects of meaning that are salient in that individual's thinking and perception, even if he or she are not consciously aware of it. The implicit way affects a broad range of functions and themes in a variety of domains, and is not bound to a particular theme or referent.

The other way in which meaning becomes manifest is the explicit one. It is manifested in the form of the meaning of a certain referent and its impact is particularly or sometimes even exclusively limited to that referent. Thus, examples of referents whose meanings have been studied are constructs such as democracy, the self, mother, a particular nation, World War I, marriage, energy, and the body. The impact of meanings of referents of this kind is particularly apparent in regard to situations or contexts in which these referents are relevant or salient. Moreover, the individual may be conscious to some extent of the impact of these meanings.

Notably, the two ways of the manifestations and impact of meaning are related. First, identifying the meaning assignment tendencies of an individual is based on analyzing the individual's responses to a standard set of referents that constitute the Test of Meaning (see 1.4). Second, it is likely that the individual's meaning of some referent is influenced at least to some degree by that individual's meaning assignment tendencies in general (see 1.5).

### **1.1. Defining meaning**

The definition of meaning in the framework of the meaning system is based on a rich and variegated empirical material whose collection has been guided by the following four assumptions: (a) *Meaning is communicable*. The rationale is that most of the meanings we know have been learned from others, although it is evident that some meanings may be hereditary or constructed by individuals on their own. (b) *Meaning includes a part that is interpersonally shared and another part which is more personal and subjective*. The interpersonally-shared part is widely shared whereas the personal part is more private. (c) *Meaning may be expressed both through verbal and non-verbal means*, that is, both in spoken or written words as well as through means, such as movements, sounds, drawings and images. (d) *Meaning is a complex multi-dimensional or multi-layered construct*. This is to be expected in view of the evidence that meaning develops slowly, absorbing components from different sources, not necessarily integrating them into a coherent whole or deleting inconsistent or repetitive elements (Kreitler, 2013).

The four mentioned assumptions have enabled shaping the methods applied for collecting data in regard to meaning that have led to a new conception of meaning. The data consisted of responses of several thousands of subjects differing in gender, age (2 to over 90 years), education and cultural background who were requested to communicate the interpersonally-shared and personal meanings of a great variety of verbal and non-verbal stimuli, using any means of expression they considered adequate.

On the basis of the empirical data and theoretical considerations, meaning was defined as a referent-centered pattern of meaning values. In this definition, referent is the input, the carrier of meaning, for example, a word, an object, a situation, an event, or even a whole period, and meaning values are cognitive contents assigned to the referent for the purpose of expressing or communicating its meaning. For example, if the referent is

'Computer', responses such as 'serves for communication' or 'comes in different sizes' or 'is an indispensable tool' are three different meaning values. The referent and the meaning value together form a meaning unit (e.g., Computer – serves for communication) (Kreitler & Kreitler, 1990).

In order to fully describe a meaning unit it is necessary to identify its aspects from the points of view of contents, structural features and expressive mode. This is done in terms of the following sets of variables: (a) Meaning Dimensions, which characterize the contents of the meaning values as regards the specific information communicated about the referent, such as the referent's Sensory Qualities (e.g., Ocean – blue), Feelings and Emotions experienced (e.g., Mother –loves her baby) or evoked (e.g. Darkness – fear), Range of Inclusion (e.g., Body - the head, arms, and torso) (for a full list see Kreitler, 2014, pp.8-9); (b) Types of Relation, which characterize the directness of the relation between the referent and the meaning value, for example, attributive (e.g., Summer - warm), comparative (e.g., Spring - warmer than winter), exemplifying instance (e.g., Country - France.) or metaphoric (e.g., Freedom – like open spaces in one's soul); (c) Forms of Relation, which characterize the formal relation between the referent and the meaning value, in terms of its validity (positive or negative; e.g., Sweet – is not a color), quantification (absolute, partial; Apple - sometimes sour), and status (factual, desired or desirable; Law - should be obeyed, Money - I wish I had more); (d) Referent Shifts, which characterize the relation between the referent and the original or previous input, for example, the referent may be identical to the input or the previous referent, it may be its opposite, or a part of it, or even apparently unrelated to it (e.g., when the presented stimulus was "Europe." and the response was "I love Paris", the referent in the response was a part of the stimulus); (e) Forms of Expression, which characterize the forms of expression of the meaning units (e.g., verbal, denotation, graphic); (f) Meta-Meaning variables, which characterize the attitude toward the meaning communication that has been assumed by the respondent or is indicated for the recipients (e.g., it is incomplete, it is a quotation, it is a metaphor) (Kreitler, 2014).

Together the six sets of variables constitute the system of meaning. The list of variables is comprehensive in the sense that it includes many of the variables proposed by other investigators for the assessment or definition of meaning.

As a system, meaning is characterized by certain properties which play an important role in explaining the impact of meaning and its interaction with other systems in the organism.

(a) Meaning is an operational-active system, namely, operative and functional. (b) Meaning is a complex system, with a multiplicity of aspects and levels; (c) Meaning is an open system, namely, it interacts with other systems in the organism (e.g., behavior, emotions, cognition); (d) Meaning is a developing system, namely, it undergoes development and enrichment through its activation and learning. (e) Meaning is a regressive system, namely, its elements are defined in terms of its other elements; (f) Meaning is a self-embedded system, namely, each of its parts can act as an anchor point around which the rest of the system is organized. (g) Meaning is a selective system, namely, it becomes manifest structurally and functionally mostly partially under the impact of selective principles or constraints; (h) Meaning is a dynamic system, namely, it is time variant and undergoes structural- organizational changes which may have functional implications.

Of the eight properties of the meaning system, four - complex, regressive, self-embedded and selective - are static whereas the remaining four – operational-active, open, developing and dynamic – are dynamic. These two facets represent an important aspect of meaning. The static aspect dominates when we deal with contents in whatever

form that are treated as expressions or presentations of meanings, for example, narratives, paintings, rituals, myths, or records of behavior, in any medium whatsoever (Kreitler, 2014).

### **1.2. Assessing meaning**

In assessing meaning the material is first reduced to meaning units, each of which consists of a referent and a meaning value. Then each unit is characterized in terms of the meaning variables defined in the meaning system, namely, it is coded on one meaning dimension, one type of relation, one form of relation, one referent shift and one form of expression. The coding may include also a specification of sensory sensations and meta meaning statements if these are available. For example, when the referent is "Computer" and the meaning value is "has a screen", the coding on meaning dimensions is Range of Inclusion, on Types of Relation – attributive, on Forms of Relation - positive, on Referent Shifts - identical to input, and on Forms of Expression - verbal. Summing the codings in each set of meaning variables across all meaning units in the given meaning statement yields a profile representing the frequencies with which each meaning variable has been applied in that meaning statement. Actually, one gets first initial summaries referring to each of the sets of meaning variables separately, e.g., a summary of frequencies for meaning dimensions and for referent shifts, all of which have identical totals. In addition, there is the overall summary which includes all the meaning variables from the different sets that have appeared in the coding across all the meaning units of the specific meaning statement (namely, all the meaning variables that have in that statement frequencies > zero). The overall summary of frequencies of meaning variables in the given statement of meaning may be called the meaning profile of that statement, which may be a story, a letter, an email, a map, a painting or any other art product.

For getting information about the characteristic tendencies of an individual to use certain meaning variables it is necessary to assess the meaning statements of the individual in response to specific pretested stimuli. The 11 standard stimuli (e.g., street, bicycle, life, to create) used for that purpose constitute the Meaning Test. There are three parallel sets of these stimuli for adults and three different sets for children (2-10 years of age). The standard instructions ask the subjects to communicate the interpersonally-shared and personal meanings of these stimuli to someone who does not know the meanings, using any means of expression they find adequate. Coding the meanings produced in this manner yields the subject's meaning profile which summarizes the frequency with which the subject used each of the meaning variables across all stimulus words in the test. Similar principles apply in regard to the meaning profiles of specific constructs or groups, defined in terms of demographic characteristics (e.g., age, gender, cultural background), attitudes and beliefs (e.g., different political ideologies, religion), health states, behaviors, or responses to questionnaires.

### **1.3. The impact and functions of meaning**

As noted, each meaning variable represents both contents, specific for that meaning variable and a process that is involved in handling those particular contents. This thesis is demonstrated in many studies which showed, for example, that subjects who in the Meaning Test use frequently a meaning dimension like Locational Qualities more readily notice perceptual cues relevant for location, show better recall of items referring to location, reach faster solutions to problems like Mazes that involve locational aspects, and have more associations referring to places than with those who use it infrequently (Kreitler, 2014).

Similar relations of meaning to cognition were shown for example for planning, perception and co-consciousness (Kreitler, 1999).

Studies showed that the meaning system is involved also in the domain of personality. The paradigm consisted of administering to the same group of subjects the Meaning Test and a standard measure of some personality trait. The meaning variables that differentiated significantly between the high and low scorers on the personality measure were considered as constituting the meaning profile of that personality trait. Over 350 personality traits were correlated each with a specific set of meaning variables (Kreitler & Kreitler, 1990). For example, extraversion (as assessed by Eysenck's MPI and other measures) was correlated positively with the meaning dimension Sensory Qualities (e.g., form, sound, taste, smell) and negatively with internal sensations, which is confirmed by many studies indicating that extraverts focus on external stimuli but overlook internal physical experiences, as is manifested in their higher pain tolerance and only weak tendency for psychosomatic complaints (Kreitler & Kreitler, 1990, pp. 136-143). The findings support the conclusion that each personality trait corresponds to a unique pattern of meaning variables that is characterized by specific qualities in terms of number of variables, proportion of representation of the different sets of meaning variables, proportion of meaning variables related to the trait positively and negatively, etc. (Kreitler & Kreitler, 1990). Applying a similar research paradigm showed the involvement of the meaning system in other personality relevant domains, such as defense mechanisms, values and psychopathological tendencies assessed by the MMPI (Kreitler, 2014), as well as emotions, such as anxiety, fear or anger (Kreitler, 2003, 2011).

#### **1.4. Meaning: general conclusions**

The described effects of meaning in different domains support the conclusion that meaning is the active infrastructure of cognition, which in turn can be conceptualized as a meaning-processed and meaning-processing system. Both the contents and the processes with which cognition functions in operations, such as problem solving, creativity, planning, associations or memory are produced by and depend on the system of meaning. Moreover, since cognition is involved directly and indirectly in a variety of psychological domains, the crucial role that meaning plays in cognition is largely responsible for the broad range of effects of meaning in human life and behavior. The involvement of meaning in cognition and personality provides a tool for affecting manifestations in cognition and personality by manipulating experimentally and therapeutically the meaning profiles of the affected individuals.

The meaning system enables understanding the processes of different cognitive functions, personality traits, emotional tendencies and other individual predispositions. It also provides the means for assessing the meaning assignment tendencies of individuals or groups. Further, it has generated a method for the training of meaning assignment tendencies for the purpose of overcoming deficiencies in functioning or enrichment in operation (Kreitler, 2014).

On the more general level, the study of meaning exposes some psychologically intriguing paradoxes. On the one hand, meaning appears to be a major factor shaping the reality in which we live and act, so that in this sense we are the victims of meaning. Yet on the other hand, meaning is a tool that enables human beings to shape their reality. Thus, psychological reality is a product of meaning assignment and at the same time it is also that substrate which enables the production of further meanings and is the reservoir for the new emergent meanings. Hence, meaning is both constrictive and expanding, restrictive and liberating. Whichever aspect is dominant would depend on meaning.

## **2. BODY IMAGE – DEFINITION**

The meaning of the body image is presented in order to exemplify an important application of the meaning system to the assessment of a specific construct that plays an important role in psychology. Body image is one of the most central constructs in the sphere of personality. It refers to an individual's perceptions, feelings, attitudes and thoughts about one's body (Grogan, 1999). The prominent features of body image are often considered to be body weight, estimated body size, and overall attractiveness of the body, all of which are assumed to be reflected in one's degree of satisfaction with the body (Muth & Cash, 1997). Further, it is commonly assumed that body image is an essentially cognitive-attitudinal construct, influenced by multiple factors, the major ones being gender (Tiggemann, 2004), social factors, such as peer influences and social stereotypes (Shannon et al., 2014), media and the culture (Groetz, Levine, & Murnen, 2002), behaviors, such as sport activities (Frederickson & Roberts, 1997), and psychopathologies, mainly body dysmorphic disorder (Buchanan, Rossell, & Castle, 2011) and eating disorders (Cash & Deagle, 1998).

### **2.1. Assessment of the body image**

The development of theory and assessment tools of body image have hardly stopped from the early beginnings by Fisher and Cleveland in the early seventies (Fisher, 1986; Fisher & Cleveland, 1968). In the first phases the construct of body image was studied mainly in relation to eating disorders and obesity, but in recent years its role came to be recognized in further medical fields (Cash & Pruzinsky, 2002). The expansion of the field has brought in its wake a dramatic increase in the number of assessment tools which has come to include many dozens. A comprehensive review of these tools (Shroff, Calogero, & Thompson, 2009) shows that they include a great variety of assessment kinds, which refer to affective and cognitive aspects of the body image, some based on questionnaires, others on interviews or even behavioral observations. However, the range of contents to which these tools refer is highly limited. They mostly focus on overall satisfaction with one's external appearance, and if they refer to any particular aspects then it is mostly to size, and weight (see Grogan, 1999; Stewart & Williamson, 2004; Thompson, 2004 for reviews).

Notably, the common tools for body image assessment have been influenced to an excessive degree by the prominence of body weight and body size in the framework of the studies on obesity, nutritional concerns, overeating, dieting, and the beauty industry (Thompson, Heinberg, Altabi, & Tantieff-Dunn, 1999). It is likely that these circumstances have been responsible for limiting the range of assessed aspects of the body image focusing mainly on those that contribute to the degree of satisfaction with one's appearance (Thompson, 2004).

While the existing tools may well serve the goals of the mentioned domains of study, they are not sufficiently adequate for studying the effects of body image and on body image in the major other domains of interest, such as physical health and interpersonal relations.

### **2.2. The meaning-based assessment of the body image**

One objective of the project was to construct an assessment tool of body image that would do justice to a broader range of aspects than the common tools. The meaning system (Kreitler & Kreitler, 1990) was chosen as the framework for identifying a relevant set of aspects of the body image construct because it presents the broadest range of contents found to be adequate for expressing the meanings of different concepts. Of the six different

sets of variables defined by the meaning system only one set – that of the meaning dimensions - was considered adequate and sufficient for constructing the meaning-based questionnaire of the body image, called "The Multi-Dimensional Body Questionnaire" (MBDQ) (Munitz-Shenkar, Kreitler, & Kreitler, 2012).

Meaning dimensions constitute a major component of the meaning system (see 1.2). They are 22 basic categories of contents used in expressing or communicating meanings, for example, feelings and emotions, material, causes and antecedents, etc. The term "dimensions" denotes that any one of them can get many values. For example, one of the meaning dimensions is actions that the referent does or can do. Thus, if the referent is body image, values that this dimension can get are "can run fast", "sleeps", "can carry things" or "dance". The theoretical background of the questionnaire guarantees its validity and its comprehensiveness. It includes all the aspects of body image dealt with in other assessment tools, which constitute three specific meaning dimensions (i.e., size and dimensions, weight, judgments and evaluation). The MBDQ includes at least 19 additional relevant aspects.

### **2.3. Method: The Multi-Dimensional Body Questionnaire**

The MBDQ includes items, each of which refers to one of the meaning dimensions. The meaning dimension is represented in the title of the item, followed by examples (i.e., meaning values) designed to clarify the meaning dimension for the respondents. The subjects are asked to consider only the meaning dimension and not the specific provided examples. The response scale includes four options: very important, important, not important, not at all important. The respondent is requested to check in regard to each item how important it is for expressing the general and the personal meanings of the body (see Appendix). The minimum number of items is 22, equal to the number of the meaning dimensions. However, the number can be expanded if one considers the active and passive forms of some of the meaning dimensions (i.e., action, feelings and emotions, judgments and evaluations, cognitive qualities, sensory qualities and possessions) and if one includes a detailed representation of the various sensations (i.e., color, shape, taste).

The scoring of the MBDQ is based on scoring first each item separately as follows: highly important=4, important=3, not important=2, not at all important=1. There are two summative scores: 1. The sum of responses in all items; 2. The number of responses 4 or 3. These two summative scores represent the overall richness (summative score 1) and degree of multidimensionality (summative score 2) of the body image. In addition, one may use the following optional scores, based on summing the specific relevant items referring to the sensory external, actional-dynamic (some of which are active and some passive), experiential-cognitive and contextual-evaluative aspects. The additional scores may be used for special purposes, and new additional scores may be formed by the investigator at will.

The reliability of the MBDQ according to several studies is in the range of alpha Cronbach .75-97. Evidence of validity is based on studies, such as comparisons of anorectic and healthy girls; individuals with chronic pain and healthy individuals (Kreitler & Chemerinski, 1990; Kreitler & Niv, 2007).

### **2.4. Results**

In several studies the scores of the MBDQ were compared between groups with specific characteristics and normal controls matched in age, gender and education. The results showed that the summative scores were generally higher in women than in men; that the highest scores were obtained in individuals who have practiced yoga; high scores characterize individuals of both genders who have engaged in some kind of sport activity

for at least two years; low scores occur in individuals with chronic pain, anorexia or cancer patients undergoing chemotherapy (Kreitler & Chemerinsky, 1990; Kreitler, Weissler, Kreitler, & Barak, 2013).

On the basis of former studies, the following interpretations of the scores may be offered. High summative scores reflect a rich and multidimensional body image, which is broad and stable, namely tends to be less vulnerable to changes (for good or worse) by different variables, events and manipulations. Concerning the special additional scores: The score of sensations reflects the degree to which the person tends to grasp and consider one's body in sensory terms and by means of information that is sensation-based. For example, an individual with a high score of body sensations will react faster in regard to one's body image in case there are changes that may be grasped by the senses (e.g., in size or weight). It may be expected that any bodily change involving a sensory aspect of the body image will be attended by a more intense reaction on the part of the individual, for example when there is some impairment in a sensory aspect. Further, high scorers will be likely to change their body image faster when they get information about their body in terms of the externally accessible qualities, such as structure, body parts, or size. The score on active-dynamic qualities represents the degree to which the person grasps one's own body in terms of information that comes through active acts and processes. Hence, it is likely that a person scoring high on body active qualities will react more in cases when information about one's activities is blocked or lowered, even if temporarily. The score of passive qualities reflects the degree to which the person grasps one's body in terms of things done to him or her. Thus, it is recommended to provide to high scorers information about their body in terms of passive acts (e.g., massage, caressing). The score of internal qualities represents the degree to which the person grasps one's body in terms of internal qualities. High scorers will be likely to change their body image faster when they get information about their body in terms of the internally accessible qualities, such as feelings, thoughts, images, and beliefs. The score of contextual qualities represents the degree to which the person grasps one's body in terms of contextual qualities. High scorers will be likely to change their body image faster when they get information about their body in terms of contextually-grounded qualities, such as causes, results, other people concerned with oneself, etc. Finally, it is possible to relate to specific items and to interpret them singly if there is theoretical or clinical interest in the represented contents, for example, in the contents of the items referring to the mouth, to the skin or to the eyes.

## **2.5. Discussion and conclusions**

The MDBQ is a questionnaire that differs from most of the common body image questionnaires in that it does not assess the individuals' overall satisfaction with one's body image or its external appearance but refers to a great variety of aspects relevant for the assessment of the body image. The information the MDBQ provides about the body image is precise, broad, variegated and psychologically coherent. The aspects assessed by the MDBQ are grounded in a well-established theoretical framework that has been empirically tested in a great variety of domains. This theoretical background endows the BDBQ with validity, ensures its comprehensiveness, binds it to the extensive domain of meaning, and renders it adequate for use in a great variety of domains and populations. Notably, the MDBQ does not refer to specific contents concerning the body image but to generalized categories of contents that represent theoretical constructs rather than particular ones, parameters rather than values. Thus, the respondent is asked about the importance of, say, weight in regard to the body image rather than about a particular weight or BMI. It is as if the respondent got the theoretical tools for constructing the body image which best

expresses one's general and personal conception of the body image. Hence, the MDBQ is an adequate tool for imparting and transforming information about the body image for educational and therapeutic purposes.

Finally, the MDBQ illustrates the procedure of constructing similarly-based questionnaires concerning other constructs, as has been done, up to date, about referents, such as energy, democracy, love, anger, partnership, colors, tastes, to give just a few examples. Questionnaires of these types may be called meaning-dimensional questionnaires and they enjoy the advantages of validity and ready-made psychometrical features.

The major limitations of our study are that it is based on limited samples that include mainly individuals with impaired mental or physical health. The MDBQ needs to be administered in large samples of healthy individuals of all ages.

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## APPENDIX

Table 1. Examples of items of The Multi-Dimensional Body Questionnaire (MDBQ) by Kreitler.

### ABOUT MY BODY

Concerning each kind of description, please check to what extent it is important for expressing what the body is in general and what it is for you personally. Please give your answer by checking the adequate place in the table.

The description	Highly important	Important	Not important	Not at all important
<b>Size, width, dimensions of the body</b> e.g., the body is big, small, tall				
<b>To whom the body belongs, who is the owner of the body</b> e.g., the body belongs to the person, to the parents, to God, to the state				
<b>The state of the body</b> e.g., the body is strong, healthy, full, open, closed				
<b>What the body can perceive with the eyes</b> e.g., with the eyes the body can perceive forms, colors, light				
<b>The function or purpose of the body</b> e.g., the body exists so that we can live, in order to produce children				
<b>Actions the body does or can do</b> e.g., the body can breathe, run, sleep				

Footnote. The Test of Meaning and the Multidimensional Body Questionnaire may be obtained from the author upon request. Please write to <krit@netvision.net.il>

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## Chapter #9

### THE USEFULNESS OF PHANTOM LATENT VARIABLES IN PREDICTING CHANGES IN THE EFFECTS AMONG STRUCTURAL RELATIONS

#### An example of modeling food attitude and human values

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#### ABSTRACT

The goal of this study was to examine the usefulness of phantom latent variables of models with structural relations. Phantom latent variables are defined as latent variables with no observed indicators (Rindskopf, 1984) and take form by making constraints on structural relations into latent variables path models. The constraints in applied psychology have the purpose to explore and simulate unrevealed aspects of psychological theories with latent variables. As a consequence, the phantom latent variables have the purpose to model the respondents' *alteration* to such constraints and to provide proxy of new effects that take into account the constraints and the alterations, simultaneously. In this respect, an example of the application of phantom latent variables was proposed to an attitude model towards buying sustainable food products in Italy, with second-order dimensions of Schwartz's taxonomy of basic human values (1992) as predictors. To this end, phantom latent variables were introduced as mediators into the model with the purpose of simulating what would have happened to the model respondents if the openness to change dimension of the Schwartz's taxonomy had been restricted to be greater than, less than, or equal to, specified constants in predicting the attitude.

*Keywords:* phantom latent variables, structural equation modeling, mediation analysis, Schwartz's theory of basic human values.

#### 1. INTRODUCTION

Phantom latent variables were initially defined by David Rindskopf (1984) as "latent variables with no observed indicators...These variables are of no interest themselves, but only exist for the purpose of implementing the constraints" (p. 38). Let me extend this definition with stating that: the constraints themselves *give rise to* the phantom latent variables for the purpose of modeling the respondents' *alteration* to those constraints.

I define *alteration* as the way the respondents react to constraints on structural relations. In applied psychology, to make constraints on structural relations is a means of testing unrevealed aspects of psychological theories with latent traits. These unrevealed aspects may consist in: something that is possibly obscured by the complexity of the model relations, or something that exists but the researcher was unable to measure, or still something that the researcher forgot to take into account, and so forth. Basically, anything unexplored that might be hypothesized to have an influence on theories with latent variables has a subsequent phantom latent effect on the respondents. *Phantom* because it is something that was ignored until revealed through constraints and *latent effect* because it is an unobserved outcome that affects the respondents. This phantom latent effect is modeled

by both imposing constraints and introducing phantom latent variables into structural models. Hence, the program re-estimates the model-implied matrix parameters that are a function of constraints and phantom latent variables. These re-estimated parameters are phantom parameters that simulate *what* would have happened to respondents according to the theory *if* those constraints were present. A nice example of this counterpart between constraints and phantom latent variables is the work of Macho and Ledermann (2011) in which an entire phantom model is presented so as to handle specific effects of subclass of mediators in structural relations. The phantom approach of the two authors was to bring out the hidden effects of complex connections within a structural model. Some recent applications of phantom latent variables have focused on the following: a) composite reliability of latent effects (Black, Yang, Beitra, & McCaffrey, 2014; Gignac, 2014a; 2014b; Thurber & Bonyng, 2011), also in longitudinal studies (Hancock, Mao, & Kher, 2013); b) mediation effects (Davinson, Babson, Bonn-Miller, Souter, & Vannoy, 2013; Lau & Cheung, 2012; Liew, Kwok, Chang, Chang, & Yeh, 2014; Schrodt & Shimkowski, 2013), including in longitudinal studies (Caprara, Alessandri, Barbaranelli, & Vecchione, 2013); c) interactions and feedback loops (Woody & Sadler, 2005).

The objective of this work is to present an application of phantom latent variables as mediators within a latent variable path model following Rindskopf's methods (1984). The hypothesized model will be an attitude model towards buying sustainable food products in Italy, with second-order dimensions of the Schwartz's taxonomy of basic human values (Schwartz, 1992) as predictors. As a consequence, the psychological theory/model under inspection will be Schwartz's theory of basic human values (1992) applied to food choices. To this end, I have used food preferences as a real data example, but this application can be easily extended to other types of latent path models, theories and contexts.

The next section will at first illustrate how the proposed type of phantom latent variables are generally hypothesized, how they work and what information they are able to provide. Secondly it will illustrate how such variables will be introduced in the attitude model as specific phantom hypotheses.

## **2. BACKGROUND**

### **2.1. General phantom hypotheses**

Starting from the structural relation (with structural parameter  $\beta_{21}$ ) between two latent constructs,  $\eta_1$  and  $\eta_2$ , depicted in figure 1, the first phantom relation involves using one phantom latent variable as a mediator between these two latent variables, as depicted in the next figure 2a. The unrevealed aspect to bring out or explore with this phantom mediation is to simulate how an expected direct change (i.e.,  $\beta_{21}$ ) in  $\eta_2$  for a one-unit change in  $\eta_1$  would be needed to be greater than, or equal to, a specified constant  $k$  (Rindskopf, 1984). In practice, how the respondents would react if  $\beta_{21}$  was greater than, or equal to, a specified constant  $k$ . This constant  $k$  can be determined based on previous information/research and/or theoretical reasons the researcher may want to explore.

Figure 1. Conceptual model with two latent variables.

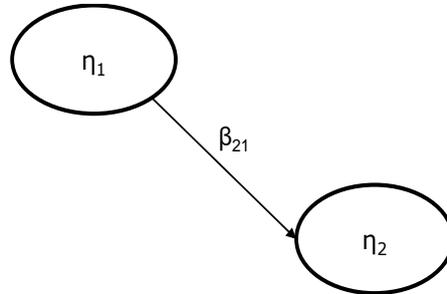
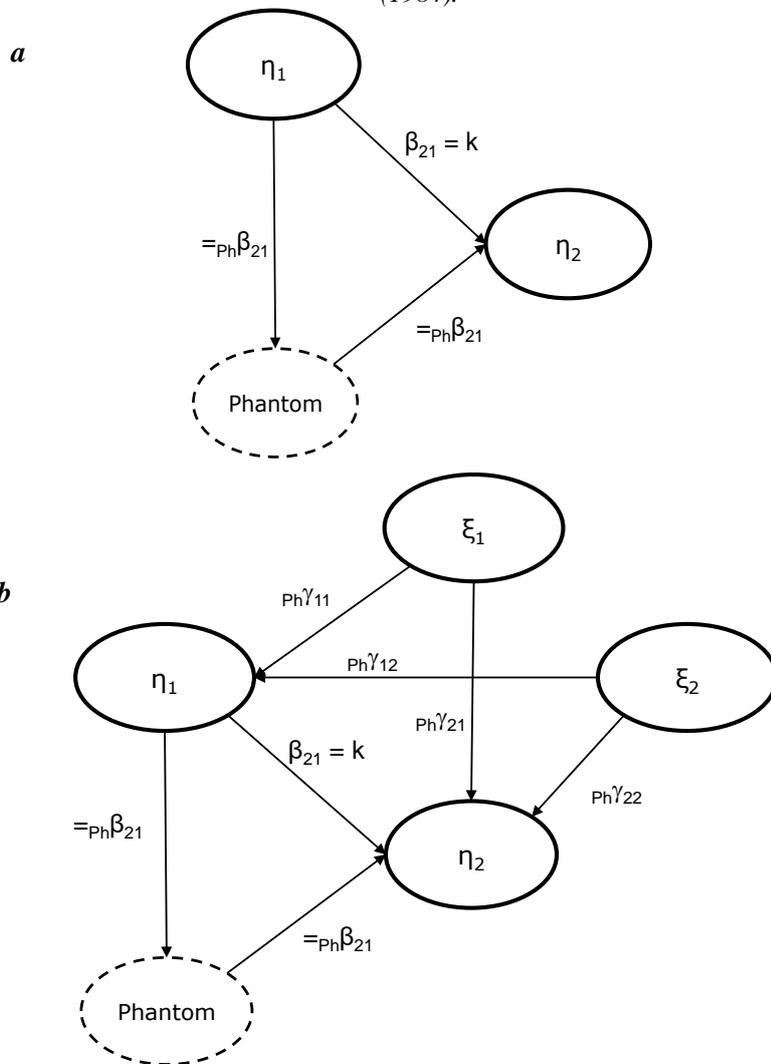


Figure 2. Conceptual models with 1 phantom latent variable and respectively with 2 latent variables (model a,) and more than 2 latent variables (model b), adapted from Rindskopf (1984).



Alternatively, if this previous knowledge on constant  $k$  is not available, it is possible to simulate a gradual increasing and/or decreasing sequence of constants  $k$  until reasonable model results are reached.

In order to make this first simulation possible (figure 2a) it would be necessary to create a linkage of constraints as follows: 1) to constraint the unstandardized structural parameter  $\beta_{21}$  to be equal to  $k$ ; 2) to introduce one phantom latent variable, setting its variance to zero; 3) to constraint the structural parameter from  $\eta_1$  to phantom to be equal (i.e.,  $=_{ph}\beta_{21}$ ) to the structural parameter from phantom to  $\eta_2$ . The structural parameter  $=_{ph}\beta_{21}$  is a new phantom parameter that represents the indirect effect of  $\eta_1$  on  $\eta_2$  mediated by the phantom with taking into account the initial restriction  $\beta_{21}=k$ . Indeed,  $=_{ph}\beta_{21}$  is the *alteration* that is occurring to the sample under the restriction  $k$  and it reveals how much of  $\beta_{21}$  would be needed, in the sample, to overcome that restriction. As a result, the quantity  $(=_{ph}\beta_{21}^2 + k)$  represents the total effect (i.e., sum of all direct effects with all indirect effects). These latter are obtained by multiplying all mediated paths; see Bollen, 1989, p. 37) of  $\eta_1$  on  $\eta_2$  and it is a proxy of a new direct effect of  $\eta_1$  on  $\eta_2$  under the hypothesis of  $\beta_{21} \geq k$ . This proxy conveys sense to the phantom latent variable that here is a “what...if”  $\beta_{21} \geq k$  scenario. If  $=_{ph}\beta_{21}$  is statistically significantly different from zero it means that the *alteration* is acting and the sample is able to overcome the initial restriction  $k$  on  $\beta_{21}$  with providing a new direct effect of  $(=_{ph}\beta_{21}^2 + k)$ . On the contrary, if  $=_{ph}\beta_{21}$  is not statistically significantly different from zero, the new direct effect is exactly  $k$ .

Moreover, should the latent variables involved in the phantom path restriction regress on further latent variables, as the example depicted in figure 2b, the phantom restrictions  $=_{ph}\beta_{21}$  may alter the other unrestricted structural parameters that are free to vary.

These other structural parameters become phantom parameters as well (i.e.,  $_{ph}\gamma_{ij}$ ) because they are influenced by the restrictions  $\beta_{21}=k$  and  $=_{ph}\beta_{21}$ .

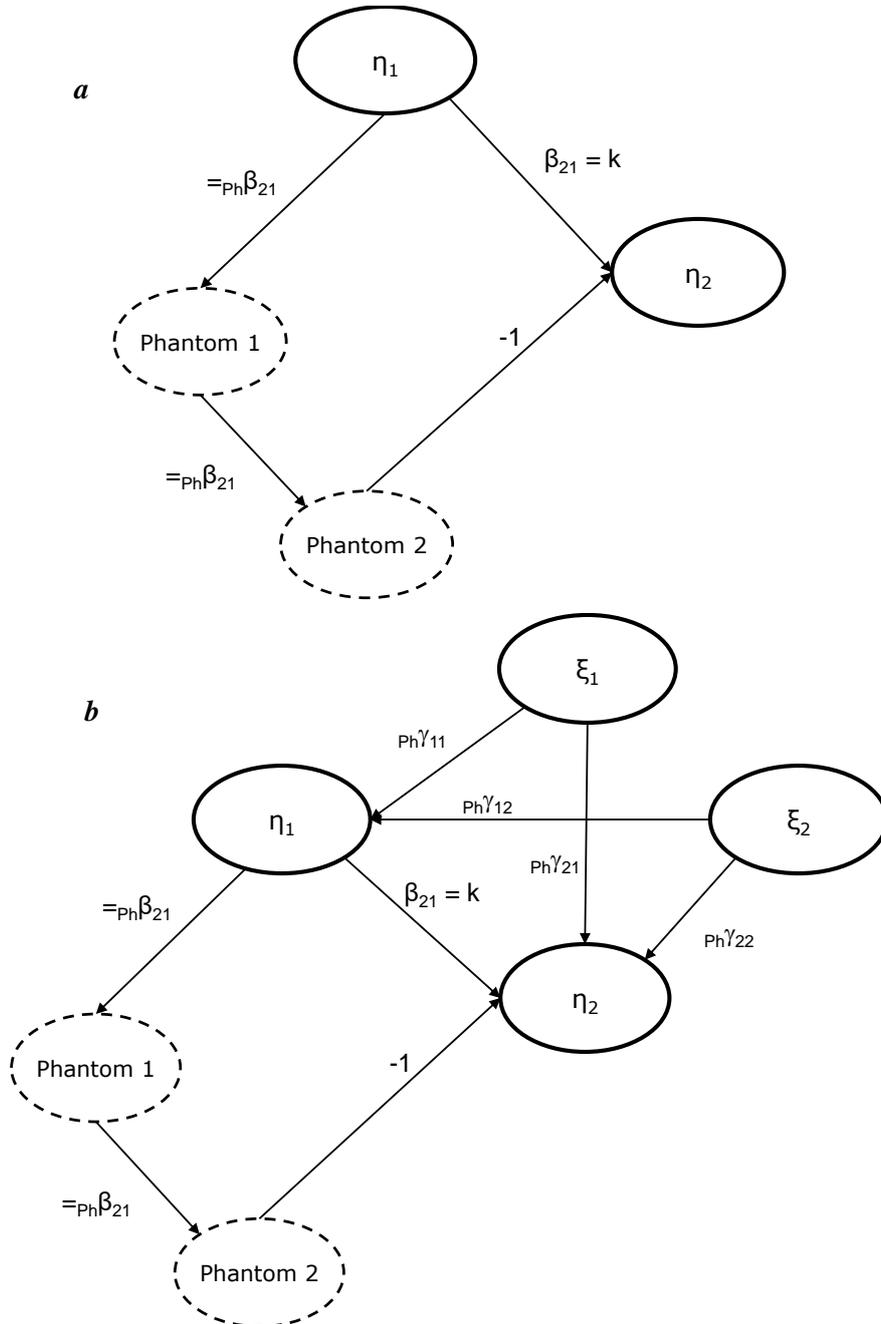
In sum, the first and the second general (hereafter  $g$ ) phantom hypotheses are:

$_{ph}H_{1g}$  = how much of  $\beta_{21}$  would be needed, if  $\beta_{21} \geq k$  (see figure 2a);

$_{ph}H_{2g}$  = how  $_{ph}\gamma_{ij}$  changes when  $\beta_{21} \geq k$  (see figure 2b).

The second phantom relation considered in this study relates now to two phantom latent variables, depicted in figure 3a, as mediators between the two latent constructs  $\eta_1$  and  $\eta_2$ , already hypothesized in figure 1, with structural parameter  $\beta_{21}$ . This constraint operates in the same way, although in opposite direction, as the first phantom relation shown in figure 2a. The unrevealed aspect to bring out or explore with this second phantom mediation is to simulate how an expected direct change (i.e.,  $\beta_{21}$ ) in  $\eta_2$  for a one-unit change in  $\eta_1$  would be needed to be less than, or equal to, a specified constant  $k$  (Rindskopf, 1984).

Figure 3. Conceptual models with 2 phantom latent variables and respectively with 2 latent variables (model a,) and more than 2 latent variables (model b), adapted from Rindskopf (1984).



In order to make this second simulation possible it would be necessary to create a linkage of constraints as follows: 1) to constraint the unstandardized structural parameter  $\beta_{21}$  to be equal to  $k$ ; 2) to introduce two phantom latent variables, setting their variance to zero; 3) to constraint the structural parameter from  $\eta_1$  to phantom 1 to be equal (i.e.,  $=_{Ph}\beta_{21}$ ) to the structural parameter from phantom 1 to phantom 2; 4) to constraint the structural parameter from phantom 2 to  $\eta_2$  to  $-1$ . As in the first simulation, the structural parameter  $=_{Ph}\beta_{21}$  is the *alteration*. Therefore the quantity  $(k - =_{Ph}\beta_{21}^2)$  represents the total effect of  $\eta_1$  on  $\eta_2$  (equal to  $k$  if  $=_{Ph}\beta_{21}$  is not statistically significantly different from zero) that is a proxy of a new direct effect of  $\eta_1$  on  $\eta_2$  under the hypothesis of  $\beta_{21} \leq k$ . Also in this case the phantom restrictions  $=_{Ph}\beta_{21}$  may alter the other unrestricted structural parameters that are free to vary (see figure 3b).

In sum, the third and the fourth general phantom hypotheses are:

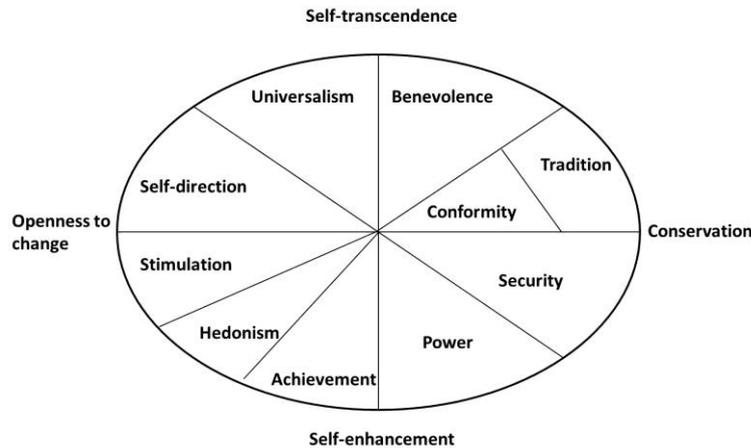
$_{Ph}H_{3g}$  = how much of  $\beta_{21}$  would be needed, if  $\beta_{21} \leq k$  (see figure 3a);

$_{Ph}H_{4g}$  = how  $_{Ph}\gamma_{ij}$  changes when  $\beta_{21} \leq k$  (see figure 3b).

## 2.2. The Schwartz's theory of basic human values applied to an attitude model towards buying sustainable food products: Specific phantom hypotheses

In this sub-paragraph the well-known Schwartz's theory of basic human values (1992) will be introduced as well as the attitude model and the specific phantom hypotheses. Briefly speaking, this theory of human values postulates the existence of ten motivational types of value domains that are distinct (i.e., benevolence, universalism, self-direction, stimulation, hedonism, achievement, power, security, conformity, tradition). These domains are assumed to be recognized in all cultures, are latent in nature and organized in a precise, quasi-circular-elliptical taxonomy depicted in figure 4.

Figure 4. Schwartz's taxonomy of value domains adapted from Schwartz (1992).



Two orthogonal axes with four dimensions (i.e., self-transcendence - self-enhancement, openness to change - conservation) summarize the ten value domains in higher order levels of abstraction. Because this coherent structure arises from social and psychological harmony, or disharmony, between values that people experience in everyday decisions, it can help in explaining why such decisions are made and why such attitudes and behaviors are declared and put into practice (Schwartz, 1992). In this respect, an attitude model to explain why individuals buy sustainable food products was developed

and successfully verified in Italy using the four dimensions of the Schwartz's taxonomy coupled with past experience in purchasing such products as predictors (Vassallo & Saba, 2015). On the other hand, simulations on this attitude model have never been tested.

The simulations will focus on the use of phantom latent variables, taken from Rindskopf's methods (1984) and previously shown in figures 2a and 3a. The phantom relations will be directly added to the main attitude model involving the openness to change dimension and with the exclusion of past experience, as depicted in figures 5a and 5b. The rationale of imposing constraints and thus phantom relations on the openness to change dimension is due to the fact that its parameter in predicting attitude towards buying sustainable food products was not statistically significant (neither was the self-enhancement parameter) in the main model (Vassallo & Saba, 2015). Hypotheses and results will be presented on the openness to change dimension only, although such phantom simulations can be made on all the other three dimensions as well. In sum, the first and the second specific (hereafter s) phantom hypotheses are based on the general ones (see figures 2a and 2b) and are simultaneously included in the attitude model as follows (see figure 5a):

- $\text{PhH}_{1s}$  = how much of  $\gamma_1$  would be needed, if  $\gamma_1 \geq k$ ;
- $\text{PhH}_{2s}$  = how  $\text{Ph}\gamma_i$  (with  $i=2, 3, 4$ ) changes when  $\gamma_1 \geq k$ ;

The third and the fourth specific phantom hypotheses are also based on the general ones (see figures 3a and 3b) and are simultaneously included in the attitude model as follows (see figure 5b):

- $\text{PhH}_{3s}$  = how much of  $\gamma_1$  would be needed, if  $\gamma_1 \leq k$ ;
- $\text{PhH}_{4s}$  = how  $\text{Ph}\gamma_i$  (with  $i=2, 3, 4$ ) changes when  $\gamma_1 \leq k$ ;

Figure 5a. Conceptual attitude models with phantom latent variables to respectively simulate openness to change parameter to be greater than (model a) and less than (model b) a constant  $k$ .

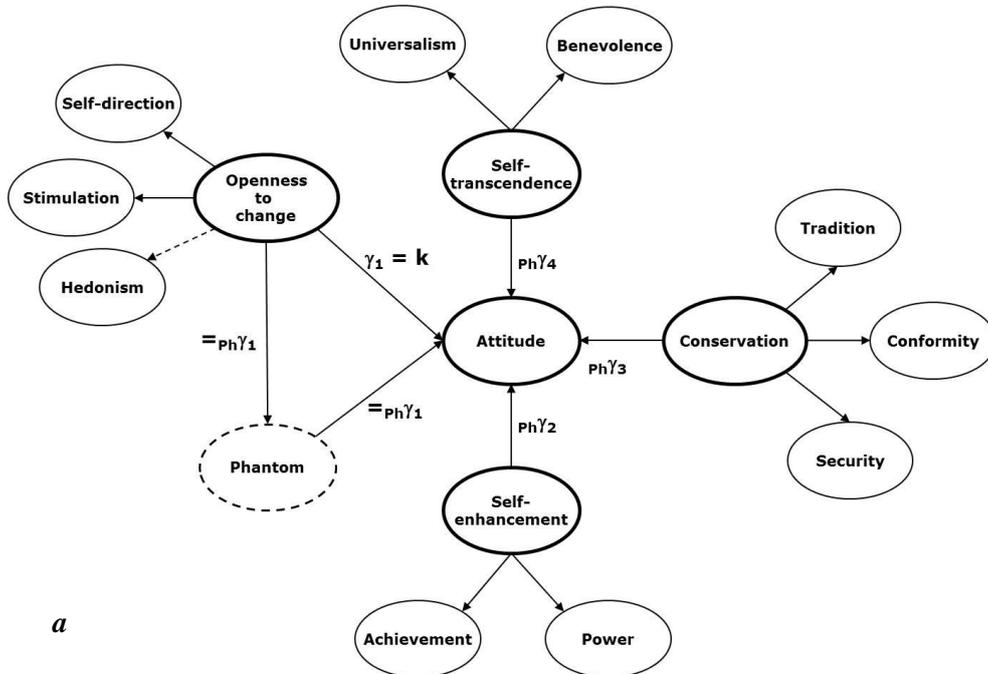
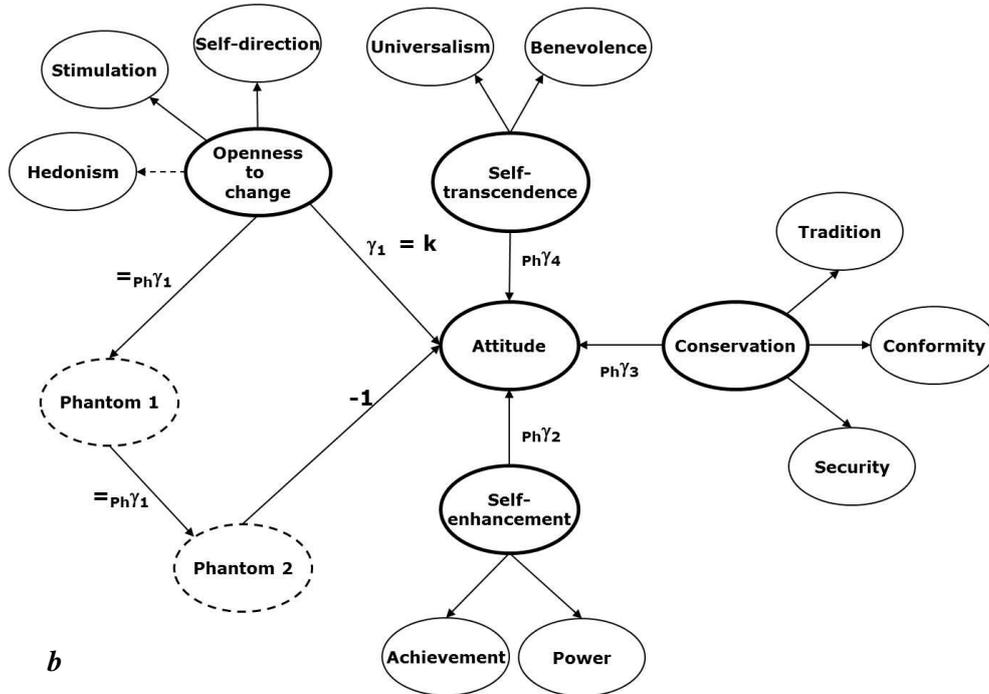


Figure 5b. Conceptual attitude models with phantom latent variables to respectively simulate openness to change parameter to be greater than (model a) and less than (model b) a constant  $k$ . (cont.)



b

### 3. METHODS

#### 3.1. Subjects and design

The study was conducted on 3,004 Italian food consumers in June 2011 by a professional agency (i.e., PRAGMA – market research company) using a three-step quota-based sampling procedure. The sample was representative on a regional basis and according to age categories (i.e., 18-30; 31-64; over 64) as first two steps. In the third step, a random sample of households was visited by interviewers by means of the random-walk technique in order to select only one member of the family over 18 years of age who was solely or jointly responsible for the family's food expenditure. The sample was 60% female and 40% male, with a mean age of 48 years ( $SD = 16.75$ ); 45% had a high school educational level, 31% had completed primary education only, 14% had a university degree (1.4% a postgraduate degree), 9% had no formal or less than primary education, and 0.3% were missing. A self-administrated questionnaire was handed out to the respondents selected at the third step and it included three sections together with demographics: a) Theory of Planned Behavior (TPB; Ajzen & Fishbein, 1980) variables towards a consumption of products deriving from a sustainable and local agricultural system; b) questions measuring eating habits; c) the validated Italian version of the Portrait Value Questionnaire (PVQ; Capanna, Vecchione, & Schwartz, 2005).

### 3.2. Measures and data analysis

The PVQ is one of the instruments used to measure the Schwartz value domains (Schwartz et al., 2001). It encompasses 40 descriptions/items for each value domain. Each description draws attention to the importance of a value. For example: "It is important to him/her to respond to the needs of others. He/she tries to support those he/she knows" describes a person to whom benevolence values are important. The associated question "How much like you is this person?" (not like me at all, not like me, a little like me, somewhat like me, like me, very much like me), with codes from 1 to 6, quantifies each description. Attitude towards buying eco-sustainable food products was measured with three items adapted from Vermeir and Verbeke (2008): "Buying eco-sustainable food products is" (bad/good, unwise/wise and useless/meaningful) with codes from 1 to 7.

Data were analyzed by means of LISREL 8.80 for windows (Jöreskog & Sörbom, 2007) with maximum likelihood method of estimation. Listwise deletion was used for accommodating observations with incomplete information in order to have complete records only. The effective sample size was composed of 2785 respondents.

## 4. RESULTS

### 4.1. Summary statistics

Due to space constraints, summary statistics regarding the Schwartz's human values items will not be reported: please refer to Vassallo and Saba (2015) and Vassallo (2015) for more details. Attitude towards sustainable food products resulted, on average, positive for all three measures (i.e., bad/good: mean score 5.98 (SD = 1.18); unwise/wise: mean score 6.00 (SD = 1.20); useless/meaningful: mean score 5.96 (SD = 1.21)).

### 4.2. Inferential statistics

Also here, due to space constraints, only results regarding the structural part of the aforementioned attitude model modified with phantom latent variables are presented. Please refer to Vassallo and Saba (2015) for all other details concerning multi-normality check and assessment of measurement models.

In table 1, first row, the direct effects of the Schwartz's taxonomy four dimensions on attitude model are presented for the model a depicted in figure 5a. After that, phantom (hereafter ph) indirect effects, total ph indirect effects and total ph effects of the openness to change (hereafter o-t-c) mediated by ph latent variable(s) are computed by imposing a progressive increasing sequence of constants  $k$  on the direct effect, because no specific previous knowledge on the value of  $k$  was available. The general model fit is assessed by the Normal Theory Weighted Least Squares Chi-Square (NT Chi-Square) as a descriptive goodness of fit index. Usually, low and not-significant Chi-Square values are symptom of good fit. Nevertheless, it is well-known that Chi-Square values are sensitive to sample size and therefore will result significant almost every time in presence of large samples. Other fit indices are commonly considered: the Comparative Fix Index (CFI), the Non-Normed Fit Index (NNFI), the Root Mean Square Error of Approximation (RMSEA), the Standardized Root Mean Squared Residual (SRMR). Cut-off values greater than .90 for CFI and NNFI were considered adequate for a good model fit (Bentler, 1990), although values approaching and over .95 were preferred (Hu & Bentler, 1999). Values of RMSEA equal to or less than .05 were considered a good fit (Hu & Bentler, 1999), in the range between .05 to .08 marginal, and greater than .10 a poor fit (Browne & Cudeck, 1993). In good models, the SRMR should be below .09 (Hu & Bentler, 1999).

Table 1. Unstandardized (std) effects of openness to change (o-t-c), conservation (co), self-transcendence (s-t), self-enhancement (s-e) on attitude for restricting o-t-c parameter  $\gamma_1$  to be greater than a specified constant k. (\*not significant at the 95% confidence level).

Model a; $\gamma_1 \geq k$	k	o-t-c		co	s-t	s-e
Initial	-	Direct effect	-.13*(-.09)	-1.11 (-.58)	1.83 (.73)	.08*(.06)
Steps		Chi-Sq(838)=9212.88; RMSEA=.060; CFI=.96; TLI=.95; SRMR=.075				
1	-.10	Direct effect	-.10 (-.10)	-.08* (-.06)	.50 (.38)	-1.02 (-1.03)
		Ph Indirect effects	.77 (.70; .83)			
		Total Ph Indirect effect	.59 (.58)			
		Total Ph effect	.49 (.48)			
Chi-Sq(839)=17405.11; RMSEA=.084; CFI=.94; TLI=.93; SRMR=.11						
2	.10	Direct effect	.10 (.10)	.24 (.18)	.13* (.10)	-1.24 (-1.25)
		Ph Indirect effects	.78 (.70; .84)			
		Total Ph Indirect effect	.61 (.59)			
		Total Ph effect	.71 (.69)			
Chi-Sq(839)=17848.62; RMSEA=.085; CFI=.94; TLI=.93; SRMR=.11						
3	.50	Direct effect	.50 (.50)	1.38 (1.02)	-1.20 (-.87)	-1.82 (-1.83)
		Ph Indirect effects	.79 (.74; .84)			
		Total Ph Indirect effect	.62 (.62)			
		Total Ph effect	1.12 (1.12)			
Chi-Sq(839)=24559.91; RMSEA=.10; CFI=.92; TLI=.92; SRMR=.13						
4	1.00	Direct effect	1.00 (1.00)	2.96 (2.14)	-3.07 (-2.13)	-2.57 (-2.55)
		Ph Indirect effects	.80 (.77; .84)			
		Total Ph Indirect effect	.64 (.65)			
		Total Ph effect	1.64 (1.65)			
Chi-Sq(839)=68260.93; RMSEA=.17; CFI=.88; TLI=.87; SRMR=.14						

The diagnostics of the initial model are satisfactory for an acceptable fit because they satisfy the aforementioned cut-off values: Chi-sq(838)=9212.88,  $p < .000$ ; RMSEA=.060; CFI=.96; TLI=.95; SRMR=.075. In the first simulation step the direct effect k starts with imposing a value of -.10, slightly greater than the initial not significant value of -.13. The diagnostics worsen, although still tenable: Chi-sq(839)=17405.11,  $p < .000$ ; RMSEA=.084; CFI=.94; TLI=.93; SRMR=.11. The unstandardized path from o-t-c to ph, fixed to be equal to the path from ph to attitude, is .77. This value is the *alteration* that occurred to the sample while imposing  $k = -.10$  and it is statistically significantly different from zero. It provides a total ph indirect effect of .59 (i.e.,  $.77 \times .77$ ), for a subsequent total ph effect of o-t-c on attitude of .49 (i.e.,  $-.10 + .59$ ). The other unstandardized coefficients strongly change their impact on attitude: conservation's direct effect negatively decreases from -1.11 to the not significant value of -.08, self-transcendence's direct effect positively decreases from 1.83 to .50, self-enhancement's direct effect negatively increases from not significant value of .08 to the significant value of -1.02. These results suggest that if a researcher wants to increase the impact (i.e., direct effect) of o-t-c on attitude to more than -.10, he/she will obtain from the sample an alteration of .77 (it associates, see table 1, two standardized values of .70 and .83 because only the unstandardized values have been fixed to be equal between the two mediated paths) with a total ph positive effect of .49 (i.e., proxy of new direct effect with standard value of  $.58 = .70 \times .83$ ). These latter results also lead to a strong reduction respectively of the negative impact of conservation and the positive impact of self-transcendence together with a stronger negative impact of self-enhancement.

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This trend becomes even more apparent when simulating more and increasing the constant  $k$  and it stops when the constrained model diagnostics worsened too much in comparison to the ones of the previous step model. In the case of model a, the process was stopped between the third and the fourth step as the diagnostics started to become unacceptable: they worsened too much in reference to the cut-off criteria. As a consequence, the first two specific phantom hypotheses,  $phH_{1s}$  and  $phH_{2s}$  are satisfied until those steps and o-t-c parameter  $\gamma_1$  may be reasonable hypothesized to vary from  $-.10$  to  $.50$ .

In practical words, it means that the sample is able to afford an increasing of o-t-c until that range in order to be in favor of an attitude towards sustainable food products.

On the other hand, if the inverse process starts (table 2 and model b depicted in figure 5b), by constraining the o-t-c parameter  $\gamma_1$  to be less than  $-.13$ , beginning from  $k=-.20$ , conservation, self-transcendence and self-enhancement respectively increase their negative and positive direct effect on attitude. However, in this simulation the process may continue other than imposing  $k=-1.50$ , as the diagnostics at the fourth step are still acceptable. As a consequence, the third and the fourth specific phantom hypotheses,  $phH_{3s}$  and  $phH_{4s}$ , are satisfied at all times. This means that the sample prefers to be conservative and not open to change to a positive attitude towards buying sustainable food products.

Table 2. Unstandardized (std) effects of openness to change (o-t-c), conservation (co), self-transcendence (s-t), self-enhancement (s-e) on attitude for restricting o-t-c parameter  $\gamma_1$  to be less than a specified constant  $k$ . (\* not significant at the 95% confidence level. The ph indirect effects have three std values because three mediated paths are involved here).

Model b; $\gamma_1 \leq k$	k	o-t-c		co	s-t	s-e
Step	-	Direct effect	-.13*(-.09)	-1.11 (-.58)	1.83 (.73)	.08*(.06)
Initial		Chi-Sq(838)=9212.88; RMSEA=.060; CFI=.96; TLI=.95; SRMR=.075				
1	-.20	Direct effect	-.20 (-.16)	-2.55 (-	3.58	1.04 (.83)
		Ph Indirect effects	.71 (.68; 1; -.60)	1.50)	(2.07)	
		Total Ph Indirect effect	-.50 (-.41)			
		Total Ph effect	-.70 (-.57)			
		C-Sq(839)=10898.65; RMSEA=.066; CFI=.95; TLI=.95; SRMR=.086				
2	-.50	Direct effect	-.50 (-.40)	-2.92 (-	4.03	1.27 (1.01)
		Ph Indirect effects	.70 (.66; 1; -.59)	1.70)	(2.30)	
		Total Ph Indirect effect	-.49 (-.39)			
		Total Ph effect	-.99 (-.79)			
		Chi-Sq(839)=10485.34; RMSEA=.064; CFI=.95; TLI=.95; SRMR=.084				
3	-1.00	Direct effect	-1.00 (-.79)	-3.54 (-	4.78	1.66 (1.30)
		Ph Indirect effects	.68 (.64; 1; -.56)	2.03)	(2.78)	
		Total Ph Indirect effect	-.46 (-.36)			
		Total Ph effect	-1.46 (-1.15)			
		Chi-Sq(839)=10030.48; RMSEA=.063; CFI=.95; TLI=.95; SRMR=.081				
4	-1.50	Direct effect	-1.50 (-1.16)	-4.16 (-	5.53	2.05 (1.59)
		Ph Indirect effects	.65 (.62; 1; -.54)	2.36)	(3.06)	
		Total Ph Indirect effect	-.42 (-.33)			
		Total Ph effect	-1.92 (-1.49)			
		Chi-Sq(839)=9751.00; RMSEA=.062; CFI=.95; TLI=.95; SRMR=.079				

#### 4. FUTURE RESEARCH DIRECTIONS

The use of phantom latent variables should be focused on quantitatively exploring unrevealed features (i.e., constraints) of psychological theories such as: unexpected conditions, concealed aspects, or even omitted information. To this end, future perspectives should aim at integrating phantom simulations as a part of further empirical validation of psychological theories in terms of testing their stability, or their evolution over time.

#### 5. CONCLUSION/DISCUSSION

The goal of this work was to encourage the use of phantom latent variables for making simulations through constraints among parameters in latent path models. Phantom latent variables are latent variables with no observed measures, and thus zero variance, and they serve as “what if” proxies of potential outcomes regarding constraints on structural parameters of interest. Testing constraints in applied psychology with using phantom latent variables basically means to simulate how previous, or potential, knowledge about a cognitive phenomenon can possibly alter people’s responses to that phenomenon. In this latter respect, by means of structural equation modeling (SEM), it is possible to model people’s *alteration* to responses at such constraints through phantom effects. In the case of having phantom latent variables as mediators, the phantom indirect effects are the *alterations* under the restrictions, whereas the total phantom effects are proxies of new direct effects under the alterations and the restrictions. To my knowledge, there is no other methodological way to model this *alteration* when dealing with causal connections among latent factors that underlie psychological theories.

Specifically for this study, but it can be reasonably extended to any other area of modeling applied psychology, two phantom simulations were run on a latent path model of attitude towards buying sustainable food products in Italy using Schwartz’s (1992) taxonomy of basic human values dimensions (second-order level of abstraction) as attitude antecedents. Such simulations were used to test whether the direct effect of openness to change on attitude would be greater/less than specified restrictions (i.e., constants) and therefore were used to test for change in the structural parameters of the other three dimensions left. In other words, the simulations were used to test how the sample would react to overcome such restrictions in terms of how the four dimensions of the Schwartz’s theory would react to such constraints in predicting the attitude. As a practical result, if any food policy had forced Italian consumers to increase their expected direct effect of openness to change on attitude towards buying sustainable food products, it would have required an increase of conservation values, coupled with a decrease in self-transcendence and self-enhancement value dimensions. This would have been *the price* of such increase. Conversely, should a food policy have forced Italian consumers to reduce their openness to change in favor of sustainable food products, their conservation would be reduced as well and the motivational values of self-transcendence and self-enhancement would be increased.

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**Section 3**  
**Educational Psychology**



## Chapter #10

### CONSTRUCTIVE AND APPARENT NONCONFORMISTS AT SCHOOL

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#### ABSTRACT

The article explores two specific types of nonconformists, with reference to nonconformity as a personality dimension based on an original theory of a human creative attitude (Popek, 1989). The aim of the present study was to determine the occurrence of constructive and apparent nonconformity among students at middle school, secondary school and undergraduate level, among girls and boys. Studies performed on 2239 school students in Poland employed the Creative Behaviour Questionnaire (CBQ III) (Bernacka, 2009). The study provides evidence that constructive nonconformists are predominant at all of the three stages of education and there are more constructive nonconformists among girls than boys, especially in middle schools. The study has shown that nonconformity as a personality trait is a mechanism of motivation and emotion which strongly stimulates the conduct and mental functioning of adolescent students in the school environment.

*Key words:* nonconformity, personality, school, student, gender.

#### 1. INTRODUCTION

The notion of nonconformity appeared in the context of personality in studies by the Institute of Personality Assessment and Research in Berkeley aimed at determining the characteristic personality traits of creative people. Popek's original theory of the human creative attitude and the development of the CBQ questionnaire for diagnostic purposes triggered studies on nonconformity as a dimension of human personality (Popek, 1989).

Based on a systemic approach to the human being and the interaction paradigm, Popek claims that conformity v nonconformity perceived through the dimension of personality plays an important role in shaping a creative attitude (Popek, 2001). At the base of a nonconformist positive activation, understood as the personality-related core of creativity, lie such traits as high self-esteem, activeness, courage, resilience and perseverance, independence, and tolerance (Bernacka, 2008). Nonconformity as a set of inter-related traits constitutes a specific personality energy which liberates, organises, and determines the direction of activity. This energy is key in expressing (realising) the human capacity for self-actualisation. Nonconformity in personality is an emotion-shaping and motivation-building attribute of highly creative people, since it substantially increases the chances for an effective and constructive use of their large cognitive potential, defence of their creative works, and a capacity to convince others of their value. The progress of civilisation would not be possible if it were not for constructive nonconformity. According to Popek the diverse types of nonconformity are linked with the level of creative capacities related to individual's cognitive functions and they are reflected by the values the individual tends to follow. A discrepancy between the profound need for recognition and upward social comparison versus the low level of creative capacities may contribute to

some individuals' materialistic attitude to life. Today, society and culture promote confusion of values, materialistic models of success among young people, increasing the desire to own goods; they idolize people who have become recognizable as a result of their scandalous behaviours or forms of physical and mental exhibitionism which in turn are exploited by the mass media. At present apparent nonconforming behaviours are an object of public interest. They are a means to developing one's career, a tool for rapid financial success; this in turn may promote similar attitudes among young people. Constructive nonconformity is a result of interaction between highly nonconforming personality and high level of heuristic function in the individual's cognitive sphere (high creative capacities in cognitive domain), which in an adequate cultural and social environment contributes to the individual's activity enabling demonstration of his or her abilities in the form of creative output. Apparent nonconformity is a result of the interaction between a highly nonconforming personality and the highly algorithmic function of the individual's cognitive sphere (high imitative capacities in the cognitive domain), which in an adequate cultural and social environment contributes to the individual's efforts to gain the social status of a person recognizable or known for transgressions or breaking the formal or informal status quo existing in various areas of social and cultural life.

Studies of the differences between constructive and apparent nonconformists, albeit merely at an initial stage, have already provided valuable information confirming that apparent nonconformists think along algorithms and hold social values in the highest regard (Bernacka, 2013; Karwowski & Bernacka, 2008). Apparent nonconformity is a feature of those who feel that their self-esteem is threatened, since they do not have an autonomous system of values and identity (Niemczuk, 2008). An individual's drive towards nonconformity is largely conditioned by his/her personality subjected to social pressure in the form of social norms, customs, and idealistic, religious or political values (Popek, 2004). In today's world apparent nonconformist behaviour is an object of a particular social interest, a means with which to make a professional career and to improve one's material status. Thus, apparent nonconformity is quite attractive to the young generation geared towards consumption.

Personality nonconformity is, to some extent, shaped by the execution of important aims in the social and cultural milieu of human beings. Young Poles know that in each community that is peopled by conformists there are those who steer towards change, those for whom stability is a source of frustration and a sense of lack of self-actualisation. In order to combat this frustration, they aim at destroying the existing order in a certain area of activity. On the one hand, young Poles are aware of the significance of nonconformity in developing their creative and cognitive capacity to act. On the other, they are subjected to the effect of the schooling system.

## **2. BACKGROUND**

School in its social and cultural dimension has the biggest effect on personality shaping processes and a personality-related nonconformist attitude. The results of studies indicate that at school students are expected to be students. Little wonder that those who demonstrate a high level of creative capabilities do not feel welcome there (Turska, 2006). Operating through its hidden curriculum (Janowski, 1995), the schooling system exerts a strong influence on students. In this environment, students are expected to be useful for and obedient to the institution. The hidden curriculum encourages students to conformity showing that nonconformist behaviour does not prove useful. Scholars agree that in a regular schooling institution a student's creative potential is insignificant at best

and even detrimental (Białkowski, 1995; Lemke et al., 2004; Turska, 2006). Under such circumstances, students have no incentive to develop their nonconformist personalities. A question arises as to whether the distribution of nonconformists differs in terms of numbers depending on the level of education, and, by extension, the age of the analysed groups of students. The need for social acceptance is particularly strong during adolescence, which may have an effect on shaping one's identity on the basis of personal adequacy and recognition of those who matter a lot (Brzezińska, 2000). Equally pertinent are socially accepted expectations relating to gender, which are manifested in the hidden curriculum. The school is ready to reward the irreproachable conduct of well-behaved students, in line with the principles that govern the conduct of girls. While minor infringements of discipline by girls are corrected with determination, misdeeds on the part of boys largely go unpunished. Nonconformist girls may subjectively feel that their attitude "may cost too much", since their nonconformity can be perceived as socially unacceptable (Turska, 2006). Although a more creative gender does not exist, the results of studies clearly point out that girls tend to underestimate their creative effectiveness (Karwowski, 2009, 2011). This assertion leads to a question about whether nonconformists differ quantitatively in terms of their gender. The subject of varied types of nonconformity during school is particularly interesting for research, firstly because during that period personality is evolving to assume a creative attitude in adulthood, and secondly because of the increased susceptibility of individuals to factors impacting development of personality (Bateson & Hinde, 1987; Bornstein, 1989; McCrae & Costa, 1994).

### 3. OBJECTIVES, DESIGN, METHODS

Constructive and apparent nonconformity at the three levels of school education has not been the object of in-depth analyses so far. A short overview of important factors that shape the personality of nonconformists in the context of school sensitivity leads to the formulation of the following research hypotheses:

1. The rates of constructive and apparent nonconformists are varied in middle, secondary, and undergraduate schools.
2. The rates of constructive and apparent nonconformists are varied among girls and boys.

The studies employed the Creative Behaviour Questionnaire (CBQ III) (Bernacka, 2008) as a modified version of the CBQ (Nęcka, Grohman, & Słabosz, 2006; Popek, 1989), 26 years since its construction. The theoretical background of the CBQ and CBQ III is the conception of creative attitude formulated by Popek (Grohman & Schmidt, 2012; Popek, 1989). The following changes were introduced in CBQ III: four separate scales of the questionnaire were combined into two scales reflecting the continuum of the trait intensity; the number of questions was reduced to 26; 4 items were removed because of their low reliability and their low discriminative power. The contents of some obscure or ambiguous items in the questionnaire were corrected in order to increase improve their diagnostic value. The instructions for the respondents were also shortened. A change was also introduced in the overly limited system of answers: "yes", "I don't know", and "no". In CBQ III the subject takes a stance with respect to the statements by choosing the following answers: A "yes" B "probably yes", C "I don't know," D "probably no", E "no". The key for the questionnaire was developed accounting for gender related norms (CBQ defined combined norms for both sexes). The CBQ is probably one of the most esteemed and most often used questionnaires in Poland when it comes to diagnosing the general creative attitude of people (Nęcka, Grohman, & Słabosz, 2006). The CBQ III

includes two subscales: Conformity - Nonconformity, which relates to the sphere of personality, and Algorithmic Behaviour - Heuristic Behaviour, which belongs to the cognitive sphere. Each subscale controls 13 traits distributed dichotomously, as continuous traits (continuum). The Questionnaire comprises 26 statements, all in the form of declarative sentences. The test-retest reliability of the scales is in the range 0.60–0.80. Reliability assessed with Cronbach's Alpha for the Conformity - Nonconformity scale is 0.69 and for the Algorithmic Behaviour - Heuristic Behaviour is 0.65. The norms are prepared in the sten scale for the age brackets ranging from 15 to 60 years of age including sex on the Conformity - Nonconformity scale and without sex on the Algorithmic Behaviour - Heuristic Behaviour scale (Bernacka, 2008). The text of the revised CBQ is presented below. The questionnaire CBQ III comprises statements related to various human activities connected with the process of learning or the situation of an action. The instruction read: Answer by underlining the letter appropriate in your case. Do not omit any statements.

*Table 1. Statements the CBQ III.*

No	STATEMENT	A – yes B – probably yes C – no opinion D – probably no E – no
1	I enjoy making written and spoken statements.	A B C D E
2	I quickly adapt to new places and situations.	A B C D E
3	I carefully analyse any new information or phenomenon I come across.	A B C D E
4	I enjoy being in charge, controlling a situation or commanding other people.	A B C D E
5	I believe other people are entitled to their own opinions, views and beliefs, even if I do not agree with them.	A B C D E
6	I solve problems, deal with difficulties myself and do not follow other people's ideas in this respect.	A B C D E
7	I am most efficient when dealing with a difficult and new task by myself.	A B C D E
8	When I study, I always aim to fully understand the gist of the problem.	A B C D E
9	I attach a lot of importance to performing tasks in a different way from my peers.	A B C D E
10	I am artistically gifted.	A B C D E
11	I enjoy fantasizing, creating visions of future projects and original ideas.	A B C D E
12	I usually make decisions myself and with a sense of responsibility, I do not follow the opinions or demands of other people.	A B C D E
13	I feel observational curiosity towards everything that surrounds me.	A B C D E
14	I try to solve tasks and problems using various methods.	A B C D E
15	While studying, I like being told by others what to focus on and how to learn.	A B C D E
16	I am a supporter of all novelties.	A B C D E
17	I construct and improve the appliances I use in my own environment.	A B C D E
18	I reach the set goals regardless of difficulties, misfortunes or life's adversities.	A B C D E
19	New arguments in a discussion usually make me change my point of view.	A B C D E
20	I perform strenuous and difficult tasks with persistence, eagerness and to the end.	A B C D E
21	I learn of various new phenomena and enrich my knowledge without the need for outside encouragement.	A B C D E
22	I enjoy taking the initiative and acting accordingly, before my friends, teachers or superiors do.	A B C D E
23	I like thinking of various improvements in my environment.	A B C D E
24	I am cautious when expressing an opinion, I fear being ridiculed.	A B C D E
25	Before I comply with regulations or directives, I first carefully analyse their rationality.	A B C D E
26	I get the impression that I am better than others, it gives me the courage to act.	A B C D E

Please write your age..... your sex .....

Thank You

The score CBQ III is calculated according to the following key: A (yes) - 4 pts; B (probably yes) – 3 pts; C (no opinion) – 2 pts; D (probably no) – 1 pts; E (no) – 0 pts. The exceptions are questions 15 and 24 in whose case the scores are reversed (with only c – 2 pts the same as for other questions). The traits comprising the particular scales are presented in Table 2 along with the numbers of questions diagnosing them.

Table 2. Traits and numbers of questions measuring them within the scales.

Conformism	Question number	Question number	Non-conformism
Intellectual stiffness		2	Adaptational flexibility
Subordination		4	Dominance
Intolerance		5	Tolerance
Reliance		7	Self-organization
Stereotypicality		9	Originality
Dependence		12	Independence
Defensiveness		16	Openness
Submissiveness		18	Consistency
Low resilience and perseverance		20	Resilience and perseverance
Passiveness		22	Activeness
Lack of criticism		25	Self-criticism
Low self-esteem		26	High self-esteem
Timidity	24		Courage
Heuristic behavior			Algorithmic behavior
Verbal creativity	1		Verbal imitiveness
High reflectivity	3		Low reflectivity
Intellectual self-reliance	6		Copying
Learning through understanding	8		Learning through reasoning
Artistic aptitude	10		Lack of artistic aptitude
Creative imagination	11		Imitative imagination
Independence of observation	13		Guided perceptiveness
Divergent thinking	14		Convergent thinking
Independent learning		15	Guided learning
Constructional skill and aptitude	17		Low constructional skill and aptitude
Intellectual flexibility	19		Intellectual stiffness
Cognitive activeness	21		Cognitive passiveness
Technical ingenuity	23		Lack of technical ingenuity

The analyzed group comprised 2239 persons including 745 middle school students (aged 15-16, average age =15.5), 760 secondary comprehensive school students (aged 17-19, average age=17.5 ), and 734 undergraduate students (aged 20-22, average age=21). The studies, conducted in Polish schools, also took into account the quantitative balance between boys and girls. The participants were duly informed that the data collected would be anonymous, and that they were used for research purposes only. The CBQ III was completed by the subjects. Afterwards the subjects' scores were matched with normative data according to age and sex related norms. Further analyses did not take into account results achieved by the subjects who in Conformity – Nonconformity scale were found with average or low scores (normative data 6 or lower). The application of such a procedure yielded 282 nonconformists out of 2239 subjects, accounting for nearly 13% of the whole study group. Given the previously reported findings the result is consistent with the

Gaussian distribution of personality traits in a population, and similar to scores achieved by other groups investigated in Poland (Bernacka, 2008).

Afterwards the following two groups were selected from nonconformists. The group constructive nonconformists have high scores (normative date 7 and above) on the Algorithmic - Heuristic Behaviour scale. Apparent nonconformists have low scores (normative date 4 and low) on the Algorithmic - Heuristic Behaviour scale. The application of such a procedure yielded 245 constructive nonconformists and 37 apparent nonconformists out of 282 persons analyzed.

#### 4. RESULTS

In order to verify the hypothesis under which the rates of constructive and apparent nonconformists are varied at middle school, secondary school, and undergraduate level, a statistical analysis was performed (Tables 3 and 4).

*Table 3. Number of constructive and apparent nonconformists on three stages of education N=282.*

Type of Nonconformist	Middle school	Secondary school	Undergraduate Level
constructive	107	68	70
apparent	18	8	11
Total	125	76	81

*Table 4. Chi-Square for constructive and apparent nonconformists on three stages of education.*

Schooling stage	Middle school	Secondary school	Undergraduate Level
Chi-Square	65.323	46.413	45.000
df	1	1	1
Asymp. Sig.	.000	.000	.000

The results of the chi-square test (Table 4) indicate that there are significant differences at each schooling stage between the observed and expected distribution of constructive and apparent nonconformists. Constructive nonconformists are more frequent than apparent nonconformists at each schooling stage, with the biggest number of nonconformists in middle schools. Constructive nonconformists outnumber apparent nonconformists. Consequently, the hypothesis is deemed to have been confirmed.

In order to verify the hypothesis that the rate of constructive and apparent nonconformists is varied among girls and boys, a statistical analysis was performed (Tables 5 and 6).

*Table 5. Number of constructive and apparent nonconformists boys and girls on three stages of education N=282.*

Type of nonconformist and gender	Middle school	Secondary school	Undergraduate level
constructive boys	43	27	38
apparent boys	12	12	5
constructive girls	65	28	33
apparent girls	5	9	6
Total	125	76	81

Table 6. Chi-Square for gender and constructive and apparent nonconformists.

Stage	Middle school	Middle school	Secondary school	Secondary school	Undergraduate level	Undergraduate level
Nonconformists girls-boys	constructive	apparent	constructive	apparent	constructive	apparent
Chi <sup>2</sup>	4.121	2.882	1.806	2.000	0.514	0.400
df	1	1	1	1	1	1
Asymp. Sig.	0.042 *	0.900	0.171	0.157	0.473	0.527

Note. \*p <.05.

The results of the chi-square test (Table 5) indicate that significant differences between the observed and expected distribution of constructive nonconformists in terms of gender occur only at the middle school level. Constructive nonconformity is more frequently observed among girls than among boys. Consequently, the hypothesis is deemed to have been confirmed only at the middle school stage.

## 5. DISCUSSION / FUTURE RESEARCH DIRECTIONS

The study aimed at identifying the occurrence of constructive and apparent nonconformity among students at middle school, secondary school and university. The achieved conclusions are optimistic, since constructive nonconformity is more common than apparent nonconformity at each stage of schooling taken into account. Equally important is the fact that constructive nonconformity is more frequently reported among middle school girls. The obtained results may be justified by referring to the standard course of development in adolescence (Brzezińska, 2000; Oleszkowicz, 1995). Nonconformity is an integral element of shaping the identity of a teenager at the middle school level. This is a fairly strong process, since the school as a system of culture operating through its hidden curriculum, ranks second in the student's hierarchy of importance. The present findings contradict the previous research claiming that students have no incentive to develop their nonconforming personalities (Białkowski, 1995; Lemke et al., 2004; Turska, 2006). Nonconformity is a tool with which they may seek to develop their own identity. And while high self-esteem, activeness, courage, resilience, perseverance, independence, and tolerance are the traits of mature identity, it is the personality-related energy created by these traits that liberates, organizes, and shows the direction of activity for adolescents. Students are filled with the energy of nonconformity to the full, and it is this energy that determines their functioning. It is worth pointing out that girls at middle school age outclass boys in the process of shaping their personality. This result suggests that at the initial stage of middle adolescence the creative element more strongly affects personality development in girls than in boys, and only grows weaker in the subsequent years. The effect of this is manifested by the fact that girls tend to underestimate their creative effectiveness (Karwowski, 2009, 2011). This finding may suggest that external factors are particularly ineffective in hindering the development of creative attitude in girls at middle school age and such an inhibiting impact may be intensified only at a later stage. This conclusion contributes new evidence related to the observation that during adolescence individuals may be particularly susceptible to factors influencing the development of personality (Bornstein, 1989; Bateson & Hinde, 1987; McCrae & Costa, 1994). In summary, the understanding of the specificity of psychological functioning observed in students with constructive and apparent nonconforming personalities would be clearer if we analyzed it from the standpoint of the theory of creative attitude proposed by Popek (Grohman & Schmidt, 2012). First of all it should be emphasized that the approach

taken by both constructive and apparent nonconformists is characterized by ambition, perseverance, assertiveness and readiness for taking risk as well as determination to achieve the goal; additionally, their persistence, self-confidence, individualism, and competitive attitude may instigate many conflicts between them and their teachers as well as peers. During adolescence both types of nonconformists are driven by a strong need to be recognized but they differ in terms of their cognitive capacities, systems of values, and tools employed to achieve this goal (Bernacka, 2005; Bernacka, 2013; Karwowski & Bernacka, 2008). Positive activation of personality in constructive nonconformists results in autonomous motivations which are strong enough to prompt them to demonstrate their capacities at school despite its atmosphere discouraging creativity. Constructive nonconformists aim for personal goals and show preference for values related to intellect and competences (Bernacka, 2013). They are independent and self-reliant in their way of thinking and evaluating, they question the information, attitudes and opinions conveyed by the school; hence nonconformity is a creative element in the development of their psychosocial identity and a constructive tool for satisfying their need for recognition, particularly strong during adolescence. A constructive nonconformist is driven to reflect upon the nature of a phenomenon by his or her inner-directedness. This quality is also related to the terms, plans as well as the methods of performing tasks. The inherent mental components of constructive nonconformity include masochistic conviction regarding usefulness of one's own work, being true to oneself, and a wish that others share one's worldview, as well as a self-propelling sense of mission to destroy the established order and to create things anew (Bernacka, 2005). Rather than adapt to the world, constructively nonconforming students wish to adjust the world to themselves. The world needs young people with creative attitudes, taking an active approach to the world and life, which is manifested in the need to explore, and most of all intentionally and deliberately transform both the established reality and their own "self". The findings presented in this article suggest that students who tend to "sail against the current, break the stale structures of opinions and rules, and despite fears wish to open Pandora's Box" outnumber apparent nonconformists in middle, secondary and undergraduate schools. This is a positive predictor related to creative human capital in the future.

The apparent nonconformist is aware that he has the potential to imitate, and so, in order to pacify the dominant requirement for acknowledgment, he engages in an alternative to the intellectual activities offered in the school, as a result of which, he will be noticed. Seeking popularity they want to stand out e.g. for the looks they gained during summer holidays, their manners and conduct. They feel very comfortable as leaders of informal groups. Being in trouble, a trademark condition for them, is also a way to draw attention to themselves, and they may be rather inventive in coming up with excuses to justify their misconduct. They are frequently labeled as freaks and if a need arises they may become the scapegoats, but even if they are not responsible for the wrong-doing they may "plead guilty". An apparent nonconformist finds his or her identity through opposing all and any norms and standards. They make a point of always saying "no", even if the other party is obviously right. They can rebel against and veto suggestions made by others, but they do not come up with any alternatives and refrain from constructive involvement. Apparent nonconformists' favorite behaviors include boasting as well as provoking scandals and confrontations. In order to prove they are right they may even resort to physical force. Their ability to provoke negative emotions in someone is perceived as a weakness of that person and consequently a proof of their victory. With a strong need to be acknowledged, apparent nonconformists may resort to marking their presence through spectacular incidents, frequently covered and amplified by the mass media. Other people's

success may be perceived by apparent nonconformists as a personal defeat and because of this they tend to demonstrate aversion to such individuals. Apparent nonconformists aim for optimizing their popularity in society and highly appreciate values related to emotions and interpersonal relations. Apparent nonconformist's need for being acknowledged is so strong that it is frequently expressed by narcissistic physical and mental exhibitionism, and a desire "to set tongues wagging". The above attempt to describe the characteristic performance of constructive and apparent nonconformists shows that the emotional and motivational strength of personality-related energy (nonconformity), which is at the core of creative personality (Popek, 2015), associated with varied cognitive capacities (algorithmic versus heuristic), during the three stages of schooling may lead to varied preferences in terms of values and behaviors and to orienting personality development in a specific way. In favorable social and cultural environments a constructive nonconformist may, in adulthood, realize his or her creative potential and perhaps contribute to the transformation of the world. The apparent nonconformist uses his or her personal creative energy for activities whose impact is measured with the quantity and time of public interest. Although they do achieve their own goal in a spectacular way, in fact they squander their potential.

The limitations of the study are taken into account. Because constructive and apparent nonconformity have not been thoroughly investigated so far, the purpose of the present study was to diagnose the incidence of the phenomenon rather than examine its determinants. It is recommended that future studies should use other tools for diagnosing the cognitive capacities of individuals and they should explore different factors and relations determining the development of nonconformity as a personality dimension e.g. temper, parents' attitudes, values, social and cultural determinants. The findings discussed here should be treated as initial evidence and a good beginning for further research, particularly in the form of a longitudinal study, designed to monitor the level of constructive nonconformity in girls. They can serve as an inspiration for future research and verification of the relations found in our study. Additionally further research should use a bigger sample in the group of apparent nonconformists to enable more complex statistical modeling and analyses as well as more effective generalization of the results. Notably, this study is part of a larger program focusing on a novel research problem, i.e. nonconformity as a personality dimension (Bernacka, 2008). Applying CBQ III for both research and practical purposes can be recommended in different countries.

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## Chapter #11

### VOCATIONAL IDENTITY IN THE CONTEXT OF VALUES AND CAREER MOTIVATION

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#### ABSTRACT

Vocational Identity is one of the core components of identity construction in adolescence. The suitability of using the Vocational Status Assessment for population of Slovak adolescents was explored via comparing results of the cluster analysis conducted on American students. Our chapter describes relations among Vocational Identity, career motivational orientation and values, and explores their contribution to clarifying each other. The research was conducted on 136 grammar school students. The sample was composed of 50% men and 50% women with a mean age of 17.7 years ( $SD = .64$ ). The results show that the structure of six types of Vocational Identity is highly similar to the original American sample. The second part of the study shows statistically significant positive correlations between career motivational orientation and the dimension of the Vocational Identity – Career Commitment and negative significant correlations between the dimension of the Vocational Identity – Career Reconsideration and career motivational orientation. The results show statistically significant differences in the level of Intrinsic and Extrinsic Career Motivation and in the level of Achievement value and value of Hedonism among six Vocational Identity statuses. Applying the Vocational Identity Status Assessment as a useful tool for determining Vocational Identity status of Slovak adolescents is recommended.

*Keywords:* vocational identity, career motivation, values, Slovak high school students, type of vocational identity status.

#### 1. INTRODUCTION

Career counseling for high school students is important not only for choice of further education, but also for successful school-to-work transition. (Beková, 2015; Bandura, 1997). Career counseling process with high school students mostly contains diagnostics of abilities, personality and interests (Ihnacík, 2007). In Slovakia it is not usual to deal with such psychological constructs as Vocational Identity, career motivation and values, which according to many holistic theories represent the key construct in the process of career counseling (Parsons, In Sharf, 2009; Bengts & Finsén, 1994; Buddeberg-Fischer, Klaghofer, Buddeberg and Abel, 2008; Barbuto & Sholl, 1998). The basic character of the mentioned constructs is connected with successful process in career counseling.

Studying relations among these constructs will help consultants to conduct more effective career counseling interventions at high schools. According to this fact, we explore values and career motivation in the context of Vocational Identity.

## **2. BACKGROUND**

Vocational Identity is a term which is new in both research and practice in Slovakia. The construct evolved from the concept of ego identity. The newest model of Vocational Identity (Porfeli, Lee, Vondracek, & Weigold, 2011) consists of three dimensions: Career Commitment (factor of Career Commitment and factor of Identification to Career Commitment), Career Exploration (factor of In-Breadth Exploration and factor of In-Depth Exploration) and Career Reconsideration (factor of Career Self-Doubt and factor of Career Flexibility). Mature Career Identity is the sign of a good health (Malanchuk, Messersmith &, Eccles, 2010). The six types of the Vocational Identity statuses can be distinguished.

People typically start in the Diffused status and move toward the other statuses during the periods spanning childhood and adulthood. The Achieved status is the most advanced and preferred identity status. It describes people who are committed to roles that they have explored. The Moratorium status is a transitory status that most often leads to increased commitment and to the Achieved status. The Foreclosed status is not preferred in most circumstances as it assumes commitment, often sourcing from external sources (for example the wish of family members), in the absence of adequate exploration. The Searching Moratorium status is a combination of higher commitment and exploration and elevated reconsideration. The Undifferentiated status is similar to the Achieved status, but not as adaptive as the Achieved status (Porfeli et al., 2011).

Values and career motivation are the key constructs in the process of career counseling according to many holistic theories (Parsons, In Sharf, 2009; Bengts & Finsén, 1994; Buddeberg-Fischer et al., 2008; Barbuto & Sholl, 1998). In our chapter, relations between the mentioned psychological constructs and the Vocational Identity will be studied. It is not usual to diagnose a value type and a value orientation of students (Ihnacík, 2007). Despite this fact, according to many authors of basic theories in the area of career counseling, values represent the base connected to all career choices in one's life (Parsons, In Sharf, 2009; Bengts & Finsén, 1994). Exploring career motivation in the career counseling process is mostly rare in Slovakia. But as in case of value orientation, many foreign authors consider career motivation an important concept in the career counseling process (Buddeberg-Fischer et al., 2008; Barbuto & Sholl, 1998).

## **3. RESEARCH PROBLEM AND OBJECTIVES**

We introduce the concept of Vocational Identity to the Slovak research context by identifying the structure of the Vocational Identity statuses in the population of Slovak high school students and by verifying the original US typology of Vocational Identity on Slovak grammar school population. In the second phase of the study values and career motivational orientation and their relationship to Vocational Identity will be studied. The main questions are whether a type of career motivation and a value preference relate to a type of Vocational Identity; how they relate to one another; how career motivation and values clarify the Vocational Identity of Slovak adolescents.

### 3.1. Research questions and hypotheses

According to the main aim of the study, following research questions and hypotheses are postulated. First, the structure of the Vocational Identity Status Assessment will be identified and the percentage representation of the types of Vocational Identity statuses in Slovak high school students sample in comparison to original US sample will be identified. We ask about the structure of types of the Vocational Identity statuses compared to the original US sample (Q1) and about the percentage representation of the Vocational Identity statuses compared to the original US sample (Q2).

Second, in case of the structure similarity of Vocational Identity statuses of our and the US original sample will be found, differences between the specific Vocational Identity statuses according to a type of career motivation and a value preference will be studied. Our hypotheses will be focused on the Intrinsic and Extrinsic Motivation subscales as the main characteristic of career motivation linked to career and academic success (Domene, Socholutiuk &, Woitowitz, 2011). We hypothesize significant differences in Intrinsic Career Motivation according to a type of Vocational Identity status (H1); significant differences in Extrinsic Career Motivation according to a type of Vocational Identity status (H2) and significant differences in the value preference according to a type of Vocational Identity status (H3).

Questions 3-5 are related to connections among career motivation, value types and Vocational Identity. Value structure is formed in childhood (Cieciuch, Davidov, & Algesheimer, 2015) before forming Vocational Identity. The concept of motivational structure is also present in childhood (Carlton & Winsler, 1998). The Vocational Identity is formed later, when career begins to be important. Because of the mentioned facts for Question 5 the predictors - career motivation and value types and the Vocational Identity as a criterion were determined. We ask about relationship between Intrinsic/Extrinsic Career Motivation and factors of the Vocational Identity (Q3); relationship between Intrinsic/Extrinsic Career Motivation and a value preference (Q4); value types and types of career motivation as predictors of Vocational Identity (Q5).

## 4. METHODS

### 4.1. Participants

The sample was composed of 136 high school students of standard type of grammar school in Nitra, Slovakia. The students have attended the 2th and 3th grade. The sample was composed of 50% men and 50% women with a mean age of 17.7 years ( $SD = .64$ ). In the first stage of the study the procedure according to Porfeli (2011) was applied.

The sample was chosen according to similarity to Porfeli's (2011) sample. The original US sample was represented by American high school and university students. The students were randomly sampled from a mix of seven suburban and urban high schools. The number of participants was bigger - 432, 74.6% women. Average age of participants was lower - 16.5 years,  $SD = .99$  (Porfeli et al., 2011).

### 4.2. Measures

*The Vocational Identity Status Assessment (VISA)* (Porfeli, 2011) can distinguish six types of Vocational Identity status based on Cluster analysis – the Achieved identity status, the Moratorium status, the Searching Moratorium status, the Foreclosed identity status, the Diffused status and the Undifferentiated identity status. (Porfeli et al. 2011)

The VISA was translated into Slovak in three phases by four translators. The number of items was maintained. Several items were modified according to cultural differences. The psychometric characteristics of the questionnaire were identified out on 293 participants. The internal consistency of the scales was sufficient ( $\alpha = .67$  to  $.83$ ). The construct validity of the scales was investigated by confirmatory factor analysis and correlations with related constructs as career motivation, self-efficacy and emotional stability. The statistically significant correlations were found. The results declare sufficient psychometric characteristics of the questionnaire.

*The Career Motivation Questionnaire* (Abele, Hausmann, & Weich, 1994) consists of three subscales – the Intrinsic, Extrinsic and Extraprofessional Career Motivation subscale. The Intrinsic Motivation subscale assesses inner drive to career, the Extrinsic Motivation subscale measures external sources of motivation and the scale of the Extraprofessional Motivation characterizes prioritizing family, convenient working hours and job security. Validity and reliability of Slovak translation of the questionnaire, after the modification of number of items is sufficient. The internal consistency of subscales was sufficient ( $\alpha = .64$  to  $.80$ ) (Baňasová & Sollár, 2015).

*The Portrait Values Questionnaire* (Schwartz, 2001) measures individual value structure and contains short statements about different people. It assesses Power, Achievement, Hedonism, Stimulation, Self-direction, Universalism, Benevolence, Tradition, Security and Conformity as value types. The questionnaire measures Openness to change, Conservation, Self-enhancement and Self-transcendence. The standardization and validation of the questionnaire was a part of the European research. Good psychometric qualities were found (Reháková, 2006).

### **4.3. Procedure**

The data were collected in September 2014. The collection of the data was also a part of the introduction of new career counseling intervention program and served also for assessing the effect size of the program and validating selected psychometric qualities of the measurement tools.

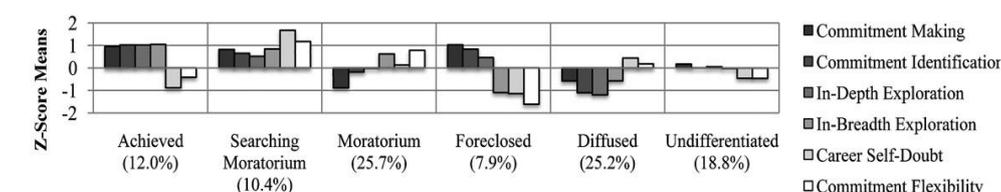
The US and Slovak percentage representation of the types of the Vocational Identity statuses will be compared and the measurement equivalence in the two samples can be evaluated as in the study of Carr et al. (2014).

Porfeli suggested using K-means cluster analysis as a procedure (Faber, 1994) for clustering students into six types of Vocational Identity statuses mentioned above. In the comparative and correlative part of the research Pearson's correlation coefficient, nonparametric Kruskal-Wallis test and Mann-Whitney test were used. For Q5 the multiple regressions were used. For the best regression model the Stepwise method was applied.

## 5. RESULTS

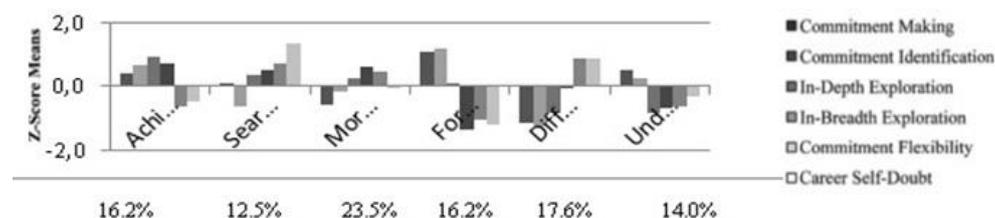
### 5.1. The structure and percentage representation of types of the Vocational Identity statuses

Figure 1. Cluster analysis of the Vocational Identity Status Assessment (the original US sample, Porfeli, 2011).



Legend: Achieved – the Achieved status, Searching Moratorium – the Searching Moratorium status, Moratorium – the Moratorium status, Foreclosed – the Foreclosed status, Diffused – the Diffused status, Undifferentiated – the Undifferentiated status.

Figure 2. Cluster analysis of the Vocational Identity Status Assessment (the Slovak sample).



Legend: Achi. – Achieved identity, Sear. – Searching Moratorium, Mor. – Moratorium, For. – Foreclosed identity, Diff. – Diffused identity, Und. – Undifferentiated identity.

The results showed that the structure of the six types of the Vocational Identity statuses in both samples is highly similar (Figure 1, Figure 2). Differences in the structure were not significant and substantial, but they are briefly described.

Subtle differences in the structure of the statuses occurred in the status of Searching Moratorium, Undifferentiated and Moratorium status. There are differences higher than one standard deviation in the cluster structure in comparison to the original US sample (Figure 1, Figure 2).

The results showed the difference in the factor of Identification to Career Commitment in the Searching Moratorium status structure, where the Slovak sample scored lower than the US sample, where the value of Identification to Career Commitment factor in the Searching Moratorium had the z-score means in the positive part of the axis. There is the difference in the cluster of the Moratorium status in the factor of the In-Depth Exploration, with higher value in Slovak sample. There is also a difference in the Career Self-Doubt factor (the lower value was found in the Slovak sample). The structure of clusters differed also in the Undifferentiated status, especially in the factor of the In-Depth Exploration (the lower value in the Slovak sample) (Figure 1, Figure 2).

The highest percentage was found in the Moratorium status in both samples. The second highest percentage representation in both samples occurred in the Diffused status, the Undifferentiated status and the Searching Moratorium status. The statuses with the lowest percentage representation in the Slovak sample are the Searching Moratorium status and the Undifferentiated status (Figure 1 and Figure 2).

**5.2. Differences in the types of the career motivation and value preference according to type of Vocational Identity status**

*Table 1. Differences in motivational and value structure according to type of the Vocational Identity status.*

Variable	VIS	Mdn	H	df	p	$\eta^2$
ICM	A	44	29.289	5	<.001	.22
	SM	46				
	M	44				
	F	49				
	D	40				
U	45					
ECM	A	41	12.793		.025	.09
	SM	38				
	M	40				
	F	41				
	D	36				
U	37					
TRAD	A	6	4.402	5	.493	.03
	SM	6				
	M	6				
	F	6				
	D	7				
U	7					
STIMUL	A	9	5.908		.315	.04
	SM	9				
	M	8				
	F	8				
	D	8				
U	9					
SEC	A	9	6.852		.232	.05
	SM	9				
	M	10				
	F	9				
	D	9				
U	8					

Table 1. Differences in motivational and value structure according to type of the Vocational Identity status. (cont.)

Variable	VIS	Mdn	H	df	p	$\eta^2$
<b>POW</b>	A	9	8.321	5	.139	.06
	SM	8				
	M	7				
	F	8				
	D	7				
	U	9				
<b>S-D</b>	A	10	9.242		.100	.07
	SM	10				
	M	10				
	F	9.5				
	D	8				
	U	10				
<b>UNI</b>	A	11.5	5.214		.390	.04
	SM	12				
	M	13				
	F	10.5				
	D	12				
	U	12				
<b>ACHIEV</b>	A	10.5	15.610		<b>.008</b>	<b>.12</b>
	SM	10				
	M	10				
	F	10.5				
	D	8				
	U	9				
<b>CONF</b>	A	8	6.472		.263	.05
	SM	8				
	M	6				
	F	7.5				
	D	6.5				
	U	7				
<b>HED</b>	A	10	11.830		<b>.037</b>	<b>.07</b>
	SM	10				
	M	9				
	F	7				
	D	9				
	U	10				

Legend: VIS – Vocational Identity status, df – Degrees of freedom, H – Kruskal-Wallis test, p – Statistical Significance,  $\eta^2$ –Effect size, ICM – Intrinsic Career Motivation, ECM –Extrinsic Career Motivation, TRAD – Tradition, STIMUL – Stimulation, SEC – Security, BENEV– Benevolence, POW – Power, S-D – Self-Direction, UNI – Universalism, ACHIEV – Achievement, CONFOR – Conformity, HED – Hedonism, A – the Achieved status, SM – the Searching Moratorium status, M – the Moratorium status, F – the Foreclosed status, D – the Diffused status, U – the Undifferentiated status

Statistically significant differences were found among groups in the Intrinsic Career Motivation subscale (with large effect size,  $\eta^2 = .22$ ), Extrinsic Career Motivation, Achievement and Hedonism value (with medium magnitude of effect size,  $.14 > \eta^2 > .01$ ).

The post hoc Mann-Whitney U test was conducted for each pair of groups in particular variables. Statistically significant differences in the Intrinsic Career Motivation subscale occurred among the following Vocational Identity statuses: the Foreclosed status and all other statuses while median of the Foreclosed status is higher, the Diffused status and all other statuses while median of the Diffused status is lower in all cases, ( $p < .05$ ). The highest statistical significant differences (with mediate magnitude of effect size,  $.05 > \eta > .03$ ) in pairs of groups occurred among the Foreclosed and the Diffused, the Foreclosed status and status of Moratorium ( $p < .01$ ) and the Undifferentiated and the Diffused status ( $p = .01$ ).

The non-significant differences were found between the Vocational Identity statuses and the values of Tradition, Conformity, Universalism and Benevolence ( $p > .05$ ), (Table 1). Another differences in case of each variable were non-significant ( $p > .05$ ) and with low magnitude of effect size ( $\eta < .03$ ) (Table 1).

### 5.3. The relationship among Intrinsic/Extrinsic Career Motivation and factors of the Vocational Identity

Table 2. Correlations between types of career motivation and factors of Vocational Identity status ( $n = 136$ ).

Factors of the Vocational Identity status	ICM r	ECM r
Career Commitment	.55**	.31**
Identification with Career Commitment	.43**	.27**
Career Flexibility	-.23**	-.32**
Career Self-Doubt	-.36**	-.33**
In-Breadth Exploration	-.15	-.03
In-Depth Exploration	.07	.06

Legend: n – sample size, \*\*  $p < .0$ , ICM – Intrinsic Career Motivation, ECM – Extrinsic Career Motivation

The moderate significant positive correlation between Career Commitment factor and the Intrinsic Career Motivation subscale ( $p < .01$ ) ( $r^2 = .30$ ) was found. Smaller, also medium positive correlation between Intrinsic ( $p < .01$ ) ( $r^2 = .18$ ) and Extrinsic Career Motivation ( $p < .01$ ) ( $r^2 = .07$ ) and Identification with Career Commitment factor and between the Extrinsic Career Motivation subscale and Career Commitment factor ( $p < .01$ ) ( $r^2 = .10$ ) was found. In general, the relationship was found between the Intrinsic and Extrinsic Career Motivation subscales and dimension of Career Commitment consisted of factors of Career Commitment and Identification with Career Commitment.

Negative significant correlations with medium magnitude were found between Career Self-Doubt factor and the Intrinsic Career Motivation subscale ( $p < .01$ ) ( $r^2 = .13$ ) and Extrinsic Career Motivation subscale ( $p < .01$ ) ( $r^2 = .11$ ) and between Career Flexibility factor and the Extrinsic Career Motivation subscale ( $p < .01$ ) ( $r^2 = .10$ ). The small negative correlation was also found between Career Flexibility factor and the Intrinsic Career Motivation subscale ( $p < .01$ ) ( $r^2 = .05$ ). In general, the relation was found between the Intrinsic and Extrinsic Career Motivation subscales and dimension of Career Reconsideration consisted of factors of Career Self-Doubt and Career Flexibility.

Non-significant correlations were found between the dimension of Career Exploration (In-Breadth and In-Depth Exploration factors) and career motivational orientation ( $p > .05$ ) (Table 2).

#### 5.4. The relationship of Intrinsic/Extrinsic Career Motivation and value preference

Table 3. Correlations between value preference and career motivational orientation.

Value	n	TRAD	STIM	SEC	BENEV	POW	S-D	UNI	ACHIEV	CONF	HED
ICM	136	<b>r</b>									
		-.06	.23*	-.18*	.17*	.18*	.32**	.01	.34**	.03	.05
ECM		-.16	.05	.14	.05	.33**	.12	-.26**	.23**	-.01	.05

Legend: ICM – Intrinsic Motivation, ECM – Extrinsic Motivation, n – sample size, TRAD – Tradition, STIM – Stimulation, SEC – Security, BENEV – Benevolence, POW – Power, S-D – Self-Determination, UNI – Universalism, ACHIEV – Achievement, CONFOR – Conformity, HED – Hedonism, \*\*  $p < .01$ , \*  $p < .05$

Statistically significant positive correlations with moderate strength were found between the Intrinsic Career Motivation subscale and Self-direction value ( $p < .01$ ) ( $r^2 = .10$ ) and Achievement value ( $p < .01$ ) ( $r^2 = .12$ ) and also between Extrinsic Career Motivation and Power value  $r = .33$  ( $p < .01$ ) ( $r^2 = .11$ ).

Statistically significant, but small positive correlations were found between the Intrinsic Career Motivation subscale and Stimulation value ( $p < .05$ ) ( $r^2 = .06$ ), Benevolence value ( $p < .05$ ) ( $r^2 = .03$ ) and also between the Extrinsic Career Motivation subscale and Universalism ( $p < .01$ ) ( $r^2 = .07$ ) and Achievement value ( $p < .01$ ) ( $r^2 = .06$ ).

No statistically significant correlations were found between the Intrinsic Career Motivation and Tradition value, Universalism value, Conformity value and Hedonism value,  $p > .05$ . The statistically significant relations were not found between the Extrinsic Career Motivation subscale and Tradition value, Stimulation value, Security value, Self-direction value, Conformism value and Hedonism value,  $p > .05$ . In case of Hedonism value occurred higher Coefficient of determination ( $r^2 = .27$ , Table 3).

#### 5.5. Value types and types of career motivation predicting Vocational Identity

Table 4. Three regression models for types of career motivation, value types and Vocational Identity as predictors and dimensions of the Vocational Identity as criterions (accepted models,  $p < .05$ ).

Predictor	R	R <sup>2</sup>	B	β	t	p
<i>Career Commitment (F Total 58.99, p &lt; .001)</i>						
ICM	.553	.306	.614	.553	7.68	< .001
<i>Career Reconsideration (F Total = 9.304, p &lt; .001)</i>						
ECM	.470	.221	-.267	-.197	-2.247	.026
ICM			-.241	-.213	-2.247	.013
POW			-.658	-.223	-2.657	.009
HED			.511	.183	2.296	.023
<i>Career Exploration (F Total = 5.20, p = .02)</i>						
HED	.193	.037	.469	.193	2.279	.024

Legend: ICM- Intrinsic Motivation, ECM - Extrinsic Motivation, POW - Power, HED - Hedonism

The Stepwise multiple linear regression analysis to predict dimensions of the Vocational Identity was used. As can be seen, in the case of Career Commitment as dependent variable, the first regression model with Intrinsic Career Motivation was statistically significant ( $p < .05$ ) and accounted for approximately 30% of the variance of Career Commitment ( $R^2 = .306$ ). Excluded variables in stepwise regression are – value types (Power, Achievement, Hedonism, Stimulation, Self-direction, Universalism, Benevolence, Tradition, Security and Conformity value), Extrinsic and Extraprofessional Career Motivation. In the second regression model Extrinsic Career Motivation, Intrinsic Career Motivation, Power value and Hedonism value statistically significantly predict Career Reconsideration ( $p < .05$ ) and accounted for approximately 22% of the variance of Career Reconsideration ( $R^2 = .221$ ). Excluded variables are Achievement, Stimulation, Self-direction, Universalism, Benevolence, Tradition, Security and Conformity value and Extraprofessional Career Motivation. The third regression model with Hedonism was statistically significant ( $p < .05$ ) and accounted for approximately 4% of the variance of Career Exploration ( $R^2 = .306$ ). Excluded variables are Power, Achievement, Stimulation, Self-direction, Universalism, Benevolence, Tradition, Security and Conformity value, Intrinsic, Extrinsic and Extraprofessional Career Motivation. (Table 4)

## **6. DISCUSSION**

### **6.1. Structure and percentage representation of the Vocational Identity statuses in the compared samples**

Structure of the Vocational Identity statuses in the US and Slovak samples are similar. Only subtle differences occurred in the Searching Moratorium, the Undifferentiated and the Moratorium status. These differences can be influenced by culture and differences in the system of career counseling at schools in both countries.

The main difference in percentage representation occurred in the higher percentage of the Foreclosed status in the Slovak sample. When compared to the Achieved status, which is characterized by lower in-breadth exploration, it shows the importance of counseling high school students to higher openness towards career possibilities and making career choices (Porfeli et al., 2011).

The Achieved status is associated with positive psychological adjustment (e.g. Balistreri, Busch-Rossnagel, & Geisinger, 1995; Chen, Sousa, & West, 2005; Marcia, 1993). Higher percentage representation in this status in the Slovak sample can be qualified as a positive result.

The highest percentage of the students in the Slovak and US sample occurred in the Moratorium and the Diffused statuses. This result points to the tendency for low career commitment and high career uncertainty in adolescents in general.

### **6.2. Differences between the Vocational Identity statuses according to career motivational orientation and value types**

We found significant differences among the Foreclosed status in level of Intrinsic Career Motivation and other statuses. The Foreclosed status is characterized by high Career Commitment, but also less In-breadth Exploration. The statement – the Foreclosed status assumes commitment, often sourcing from external sources does not apply, because of high level of Intrinsic Career Motivation than other statuses. According to the results, lack of Intrinsic or Extrinsic Career Motivation could explain less integrated status of career

identity and reversely, more Intrinsic or Extrinsic Career Motivation can be connected with more integrated Vocational Identity status.

The Power value and Achievement value belong to values of Self-enhancement, which is based on values that emphasize pursuit of one's own interests (Schwartz, 2012). Students with the Diffused status have lower level of Achievement and Power values, students with the Achieved status have higher level of Self-enhancement value.

We found a significant difference between the Achieved status and the Diffused status in Self-direction. According to this result it can be considered that students with the Achieved status can be motivated by inner forces and their inner dynamic is manifested in creativity and focusing on goals (Schwartz, 2012). We found a significantly lower level of Self-direction of students with the Diffused status than in students in the Moratorium and Searching Moratorium. It again shows the Diffused status as the least mature status.

The Stimulation value is derived from the organismic need for variety (Schwartz, 2012). There is a significantly higher level of stimulation in students with the Achieved status than students with the Foreclosed status. It can be explained by the fact that students with the Foreclosed status do not explore career possibilities sufficiently in-breadth.

We found also a difference in Hedonism value among the Foreclosed status (with lowest median) and the Achieved status, the Searching Moratorium status, the Moratorium and the Undifferentiated status. The explanation could be the nature of the Foreclosed status is Career Commitment, but often sourcing from external sources (Porfeli et al., 2011). Hedonism values derive from organismic needs and from pleasure associated with satisfying them (Schwartz, 2012).

The difference in Security was found between students with the Moratorium and the Undifferentiated status. Higher level of Security value prevents adolescents in the Moratorium to make decisions about their next career. Low need for security of students with the Undifferentiated status can be manifested by not so high level of Career Commitment and insufficient exploration of career choices.

### **6.3. Relationships among career motivational orientation, dimensions of Vocational Identity and value preference**

Extrinsic and Intrinsic Career Motivation contributes to the explanation of Career Commitment. According to the newest theories of motivation - combination of Extrinsic and Intrinsic Career Motivation is the most effective combination (Karageorghis & Terry, 2010). These types of motivation also clarify the dimension of Career Reconsideration.

Relations found between Intrinsic Career Motivation and value of Self-direction and Achievement can describe an individual, who is motivated by inner forces and his/her inner dynamic manifests in creation (as Schwartz, 2012 characterized Self-direction) and focusing on success.

Extrinsic Career Motivation is connected with value of Power. According to Domene, Socholutiuk and Weitowitz (2011), students with high level of Extrinsic Career Motivation fulfill the academic duties, because of holding values of society. And holding values of society is the nature of value of Power (Schwarz, 2012).

According to our results, Intrinsic Career Motivation is the main predictor of the Career Commitment. The explained variance of the model is approximately 30%. It seems that, Intrinsic Career Motivation is one of the main indicators of commitment to career, which leads to mature Vocational Identity (Porfeli et al., 2011). Intrinsic and Extrinsic Career motivation and value of Power and Hedonism are predictors of Career Reconsideration. While value of Hedonism is in positive relation to the Career

Reconsideration, Extrinsic and Intrinsic Career Motivation and value of Power are in the negative relation to Career Reconsideration. The explained variance of the model is approximately 22%. The motivational structure demonstrates its importance in the context of Vocational Identity once again. Power is the value of Self-enhancement, which can lead to more self-confidence and it is the nature of lower Career Reconsideration (Porfeli et al., 2011). Value of Hedonism derives from organismic needs and sensuous gratification (Schwartz, 2012). The higher degree of Hedonism predicts higher Career Reconsideration, which is based on dissatisfaction and inner conflicts and students with higher level of Hedonism value can be sensitive to these conflicts. Higher degree of Hedonism predicts higher career exploration. These two phenomena can be connected with sensuous gratification.

The relationship found among career motivation, values and Vocational Identity helped to clarify the constructs in the Slovak context and support the importance of their further study.

## 7. RECOMMENDATIONS FOR THE FUTURE RESEARCH

The limits of the study are considered. Bigger sample in each group of Vocational Identity status in further research can be recommended. Our research sample size was not as large as in Porfeli's study (2011). Statistically significant, yet smaller positive correlations and predictive models can serve as an inspiration for future research and verification of the relationships found in our study.

Applying the Vocational Identity Status Assessment for both – research and practical purposes in the area of career counseling can be recommended. For next application mentioned results should be taken into consideration. The pilot character of the study should lead to next research activities in the area of career counseling, not only in field of theoretical background, but also in the field of requirements of Slovak career counselors.

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**Section 4**  
**Social Psychology**



## Chapter #12

### **LIFE SATISFACTION IN UNDERGRADUATE STUDENTS: THE ROLE OF DISPOSITIONAL AND SITUATIONAL FACTORS**

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#### **ABSTRACT**

Satisfaction with life is related to positive mental health outcomes and people who are satisfied with their lives report lower levels of distress (Wang & Kong, 2014) as well as higher levels of happiness (Peterson, Park, & Seligman, 2005). The purpose of this research was to determine factors that predicted life satisfaction in university students. Three hundred and eighty-six participants completed a series of questionnaires to measure personality, attachment, coping styles, loneliness, social connectedness, and life satisfaction. In this sample, participants used the full range of life satisfaction scores, with over 50% of the participants reporting that they were satisfied with their lives. A series of hierarchical regression analyses was used to predict life satisfaction. In the first regression using personality factor scores, satisfaction with life was predicted by higher Extraversion, Conscientiousness, and social connectedness, coupled with lower Neuroticism, fearful attachment, and family loneliness. A second regression model using personality facet scores indicated that higher Positive Emotions, Impulsiveness, and Self-Discipline as well as lower Depression, Assertiveness, and Altruism predicted higher life satisfaction. Higher levels of social connectedness and lower levels of family and romantic loneliness also made significant contributions to the model. Overall, the quality of personal relationships (i.e., loneliness and social connectedness) rather than general coping styles was predictive of well-being in adulthood. It should be noted that there was a large proportion of variance unaccounted for and future researchers should focus on adding to the predictability of the model.

*Keywords:* life satisfaction, personality, attachment styles, loneliness, social connectedness.

#### **1. INTRODUCTION**

The pursuit of happiness and subjective well-being (SWB) are central themes in the field of positive psychology, and have garnered much research attention. Although these terms are often used interchangeably, SWB is conceptualized as having both an affective and a cognitive component (Diener, Suh, Lucas, & Smith, 1999). The affective component includes positive and negative emotional states (Diener et al., 1999; Proctor, Linley, & Maltby, 2009) and the cognitive component is a subjective appraisal of global life satisfaction, in which the contributing factors and the importance of each factor may vary from one person to the next (Pavot & Diener, 1993, 2008; Schimmack, Diener, & Oishi, 2002). Life satisfaction is a component of SWB and is generally examined from the perspective of dispositional traits (top-down models), situational influences (bottom-up models), or as integrated models of both (Diener, Inglehart, & Tay, 2013; Heller, Watson, & Ilies, 2004).

### **1.1. Dispositional Factors Predicting Life Satisfaction**

Dispositional traits refer to inherent characteristics that tend to be stable across time and situations (for example, temperament, personality). The Five Factor model (Costa & McCrae, 1992) is the most popular dimensional theory of personality and is used worldwide (Digman, 1990; Norman, 1963). A common inventory used to assess the Big Five factors is the Neuroticism Extraversion Openness Personality Inventory Revised (NEO PI-R; Costa & McCrae, 1992) which provides five factor scores. Each of these factors is comprised of six individual facets that measure specific aspects of personality. Neuroticism is a measure of emotional instability defined by the propensity to experience anxiety and depressive affect. Extraversion is characterized by being outgoing, warm, and socially active. Openness to Experience is associated with an active imagination, the exploration of novel ideas, and a wide range of interests. Individuals who have high Agreeableness are described as trustworthy, altruistic, and cooperative, with low scores indicating competitiveness. Lastly, Conscientiousness is characterized as being reliable, competent, and self-disciplined. In the current study, dispositional traits were operationally defined using the NEO-PI-R. Although there are alternate models of personality (Zuckerman & Cloninger, 1996; Zuckerman, Kuhlman, Joireman, Teta, & Kraft, 1993), the Five Factor model has generated the most research attention and the psychometric properties of the NEO-PI-R are well-established.

A consistent finding in the literature is that life satisfaction is predicted by low neuroticism (DeNeve & Cooper, 1998) and high extraversion (Diener et al., 1999; Ní Mhaoláin et al., 2012; Pavot & Diener, 2008; Schimmack, Radhakrishnan, Oishi, Dzokoto, & Ahadi, 2002). Individuals who are emotionally stable (i.e., low neuroticism) and sociable may experience more pleasant interactions and positive affect, which, in turn, influence their perceptions of life satisfaction (Schimmack, Diener et al., 2002; Schimmack, Oishi, Furr, & Funder, 2004; Schimmack, Radhakrishnan, et al., 2002). Indeed, in terms of personality facets, a meta-analysis (Steel, Schmidt, & Schultz, 2008) indicated that the best predictors of life satisfaction were low depression (a neuroticism facet) and high positive emotions (an extraversion facet). Further, Schimmack et al. (2004) reported that these two facets accounted for 30% of the variance in life satisfaction scores. It is these personality factors and facets that account for the stability of SWB scores over time and across situations (Diener et al., 1999; Proctor et al., 2009; Schimmack, Deiner, et al., 2002).

### **1.2. Situational Factors Predicting Life Satisfaction**

Situational factors tend to be variable and are dependent upon current life circumstances. Common situational factors such as loneliness (Ní Mhaoláin et al., 2012), feeling connected to family and friends (Proctor et al., 2009; Schimmack, Deiner, et al., 2002) and coping skills (MacCann, Lipnevich, Burrus, & Roberts, 2012) are correlated with life satisfaction. Salimi (2011) found that 16% of the variance in life satisfaction was predicted by lower levels of social (friendships) and emotional (family, romantic partners) loneliness. Loneliness may increase vulnerability to life dissatisfaction because it leads to decreases in social connectedness. On the other hand, individuals who are popular and respected have higher life satisfaction (Anderson, Kraus, Galinsky, & Keltner, 2012) because they feel accepted by others and are more likely to engage in shared activities, reinforcing their sense of social acceptance and belongingness. These social connections and social support networks predict life satisfaction (Mahanta & Aggarwal, 2013; Mellor, Stokes, Firth, Hayashi, & Cummins, 2008). Furthermore, different types of coping styles have been found to affect life satisfaction. Problem focused coping is proactive and involves dealing with the stressor at hand whereas emotion focused coping is often

maladaptive and occurs when individuals focus on their distress rather than a solution to the problem. Higher levels of life satisfaction are associated with problem focused coping and lower levels are associated with emotion focused coping (MacCann et al., 2012).

### **1.3. The Role of Attachment Style**

Life satisfaction has also been linked to individual attachment styles (Mikulincer & Shaver, 2012), which have their roots in early infancy. Bowlby (1969/1982) proposed that attachment is defined by the affectional bond that develops through social interactions and serves to connect a child with the primary caregiver. Infants use their primary attachment figure as a secure base from which to explore their world, but orient back to their caregiver for proximity and comfort. These experiences of rudimentary felt security become internalized into a “working model” through which later relationships are seen. Following Bowlby, many researchers began to focus on the effects of different attachment styles.

Attachment has been extended to include relationships in both childhood and adulthood. For example, Bartholomew and Horowitz (1991) developed a four category model of adult attachment based on positive and negative perceptions of the self and other. Secure individuals have a positive model of both the self and others and feel comfortable in relationships. A dismissing attachment style is defined by a positive view of the self and a negative view of others, leading to them to believe that other individuals are untrustworthy. Individuals with a preoccupied attachment style have a positive view of others coupled with a negative view of the self, leading to feelings of unworthiness and the tendency to look to others for validation. Finally, a fearful attachment style is characterized by a negative view of both the self and others and these individuals tend to avoid relationships to protect against rejection. Secure individuals have better mental wellness (Gittleman, Klein, Smider, & Essex, 1998) and lower loneliness (DiTommaso, Brannen-McNulty, Ross, & Burgess, 2003). The negative view of the self is associated with outcomes that could lead to increased vulnerability to stressors. Further, these individuals (fearful and preoccupied attachment) reported lower mental wellness and self-esteem (Gittleman et al., 1998) and greater levels of loneliness (DiTommaso et al., 2003).

## **2. PURPOSE OF THE CURRENT STUDY**

The purpose of this study was to examine predictors of life satisfaction in one model using personality (dispositional factor), loneliness, social connectedness, and coping (situational factors) as well as attachment. Because personality is seen as a lens through which we filter our experiences (Pavot & Diener, 2008), we expected that these factors may set a range of reaction in global life satisfaction scores. However, situational factors are more transient but may affect the level of life satisfaction experienced within this range (Heller et al., 2004).

## **3. METHODS**

### **3.1. Participants**

A total of 386 participants (281 females;  $M_{\text{age}} = 20.60$  years,  $SD = 4.71$ ) was recruited from Introductory Psychology classes at a small Canadian university and received 1 bonus mark for their participation.

### 3.2. Materials

*Neuroticism Extraversion Openness Personality Inventory Revised (NEO PI-R; Costa & McCrae, 1992)*. The 240 item NEO PI-R measures five personality factors (Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness) and each of their subscales or facets. Respondents use a 5-point Likert scale to indicate the degree to which they agree with each statement. The internal consistency of the factor scores ranges from  $\alpha = .86$  to  $.92$ ; on the facet scores  $\alpha = .56$  to  $.81$ . The instrument has good convergent and discriminant validity (Costa & McCrae, 1992).

*Relationship Scales Questionnaire (RSQ; Griffin & Bartholomew, 1994)*. The RSQ provides scores on Secure, Dismissing, Fearful and Preoccupied attachment styles. The 30 items are measured on a 5-point Likert Scale (5 = *very like me*). The measure has demonstrated adequate reliability (Griffin & Bartholomew, 1994).

*Revised Ways of Coping Checklist (WCCL; Vitaliano, Russo, Carr, Maiuro, & Becker, 1985)*. The WCCL contains 42 items measured on a 4-point scale (0 = *not used*; 3 = *used a great deal*) to assess coping. There are three main scales that measure problem focused, support seeking, and emotion focused coping styles (Vitaliano et al., 1985).

*Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985)*. The 5 item SWLS is a widely used measure of perceived life satisfaction. Respondents use a 7-point Likert-type scale (7 = *strongly agree*). Convergent validity of the scale has been established and the reliability of the scale is high (Diener et al., 1985).

*Social and Emotional Loneliness Scale for Adults-Short Version (SELSA-S; DiTommaso, Brannen, & Best, 2004)*. The SELSA-S measures social, family, and romantic relationships and includes 15 items measured on a 7-point Likert-type scale (7 = *strongly agree*). The SELSA-S has been found to be reliable and valid (DiTommaso et al., 2004).

*Social Connectedness and Social Assurance Scales (Lee & Robbins, 1995)*. The 16 item scale includes 8 items that measure social connectedness and 8 items that measure social assurance. A 6-point Likert scale (1 = *strongly agree*) is used. The internal and test-retest reliabilities of the scale are high (Lee & Robbins, 1995). For the purposes of this study, only the social connectedness scale was used.

### 3.3. Procedure

Participants were recruited from Introductory Psychology classes and had the option of earning bonus marks toward their final grade by either participating in research or completing individual projects. For those who chose to participate, group sessions were arranged and participants completed the demographic measure, followed by the remaining measures in random order. All procedures were reviewed and approved by the Research Ethics Board at the University of New Brunswick – Saint John. This study was part of a larger project designed to examine the first year university experience.

## 4. RESULTS

Correlations between the variables of interest and Satisfaction with Life are displayed in Table 1. Overall, Satisfaction with Life was significantly and positively correlated with Extraversion and each of its facets, Conscientiousness and each of its facets, Agreeableness and the Trust, Straightforwardness, and Altruism facets. Life satisfaction was negatively correlated with Neuroticism and each of its facets. Openness and its facets did not correlate with life satisfaction. Table 1 also indicates that Satisfaction with Life was associated with higher scores on Problem Focused Coping and Support Seeking and lower scores on Emotion Focused Coping. Furthermore, individuals with higher levels of Secure

Attachment were more satisfied with life than individuals with insecure attachment scores (Fearful, Preoccupied, Dismissing). Finally, Satisfaction with Life was correlated with lower scores on all three types of loneliness and higher scores on Social Connectedness.

In each hierarchical regression analysis, multicollinearity, variance inflation factors, and tolerance were examined and were within acceptable levels (Keith, 2006). Although age and gender were entered on the first step to control for their effects, we did not expect these variables to contribute to the predictability of the models. According to Statistics Canada (2015), the life satisfaction scores of males and females are virtually identical. For example, in 2014, Canadians were asked to report their general life satisfaction and a high percentage of both males of (92.4%) and females (92.1%) were satisfied or very satisfied with their lives. Further, according to the OECD (2014) report, the life satisfaction of males and females in different countries were highly correlated. Although social research has indicated that life satisfaction tends to decrease with age (OECD, 2014; Statistics Canada, 2015), we did not expect age to contribute significantly to our models because the majority of our participants were young adults (approximately 92% were younger than 25 years).

Table 1. Correlations with life satisfaction.

Life Satisfaction			Life Satisfaction		
	<i>r</i>	<i>p</i>		<i>r</i>	<i>p</i>
Neuroticism	-.39	.001	Conscientiousness	.34	.001
1 Anxiety	-.21	.001	1 Competence	.24	.001
2 Angry hostility	-.27	.001	2 Order	.11	.042
3 Depression	-.49	.001	3 Dutifulness	.27	.001
4 Self-Consciousness	-.29	.001	4 Achievement striving	.30	.001
5 Impulsiveness	-.12	.018	5 Self-discipline	.39	.001
6 Vulnerability	-.29	.001	6 Deliberation	.16	.001
Extraversion	.34	.001	Age	-.10	.066
1 Warmth	.29	.001	Coping		
2 Gregariousness	.25	.001	Problem Solving	.16	.002
3 Assertiveness	.16	.002	Emotion Focused	-.32	.001
4 Activity	.23	.001	Support Seeking	.14	.006
5 Excitement Seeking	.18	.001	Attachment		
6 Positive Emotions	.33	.001	Secure	.38	.001
Openness	-.001	.991	Preoccupied	-.16	.002
1 Fantasy	-.07	.211	Fearful	-.37	.001
2 Aesthetics	.01	.904	Dismissing	-.14	.008
3 Feelings	.07	.186	Loneliness		
4 Actions	.05	.325	Family	-.43	.001
5 Ideas	-.03	.551	Social	-.38	.001
6 Values	-.01	.917	Romantic	-.24	.001
Agreeableness	.21	.001	Social Connectedness	.53	.001
1 Trust	.30	.001			
2 Straightforwardness	.23	.001			
3 Altruism	.21	.001			
4 Compliance	.08	.116			
5 Modesty	-.03	.547			
6 Tender-mindedness	.03	.620			

The first hierarchical regression analysis was conducted to determine if life satisfaction could be predicted by personality factors, attachment style, coping style, loneliness and social connectedness. The overall model was statistically significant with

41.9% of the variance accounted for ( $F_{(18,325)} = 13.02, p < .0001$ , multiple  $R = .65$ , adjusted  $R^2 = .39$ ). Age and gender were entered on the first step and were not statistically significant ( $F_{(2,341)} = 2.04, p < .13, R^2 = .012$ ). Big Five personality factors were entered on the second step and the model was statistically significantly ( $R^2$  change = .26,  $F_{\text{inc}}(5,336) = 24.05, p < .001$ ). Significant predictors were Neuroticism ( $\beta = -.32, t = -5.54, p < .001, sr^2 = .07$ ), Extraversion ( $\beta = .21, t = 3.93, p < .001, sr^2 = .03$ ), and Conscientiousness ( $\beta = .12, t = 2.21, p < .03, sr^2 = .01$ ). The remaining predictor variables were entered in the third step and the model was statistically significant ( $R^2$  change = .15,  $F_{\text{inc}}(11,325) = 7.47, p < .001$ ). Significant predictors were a fearful attachment style ( $\beta = -.14, t = -2.28, p < .03, sr^2 = .01$ ), family loneliness ( $\beta = -.17, t = -3.14, p < .002, sr^2 = .02$ ), and social connectedness ( $\beta = .23, t = 3.84, p < .001, sr^2 = .03$ ). The adjusted  $R^2$  value of .39 of the overall model indicates that more than one third of the variability in life satisfaction was predicted by higher extraversion and conscientiousness personality scores, as well as higher feelings of social connectedness and lower scores on neuroticism, family loneliness and fearful attachment.

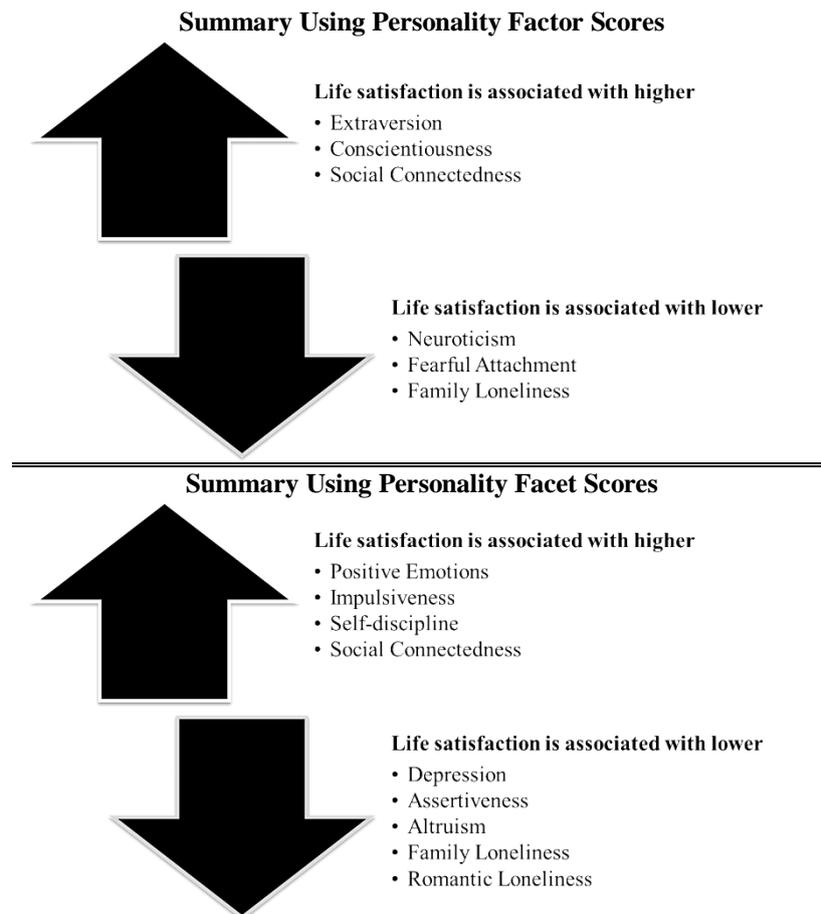
A second hierarchical regression was conducted to examine if the prediction of life satisfaction would be enhanced by substituting the NEO-PI-R facet scores for the factor scores in the model. The overall model was statistically significant with 48.4% of the variance accounted for ( $F_{(34,309)} = 8.51, p < .001$ , multiple  $R = .70$ , adjusted  $R^2 = .43$ ). Age and gender were entered on the first step and were not statistically significant ( $F_{(2,341)} = 2.04, p < .13, R^2 = .01$ ). On the second step, only the facet scores that were significantly correlated ( $ps < .05$ ) with life satisfaction (see Table 1) were used in the model and the model was statistically significant ( $R^2$  change = .38,  $F_{\text{inc}}(21,320) = 9.43, p < .001$ ). N3 (Low Depression;  $\beta = -.34, t = -4.87, p < .001, sr^2 = .05$ ), E3 (Low Assertiveness;  $\beta = -.17, t = -2.76, p < .006, sr^2 = .01$ ), A3 (Low Altruism;  $\beta = -.17, t = -2.33, p < .02, sr^2 = .01$ ), N5 (High Impulsiveness;  $\beta = .13, t = 2.19, p < .03, sr^2 = .01$ ), C5 (High Self-Discipline;  $\beta = .23, t = -3.18, p < .002, sr^2 = .02$ ), and E6 (High Positive Emotions;  $\beta = .15, t = 2.48, p < .02, sr^2 = .01$ ) were significant predictors. The remaining predictors were entered in the third step and the model was statistically significant ( $R^2$  change = .09,  $F_{\text{inc}}(11,309) = 5.12, p < .001$ ). Significant predictors were low romantic loneliness ( $\beta = -.11, t = -2.35, p < .02, sr^2 = .01$ ), and family loneliness ( $\beta = -.12, t = -2.23, p < .03, sr^2 = .01$ ), as well as high social connectedness ( $\beta = .22, t = 3.68, p < .001, sr^2 = .02$ ).

## 5. DISCUSSION

The overall goal of this study was to examine life satisfaction using a variety of situational and dispositional factors in a single model. According to the OECD (2014) social indicators, the life satisfaction of Canadians is among the highest in the world. Our results corroborate these findings as the majority of participants were satisfied with their lives. In spite of these high levels of satisfaction, our participants used the full range of the scale and we found statistically significant predictors. The zero order correlations indicated that life satisfaction was related to high levels of Extraversion, Agreeableness, and Conscientiousness as well as low levels of Neuroticism. Furthermore, individuals with a secure attachment style were more satisfied with their lives whereas those with an insecure attachment were less satisfied. All measures of coping were correlated with life satisfaction in the predicted directions, indicating that individuals who used proactive coping were more satisfied with their lives. Finally, people with social connections and those who reported lower loneliness were more satisfied.

When the Big Five personality factors (Neuroticism, Extraversion, Agreeableness, Openness, Conscientiousness) were used in the regression model, the predictors accounted for over 40 percent of the variance. Figure 1 summarizes the predictors of life satisfaction. Specifically, high life satisfaction was associated with low Neuroticism as well as high Extraversion and Conscientiousness. The combination of high Extraversion and low Neuroticism would suggest an individual who is sociable and has high levels of emotional stability (Carver & Connor-Smith, 2010). This combination is related to more proactive coping styles (Connor-Smith & Flachsbart, 2007). These results replicate previous research indicating that the dispositional traits of underlying emotional stability and sociability are important contributors to life satisfaction (Diener et al., 1999; Ní Mhaoláin et al., 2012; Pavot & Diener, 2008). Further, this research also highlights the importance of being conscientious. Above and beyond personality, life satisfaction was predicted by having low levels of fearful attachment and family loneliness as well as high social connectedness.

*Figure 1. Statistically significant predictors of life satisfaction. The top panel illustrates the model when personality factor scores were used; the bottom panel illustrates the personality facet scores.*



In an initial examination of the relations between the facets of Neuroticism and Extraversion with life satisfaction, our correlational results almost perfectly mirrored those of Schimmack and his colleagues (2004). With the exception of the Excitement Seeking facet of Extraversion, all correlations were of the same magnitude and direction. The second regression model, using the personality facets, accounted for almost 50% of the variance in life satisfaction (see Figure 1). Specifically, individuals who were more satisfied with their lives had lower depression, assertiveness, and altruism as well as higher impulsiveness, self-discipline, and positive emotions. Furthermore, low romantic and family loneliness as well as high social connectedness were predictive of higher life satisfaction. These results make intuitive sense because individuals who perceive themselves to be socially connected to others are not as likely to be lonely.

When the facets were used in the multiple regression model, suppression effects related to Neuroticism and Extraversion items occurred. In examining the facets of Neuroticism, the zero order correlations indicated that all facets were positively correlated with each other and the factor score but, in the regression model, life satisfaction was associated with high Impulsiveness (N5) and low Depression (N3). To fully understand this discrepancy, we examined the individual items of the Impulsiveness facet and found that two types of items may contribute to the overall Impulsiveness score. One set of items focuses on eating behaviors (i.e., “*When I am having my favorite foods, I tend to eat too much*”) and the other set of items focuses on being in control (i.e., “*I seldom give in to my impulses*”). Thus, the part of Impulsiveness related to eating behaviors and overindulgence may be dependent upon the Depression facet items but the items related to overall self-control may not. The suppression effect is explained by the fact that the part of impulsiveness that is independent of depression was associated with life satisfaction. There were similar suppression effects in the Extraversion facets of Assertiveness and Positive Emotions, in which low Assertiveness was associated with higher life satisfaction. In this case, the Assertiveness items focused on both being a leader and being socially dominant. Thus, it is possible that part of Assertiveness not associated with Positive Emotions (i.e., being socially dominant) was negatively correlated with life satisfaction.

When the personality factors were entered into the model, the effects of fearful attachment were statistically significant but when the more specific facets were used, fearful attachment was no longer a significant predictor. Although at first glance these results appear contradictory, fearful attachment was significantly correlated ( $ps < .004$ ) with each of the facets that were entered into the model. Individuals with higher fearful attachment scores had lower life satisfaction ( $r = -.37$ ). Furthermore, they had higher depression ( $r = .42$ ) and impulsiveness ( $r = .15$ ), as well as lower assertiveness ( $r = -.17$ ), altruism ( $r = -.18$ ), self-discipline ( $r = -.23$ ), and positive emotions ( $r = -.31$ ). Thus, the facet scores that were used in the model at least partially define the fearful attachment style. The finding that low fearful attachment scores were predictive of satisfaction with life supports previous research (Sumer & Knight, 2001). According to Bartholomew and Horowitz’s (1991) model of attachment, a fearful attachment style is associated with a negative view of the self coupled with a negative view of others and is associated with outcomes that could lead to increased vulnerability to stressors.

These results support past research on loneliness (Ní Mhaoláin et al., 2012) and social connectedness (Proctor et al., 2009; Schimmack, Diener, et al., 2002). Although life satisfaction was significantly positively correlated with support seeking ( $r = .14$ ) and problem focused coping ( $r = .16$ ) and negatively correlated with emotion focused coping ( $r = -.32$ ), the coping styles were not predictive of life satisfaction in the regression equations. Thus, these results partially support MacCann et al. (2012); the pattern of

correlations were similar but MacCann and her colleagues also reported that problem focused coping was predictive of life satisfaction.

In a large scale study of SWB in OECD countries, Boarini, Comola, Smith, Manchin, and de Keulenaer (2012) assessed a variety of demographic and situational factors (such as income, health status, social connections) and found a large proportion of unaccounted variance. They recommended including personality (a dispositional factor) as a measure of well-being. In our study, personality accounted for a large proportion of variability in life satisfaction (factors = ~25%; facets = ~40%). Thus, in general, researchers agree that both dispositional traits and situational influences should be included when examining SWB (OECD, 2013).

## **6. APPLICATIONS AND DIRECTIONS FOR FUTURE RESEARCH**

There are important applied implications of this research. SWB is affected by dispositional and situational factors (Heller et al., 2004). Although dispositional factors are more stable across time and situations, situational factors may be more amenable to intervention. To improve satisfaction with life, clinicians should target variables such as the levels of loneliness and social connectedness experienced by individuals. Further, researchers are dedicated to empirical studies informing policy development and change (i.e., Oishi & Schimmack, 2010). SWB is being recognized at national levels as being an important component of quality of life and overall health. According to Erdogan, Bauer, Truxillo, and Mansfield, (2012), Healthy People 2020 (Koh, Piotrowski, Kumanyika, & Fielding, 2011) is an initiative based in the United States that focuses on the effects that quality of life has on health and disease. Initiatives such as these highlight the importance of considering the effects that SWB have on a variety of variables, including mental and physical health, work relationships, social functioning, and happiness. In some ways, the outcomes associated with relationships and SWB resonate with the public because they identify with issues that are personally meaningful as well as easy to understand. Change in personal behaviors is more likely when individuals identify with improvements in their quality of life. It is important to note that although we can identify specific predictors of life satisfaction, a full understanding is difficult due to the complexity of contributing factors (Bertelsmann Stiftung & Eurofound, 2014).

These results suggest that both dispositional and situational factors influence satisfaction with life. In spite of the fact that almost 50% of the variance in life satisfaction is accounted for, there is a large proportion of unaccounted variance. Future research should focus on adding to the predictive ability of the model. As this study was conducted on a sample of university students, it could be argued that they are a select subset of the larger population. Even among young adults, there are differences in SWB depending on their life circumstances. For example, Eurofound (2014) reported that disengaged youth (not employed, educated, or trained) had lower life satisfaction, and that interventions should target these variables. Further, it would be interesting to expand the current research to include members of the larger community, which would encompass wider age, education, and income ranges. Perhaps as people get older, certain life circumstances (i.e., health, illness, divorce) play a larger role in subjective well-being.

## 7. CONCLUSIONS

Satisfaction with life is predicted by dispositional (personality factors and facets) and situational (loneliness and social connectedness) influences. This study adds to the growing body of literature on factors affecting SWB. The importance of this research is highlighted by the fact that life satisfaction surveys are being implemented at national levels to inform government policy (Boarini et al., 2012; Diener et al., 2013; OECD, 2013, 2014).

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## Chapter #13

### DISPARITIES IN CAREER ATTITUDES AMONG POSTGRADUATE STUDENTS

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#### ABSTRACT

The preparation of students' future career trajectories is a dynamic process in relation to social and educational determinants. Our objective is to analyze the associations between generic employment capabilities, career attitudes and related factors among postgraduate students. All masters' students registered at the Centre for Documentation and Information on Higher Education (CEDIES) database in Luxembourg were contacted by post, to participate in an online questionnaire. The five point scale questionnaire was scored as follows: 1) Dynamic Career Attitudes (DCA); 2) Employability Soft-Skills (ESS); 3) Search for Work Self-Efficacy (SWSES); 4) Quality of Life domain Autonomy (QLA); and 5) Socio-demographic characteristics. The data were analyzed using bivariate tests, correlations and multiple linear regression models. 481 of the volunteers (26.4 years; SD=5.5) were predominantly women, Luxembourgish, unemployed or had less than or equal to six months of job experience. The higher the ESS, SWSES and QLA scores, the higher the DCA score was. Nationality, being unemployed, having less than six months job experience and being in the first year of a Master's degree programme were associated with a lower dynamic career attitude score. The Dynamic Career Attitudes scale seems to be an appropriate instrument to evaluate the efficacy of the university career services programme.

*Keywords:* career attitudes, postgraduates, employability soft-skills, job search.

#### 1. INTRODUCTION

Acting on the recommendation of European governments to direct more investments towards human capital, the Bologna Process in Lisbon was established in order to develop comparable and coherent systems of higher education in Europe. The process valorized higher education as a major factor contributing to enhanced sustainable employability of university graduates (Bologna working group of European Higher Education in a Global Setting, 2009). Further, in accordance with the objective to render training and education accessible to a wider world as concluded in the 2001 Stockholm summit, the Grand Duchy of Luxembourg reformed its higher education financial aid system, making it accessible to more persons. As such, since 2010, all university students registered at the Centre for Documentation and Information on Higher Education (CEDIES); obtain financial aid from the government of Luxembourg, independent of their socio-economic status. Adequate financial support not only ensures that students are able to pursue higher education, but also enables them to choose studies in fields of interest not currently taught at the University of Luxembourg. This initiative was intended to ensure that all students had sufficient finances to comfortably pursue and complete their studies and to consequently level the playing field for graduates at the outset of their careers (Mémorial Journal Officiel du Grand-Duché de Luxembourg, 2014).

A research project entitled “*Capital Employability of Students*” (CAPJOB) was launched in 2013 by the research team “*Health and Behaviour*” at University of Luxembourg. The aim of the team is to analyze factors that may influence and improve career outcome of Master’s degree students.

## 2. BACKGROUND

In order to increase their employment opportunities, the current challenge of university students is to accept that as prospective employees, they have to become more actively engaged in their own careers (De Bruin & Buchner, 2010). Indeed, since most employers regard a university degree as a minimal guarantee for employment, the possession of a predetermined and static set of generic skills through academic preparation may only be sufficient to gain a first job. Further abilities and initiatives of individuals in deploying their curriculum by embracing an active career approach (Briscoe, Hall, & Demuth, 2006) may be a guarantee for their sustainable employability and future professional lives. In line with this, career behaviors have been observed as factors that influence an individual’s choice to prepare for his/her future professional trajectory and so career success (Ng, Eby, Sorensen, & Feldman, 2005). Since career success remains characterized by personal accomplishment of previous career objectives and goals (Hall & Heras, 2012) the development of specific career attitudes has become a crucial factor toward its achievement.

Dynamic career attitudes (DCA), i.e. adaptability, optimism, related knowledge and planning have been identified as responsible for positive career outcomes (Ng, Eby, Sorensen, & Feldman, 2005; Rottinghaus, Day, & Borgen, 2005; Kaplan, Bradley, Luchman, & Haynes, 2009; Connolly & Viswesvaran, 2000). In the same vein, higher career adaptability enables people to successfully cope with changes in the work environment (Rottinghaus, Day, & Borgen, 2005) and enhances their chances for career success (Grote & Reeder, 2009). Optimistic individuals are more at ease with their career-related plans and feel more secure in their chosen career paths (McIlveen, Beccaria, & Burton, 2013). In addition, better knowledge of how to develop a career conducted to more career advancement opportunities and career options, and have been linked to career success (Schmidt & Hunter, 1998). Finally, higher career planning has been extensively associated with career self-management orientation (Direnzo, Greenhaus, & Weer, 2015) and has therefore been related to both objective and subjective career success (Ng, Eby, Sorensen, & Feldman, 2005).

Still, empirical evidence indicates that many students opt not to pursue an active career during their studies (James & Holeden, 2000; Stewart & Knowles, 2000; Rae, 2007): In addition, they do not utilize abilities acquired during their studies until after the completion of their university studies (Savickas, 2005).

Focusing on the generic capabilities for employment, a study among undergraduates has shown that employability soft-skills are closely related to dynamic career attitudes (DCA). Other findings indicate that a DCA positively impacts job search process such as employment status and the acquisition of techniques suitable in a job application. Additionally, a DCA indirectly increases the perception of search for work self-efficacy (Karavdic, Karathanasi, Le Bihan, & Baumann, 2014).

One key element of employment capabilities may be related to educational level (Bachelor vs. Master). Indeed even if Masters students' have the same chances of finding employment as Bachelor students', the employment activities of the former, may be more focused on both their educational level and field (Schomburg & Teichler, 2011). In line with our previous findings among bachelor students, the objective of this study was to analyse the associations of generic capabilities for employment, quality of life autonomy and other confounding socio-demographic factors on dynamic career attitude levels among Master's students.

### 3. METHODS

#### 3.1. Participants & Data Collection

A survey was conducted in the Grand-Duchy of Luxembourg among 644 participants (Master students and graduates) registered at the Centre for Documentation and Information on Higher Education (CEDIES). Data collection was realized via an information flyer that was sent to the home addresses of the students and that contained instructions about the aims of the study and a link to the survey. The participants could directly access the anonymous online questionnaire in either French or English.

#### 3.2. Measurement Instrument

– *Dynamic Career Attitudes* (Dependent Variable) composed of 13 scored items (1=strongly disagree to 5=strongly agree) (Karavdic, Karathanasi, Le Bihan, & Baumann, 2014) (Cronbach's alpha 0.802).

– *Employability Soft-Skills-short scale (ESS-short -14 items)* (1=not capable at all; 5=perfectly capable), an adapted version of the ESS – 32 items (Karavdic, Karathanasi, Le Bihan, & Baumann, 2014) ( $\alpha = 0.870$ ).

– *Search for Work Self-Efficacy Scale (SWSES - 12 items;  $\alpha = 0.847$ ; 1=not well at all; 5=very well)* assesses students' perceptions of their capability to develop employment strategies (Pepe, Farnese, Avalone, & Vecchione, 2010).

– *Quality of Life of Autonomy* - one Whoqol-Bref domain (QLA- 4 items;  $\alpha = 0.670$ ; 1=strongly disagree at 5=strongly agree), assesses the ability to live and to make necessary decisions independently (Leplège et al. 2012)

– *Socio-demographic characteristics* Age, gender, parents' level of education, (higher/lower than bachelor), type of lodging, year of master (1st, 2nd year), employment status (yes in educational field / yes in non-educational field/unemployed), employment contract type (permanent / fixed / internship), working hours (up to 20h/w vs. up to 40h/w) and job experience before master (less vs. more than 6 months).

#### 3.3. Statistical Analysis

Scores were calculated for each scale, so that a higher score represented a better/higher level. Bivariate tests and correlations were used for association analyses between the variables. Only significant relationships ( $p < 0.05$ ) were used in the linear multiple model.

## 4. RESULTS

### 4.1. Socio-Economic Profile

A total of 481 volunteers students (26.4 years; SD=5.5) completed the self-assessment questionnaire online. Majority of the participants were women, Luxembourgish, unemployed and had less than or equal to six months of job experience. Most studied in the field of Social Sciences & Humanities or Law, Economics and Finance and were in their second year of Master's degree. Of those who had a job, approximately two thirds had either a permanent or fixed-term employment contract and worked more than 20h the week (Table 1).

*Table 1. Socio-demographic profile: mean (standard deviation) or %*

		<b>Students Mean (SD) or %</b>
<b>Age: mean (SD)</b>		26.4 (5.5)
<b>[min; max]</b>		[20 ; 59]
<b>Gender</b>	Female	58.9
<b>Nationality</b>	Luxembourgish	65.7
	Other	34.2
<b>Parents education level (&gt;Bachelor)</b>	Father	49.4
	Mother	40.8
<b>Year of study</b>	1 <sup>st</sup>	42.8
	2 <sup>nd</sup>	57.2
<b>Education Field</b>	Social and Humanity	30.8
	Law, Economics and Finance	32.6
	Life and Health	14.9
	Technology and Communication	21.8
<b>Employment Status</b>	Unemployed	63.8
	Yes in No- Educational Field	9.1
	Yes in Educational Field	27.1
<b>Job contract Type</b>	Permanent	36.1
	Fixed term	38.0
	Internship	25.9
<b>Professional Experience (Before Master)</b>	Less/ equal to 6 months	65.5
<b>Working Hours</b>	Less /equal to 20h	44.2
	Up to 40h	55.8
<b>Dynamic Career Attitudes [1-5]</b>	Dynamic Career Attitudes – DCA	3.78 (0.52)
<b>Generic Employment Capabilities [1-5]</b>	Employability soft skills scale – ESS -short	4.03 (0.48)
	Search for Work Self-Efficacy scale (SWSES)	4.12 (0.53)
<b>Quality of Life scale [1-5]</b>	Domain of Autonomy -QoLA	3.76 (0.64)

### 4.2. Relationship between dynamic career attitudes and other factors

Luxembourgish nationals had significantly lower DCA mean scores compared to those of other nationalities (3.72 vs. 3.87). Likewise, students in the first year of Masters also scored lower than those in the second year (3.67 vs. 3.80). Unemployed students scored significantly lower in comparison to those were employed (3.73 vs. 3.84 & 3.92) and those with professional experience of less than or equal to six months before enrolling for the Master's degree had a lower mean DCA score compared to those who had worked for more than six months (3.72 vs. 40.7) before they started their Master's degree.

Quality of life-autonomy, employability soft skills and the search for work self-efficacy scores were all significantly, positively correlated to the DCA score (Table 2).

Table 2. Relationship between dynamic career attitudes and other factors (Bivariate tests) - Correlation coefficients (Pearson's correlation) and Standard Error.

Dynamic Career Attitudes – DCA [1 - 5]			
		Mean (SE) <sup>1</sup>	p- value <sup>2</sup>
<b>Gender</b>	Female	3.77 (0.04)	0.498
	Male	3.74 (0.03)	
<b>Nationality</b>	Luxembourgish	3.72 (0.03)	<b>0.003**</b>
	Other	3.87 (0.04)	
<b>Type of lodging<sup>4</sup></b>	with a partner / other adults	3.76 (0.05)	0.100
	with a partner and / or a child	3.94 (0.08)	
	with my parents	3.65 (0.04)	
<b>Father's educational level<sup>3</sup></b>	alone	3.76 (0.04)	0.436
	Lower Bachelor	3.73 (0.03)	
<b>Mother's educational level<sup>3</sup></b>	Higher or Equal Bachelor	3.77 (0.04)	0.553
	Lower Bachelor	3.76 (0.03)	
<b>Year of study</b>	Higher or Equal Bachelor	3.73 (0.04)	<b>0.014*</b>
	1 <sup>st</sup>	3.67 (0.04)	
<b>Education Field<sup>4</sup></b>	2 <sup>nd</sup>	3.80 (0.03)	0.664
	Social and Humanity	3.70 (0.05)	
	Law, Economics and Finance	3.78 (0.05)	
	Life and Health	3.72 (0.07)	
	Technology and Communication	3.86 (0.05)	
<b>Employment Status<sup>4</sup></b>	Unemployed	3.73 (0.03)	<b>0.014**</b>
	Yes in No- Educational Field	3.84 (0.07)	
	Yes in Educational Field	3.92 (0.06)	
<b>Employment contract type<sup>4</sup></b>	Permanent	3.87 (0.07)	0.818
	Fixed term	3.82 (0.08)	
	Internship	3.89 (0.08)	
<b>Professional Experience (Before Master)</b>	Less/ equal 6 months	3.72 (0.06)	<b>0.000***</b>
	More than 6 months	4.07 (0.06)	
<b>Working time</b>	Less /equal to 20h/w	3.85 (0.08)	0.442
	Up to 40h	3.93 (0.06)	
		<b>r-coeff<sup>5</sup></b>	<b>p- value<sup>2</sup></b>
<b>Age</b>		0.114	<b>0.024*</b>
<b>Quality of life [ 1- 5]</b>	Domain of Autonomy -QoLA	0.628***	<b>0.000***</b>
	Employability soft skills – ESS-short	0.691***	
	Search for Work Self-Efficacy - SWSES	0.581***	

<sup>1</sup>Standard Error; <sup>2</sup>Significant p-value: \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001; <sup>4</sup>Fisher's T-Test; <sup>5</sup>Pearson's correlation;

### 4.3. Impact of other confounding factors on dynamic career attitudes

A multiple regression model analysis could explain 66% of the variance (adjusted R-Square) in the Dynamic career attitudes of the students. The greater the generic capabilities for employment and quality of life-autonomy reported, the higher the DCA score was. Contrastingly, being Luxembourgish, or unemployed, or having less than six months of job experience or being in the first year of masters were all associated with a lower DCA score (Table 3).

Table. 3 Impact of other confounding factors on dynamic career attitudes by students.

		Dynamic Career Attitudes DCA [1-5]				
		Regression coefficient	SE <sup>1</sup>	L95 <sup>2</sup>	U95 <sup>2</sup>	p-value <sup>3</sup>
<b>Age</b>		-0.005	0.005	-0.014	0.004	0.288
<b>Nationality</b>	Luxembourger	-0.140	0.057	-0.252	-0.028	<b>0.015*</b>
	Other	0				
<b>Year of study</b>	1 <sup>st</sup>	-0.118	0.054	-0.225	-0.011	<b>0.031*</b>
	2 <sup>nd</sup>	0				
<b>Employment Status</b>	Unemployed	-0.253	0.086	-0.423	-0.083	<b>0.004**</b>
	Yes in No-Educational Field	0.043	0.087	-0.128	0.215	
	Yes in Educational Field	0				
<b>Professional Experience ( Before Master)</b>	Less/ equal 6 months	-0.130	0.061	-0.252	-0.007	<b>0.038*</b>
	More than 6 months	0				
<b>Generic Employment Capabilities [1-5]</b>	ESS-short	0.301	0.072	0.159	0.443	<b>0.000***</b>
	SWSES	0.321	0.072	0.178	0.465	<b>0.000***</b>
<b>Quality of Life [1- 5]</b>	Domain of Autonomy	0.262	0.051	0.161	0.363	<b>0.000***</b>

Adjusted R<sup>2</sup>=66%; F (9, 127) =28.111; <sup>1</sup>Std.Error; <sup>2</sup>Confidence Intervals; <sup>3</sup>Significant p-value: \*p < 0.05; \*\*p < 0.01; \*\*\*p < 0.001;

## 5. FUTURE RESEARCH DIRECTIONS

Since the development of dynamic career attitudes (DCA) may be considered an important factor towards employment situation of future graduates, further research should be more sensitive to the specific aspects of its conceptual development, as relates to proactive career orientation and specific career goals setting. In line with this, the acquisition of self-report information on DCA from a comparable population at different stages (from career goals aspirations and the process toward career goal accomplishments), could be rendered more straightforward for future research. Finally, it could be interesting to assess the DCA of university graduates during and after their Master's degrees; before they start work and in the early years of their careers.

## 6. CONCLUSION/DISCUSSION

Students with high capabilities tend to present a higher dynamic career approach which may enable them to identify future job opportunities more easily, by adapting their competences to the post-university transition (Fugate, Kinicki, & Ashforth, 2004). Tertiaries who are confident in their employability competences are likely to perceive job seeking as less threatening, which could enhance their career abilities and employment prospects. Although employability forecasts an individual's likelihood of getting and maintaining employment, we postulated that generic capabilities for employment may be especially relevant in gaining and maintaining the first job; this is in line with our previous findings realized among university undergraduates who scored lower in DCA (3.66 vs. 3.78/5) than their postgraduate colleagues (Karavdic, Karathanasi, Le Bihan, & Baumann, 2014).

These findings were not particularly revelatory, since more extensive academic preparation and professional experiences (i.e. internships, seminars etc.) are likely to influence students ambitions causing them to aim for higher career expectations and higher a social status.

In addition, higher quality of life autonomy positively affecting DCA could be explained by the fact that student's perception of autonomy may be seen as a career driver, (i.e. an intrinsic motivator) in the process of career planning and development of internal capacities and attitudes towards managing of their own career paths. According to the self-determination theory (Deci & Ryan, 2000), perceived autonomy implies that individuals exercise choice in the initiation, maintenance and regulation of their behaviors. As such, high pressure and control from family and university environments could predict low efficacy and low autonomy in career decision making activities (Guay, Senécal, Gauthier, & Fernet, 2003). This could in turn negatively affect students' wellbeing (Karavdic & Baumann, 2014) and consequently, their quality of life. Thus, promotion of autonomy-supportive environments such as considering individual perspectives, acknowledging the validity of feelings and perceptions, could free individuals to experience independence and enhance their capability to make a series of appropriate transitions, fostering self-directed approaches and the perception of competences (Guay, Ratelle, Senécal, Larose, & Deschênes, 2006).

Our findings also revealed that Luxemburgish nationals, students with less than or equal to 6 months of professional experience, unemployed students as well as those in the first year of their Master's degree (as opposed to those in their second year), all obtained lower DCA scores. It is likely that Luxembourgish students may feel more secure in obtaining job opportunities than their non-citizen peers. As a result, they could be less preoccupied with their career approaches. General unemployment statistics in Luxembourg for the year 2013 (Adem, 2014) showed that 72.9% of persons registered at National Employment Administration were not Luxemburgish nationals. Although career disparities such as positional differences between graduates in their career outcome could be observed on the basis of social categorization, gender and ethnicity (Brown & Hesketh, 2004), we suggest that our results may be due to the fact that nationals have easier access to the relatively restricted civil servants job sector. Indeed, in 2010, the fact that more than 42% of the employed citizens were working in the public sector, could prompt Luxemburgish students be to less proactive in their career orientation. In addition, challenges related to language competence skills (Luxembourgish labor market requires several languages: Luxemburgish, French, German and English) may oblige foreigners to rely more on their DCA as a central strategy in their pursuit for a job. Our previous study conducted on the same population of students revealed that socio-demographic determinants such as being a citizen of Luxembourg, coincides with a lower worries/anxiety score, which was in turn related to the lower career adaptability and career optimism dimensions of DCA (for review see Karavdic & Baumann, 2015).

Socio-educational disparities between the students may predispose them to different outcomes in their career paths and development process. Our findings support the fact that individuals with prior work experience, employed individuals and those in their final year of Masters Study obtain higher DCA scores. Career driven interventions should be based on students' specific needs and implemented during tertiary education, at an early stage in each individual's career development (Van Zyl & Rothmann 2012).

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## Chapter #14

### SUBJECTIVE HEALTH PROBLEMS IN THE CONTEXT OF PERSONALITY CHARACTERISTICS AND HEALTH-RELATED BEHAVIOR IN CZECH ADOLESCENTS

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#### ABSTRACT

This chapter reports partial results of an extensive research project called Health-Enhancing and Health-Threatening Behaviour: Determinants, Models, and Consequences. This project involves a detailed analysis of select variables reflected in the process of self-regulation with respect to health. Its goal is to create models of health-promoting and health-threatening behavior applicable among the Czech population. This is made possible by means of a cross-section research study carried out using sample groups of adolescents, young, middle and advanced aged adults as well as seniors. The presented results focus on the explored selected factors of health-promoting behavior in adolescents, the level of commitment that adolescents invest in taking care of their health, and their cognitive evaluations and perceptions of their own health. In addition, the role of personality characteristics in relation to maintenance, loss or restoration of one's health was also explored. The data from the following instruments were utilized in this study: Health-Related Behavior Scale (Dosedlová, Slováčková, & Klimusová, 2013); Subjective Health Problems Inventory (modified version of the inventory by Osecká, Řehulková, & Macek., 1998), and the Big Five Inventory (John, Donahue, & Kentle, 1991). The sample consisted of 835 adolescents (47.4% female) aged 12-19 years (35.3% were in the period of early and middle adolescence and 64.7% were in the period of late adolescence). A principal component analysis of the items of the Health-Related Behavior Scale yielded five factors: healthy eating habits, exercise and lifestyle, avoidance of addictive substances and other risks, regular daily routine and emotional well-being. To predict subjective health issues, we used a hierarchical regression analysis with demographic variables entered in the first block, personality factor scores entered in the second block, and health-related behaviors entered in the third block. The results indicated that girls, compared to boys, scored higher on the subjective health issues scale; among personality characteristics, higher neuroticism and lower conscientiousness predicted more subjective health issues. Furthermore, lower scores on emotional well-being, regular daily routines and healthy eating habits predicted more health issues.

*Keywords:* subjective health problems; health-related behavior; personality; adolescence.

#### 1. INTRODUCTION

The presented results illustrate subgoals of an extensive research study carried out using a sample of 3086 individuals aged 11 to 90 years. This study has several subgoals: 1. Create a model of optimism with respect to health-related behavior; 2. Create a model of health-promoting and health-threatening behavior; 3. Identify and describe neuropsychological markers of health-promoting and health-threatening behavior indicators; 4. Examine the factor of age as the mediator of cognitive strategies and personality dispositions affecting health-related behavior and determine which type of health-promoting behavior is manifested by which age group and whether this manifested behavior is related to the perceived level of one's health.

It is the 4<sup>th</sup> and last goal that the presented study examines, while focusing on the relationship between health-related behaviors, selected personality characteristics, and subjective health problems in adolescents. Adolescence is a key stage of development, when a number of desirable habits and attitudes towards health-related behaviors are being formed. During this stage the health-related behavior of adolescent individuals undergoes a gradual change (Prochaska, Johnson, & Lee, 2009), particularly their attitude towards health (Seedhouse, 2001), associated with gradual acceptance of the responsibility for one's own health, which is reflected in the manifested level of their health-promoting or health-threatening behavior. At the same time, this developmental stage is critical in terms of it being the period during which attitudes towards risk behavior are formed (Jackson, Tucker, & Herman, 2007, Mahalik et al., 2013), and habits associated with risk behavior are developed. The personality of each individual plays an important role in this process. This is the reason why this study explored how adolescents assess their health-related behavior, and the factors that predict subjective health problems.

## **2. BACKGROUND**

The study is based on fundamental principles of contemporary health psychology, which is based on the fact that the way of life of each individual, his/her attitudes and behavior towards his/her own health, is the most important determinant affecting one's health, be it in a positive or negative way (Becker, Glascoff, Mitchell, Durham, & Arnold, 2007). This is because, in addition to genetic and environmental factors, and the level of health care accessibility, the key factors of each individual's lifestyle play an indisputable role in his/her health. The main premise of this approach is that personality affects health through a range of health-threatening to health-promoting habits (e.g. lack of physical activity, bad eating habits, substance abuse, etc.), as stated by Wiebe & Fortenberry (2006). The study is, thus, constructed on models describing personality as the agent mediating health-beneficial or health-risk behavior (Smith & Williams, 1992) and is based on the subjective perception and evaluation of health/illness. It maps the personality characteristics which can be associated with health (in the absence of an objective link with disease). The role of personality characteristics in relation to maintenance, loss or restoration of one's health has been explored as well, but in adolescence this relationship has not been satisfactorily verified (Raynor & Levine, 2009). In this context, the theoretical basis of the presented study is anchored in the concept described by Kaptein and Weinman (2004), which recognizes two health-related behaviors: health-risk behavior (behavior, which by its intensity or frequency increases the risk of health problems or injury) and health-enhancement behavior (activities, which can prevent possible health difficulties, help identify illnesses in their early stages, support and maintain health or decrease the risk of injury).

## **3. OBJECTIVES**

The present study builds on the research findings mentioned above, with the aim to further refine the relationship between personality and health, by enriching the model with additional variables. Therefore, this study's goal is to examine the mutual relationships between subjectively experienced health issues, select personality characteristics and health-related behavior components, in order to create the pillars of a model of health-beneficial behavior. In addition, we also aimed to examine a possible developmental trend of the above-mentioned correlates during adolescence.

## 4. METHOD

The research sample consisted of 835 adolescents (47.4% women and 52.6% men) aged 12-19 years (35.3 % in the period of early and middle adolescence and 64.7% in the period of late adolescence). Research data were collected at middle schools and high schools of various specializations across the entire Czech Republic from which we received permission to participate in this study. Subsequently, through school psychologists and prevention professionals these schools received feedback by means of the summarized results of their students. In this research study, we administered a one-time questionnaire, using a combination of self-report questionnaire methods, within the framework of a quantitative research design. The participants in this broad research project were administered an extensive battery of tests including:

### 4.1. Descriptive measures

Descriptive measures concerning the subjects' age, gender, height, weight, etc.

### 4.2. The Health-Related Behavior Scale

The Health-Related Behavior Scale (Dosedlová et al., 2013) maps individual lifestyle areas (eating and drinking habits, sleep, regularity of daily routine, physical activity, usage of addictive substances, preventive measures, and select factors of emotional well-being). The 45-item questionnaire was created based on pre-research content analysis. The majority of the items requires a measure of agreement/disagreement with a given statement (e.g. I maintain a regular drinking routine; 1 – totally true for me, 5 – not at all true for me).

### 4.3. The Subjective Health Problems Inventory

The Subjective Health Problems Inventory is an adjusted version of the Health Issues Inventory by Osecká et al. (1998). It consists of 21 health problems, where the task of the respondents is to evaluate subjective occurrence of these problems within the last year. We consider this scale to be a one-dimensional measure of negative health issues (the ratio of the first and second eigenvalue equaled 4.3; Cronbach's Alpha = 0.88).

### 4.4. The Big Five Inventory

The Big Five Inventory (John, Donahue, & Kentle, 1991) is a self-report inventory designed to measure the Big Five dimensions. It is quite brief for a multidimensional personality inventory (44 items total), and consists of short phrases with relatively accessible vocabulary.

## 5. RESULTS

Due to the limited extent of this article, we are presenting only the key results of this study. The measure of the subjective health issues was calculated as the mean score on the Subjective Health Problems Inventory items (the one-dimensionality of the scale was verified using factor analysis; Cronbach's Alpha=0.867). Based on the factor analysis of the items from the Health-Related Behavior Scale (Principal Axis Factoring with Varimax rotation), we subsequently identified five factors of health-related behavior, which were further analyzed. The extracted factors were as follows: 1. Healthy eating habits; 2. Avoiding addictive substances and other risks; 3. Exercise and lifestyle; 4. Regular daily

routine; and 5. Emotional well-being. All these correspond to our previous research results with a university student population (Dosedlová et al., 2013, Dosedlová et al., 2015).

The most interesting results were revealed by the complex analysis of the prediction of subjective health issues by means of the regression analysis method. We used hierarchical regression with 3 blocks of variables, with the criterion variable being the measure of subjective health issues. The first block of predictors included basic demographic variables of gender and age, the second block included personality characteristics (BFI scale scores) and the last block included factor scores representing the measure of various aspects of health-related behavior. The model summary and change statistics are reported in the Table 1.

*Table 1. Regression analyses for subjective health as predicted by demographics, personality and health-related.*

Block	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	0,240	0,058	0,054	0,43696	0,058	14,522	2	476	<0,001
2	0,491	0,241	0,230	0,39422	0,188	22,764	5	471	<0,001
3	0,554	0,307	0,289	0,37875	0,066	8,852	5	466	<0,001

Gender and age (1st block) explained 5.8% of the variance in the health issues ( $F(2, 476)=14.522, p<0.01$ ); however, only gender ( $\beta=0.153$ ) was a significant predictor (women claimed significantly more health issues). Personality variables were entered in the 2<sup>nd</sup> block and explained an additional 18.8% of the variance ( $F(7, 471)=22.764, p<0.01$ ); significant predictors were neuroticism ( $\beta=0.252$ ), conscientiousness ( $\beta=-0.212$ ) and openness ( $\beta=0.147$ ). Health-beneficial behavior (added as the 3rd block) further explained 6.6% of the variance in health issues; significant predictors were emotional well-being ( $\beta=-0.194$ ), healthy eating habits ( $\beta=-0.114$ ) and regular daily routine ( $\beta=-0.132$ ). In total, 30.7% of the variance was explained by the predictor variables in the three blocks ( $F(12, 466)=17.185, p<0.01$ ), namely subjective health issues were predicted by being female, having higher neuroticism and openness and lower conscientiousness scores, and lower scores on emotional well-being, daily routines and healthy eating habits. All the above mentioned coefficients were statistically significant, at  $p = .01$  significance level (see Table 2).

*Table 2. Standardized regression coefficients for the variables predicting subjective health issues.*

Predictor	Standardized Coefficients	t	Sig.
	Beta		
age group	0,070	18,606	0,000
gender	0,153	1,647	0,100
Extraversion	-0,106	3,574	0,024
Agreeableness	0,026	-2,269	0,586
Conscientiousness	-0,212	0,545	0,000
Neuroticism	0,252	-4,479	0,000
Openness	0,147	5,729	0,002
Healthy eating habits	-0,114	-3,050	0,006
Avoiding addictive substances and other risks	-0,044	-2,745	0,313
Exercise and lifestyle	0,075	1,011	0,064
Regular daily routine	-0,132	-1,856	0,001
Emotional well-being	-0,194	-3,224	0,000

## 6. CONCLUSION/DISCUSSION

Using a hierarchical regression analysis, we tested a model that predicted the level of the participants' subjectively experienced health issues from demographic characteristics, selected personality characteristics, as well as select components of health-related behavior. This study highlights the importance of personality characteristics, health-related behaviors and gender as significant predictors of the participants' subjective health problems.

Only gender, not age, was a significant predictor: adolescent women reported more health issues than men. The same conclusion was found with a sample of adolescents in the Czech Republic conducted by the research team of Osecká et al. (1998). Within the framework of personality, we found neuroticism and conscientiousness to be significant predictors. The same conclusion was reached in a number of studies, which examined the relationship between personality traits and various aspects of a healthy lifestyle (Hudek-Knezevič & Kardum, 2009; Wen, Tchong & Ching, 2015). In these studies, neuroticism is most consistently connected with poor subjective health results - this conclusion demonstrates the importance of the role of personality in relation to restoring and maintaining health.

A greater degree of negatively perceived subjective symptoms and a greater focus on them in people with higher levels of neuroticism has also been confirmed by Feldman, Cohen, Doyle, Skoner, & Gwaltney (1999). The relationship between subjectively assessed health status and personality dimensions of the Big Five traits has been explored as well in our previous studies with university students: good subjective health was positively correlated to the conscientiousness and extraversion, and negatively to neuroticism (Klimusová, Dosedlová, & Slováčková, 2013). The main focus of research covered in this area is the assumption that certain personality factors like neuroticism play an important role in the etiology and progression of diseases that result in physiological changes detrimental to health.

The main limits of the study are associated with convenience sampling: we aimed to cover different types of educational institutions - from middle schools to high schools of various types and orientations. Only the schools which actively signed up to participate in the research were included. The attendance of individual participants was anonymous and voluntary, the completing the entire questionnaire battery, however, could be rather time-consuming especially for younger individuals.

The results of the study have added validity to the current complex approach to health and illness, which emphasizes the importance of the lifestyle of each individual, since it contributes significantly to his/her physical and emotional health. Among personality characteristics, neuroticism proved to be unequivocally the strongest predictor of a person's health condition: the lower the measures of neuroticism the lower the number of health issues. Therefore, in addition to other important predictors, neuroticism can be perceived as a significant disposition factor reflected in numerous processes affecting subjective evaluation of one's health condition.

## 7. FUTURE RESEARCH DIRECTIONS

The results presented here can be informative for specialists creating and implementing specific intervention programs focused on health-enhancing behavior. Adolescent women reported more health issues than did men. Also, lower levels of conscientiousness and higher levels of neuroticism were significant predictors of health issues. In spite of the evidence that adolescents differ in the level of activity they invest in

caring for their health, as well as in their subjective experience and evaluation of their own health condition, the research of healthy lifestyle and broader health condition issues in adolescence is often isolated, without taking into account the complex view of the entire problem area. Researchers have found that individuals who exhibit active health-enhancing behavior perceive their own health in a more positive way and attain higher life satisfaction (Becker et al., 2007). Special focus should also be placed on the importance of emotional well-being and having regular daily routines and healthy eating habits, which were also significant predictors beyond personality characteristics. The importance of differentiating strategies targeted to support the development of health-enhancing behavior among various age groups, has been pointed out by several authors, who have been researching this subject for a long time (see Becker & Arnold, 2004).

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