Uniwersytet Wrocławski

Faculty of Pedagogical and Historical Sciences
Institute of Psychology

Polish Journal of Applied Psychology

Editor: Alicja Kuczyńska

Volume 12, Number 1, 2014

Published by the University of Wrocław
Faculty of Pedagogical and Historical Sciences
Institute of Psychology

Institute of Psychology
Faculty of Pedagogical and Historical Sciences
University of Wrocław
ul. Dawida 1, 50-527 Wrocław, Poland
WWW: http://www.pjap.psychologia.uni.wroc.pl
e- mail: m.kochan-wojcik@psychologia.uni.wroc.pl
a.kuczynska@psychologia.uni.wroc.pl

Online access: http://www.bibliotekacyfrowa.pl/publication/56932

Polish Journal of Applied Psychology

Editor: Alicja Kuczyńska

Typesetting: *Anna Lenartowicz, Tomasz Kalota*

ISSN 2354-0052

Publishing House
Wydawnictwo eBooki.com.pl
ul. Obornicka 37/2
51-113 Wrocław
tel.: +48 602 606 508
e-mail: biuro@ebooki.com.pl
WWW: http://www.ebooki.com.pl

LIST OF REVIEWERS

Prof. dr hab. Augustyn Bańka
Dr Przemysław Bąbel
Dr Beata Bajcar
Prof. dr hab. Maria Beisert
Prof. dr hab. Eleonora Bielawska- Batorowicz
Prof. dr hab. Danuta Borecka – Biernat
Prof. Wilma Bucci
Prof. dr hab. Mieczysław Ciosek
Katarzyna Chapman, Ph.D.
Dr hab. Jan Chodkiewicz
Dr Teresa Chirkowska - Smolak
Prof. dr hab. Mieczysław Ciosek
Prof. dr hab. Lidia Cierpiałkowska
Prof. dr hab. Czesław Czabała
Doc. dr Alina Czapiga
Kandydat nauk psychologicznych doc. A.W. Danilenko
Prof. dr hab. Roman Derbis
Prof. Ian M. Evans
Dr Dorota Frydecka
Dr Agnieszka Fornalczyk
Prof. dr hab. Barbara Gawda
Dr Agata Gąsiorowska
Prof. dr hab. Andrzej Grzybowski
Prof. dr hab. Paweł Izdebski
Prof. dr hab. Ewa Jackowska
Prof. dr hab. Iwona Janicka
Prof. dr hab. Bożena Janda – Dębek
Prof. dr hab. Zygfryd Juczyński
Dr hab. Alicja Maria Kalus
Prof. dr hab. Maciej Karwowski
Prof. dr hab. Dorota Kornas – Biela
Prof. dr hab. Małgorzata Kościelska
Prof. dr hab. Barbara Kożusznik
Prof. dr hab. Alicja Kuczyńska
Prof. dr hab. Kinga Lachowicz – Tabaczek

Prof. dr hab. Maria Ledzińska
Prof. dr hab. Hanna Liberska
Prof. Helena Lindskog
Prof. dr hab. Mariola Łaguna
Prof. dr hab. Eugenia Mandal
Alan Mead, Ph.D.
Abby L. Mello, Ph.D.
Dr hab. Barbara Mróz
Prof. dr hab. Włodzimierz Oniszczenko
Prof. dr hab. Krystyna Ostrowska
Dr Małgorzata Olejarz
Prof. dr hab. Anna Oleszkowicz
Dr Olga Sakson – Obada
Prof. dr hab. Beata Pastwa- Wojciechowska
Prof. dr hab. Katarzyna Popiołek
Prof. dr hab. Maria Porębska
Prof. dr hab. Teresa Rostowska
Laura Seibokaite, Ph. D.
Dr hab. Alicja Senejko
Prof. dr hab. Andrzej Sękowski
Prof. dr hab. Stanisława Steuden
Prof. dr hab. Maria Straś Romanowska
Prof. dr hab. M.W. Strielec
Prof. dr hab. Maria Strykowska
Dr Małgorzata Szarzyńska
Prof. dr hab. Andrzej Szmajke
Dr hab. Małgorzata Święcicka
Dr Jakub Traczyk
Prof. dr hab. Bohdan Włodzimierz Wasilewski
Dr Agnieszka Widera-Wysoczańska
Prof. dr hab. Stanisław Witkowski
Dr Dorota Włodarczyk
Prof. UW dr hab. Ludwika Wojciechowska
Prof. dr hab. Anna Zalewska
Dr hab. Ewa Zasępa

Contents

Polish Journal of Applied Psychology
2014, vol. 12 (1), 9–26

Bianka Lewandowska[1]
University of Wrocław

Selected conditions for endometrial acceptance and preferred forms of psychological asistance

Abstract:

A study of 41 patients was conducted in order to provide an empirical basis for cooperation between a psychologist and a support group of patients with endometriosis. Our aim was to identify psychological variables which have a connection with the disease's acceptance. The patients' ages and duration of their illness were taken into account. We demonstrated that there is a positive relationship in accepting the illness through: perceived control and the ability to reduce pain, a declared ability to cope, a sense of harmony with one's body, and disclosure of negative emotions - mostly anger and sadness. A significantly negative association was shown for: the disease's duration, coping style with stress concentrating on the emotions, alienation from the body, and "catastrophizing". Preference for the form of psychological support was also studied. Most preferred were: physician communication training, and individual consultations with a psychologist.

Keywords:

endometriosis, acceptance of the disease, chronic illness, coping, body experience

Streszczenie:

W celu dostarczenia empirycznych podstaw dla programu współpracy psychologa z grupą wsparcia chorych z endometriozą przeprowadzono badanie z udziałem 41 pacjentek. Celem było zidentyfikowanie zmiennych psychologicznych wykazujących związek z poziomem akceptacji tej choroby. Uwzględniono wiek pacjentek i czas trwania choroby. Istotnie pozytywny związek z akceptacją choroby wykazano dla: postrzeganej kontroli i zdolności zmniejszania bólu, deklarowania zdolności do poradzenia sobie, ujawniania emocji negatywnych, w tym głównie gniewu i smutku oraz dla poczucia harmonii z własnym ciałem. Istotnie negatywny związek wykazano dla czasu trwania choroby, stylu radzenia sobie ze stresem skoncentrowanego na emocjach, alienacji wobec ciała i katastrofizowania. Badano także preferencję form wsparcia psychologicznego. Najwyżej preferowanymi okazały się: trening komunikacji z lekarzem i konsultacje indywidualne z psychologiem.

Słowa kluczowe:

endometrioza, akceptacja choroby, chroniczna choroba, radzenie sobie z chorobą

[1] Bianka Lewandowska, Institute of Psychology, Faculty of Pedagogical and Historical Sciences, University of Wrocław, ul. Dawida 1, 50-527 Wrocław, Poland; b.lewandowska@psychologia.uni.wroc.pl.

Introduction

A program was designed from the review of literature and our research results for cooperating with a currently created patient group diagnosed with endometriosis. Constructing a program for the cooperation of a psychologist with the patient group, required recognizing a specific need for psychological training and education. The purpose of assistance is to raise the level of disease acceptance, for this variable is considered an important predictor for adapting to chronic illness (Juczyński, 2001, p. 171).The study measured these variables, which maybe the subject of psychological training, and searched for an answer to the question whether they are, and to what extent, related to the acceptance level. We also studied preferences for various forms of psychological support.

Endometriosis as a chronic disease and a source of psychological problems

Endometriosis is a serious women's disease of a chronic and progressive character with numerous consequences for affecting the quality of a patient's life. Its direct cause is the occurrence of endometrial tissue outside the uterine cavity in such parts of the body asthe ovaries, fallopian tubes, vagina, bladder, colon, and even respiratory system. The "misplaced" tissues react to hormonal signals associated with the menstrual cycle, resulting in peeling and bleeding in those areas from which blood cannot be drained and, consequently, the formation of adhesions and cysts. It is clear from patients' stories that the disease often goes unrecognized for a long period (Denny, 2004), and therefore is not treatment - because the accompanying abdominal pain and bleeding are often interpreted as very severe symptoms associated with the last days of the menstrual cycle - and treated as an aspect "of a woman's fate" by patients themselves, their immediate surroundings, and even doctors. Endometriosis currently affects more than 10-20% of women in the reproductive age (Szpak et al., 2009), although it can occur earlier or later and accompany both menstrual cycles menopause. The etiology of this disease is complex and not fully understood. It is known that it develops on a hormonal and immunological basis - it is passed on to people who are particularly sensitivity to sex hormones, but inadequate immunological surveillance can also support the illness. The main symptom is pain (often described as intense, overwhelming or dull, accompanied by contractions) which in some forms of endometriosis accompanies not only menstruation, but also ovulation or almost the entire monthly cycle (Huntington et al., 2005).The pain often accompanies intercourse (dyspaurenia), urination and bowel movements, and may take the form of severe back pain (Denny, 2009). This situation often involves administering very strong painkillers, hinders work or social functioning, and influences intimate

relationships. Other symptoms include heavy and abnormal bleeding, chronic fatigue, persistent diarrhea or constipation. However, this is only the first level of suffering. The next step is the stress and uncertainty associated with difficulties in the diagnosis and localization of all sources of endometriosis - it is not only connected with the gynecologists' lack of preparation for diagnosis and treatment (Shuang-zheng et al., 2012; Hirsch, 2001), but also the invasive nature of some tests, such as use of laparoscopy. As stated by Mastro - despite its seriousness and numerous consequences, endometriosis is described by patients as "the avoidable (by medicine) disease" (by: Denny, 2004). It is common for a doctor, not having the appropriate level of knowledge about the disease, to fail to recognize its severity and to treat the intensity of experienced pain as a patient's over-sensitivity to signs of feminine physiology.

The next stage of difficulties are the consequences of medical treatment. Surgical treatment, based on cutting cysts and adhesions, has limited effectiveness - 40-50% of patients develop a recurrence. Effective hormonal therapies enjoy increasingly more recognition - but their side effects in many cases resemble sharpened menopausal symptoms: weight gain, nausea, vomiting, headache, loss of libido, hot flashes and sleep disturbances (Bergquist et al., 2001).Finally, other aspects of the disease are reproductive system abnormalities - in many cases making it difficult to become pregnant and contributing to a high rate (over 60%) of infertility (Siedentopf et al., 2008). Reported problems associated with intercourse, and the consequences of hormone therapy may enhance these difficulties, because - as has been shown in studies (Szpak et al., op.cit.) – they have a negative impact on a patient's sexual activity. This may in turn reduce the quality of partnerships and as a result limit support from the loved one.

To sum up - potential psychological problems s include: difficulty and delay (average being several years) in obtaining a diagnosis, overpowering and chronic pain, limiting professional and social contacts, and creating dyspaurenia and reproductive problems - which sometimes strengthen the relationship, but in many cases lead to its dissolution (Denny, 2007; Fernandez et al., 2006; Harrison, 2005). Other factors include: uncertainty about a treatment's effectiveness and a laborious search for an effective form, a need for the acceptance of the disease's chronic mode, and concerns about the future related to its progressive nature. This situation risks reducing life's quality and indicates a need for supplementing further medical treatment with properly selected psychological support.

The psychological problems of patients suffering from endometriosis – research overview

So far, the disease and its treatment, as they reflecton the patients' quality of life and mental health, were based on both qualitative and quantitative methods and the quantitative measurement of variables. The results, however, are difficult to generalize because the variables and methods used were so various, as were the number of treatment groups and the differences in the populations' cultural contexts. The Polish studies (Łuczak - Wawrzyniak et al., 2007), conducted in a group of 30 diagnosed and hospitalized patients, demonstrated a high acceptance level and perceived satisfaction with life, and a relatively low disorder intensity. This is a result contrary to a number of comparable international studies carried out with numerically larger groups; they revealed on average a low level of perceived life quality and showed a significant association with the physical limitations and negative emotions (Shuang-zheng et al., op. cit., Kumar et al., 2010; De Sepulcri et al., 2009; Petta, 2004). The study also showed severe symptoms of depression and anxiety in the majority of respondents and revealed that the patient's mental health correlated positively with the intensity of current pain and a woman's young age, and that the perceived quality of life was inversely proportional to the treatment's length (De Sepulcri et al., op. cit.). Many studies showed a high or medium level of perceived emotional stress: irritability, tension, anxiety and sadness, mood swings, depression and dysthymia (Szpak et al., op. cit.; Kumar et al., op. cit.; Hawkins et al., 2003).

Forms of psychological support for women suffering from endometriosis

In Polish health service literature, there are no psychological support programs for patients with endometriosis. The psychological support described in foreign literature, offered to those patients, is aimed at modifying factors significant for the disease's development and for the process of dealing with it. Patients experiences show the effectiveness of training in coping with stress and strong negative emotions (Zhao et al., 2012; Wright et al., 2003), with such training increasing the effectiveness to deal with pain (Hawkins et al., op. cit.), exercising self-performed, simple medical procedures, communicating with health services, and using a variety of healthy behaviors to enhance the overall psychophysical condition (Falconer,2005;Wang, 2004). Psychological support is primarily based on group or individual impacts found in cognitive-behavioral and humanistic-existential models, in educating and supporting changing habits, and in using a wide range of relaxing and imaginative techniques (Zhao et al., op. cit.; Fernandez et al., op. cit.).

More widely used somatic supports for the patients are interventions aimed at deepening the experience of their own corporeality (Seidler et al., 2004; Corbin, 2003;Charmaz,

1995). Experiencing the body - mainly its awareness and acceptance levels- is considered to be a relatively stable aspect of personality, yet to some extent is correctable psychologically - such as selected psychotherapeutic and group training forms that use the so-called "Techniques of the body" (Aspenson, 2010; Gyllensten et al., 2010). Corporeality, one such aspect, usually remains "in the shadows" where it works relatively well, but when beginning to be highlighted and negatively perceived it hinders normal functioning. In cases of both healthy and ill patients, experiencing one's body varies individually - its continuum extends from one's own sense of self and one's sense of psychosomatic competence ("understanding" of body's needs and their adequate recognition) to a sense of bodily alienation, to a confusion in its needs, responses and sensations (Charmaz, op. cit.). Many studies indicate a relationship between one's own flesh experience and adapting to chronic disease (Emad, 2006; Plach et al., 2004; Christensen et al.,1996). The person accepting the physical nature, and sensitive to the needs and signals of the body, is better able to cope with endometriosis at its different stages. The result not only more quicklyr diagnoses the first symptoms and enables one to search sooner for medical help, but also creates an acceptance level of one's body so stable and well-established that it will not be degraded by the disease and will provide a high level of self-care. On the other hand, people with a low sense of bodily harmony, may have a problem with the diagnosis. Its symptoms can be wrongly interpreted and as a result, they no longer are able to cope with the stress and uncertainty created by their problem. Poor bodily acceptance may also hinder perceiving the somatic disease as a part of one's own destiny, create defensive reactions such as displacement, problem denial, and unrealistic treatment expectations, - thus making it difficult for effective adaptation. Bode, van der Heij, Taal and van de Laar developed a tool for quantitatively measuring bodily experience (Bode et al., 2010). Their study showed that the degree of body-self split is the most important predictor of self-esteem for patients with chronic rheumatic diseases.

Particular sources of information and emotional support for patients with endometriosis are online forums and blogs dedicated to this disease, allowing for the exchange of experiences; they are also places to express feelings and describe experiences with persons, and their relatives, who share the same fate (Neal et al., 2011; Emad, op. cit.). Such support is also available in Poland. Analysing patient comments posted on the Internet concerning life problems and the need to share them - also during real, non-virtual meetings, inspired the concept to create a support group for patients, within which it would be possible to conduct psychological counseling and education.

Introduction to research: examined variables

Studies show (Juczyński, op. cit., p.172) that the level of adaptation to chronic illness (whose indicator can be its acceptance level) predicts significantly one's perceived quality of life, relatively independent from the severity of medical ailments. Juczyński's study aimed to verify the relationship between selected psychological variables that are possible for a psychologist to modify and the acceptance level of endometriosis.

The first independent variable was the person's style for coping with stress. Both daily life and the disease itself can mobilize physiological stress response mechanisms. Such a reaction, in particular its long-term form, suppresses the immune system so that it is potentially disadvantageous for relieving pain and inhibiting the development of endometriosis. Strategies for coping with stress are generally divided into those focused on solving a problem and improving the emotional state, and others that distract the patient from the stress source. Fully effective coping would require the appropriate use of all these strategies. However, as research shows (Strelau et al., 2005), strategies for coping with stress have a tendency to strengthen in a style characteristic for a person, which to some extent depends on temperamental factors, thus limiting one's coping ability - the stronger the stress, the more rigid the style. Individual coping styles may, however, be highlighted and expanded in the direction of greater flexibility and relevance, in the course of psychological training. The first aim of our study was to answer the question whether there is an association between a particular style for coping with stress and the level for accepting endometriosis. The second factor are the strategies, with their perceived effectiveness, for coping with pain.. People struggling with strong pain every day in many ways try to reduce the intensity of its perception. These methods may be more or less effective for pain associated with endometriosis. The next factor was to determine whether such strategies for dealing with the pain can be identified. Our research showed that endometriosis is a complaint that generates strong negative emotions. These emotions require awareness and appropriate expression; they should not be displaced and their over-expression suppressed. As Pennebaker's study indicates (Pennebaker et al., 2007), understanding and managing negative emotions and their expression are significant factors for somatic disease. Another factor controlled in our study was, therefore, the typical level for expressing these three negative emotions: anger, sadness and fear. Another aim was to answer the question whether the level of suppressed emotions is associated with the acceptance of endometriosis.

Experiencing the patient's own body is treated here as a potentially important variable and one of the more significant illness adjustment predictors. Experiencing one's own bodily unity is highly threatened by such factors as severe and recurrent pain, bothersome medical treatments, discomfort and functioning limitations, or problems with

sexuality and fertility. Hence, it can be assumed that experiencing one's own flesh may be related to endometriosis's acceptance level and as a result the quality of life level. There is one more condition to verify the connection between bodily perception and the quality of the living experience. According to research, an important predictor of disease development is low body weight (Nagle et al., 2009), and one factor supporting treatment is to keep to an antioxidant diet (Mier-Cabrera et al., 2009) and undergo moderate physical exercise (Petta, op. cit.). This study, therefore, verifies the relationship between bodily unity as perceived by the sick person and one's acceptance level of endometriosis. The aim was to answer the question whether the level of alienation from the body and harmony with the body is related to having accepted endometriosis.

Another area of investigation (in connection with the designed support program) were the the patients' preferences- as declared by themselves- or their readiness to benefit from proposed counseling and psycho-education. The subjects were presented with a list of interventions considered adequate to the above-mentioned problems generated by the disease.

Participants and procedure

The study included 41 patients diagnosed with endometriosis. These were women who had responded to an advertisement posted on the online forum for patients (www.endoendo.pl) and then were subjected to questionnaire-examination during direct meetings. This selection method does not allow for generalized research results to the overall patient population; however, it is accepted for the purpose of research, which is to design a program of psychological support. Recruiting a group covered by this program can in fact be done in a manner similar to the procedure used for a study selection. In addition to psychological variables, such variables as potential predictive value for disease acceptance, the person's age (range: 22 – 52, M=34.4),and disease duration (since the time it was diagnosed) were included (range: 1 – 18, M=4.07). Having the disease for at least one year with no psychiatric diagnoses was adopted as a necessary condition for participation in the study. Conscious consent of the patient was adopted.

Measures

Acceptance of Illness

The acceptance level of chronic illness was measured using the AIS (Acceptance of Illness Scale), by Felton et al., as adapted by Zygfryd Juczyński (Juczyński, op. cit.). It is designed to study adult patients, currently ill. It contains eight statements describing the negative consequences of ill health, such as limitations imposed by the disease, lack of

self-sufficiency, dependence on others, and reduced self-esteem. The test determines one's status with a five-point scale.“ A low score indicates no acceptance or adaptation to the disease, and strong psychological discomfort. In turn, a high score indicates acceptance” (Juczyński, op. cit., s.171). The scale is standardized according to Polish conditions involving different patient groups. It has been shown that the patients with chronic pain have the lowest acceptance level.

Style for coping with stress

For measuring coping with stress the Coping Inventory for Stressful Situations by Endler and Parker (CISS) was used, in the Polish version created by J. Strelau and colleagues (Strelau et al., op. cit.). Coping style is here understood as an individual's typical behavior under stress. The questionnaire consists of 48 statements usually concerning people's behavior. Subjects estimate, ranging from 1 to 5, how often their behavior is undertaken and obtains the result in three scales, which sequentially measure the intensity of three coping styles: Task-oriented coping, Emotion-oriented coping and Avoidance-oriented coping. Subjects can get into each scale score, ranging between 16 and 80 points. The scale “Task-oriented coping” refers to a stress style that takes efforts to solve the problem (cognitive transformation) or to attempt to change the situation (planning and undertaking tasks). “Emotion-oriented coping” refers to the tendency for people to focus on themselves, on their own emotional experiences, such as anger, guilt, or tension, as well as on wishful thinking or fantasizing, mainly to reduce tension associated with the stress. “Avoiding-oriented coping” refers to coping that involves refraining from thinking, experiencing and living the situation through various forms of distraction; it focuses on two major trends: Avoidant-social coping, and Avoidant-distracted coping - engaging in such replacement activities as watching television, overeating, or thinking about pleasant matters.

Strategies for coping with pain

Measuring the sick patients' strategies coping with pain was made using The Pain Coping Strategies Questionnaire (CSQ), by Rosenstiel and Keefe in the Polish adaptation by Juczyński (op. cit.). It consists of 42 statements describing commonly used ways to cope with pain, and two questions concerning the assessment level of control over the pain and skills to reduce it. Ways for coping with pain are represented by seven strategies: six cognitive and one behavioral, comprising three factors: cognitive coping (“revaluation of pain sensations,” “ignoring sensations” and “declaration of coping”), staying focused and taking replacement action (“distraction” and “increased behavioral activity”) and searching for disaster or hope (“catastrophizing”, “praying and deep hope”). The subject is asked to respond on a seven-point Likert-type scale. In each scale measuring coping strategies one can get from 0 to 36 points, and also from 0 to 6 points in the two positions

which measure "the control of pain" and the "possibility of lowering pain". The questionnaire does not have norms - for interpreting the results, studies of several patient groups with chronic pain were used.

Control of negative emotions

To measure the degree to which negative emotions were controlled (attenuation versus disclosure), the Courtauld Emotional Control Scale by Watson and Greer, in its Polish adaptation by Z. Juczyński (op. cit.), was used. It consists of three subscales that measure the disclosure/attenuation level by testing three basic emotions: anger, depression (intensified sorrow) and anxiety. Each subscale has seven self-describing statements; the test person specifies the frequency of the way sheuses to control emotions ranging from 1 to 4. The higher the result is, the stronger the given emotional reactions are controlled by the subject. On the basis of points awarded to all claims one can also calculate the overall rate of emotional control, meaning the individual's belief about their ability to control negative emotions.

Body-self unity

The level for experiencing bodily unity was tested with the questionnaire BEQ (Body Experience Questionnaire) by Bode and colleagues, used to measure the experienced unity of self and body, which consists of two separate, fixed sensations: harmony with the body and alienation between self and body (Bode, op. cit.). The questionnaire was designed for the the chronically ill and has not been standardized for Polish conditions. We obtained approval for its use in this study. The standard back-translation procedure was performed. "Experienced unity of body and Self" is understood here as sensing harmony with the body orsensing alienation between Self and body. The original questionnaire was based on qualitative research analysis on the sensed unity / separation from one's body by the sick. As a result of the pilot studies and factor analysis,10 claims were selected which in turn form two separate subscales: "Alienation" (6 items) and "Harmony" (4 items). The subject expresses statement compliance with their own feelings, giving themselves points in the range from 1 to 4.The higher the result obtained in the alienation subscale (6-24), the stronger the sensed separation between body and Self (body-self split). The harmony subscale score (4-16) is stronger whenever the the degree of perceived of body–Self unity is higher.

Preferences of patients: their readiness to use the proposed psychological support forms

The tool to study patient preferences was a survey, including the question "To what extent would you like to use the following psychological support forms? In your response, please use the following scale: 5 - definitely yes, 4 - rather, 3 - I do not know, 2 - probably not, 1 - definitely not" and adhere to the list of proposed forms of support. The list

was based on the disease's adaptation predictors and on pilot study results in which sufferers were asked about their opinion concerning useful assistance forms. The list included the following forms of psychological support: 1) training for coping with stress, 2) training for managing negative emotions - such as anger, fear, sadness, 3) training for pain coping 4) workshops for developing body acceptance and awareness, 5) training for patient communication with a doctor, 6) training for communication in close relationships 7) a workshop to support introducing and consolidating a healthy lifestyle (change in eating habits and physical activity levels, implementing medical prescriptions), 8) taking part in a support group for people with endometriosis, 9) individual consultations with a psychologist.

Results

Mean variable scores in the study group and their relationship to illness acceptance

Table 1. Mean values (M), standard deviation (SD) of the variables and Pearson's linear correlation coefficients (r) for each variable, versus Acceptance of the illness (AI).

Name of variable (N=41)	M	SD	r (correlation with AI)
Acceptance of illness	19.9	7.1	-
Period of illness	5.9	4.08	-0.53**
Age	34.4	7.9	-0.17
Styles of coping with stress			
Style focused on the task	57.2	10.4	0.30
Style focused on emotions	43.1	10.9	-0.51*
Style focused on avoidance	44.3	10.7	0.13
Searching for social contact	17.2	6.1	0.25
Engaging in replacement activities	18.2	5.5	-0.03
Strategies for coping with pain			
Reevaluation of the pain sensation	9.0	5.0	0.05
Ignoring sensations	10.9	5.1	0.1
Declaration of coping	17.8	6.2	0.56**
Distraction	19.0	7.5	0.09
Increased behavioral activity	21.0	6.2	0.2
Catastrophizing	16.7	7.0	-0.39*
Praying and deep hope	15.4	7.5	0.04
Coping with pain			
Pain control	2.7	0.9	0.58**
Ability to decrease pain	2.3	0.7	0.48**

Name of variable (N=41)	M	SD	r (correlation with AI)
Control over negative emotions			
Anger control	16.8	5.3	-0.56**
Depression control	17.3	3.8	-0.37*
Fear control	16.8	4.6	-0.18
The overall rate of control over negative emotions	50.9	10.8	-0.51**
Sense of unity of body and Self			
Alienation	13.3	3.93	-0.54**
Harmony	11.7	2.84	0.31*

The coefficients significant for $p < 0.05$ marked with *, significant for $p < 0.01$ marked with **.

Table 1 presents mean variables obtained in the patient group, standard deviations, and the statistical results of the relationships between examined psychological variables, the respondents' ages, disease duration, and the levelsat which the illness was accepted. The average level of acceptance equaled M=19.9 (s=7.1) - lower than in most patient groups of when compared only with patients experiencing chronic pain (M=18.46) (Juczyński, op. cit., p. 170).The frequency and proportions of the three stress coping styles and the average control rate of negative emotions in the study group do not differ from those trends found in the Polish normalizing studies (Strelau, op. cit.; Juczyński, op. cit.). Analogous to the general population, the task-oriented style prevails in endometriosis cases. The average anxiety control level is slightly lower than in the normalizing studies. Among the strategies for coping with pain in the study group are: increasing behavioral and distraction activity from painful experiences - similar to the study groups with back pain and neuralgia (Juczyński, op. cit., s.164), and the groups' declared methods for dealing with them (painful experiences) - as in the migraine study group (ibid.). However, feeling alienated from one's own body is higher, and the perceived level of bodily harmony is lower, than the one reported by Bode (op. cit.) in patients with chronic rheumatic diseases (although the cited results have been acquired in a much larger patient group).

The illness acceptance level in the group has a number of significant relationships with the examined independent variables. It correlates strongly with the control over the level of experienced pain and the perceived ability to decrease it. A cognitive strategy referred to - "declaration of coping" with pain, shows a significant, positive association with disease acceptance. On the other hand, a significant negative association was found for "catastrophizing". Another variable, showing a significant negative relationship with endometriosis acceptance is a coping style involving concentration on the experienced emotions. At the same time, the tendency to suppress negative emotions, and especially

the lack of expressed anger and - to a lesser extent - of sadness appear to be related to a low acceptance level of of the disease. And another variable, significantly negatively associated with acceptance, is a sense of alienation in relation to the body. Harmony with one's own organism shows a moderate positive relationship when the illness is accepted. The period of illness appears to be an important variable - and here ironically, but in correlation with the cited test results - the time does not work in the patients' favor. On the contrary - the longer they suffer from the illness, the lower its acceptance level becomes.

Psychological variables as acceptance level predictors for the disease

The predictive power of the tested variables for the disease's acceptance level was also analyzed. For this purpose a regression analysis was conducted – the dependent variable for disease acceptance was adopted; and for its predictors - examined psychological variables, participants' ages and duration of the disease. The model was significant at $F(21.19) = 3.99$, $p < 0.002$ and showed a high predictive power. Researched psychological variables explained 0.61 variance of the dependent variable ($R2 = 0.61$). However, a significant impact on the disease's acceptance level has been demonstrated for only two variables: declared coping as the main strategy for controlling pain ($\beta=0.48$; $t = 2.52$; $p< 0.02$) and the overall rate of perceived control over pain ($\beta=0.35$; $t = 2.21$; $p< 0.04$). This indicates the importance of these variables for accepting the illness, however - the results of regression analysis may also affect existing moderate correlations between the independent variables.

Patients preferences for the proposed forms of psychological support

Table 2. Proposed forms of psychological support and indicators of patient preferences (PI).

Proposed form of psychological support	**PI**
Individual consultations with a psychologist	4.6
Training in communication between the patient and the doctor	4.6
Training in coping with pain	4.5
Training in coping with stress	4.2
Training in communication in close relations	4.2
Training in negative emotions management (anger, fear, sadness)	4.1
Support group for people diagnosed with endometriosis.	4.1
Workshops developing acceptance and awareness of the body	3.7
Workshop supporting an introduction to and preservation of a healthy lifestyle.	3.7

Table 2 presents the average preference values. Patients mostly prefer training in communication skills and individual consultations with a psychologist and, to a large extent, are also interested in training to cope with the pain. However, the weakest factors are the

readiness to work on bodily acceptance and awareness, and for using specialist support in changing lifestyles (to more healthy ones).

Discussion and guidelines for a psychological support program

The study allows for a better understanding of an endometrial patient's specific psychological problems, and provides the theoretical basis for planning psychological support, its directions and forms. The variable most critically related to the disease's acceptance level is "control over pain" - a factor that depends primarily on effective medical treatment, and psychological support - in the form of cognitive-behavioral training or relaxation. It has also been shown that the better the patients cope with the disease, the more likely they will convince themselves of the efficiency in this area. This probably indicates the importance for developing a sense of efficiency in dealing with ailments and discomfort, although this should be reviewed with a more specific measurement tool.

Tested dependencies show a significant tendency for coping with emotions in the process of accepting endometriosis. Acceptance is lower in patients who in situations of tension and congestion tend to analyze their emotional states; they think wishfully and fantasize in order to reduce their stress - because such behavior measures items that focus (in the used scale) on emotions. This shows the need for introducing rational strategies (psychological training to cope with stress) and for developing a task-oriented approach to problem solving and the ability to find distance from them– especially in away that seeks contact with other people (these styles showed a statistically non-significant but positive relationship in accepting the disease).

At the same time the study shows that a high level of disclosed negative emotions is important for accepting the illness – that of mainly expressing anger and sadness, whereas there was no material impact for the expression of fear. As shown above, the present works showed primarily depression and anxiety as the affective states characteristic for this disease. Yet the pain (especially strong and difficult to control), and experienced limitations can be a significant source of irritation, anger, and even a proneness toward aggression. It seems clear that patients with endometriosis, often experiencing misunderstandings about the seriousness of their condition, may feel irritated or angry. Anger, however, as opposed to anxiety, may be unacceptable in their environment as being inconsistent with the stereotypical image of femininity, and consequently gets suppressed. The inability to share anger and sadness with their environment - as well as all negative emotions having an overall low level of acceptance and awareness - can significantly impair an ill person and give rise to internal conflicts and generate additional

stress. Effective support in this area will be work that allows one to realize, accept and practice constructively negative emotions – especially anger and sadness.

And finally - our study has shown that there is a negative significance in accepting the disease when a patient feels alienated towards her own body, and a less meaningful but positive significance–when the patient feels in harmony with it. Based on analysis, it is difficult to determine if this low disease acceptance level gradually alienates a sick person from her body, or if "experiencing the body as an invaluable aspect of oneself, locking up one's goals and aspirations" (Bode, op. cit., p. 672),does not help in accepting the life-changes caused by the disease and allowing one to accept herself in the role as the patient. In the studied group, the alienation level ($p = 0.33$, insignificant) correlates with the duration of the disease, but verifying this problem requires further study. It is clear, however, that support for a satisfactory level of confidence in one's own body has a significant relationship with the patient's better functioning. It shows there is a need for providing such group support, which develops mindfulness and attention to bodily needs and strengthens confidence in the body's signals.

The demonstrated, strong tendency to reduce the disease's acceptance level over the time of its duration gives a "grim face" to this illness, especially in context of available treatments. Endometriosis is a progressive disease. In fact, there is no effective therapy, the treatment is palliative - focused on inhibiting its growth and removing its symptoms. This allows the assumption that time spent in living with the disease - rich in discomforts, limitations and uncertainty about the future- destructively affects the sense of adapting to it. This strengthens the argument for the need for various forms of psychological support, initiated as soon as possible after diagnosis.

As can be deduced from patient preferences - a major problem experienced in this disease, in which patients expect counseling, is effective communication with doctors. This is understandable in relation to the difficulty ingiving a precise diagnosis, and indicates another form of group work which is practical training in patient-doctor communication. The study group also showed a high level of readiness for individual work with a psychologist - it can indicate a high level of experienced pain or anxiety about their own mental health and requires an enriched work-plan program with possibilities for personal contact with a counselor. An interesting factor found in the group is a relatively low willingness to develop corporeality competences - both in health habits and corporeal awareness. This may be due to the cultural context - the holistic picture of the human person being relatively rare in Western culture - but also a reluctance to deal with the body by patients overwhelmed with negative physical well-being and medical procedures. Since the study has demonstrated how important it is to experience the body for a successful adaptation to endometriosis, the introduction of psychological support in

this area cannot be forsaken and must be linked to the participants' initial education and motivation.

References:

Aspenson, D. O. (2010). Mind–body skills training groups. InSt. Walfish (Ed.). *Earning a living outside of managed mental health care: 50 ways to expand your practice*. Washington: American Psychological Association, 171-174.

Bode, Ch., van der Heij, A., Taal, E., van de Laar, M.A.F.J. (2010).Body self-unity and self-esteem in patients with rheumatic diseases. *Psychology, Health & Medicine*, (6), 672-684.

Charmaz, K. (1995). The body, identity, and self: Adapting to impairment. *The Sociological Quarterly*, (4), 657-680.

Christensen, A. J., Wiebe, J. S., Edwards, D. L., Michels, J. D. Lawton, W. J. (1996). Body consciousness, illness-related impairment, and patient adherence in hemodialysis. *Journal of Consulting and Clinical Psychology,*(1), 147-152.

Corbin, J.M. (2003). The body in health and illness. *Qualitative Health Research*, (2), 256-267.

De Sepulcri, R., do Amaral,V.F.(2009).Depressive symptoms, anxiety and quality of life in women with pelvic endometriosis. *European Journal of Obstetrics & Gynecology and Reproductive Biology*, (1), 53-56.

Denny, E. (2009). "I Never Know From One Day to Another How I Will Feel": Pain and Uncertainty in Women With Endometriosis. *Qualitative Health Research*, (7), 985-995.

Denny, E., Mann, C.H. (2007). Endometriosis-associated dyspareunia: the impact on women's lives. *The Journal of Family Planning and Reproductive Health Care*, (3), 189-193.

Denny, E. (2004). Women's experience of endometriosis. *Journal of Advanced Nursing*, (6), 641-648.

Emad, M. C. (2006). At WITSENDO. Communal embodiment through storytelling in women's experiences with endometriosis. *Women's Studies International Forum*, (2), 184-196.

Falconer, S. (2005). Over the pain barrier, *Community Care*,(4), 22.

Fernandez, I., Reid, C., Dziurawiec, S.(2006). Living with endometriosis: The perspective of male partners. *Journal of Psychosomatic Research*, (4), 433-438.

Gyllensten, L. A., Miller, M., Gard G. (2010).Embodied identity–A deeper understanding of body awareness. *Physiotherapy Theory and Practice*, (7), 439-446.

Harrison, V.(2005). Stress reactivity and family relationships in the developmental treatment of endometriosis. *Fertility and Sterility*, (83), 857-864.

Hawkins, R. S., Hart, D. A.(2003).The Use of Thermal Biofeedback in the Treatment of Pain Associated With Endometriosis: *Preliminary Findings, Applied Psychophysiology and Biofeedback*,(4), 279-289.

Hirsch, K.W., Lapido, O.A., Bhal, P.S., Shaw, R.W.(2001).The management of endometriosis: a survey of patients' aspirations. *Journal of Obstetrics and Gynecology*,(5), 500-503.

Huntington, A., Gilmour, J.A. (2005). A life shaped by pain: women and endometriosis. *Journal of Clinical Nursing*, (14),1124-1132.

Juczyński, Z. (2001). *Narzędzia pomiaru w promocjii psychologii zdrowia* [Questionnaires using in health promotion and health psychology]. Warszawa: Pracownia Testów Psychologicznych PTP.

Kumar, A., Gupta, V., Maurya, A. (2010). Mental health and quality of life of chronic pelvic pain and endometriosis patients. *Journal of Projective Psychology & Mental Health*, (2), 153-157.

Łuczak–Wawrzyniak, J., Szczepańska, M., Skrzypczak, J. (2007). Ocena jakości życia kobiet z rozpoznaną endometriozą oraz sposobów radzenia sobie z negatywnymi skutkami choroby. *Przegląd Menopauzalny*, (6), 329–335.

Mier-Cabrera, J., Aburto-Soto, T., Burrola-Méndez, S., Jiménez-Zamudio, L., Tolentino, M.C., Casanueva, E., Hernández-Guerrero, C. (2009). Women with endometriosis improved their peripheral antioxidant markers after the application of a high antioxidant diet. *Reproductive Biology and Endocrinology*, (7), 1-11.

Nagle, C.M., Bell, T.A., Purdie, D.M.,Treloar, S.A.; Olsen, C.M., Grover, S., Green, A.C. (2009). Relative weight at ages 10 and 16 years and risk of endometriosis: a case-control analysis. *Human Reproduction*, (6), 1501-1501.

Neal, D.M., McKenzie, P.J. (2011). Putting the pieces together: endometriosis blogs, cognitive authority, and collaborative information behavior. *Journal of the Medical Library Association*, (2), 127-134.

Pennebaker, J.W., Chung, C.K. (2007). Expressive writing, emotional upheavals, and health. In H. Friedman & R. Cohen Silver (Eds.). *Foundations of health psychology*. New York: Oxford University Press, 263-284.

Petta, C.A. (2004). Quality of Life in Brazilian Women With Endometriosis Assessed Trough a Medical Outcome Questionnaire. *The Journal of Reproductive Medicine*, (49), 115-120.

Plach, S., Stevens, P., Moss, V. (2004). Corporeality: Women's Experiences of a Body With Rheumatoid Arthritis. *Clinical Nursing Research*,(2), 137-155.

Seidler, K.P, Schreiber-Willnow, K. (2004). Concentrative movement therapy as body-oriented psychotherapy for inpatients with different body experience. *Psychotherapy Research*, (3), 378-387.

Shuang-zheng, J., Jin-hua, L., Jing-hua, S., Peng-ran, S., Jing-he, L. (2012). Health-related quality of life in women with endometriosis: a systematic review. *Journal of Ovarian Research*, (1), 29-37.

Siedentopf, F., Tariverdian, N.,Rücke, M., Kentenich, H., Arck, P. C. (2008). Immune Status, Psychosocial Distress and Reduced Quality of Life in Infertile Patients with Endometriosis. *American Journal of Reproductive Immunology*, (5), 449-461.

Strelau, J., Jaworowska, A.,Wrześniewski, K., Szczepaniak, P. (2005). *Kwestionariusz radzenia sobie w sytuacjach stresowych.*[Coping Questionnaire for Stressful Situations]. Warszawa: Pracownia Testów Psychologicznych.

Szpak, R., Bugała – Szpak, J., Drosdzol, A., Skrzypulec, V.(2009). Jakość życia u kobiet z endometriozą. *Wiadomości Lekarskie*, (2),129-134.

Wang, Ch. Y. (2004). Coping with endometriosis, Lancet, (9447), 1800.

Wright, C. C., Barlow, J. H., Turner, A. P., Bancroft, G. V. (2003). Self-management training for people with chronic disease: An exploratory study. *British Journal of Health Psychology*, (4), 465-476.

Zhao, L.,Wu, H.,Zhou, X., Wang, Q., Zhu, W., Chen, J. (2012). Effects of progressive muscular relaxation training on anxiety, depression and quality of life of endometriosis patients under gonadotrophin-releasing hormone agonist therapy, *European Journal of Obstetrics & Gynecology & Reproductive Biology*, (2), 211-215.

Polish Journal of Applied Psychology
2014, vol. 12 (1), 27–44

Marta Kochan-Wójcik[1]
University of Wrocław

Female corporality: The body-self of mothers and daughters in relation to the family

Abstract:

The general aim of our study was to verify the corporality relationships between mothers and daughters within the family context. One hundred and thirty women participated in the research (65 mother-daughter couples), with the following methods being used: Body-Self Questionnaire (Olga Sakson-Obada, 2009); Polish adaptation of FACES-IV (Margasiński, 2009); pictorial scale measuring perception of closeness in self – body and mother – daughter relationships (Aron, Aron & Smollan, 1992). We found that family systems with problems are facilitated by disorders of body-self strength in both mothers and daughters. Mothers who have difficulties with physical states regulating co-established problematic family systems, and daughters who come from a family perceived by them as enmeshed will tend to develop disorders with body-self strength. Women dissatisfied with their bodies perceive them as more detached from themselves. The discussion touches upon an analysis of body-self in mothers who create problematic family systems and in daughters coming from families perceived by themselves as disordered. Also factors that foster the development of strong body-self have been pointed out.

Keywords:

body-self, family system, mother-daughter relation, body satisfaction

Streszczenie:

Celem badań było dokonanie analizy związków w zakresie doświadczania cielesności między matkami i córkami w kontekście cech systemu rodzinnego. W badaniu wzięło udział 130 kobiet (65 par matek i córek). Zastosowano następujące metody badawcze: Kwestionariusz Ja cielesnego (Sakson-Obada, 2009), polską adaptację FACES-IV (Margasiński, 2009), skalę rysunkową do pomiaru postrzegania bliskości ja-ciało oraz relacji matka-córka stworzoną w oparciu o The Inclusion of Other in the Self scale (Aron, Aron & Smollan, 1992). Stwierdzono, że problemowym układom rodzinnym towarzyszy więcej zaburzeń w zakresie siły ja cielesnego zarówno w grupie matek jak i córek. Matki, które mają trudności z regulacją stanów fizycznych tworzą problemowe systemy rodzinne, natomiast córki pochodzące z rodzin postrzeganych jako splątane mają większe tendencje do zaburzeń w zakresie siły ja cielesnego. W dyskusji skupiono się na analizie cech ja cielesnego matek

[1] Marta Kochan-Wójcik, Institute of Psychology, Faculty of Pedagogical and Historical Sciences, University of Wrocław, ul.Dawida 1, 50-527 Wrocław; m.kochan-wojcik@psychologia.uni.wroc.pl.

budujących problemowe systemy rodzinne oraz córek pochodzących z rodzin postrzeganych jako zaburzone. Wyodrębniono także czynniki sprzyjające rozwojowi silnego ja cielesnego.

Słowa kluczowe:
ja cielesne, system rodzinny, relacja matka - córka, zadowolenie z ciała

Introduction

Body-self is a basis for experiencing corporality, providing both a sense of self as a physical unity as well as a sense of separateness in contact with the external world. Body-self allows adequate reception of stimuli coming from within the body and from the external world. It enables correct interpretations of sensations in terms of physical and emotional states, and also their proper regulation. On the basis of body-self numerous psychic representations are built throughout life that form a multifaceted cognitive structure – the image of body-self (Krueger, 2002; Mirucka & Sakson-Obada, 2013). This consists of a body scheme, a perceptive corporality image (including sexuality, representations of sensations and bodily needs as well as emotional states), competence in coping with needs and emotions, and finally an evaluation of one's own physicality. As a result, functions and the body-self image mutually influence one another, constituting a type of system: disorders in one area entail anomalies in the other.

There are several groups of factors that matter to the development of body-self. One of them is the sociocultural background in which an individual grows up (Clark & Tiggemann, 2006; Bergstrom & Neighbors, 2006; Tiggemann, 2002; Abrams & Stormer, 2002). Another is interpersonal trauma experience (Kneipp, Kelly & Wise, 2011; Treuer, Koperdak, Rozsa & Furedi, 2005; Streeck-Fischer & van der Kolk, 2000). However, the ones emphasized mostly by scholars are family factors. Research within this field focuses on the impact of modeling, the role of parental feedback regarding their child's appearance and the way parents perceive their child (Abraczinskas, Fisak & Barnes, 2012; Cooley, Toray, Wang & Valdez, 2008; van den Berg, Thompson, Obremski-Brandon & Coovert, 2002; Kichler & Crowther, 2001; Baker, Whisman, & Schermer, 2000; Kanakis & Thelen, 1995).

As disorders of body-self are more common in women than in men, research has been conducted mainly among women (of all ages), in the context of their relationships with mothers. Research overview indicates that there is a relationship between mothers' and daughters' eating problems (Pike & Rodin, 1991), body weight concerns (Steiger, Stotland, Ghadirian & Whitehead, 1994) or dieting (Hill, Weaver & Blundell, 1990), but also that these problems are more frequent in groups of women with eating disorders and

will not manifest themselves in healthy women (Benedict, Wertheim & Love, 1998). Other researchers, finding no relationship between mothers and daughters' preoccupation with weight and satisfaction with their bodies (Ogden & Elder, 1998; Ogden & Steward, 2000) have argued that research conducted in this area lacks references to the quality of the mother-daughter relationship, which may both restrain as well as foster weight, appearance and eating problems. Similarities between mothers and daughters having excessive preoccupation with weight and body appearance are more likely to be revealed when the quality of their relationship empowers it. Research carried out on weight and appearance suggests that the development of a protecting relationship is facilitated by: a secure attachment style (Bäck, 2011), intimacy and warmth (Archibald, Graber & Brooks-Gunn, 1999), a high level of autonomy and clear boundaries between mothers and daughters (Ogden & Steward, 2000). In a broader perspective, these aspects of relationships are influenced by the whole family system, in which both women are immersed: the mother co-creates it while the daughter rises in it and thus affects it. Therefore a research question can be raised about the relationships of experiencing corporality between mothers and daughters in the family context. Analyzing this is the purpose of our study.

When characterizing the family, researchers refer mostly to *communication*, *cohesion* and *flexibility* (Olson, 1993; 2000). The same dimensions are also the foundation of the Circumplex Model of Marital and Family Systems by D.H. Olson, which has been chosen in this study as a point of theoretical reference. Communication is defined here as an ability to liaise positively, used by the system. At the same time communication constitutes the basis for changes in cohesion and flexibility which are made by the family in adjusting to developments and situations. Cohesion describes the quality of family bonds and is indicated by emotional intimacy, the quality of psychological boundaries between family members, coalitions, the extent to which family members consult about their decisions with each other, time spent together, common hobbies and friends. Flexibility determines the quantity, quality and extent of changes in leadership, roles, and rules for establishing mutual relations (Olson, 2011). On each dimensional end there are families of disordered bonds and relations (disengaged vs. enmeshed families on the coherence end, and rigid vs. chaotic on the flexibility end). The families that function best are those where the cohesion and flexibility levels are intermediate while the communication competence level is high. So an assumption can be made that these families constitute the optimal environment for building a strong body-self in their children. What these families provide is the feeling of safety, emotional bonding and support as well as of autonomous and adaptable boundaries. Families with communication problems and, in particular, those that are unbalanced in terms of cohesion and adaptability will foster

weak body-self development of. That being said, the following research hypotheses have been stated and verified:

1. Disorders of body-self strength will be more frequent in both mothers and daughters in families with problems.
2. Women with a weak body-self will build disordered families.
3. Women that come from disorderly families will demonstrate more disorders in body-self strength. Especially, problems with family cohesion will foster disorders in experiencing corporality.
4. Mothers and daughters will be similar in body-self strength and in their own body perception. Women who are not satisfied with their bodies will perceive them as more detached from themselves.

Method

Participants

One hundred and thirty women participated in this study (65 mother-daughter couples). The daughters were philology students at the University of Wrocław. Their ages varied from 19 to 26 (M=21.5; SD=2.5) and of their mothers – from 40 to 65 (M=49.1; SD=5.9). At the time of this research, 40 daughters had been in a minimal 3-month-long partner relationship (M=1.7 years, SD=1.5), while 55 of the mothers had been in a relationship (M=25.8 years, SD=7.1). Basing on the Body Mass Index calculated on a declared weight and height of the participant, five of the daughters were found to be underweight (BMI: 17-18.5), five of the daughters and 25 of the mothers to be overweight (BMI: 25-29.9), and three of the daughters and seven of the mothers to be obese (BMI: 30-34.9). These proportions characterize the population of Polish women (GUS, 2012).

Procedure

The procedure for recruiting subjects was based on the snowball sampling method. Daughters were contacted first and asked to complete the set of questionnaires, then they asked their mothers to do the same. Daughters returned their mothers' responses in sealed envelopes within one week.

Measures

Body-self strength was measured with Body Self Questionnaire (BSQ) designed by Olga Sakson-Obada (2009). It is a set of 90 statements evaluated by a subject on two 5-item Likert scales. The first scale responses are as follows: 1) Never; 2) Very rare (once or twice in a lifetime); 3) Sometimes; 4) Quite often; 5) Very often. The second scale: 1) Strongly disagree; 2) Disagree; 3) Undecided, unsure; 4) Agree; 5) Strongly agree. The questionnaire consists of 10 scales: 1) Heightened threshold of sensations (HTS); 2) Lowered

threshold of sensations (LTS); 3) Emotions Interpretation (EI); 4) Physical States Interpretation (PSI); 5) Sensations Interpretation concerning Corporeal Identity (SI) - a feeling of losing boundaries, internal emptiness, unfamiliar bodily sensations; 6) Emotions Regulation (ER) - knowledge of causes and coping with emotional states; 7) Physical States Regulation (PSR) - knowledge of causes and coping with physical states; 8) Emotional Attitude towards Body (EA); 9) Comfort in Physical Closeness (CPC); 10) Body Protection (BP).

This tool evaluates each aspect of the body-self (average sum of particular scales results), measures body-self strength (average sum of scales 1-7 results, which refer to body-self), the extent to which the body is accepted, comfort in physical closeness with others, and the ability to protect the body. The higher the result of each scale, the higher the level of disorders in the body-self. Internal consistency of all scales is high or satisfying – Cronbach's *alpha* varies between 0.60 and 0.90 (Sakson-Obada, 2009).

Family system features were measured with FACES-IV (*Flexibility and Cohesion Evaluation Scales)*, a tool based on the Circumplex Model by D.H. Olson, adapted by Margasiński (2009). The questionnaire includes 62 statements, the response format being a 5-item Likert scale. The scale responses are as follows: 1) Strongly disagree; 2) Partly disagree; 3) Undecided; 4) Partly agree; 5) Strongly agree. The questionnaire consists of eight scales: the first two pertain to dimensions of familial functioning: 1) Balanced Cohesion (BC) and 2) Balanced Flexibility (BF). Lack of balance on all dimensions is described by the following four scales: 3) Disengagement (D) and 4) Enmeshment (E), which establish the cohesion ends, and 5) Rigidity (R) and 6) Chaos (C), which mark the flexibility ends. The remaining two scales measure the Circumplex Model's third dimension: 7) Family Communication Scale (FCS) and 8) Family Satisfaction Scale (FSS). Whether or not the family functions properly can be determined by cohesion indicators (Cohesion Ratio – CR) and flexibility (Flexibility Ratio - FR). The general indicator (Total Ratio – TR) allows one to estimate a general level of disorder in the family. Internal consistency of the scales is high or satisfying - Cronbach's *alpha* varies between 0.70 – 0.93. Confirmatory Factor Analysis showed consistency between the Polish questionnaire version and Olson's model (Margasiński, 2009).

Perceived closeness in self-body and mother–daughter relationships was measured with a pictorial scale designed by A. Aron, E. Aron and D. Smollan (1992). There were six pairs of circles, marked as "me–my body" and "mother–daughter", structured as Venn diagrams, showing overlapping circles: 1) separate circles; 2) adjoining circles; 3) 30% common surface; 4) 40% common surface; 5) 60% common surface; 6) 90% common surface. The subjects were to select a diagram which describes best their relationship with their mother/daughter or their body. Results from both situations were analyzed in three

degrees of closeness: I – results of those subjects who selected diagrams no. one and two; II – results of those who selected diagrams no. three and four; III – results of those who selected diagrams no. five and six.

All methods given to the subjects were supplemented with a short questionnaire asking for age, height, weight and current partner relationships.

Results

Body self and family features

Table 1 shows dependencies between a general body-self strength indicator and BSQ scales, and family evaluation scales. Mothers and daughters are presented separately. Neither group revealed dependencies between family features, bodily sensation thresholds, and the physical closeness comfort scale, and therefore were not included in the Table 1.

Table 1. Correlations between Body Self Questionnaire (BSQ) Scales and FACES IV Scales.

FACES IV Scales	BSQ Scales							
	D-EI	D-PSI	D-SI	D-ER	D-PSR	D-EA	D-BP	D-BSS
D-BC	-0.2	-0.11	-0.2	-0.17	-0.23	-0.23	-0.35**	-0.19
D-BF	-0.2	-0.03	-0.11	-0.30*	-0.34**	-0.18	-0.32**	-0.23
D-D	0.34**	0.24	0.30*	0.24	0.27*	0.30*	0.31*	0.33 *
D-E	0.34*	0.25	0.30*	0.34*	0.23	0.23	0.09	0.31*
D-R	0.2	0.06	0.12	0.01	0.07	0.16	-0.04	0.09
D-C	0.19	0.2	0.25*	0.09	0.19	0.36**	0.1	0.22
D-FCS	-0.26*	-0.18	-0.21	-0.16	-0.23	-0.34**	-0.26*	-0.23
D-FSS	-0.23	-0.09	-0.2	-0.28*	-0.22	-0.35**	-0.25	-0.22
D-CR	-0.30*	-0.24	-0.29*	-0.32*	-0.33*	-0.26*	-0.33**	-0.32*
D-FR	-0.28*	-0.16	-0.24*	-0.28*	-0.38*	-0.29*	-0.26*	-0.32*
D-TR	-0.32**	-0.22	-0.29*	-0.33*	-0.39**	-0.31*	-0.33**	-0.35**
FACES IV Scales	**BSQ Scales**							
	M-EI	M-PSI	M-SI	M-ER	M-PSR	M-EA	M-BP	M-BSS
M-BC	-0.31*	-0.05	-0.13	-0.2	-0.44***	-0.17	-0.1	-0.25
M-BF	-0.26*	-0.03	-0.02	-0.13	-0.39**	-0.08	-0.21	-0.14
M-D	0.33**	0.11	0.1	0.28*	0.42***	0.12	0.29*	0.27*
M-E	0.33**	0.32**	0.17	0.28*	0.37**	0.1	0.01	0.33*
M-R	0.06	0.08	0.07	0.03	0.02	0.01	-0.15	0.12
M-C	0.36**	0.03	0.09	0.25*	0.15	0.17	0.09	0.22
M-FCS	-0.26*	-0.17	-0.24	-0.22	-0.50***	-0.22	-0.16	-0.32*

M-FSS	-0.37**	-0.18	-0.25	-0.35*	-0.45**	-0.26*	-0.14	-0.38*
M-CR	-0.32*	-0.17	-0.14	-0.27*	-0.48***	-0.15	-0.14	-0.31*
M-FR	-0.36**	-0.09	-0.07	-0.2	-0.39**	-0.12	-0.16	-0.23
M-TR	-0.37***	-0.15	-0.12	-0.26	-0.49***	-0.16	-0.17	-0.30*

Note. BSQ Scales (Sakson-Obada, 2009) are as follows: EI – Emotions Interpretations, PSI – Physical States Interpretation, SI – Sensations Interpretation in terms of Corporal Identity, ER – Emotions Regulation, PSR – Physical States Regulation, EA – Emotional Attitude towards Body, BP – Body Protection, BSS – Body Self Strength.

FACES IV Scales (Olson & Barnes, 2004) are as follows: BC – Balanced Cohesion, BF –Balanced Flexibility, D – Disengagement, E – Enmeshment, R – Rigidity, C – Chaos, FCS – Family Communication Scale, FSS – Family Satisfaction Scale, CR – Cohesion Ratio, FR – Flexibility Ratio, TR – Total Ratio.

Daughters' measures are preceded by the letter D and mothers' measures are preceded by the letter M.

* $p<0.05$; ** $p<0.01$; *** $p<0.001$.

It has been observed that the cohesion and flexibility (BC and BF) balance in the family is not directly related to body-self strength; however, it seems to correlate with some of the self scales within BSQ. On the other hand, indicators of imbalance in family cohesion (D and E) relate to weak body-self. And so daughters from disengaged families (D-D) demonstrate more frequent difficulties in interpreting emotions (D-EI) and sensations in terms of their body identity (D-SI) as well as in their physical states regulation (D-PSR). This fosters a negative emotional attitude towards their own corporality (D-EA) and towards problems with body protection (D-BP). Mothers who establish disengaged families (M-D) manifest more frequent disorders in physical states regulation (M-PSR), in emotions interpretation and regulation (M-EI & M-ER), as well as in protecting the body (M-BP).

Young women from enmeshed families (D-E) manifest difficulties in interpreting emotions (D-IE) and control (D-ER) as well as in interpreting sensations in terms of corporal identity (D-SI). In mothers establishing enmeshed families (M-E) there are more problems with physical and emotional states interpretation and regulation (M-EI, M-ER, M-PSI & M-PSR).

No dependence was detected in either group between family rigidness and the body-self strength (BSS). The other end of the flexibility dimension – chaos (C) – fosters problems with sensations interpretation in terms of corporeal identity (SI) and is related to negative attitudes to daughters' corporality (D-EA). In mothers it is connected with emotions interpretation (M-EI) and physical states regulation (M-PSR).

It turned out that family communication effectiveness (FCS) and family life satisfaction (FSS) are accompanied by a decrease in body-self strength (BSS) disorders in mothers. These mothers cope with their emotions interpretation (M-EI) and physical state regulation (M-PSR) more effectively. Daughters that grow up in such families evaluate

their bodies more favorably. The indicators of cohesion and flexibility (CR and FR), on the basis of which "healthy" and "unhealthy" families can be compared, correlate significantly with all BSQ scales except for physical states interpretation among the daughters (D-PSI). Among mothers such dependencies are revealed mainly in emotions interpretation (M-EI) and physical states regulation (M-PSR). Finally, a relation has been observed between a general indicator of family functioning (TR) and body-self strength (BSS) in both groups. This leads to the conclusion that families with problems are facilitated by disorders of body-self strength in both mothers and daughters.

In order to verify if the level of family disorders (TR) may be anticipated by basing on body-self strength (BSS) in mothers, who co-establish their families' rules, regression analysis has been carried out. The model included scales that assess emotions and physical states interpretation and regulation (M-EI, M-ER, M-PSI & M-PSR). However, scales measuring external stimuli sensations, sensation interpretation in terms of bodily identity, emotional attitudes, and body protection have been excluded as they showed no or low correlation with family balance/imbalance scales. The model turned out to be statistically significant ($F(4.65)=6.10$; $p<0.001$). All the predictors together explained 25% of the dependent variable; however, only physical states control turned out to impact significantly the results in family functioning from the mothers' perspective ($\beta=0.52$; $t=-3.62$; $p<0.001$). When the dependent variable was replaced by the averaged general score of family functioning for both mothers and daughters (the arithmetic mean for TR in both groups), the model remained statistically significant ($F(4.65)=3.38$ $p<.01$), but its explanatory power decreased to only 14% of the dependent variable. This means that mothers who have difficulties with physical states regulation co-establish problematic families, which partially confirms the first hypothesis. Meanwhile, of greater importance for the dependence between body-self strength and family features is the image of the family as perceived by mothers, comparable to more objective indicators of family functioning.

Since daughters build up their body-self within their families and undergo familial procedures, the relationship between their body-self and their families may be contrary: one may try to predict the degree of body-self strength disorders (BSS) based on familial imbalances. Thus a regression model has been developed, including four system imbalance predictors (D, E, R and C scales). It turned out to be statistically significant ($F(4,63)=3.40$; $p<0.01$). All predictors explained 14% of the dependent variable; however, what has significant influence on the daughters' body-self strength is the imbalance in family cohesion, more precisely – enmeshment ($\beta=0.32$; $t=2.30$; $p<0.05$). When averaged scores of system imbalance were selected as independent variables (arithmetic mean for D, E, R, C scales in mothers and daughters), this influence became insignificant. Hence women

that come from a family system perceived by them as enmeshed will tend to develop disorders within body-self strength, which confirms the second hypothesis. Meanwhile, similarly to the mothers' results, it is more important how the daughters perceive their family relations, comparable to how their mothers perceive them.

Further analyses have compared body-self strength (BSS) in daughters depending on how they perceive their relationship with their mothers. Therefore differences have been checked between three groups of mother-daughter intimacy levels as assessed by the daughters (levels of intimacy: I – N=13; II – N=28; III – N=24) within average body-self strength by means of the Kruskal-Wallis test. Differences turned out to be significant ($H(2, N=65)=7.50$; $p<0.05$), which means that those daughters who describe their relationship with their mothers as closer (level III compared to level I) have a stronger body-self. They come from more balanced families [comparison between the groups as per general indicator of family functioning (TR) by means of the Kruskal-Wallis test $H(2, N=65)=14.76$; $p<0.001$]. The way the mothers perceived their relationships with daughters was of no significance for body-self strength either in daughters or in mothers. Neither significant correlations have been found between the daughters' BSQ scales and the mothers' familial perceptions (in the family assessment scales completed by mothers). This fact confirms that when predicting body-self problems in daughters, it is more important how they perceive their relationship with their mothers and their families, compared to how these aspects are assessed by their mothers.

Transgenerational relations

Body Mass Index (BMI) of mothers and daughters correlate with each other significantly ($r=0.34$, $p<0.05$). However, neither significant differences nor correlations have been observed between mothers and daughters in body-self strength, body protection and comfort in physical closeness. Results of both groups correlate with each other only when stimuli sensitivity thresholds are taken into consideration ($r=0.28$; $p<0.05$ for heightened and $r=0.27$; $p<0.05$ for lowered thresholds). Therefore it is not possible to predict the daughters' body-self strength on the basis of the same dependent variable in the mothers' group (regression analysis model is insignificant). Mothers and daughters differ only in terms of emotional attitudes towards their bodies (Student's t-test: $t=-2.91$; $p<0.01$), yet daughters are more dissatisfied with their bodies' appearance than their mothers are.

A chi-squared analysis of relationships between mothers and daughters and their perception of closeness in "me–my body" relations (on the pictorial scale) has revealed a statistically significant dependence between variables ($\chi^2(4, N=65)=10.56$, $p<0.05$; Cramér's $V=0.30$), which means that there is a relationship between how mothers and daughters perceive "me–my body" relations. Both groups manifest similar and significant

differences between perceived closeness of "me–my body" relations and emotional attitudes towards their own corporality [Kruskal-Wallis test for mothers: $H(2, N=65)=10.68$, $p<0.01$; for daughters: $H(2, N=65)=19.36$, $p<0.001$]. This indicates that dissatisfaction with the body co-occurs with its perception as being more detached from the self in both groups. Daughters who perceive their bodies as more detached come from less balanced families in terms of cohesion [Kruskal-Wallis test results for daughters for D-CR and perception of closeness in "me–my body" relations: $H(2, N=65)=6.93$, $p<0.05$)]. Such dependencies do not exist in the mothers' group.

These analyses allow us to confirm the third hypothesis partially: mothers and daughters are similar in their perception of closeness to their own body, but not when the body-self strength is concerned, with the exception of sensitivity to stimuli. There is no similarity in emotional attitudes towards the body; nevertheless dissatisfaction with the body co-occurs with its perception as more detached in both groups.

Discussion

The analysis of relationships between experiencing one's own corporality and familial features as well as between mothers and daughters has revealed a whole range of dependencies and allowed us to confirm the stated hypotheses. Four aspects were verified: 1) Will disorders in body-self strength foster problematic family systems? 2) Will weak body-self women co-establish disordered families? 3) Will women from disordered families manifest more frequent body-self strength? 4) Will mothers and daughters be similar in terms of body-self strength and their perception of their own bodies?

In both mothers and daughters coming from problematic families, more frequent body-self strength disorders have been revealed. Perceiving the family as disengaged or enmeshed turned out to be the most important factor in either group. Both factors pertain to the quality of bonds between family members, to psychological boundaries and to the sense of togetherness. Neither an abundance nor lack of such experience supports body-self strength, thus making it impossible to build one's own psychological boundaries, a sense of separateness, and internal stability. The body then becomes a place for experiencing often unclear emotions and other people's needs with no permission to experience one's own. As a result it becomes a space for experiencing discomfort and tension, which may entail dissatisfaction with one's own corporality and possibly lead to building a problematic system in their own procreating family.

When seeking to answer the second question – about the body-self of mothers who establish problematic families systems, it has appeared that there is a significant correlation between familial disorders as perceived by mothers and their difficulties in interpreting

emotions. Still, the main problem predictor in the system turned out to be the mother's disorders in her physical states control, in other words, in knowing how and having the skill to adequately regulate the psychophysical needs involved in, health, eating and sexuality. Incompetence in individual, adequate regulation of their own corporality may cause frustration in women, and as a consequence, increase their general dissatisfaction, anger and discouragement. It may also strengthen expectations (usually expressed obliquely or even unconsciously) that it is others (relatives) who should satisfy them. However, recognizing such wishes would deny the mother her maturity, defining her role in her family as a subordinative child - which is why family members are reluctant to notice such needs and react to them. Then the woman, frustrated and not receiving expected support from the family, behaves less and less favorably towards her own family and may begin to perceive it as functioning incorrectly and problematically. What is more, incompetence in managing her own physical needs entails a situation where the mother has difficulties in caring for her children's requirements and building a safe basis for their development. Children whose needs are not satisfied properly, develop in themselves anxiety and dissatisfaction, which also impact the quality of family relations. It must be emphasized that through both the personal potentiality and limitations contributed initially by their spouses to their relationship, through interactions with other family members, and through life's stressors the mothers' individual development may modify their competence in managing their own needs. This may decrease but also increase these skills. Developing the knowledge and skill about how to regulate physical states may also become a psychotherapeutic aim. From this point of view such an aim seems to be most important when working on how the mother perceives her family relationships, on her psychological maturity, and on her contribution to her family. A change in this aspect could also initiate changes in family relations, especially in contact with the partner, which would become a resource when overcoming one of life's cyclical crises - children growing up and transitioning to adulthood.

As far as the third question is concerned - daughters coming from families perceived as disordered - issues have been spotted in almost all functions of the body-self, as well as in negative attitudes to one's own body and difficulties in protecting it. Particularly unclear coalition boundaries - expecting too much from common interests, hobbies, experience and the time spent together, along with no approval of family members' individuality - foster weak body-self and a sense of detachment from one's own corporality in this group. Unclear family limits lead to problems with setting individual psychological "self–others" boundaries. It becomes impossible to differentiate one's own emotions from the relatives' and to react adequately on them. The body becomes a source of misunderstood and often unpleasant sensations, which is why it will be perceived as

more detached from self and evaluated lower. This explains why this group more frequently experiences problems with interpretating emotions and their regulation as well as with interpretating sensations in terms of corporeal identity. The significance of this process is emphasized by numerous authors as it may foster eating disorders, especially *anorexia nervosa* (Legrand, 2010; Lawrence, 2008; Mirucka & Sakson-Obada, 2013), which results from extreme problems with experiencing one's own corporality and identity. Unclear and undefined family boundaries do not facilitate children's gaining autonomy in adolescence and early adulthood (Smith, Mullins & Hill, 1995). High emotional dependency, one sign indicating failure to achieve autonomy appears to be a predictor of body-self disorders in young women (Kochan-Wójcik, 2012) and is related to dissatisfaction with one's bodily appearance (Ogden & Steward, 2000). Its consequences include potential difficulties in gaining mature identity and in establishing mature partner relationships.

What has turned out to foster stronger body-self in daughters are the perceptions that their relationship with mothers is close and that they are growing up in a balanced family. Hahn-Smith and Smith (2001) have shown that the daughters' desire to identify with their mothers in terms of personality traits (assessed by the daughters as wished for) correlates positively with their attitude towards corporality and may be a factor that preserves them from bodily dissatisfaction and from eating disorders. Also interesting is that both this study and Hahn-Smith and Smith's (2001) demonstrate that it is the daughters' perspective on the family that matters most, and not some more objectified factors. Daughters' observations may differ from their mothers' and be invisible to an external viewer. There is, however, a clear need to include these subjective observations in psychotherapeutic work on the corporality experience in young women, especially when dealing with physical self disorders. The main target would then be to strengthen both the sense of individual boundaries and the process of differentiation on inter- and intrapsychic levels (Kochan-Wójcik, 2011).

When seeking an answer to the fourth question on intergenerational similarities between mothers and daughters in body-self, no such dependencies have been detected. In the context of this study this may mean that family relations and the mother-daughter relationship are more significant to the process of body self development in daughters than in situations where mothers model their daughter's behavior. On the other hand, partially converging sensations thresholds may result from the biological basis of these variables.

Significant dependencies in BMI as well as no similarities between mothers and daughters in satisfaction with their own corporality follow patterns identified by other authors (Ogden & Steward, 2000; McKinley, 1999). Differences between mothers and

daughters in satisfaction with their own corporality (and higher mother satisfaction) may be placed in the context of body satisfaction changes during one's lifetime. Some researchers claim there are no changes (Tiggemann, 1999; 2004), but numerous studies can be found proving that satisfaction with one's own corporality increases in older women (Esnaola, Rodríguez, & Goñi, 2010; Šerifović-Šivert & Sinanović, 2008). When interpreting these results, the above authors refer to the woman's development, pointing out that with age the female body's appearance diverts from its socio-cultural silhouetted paragon; the media's impact in promoting slender, attractive bodies is weaker, while attractiveness is modified by life's experiences, including fulfillment in the role of mother and in other social and professional roles. As a result, older women's emotional attitude towards their corporality may be less strict, compared to younger women, whose appearance is closer to paragons promoted intensively in culture and hence criticized much more sharply, and whose attractiveness is less supported by rich life experiences and numerous fulfilled roles.

To sum up, in developing daughters' body-self the quality of relations with the mother and within the family plays a pivotal role. Imbalanced family systems in which daughters grow up make a neutral to positive impact without directly touching upon this aspect of self, whereas disorders, especially in family cohesion, may become a serious obstacle in daughters' body-self development. What is more, it is highly important how daughters perceive these relations and if they feel comfortable about them than how they are described by mothers. Meanwhile, mothers experiencing difficulties in regulating their physical needs will perceive their own families as more disordered.

Our research contributes to the quest for familial factors that stimulate stronger body-self and positive corporeal attitudes as well as for factors that cause weak body-self and dissatisfaction with one's own appearance. There are some obvious limitations, however. Due to the sampling method chosen, this study is not representative and cannot be generalized to other female age groups. As it has been designed as a cross-sectional study, it cannot be used to analyze cause and effect relationships that would pertain to body-self development in the family context. What is more, traumatic experiences were not controlled in this study (even though some mothers or daughters could have undergone them); they may however determine the way that corporality is experienced, along with the family impact (Kneipp, Kelly & Wise, 2011; Treuer, Koperdak, Rozsa & Furedi, 2005; Streeck-Fischer & van der Kolk 2000). Also, as the study focused on the mother–daughter dyad, the third perspective was not included – that of the father/husband. Considering this perspective would make the way the family is viewed more objective. Also, if extended by daughter–father and wife–husband relations, it would set up brand new research opportunities. Another interesting path for future familial research facilitating

body-self development might consider including both mothers' and daughters' personality traits. It could also analyze female biology, for instance the influence of a woman's temperament on bodily self development.

References:

Abraczinskas, M., Fisak, B., Barnes, R.D. (2012). The relation between parental influence, body image, and eating behaviors in a nonclinical female sample. *Body Image,* 9, 93-100.

Abrams, L. S., & Stormer, C. C. (2002). Sociocultural variations in the body image perceptions of urban adolescent females. *Journal of Youth and Adolescence*, 3, 443-450.

Archibald, B., Graber, J., & Brooks-Gunn, J. (1999). Associations among parent–adolescent relationships, pubertal growth, dieting, and body image in young adolescent girls: A short-term longitudinal study. *Journal of Research on Adolescence,* 9, 395-415.

Aron, A., Aron E. N., & Smollan, D. (1992). Inclusion of other in the self scale and the structure of interpersonal closeness. Journal of Personality and Social Psychology, 63, 596-612.

Bäck, E. A. (2011). Effects of parental relations and upbringing in troubled adolescent eating behaviours. *Eating Disorders,* 19, 1-22.

Baker, C.W., Whisman, M. A., & Brownell, K. D. (2000). Studying intergenerational transmission of eating attitudes and behaviors: Methodological and conceptual questions. *Health Psychology*, 19, 376-381.

Bergstrom, R. L. & Neighbors, C. (2006). Body image disturbance and the social norms approach: An integrative review of the literature. *Journal of Social and Clinical Psychology*, 25, 975-1000.

Clark, L. & Tiggemann, M., (2006). Appearance culture in nine- to 12-year-old girls: media and peer influences on body dissatisfaction. *Social Development*, 15(4), 628-643.

Cooley, E. & Toray, T., Wang, M.C., & Valdez, N.N. (2008). Maternal effects on daughters' eating pathology and body image. *Eating Behaviors*, 9, 52-61.

Esnaola, I., Rodríguez, A., & Goñi, A. (2010). Body dissatisfaction and perceived sociocultural pressures: Gender and age differences. *Salud Mental*, 33(1), 21-29.

GUS (2012). *Zdrowie kobiet w Polsce w latach 2004-2009* /Female health in Poland in 2004-2009/. Kraków: Urząd Statystyczny w Krakowie.

Hill, A. J., Weaver, C., & Blundell, J. E. (1990). Dieting concerns of 10 year olds girls and their mothers. *British Journal of Clinical Psychology,* 29, 346-348.

Kanakis D. M., Thelen M. H. (1995). Parental variables associated with bulimia nervosa. *Addictive Behaviours*, 20(4), 491-500.

Kichler, J. C., & Crowther, J. H. (2001). The effects of maternal modeling and negative familial communication on women's eating attitudes and body image. *Behavior Therapy,* 32, 443-447.

Kneipp L., Kelly K. & Wisse I. (2011). Trauma Symptoms as Predisposing Factors for Body Image Distortion. *Individual Differences Research,* 9(3) 126-137.

Kochan-Wójcik M. (2011). Experiencing one's own corporeity vs. the level of differentiation of self. *Polish Journal of Applied Psychology* 9(2), 71-88.

Kochan-Wójcik M. (2012). Spousal similarities in self-differentiation and corporal self. *Polish Journal of Applied Psychology* 10(2), 93-108.

Krueger, D. W. (2002). Psychodynamic perspectives on body image. In T. F. Cash & T. Pruzinsky (Eds.), *Body image: A handbook of theory, research, and clinical practice* (pp. 30-37). New York: Guilford.

Lawrence, M. (2008). *The anorectic mind.* London: Karnac Books.

Legrand, D. (2010). Subjective and physical dimensions of bodily self consciousness, and their dis-integration in anorexia nervosa. *Neuropsychologia*, 48(3), 726-737.

Margasiński A. (2009). *Skale Oceny Rodziny (SOR). Polska adaptacja FACES IV – Flexibility and Cohesion Evaluation Scales Davida H. Olsona. Podręcznik* / Clinical Rating Scale (CRS). Polish adaptation of the FACES IV - Flexibility and Cohesion Evaluation Scales by David H. Olson. Manual/. Warszawa: Pracownia Testów Psychologicznych.

McKinley, N. M. (1999). Women and objectified body consciousness: mothers' and daughters' body experience in cultural, developmental, and familiar context. *Developmental psychology, 35,* 3, 760-769.

Mirucka, B., Sakson-Obada, O. (2013). *Ja cielesne. Od normy do zaburzeń*. / Body self. From norms to disturbances/ Gdańsk: GWP.

Ogden, J. and Elder, C. (1998). The role of family status and ethnic group on body image and eating behaviour. *International Journal of Eating Disorders 23*, 308-315.

Ogden, J. and Steward, J. (2000). The role of the mother daughter relationship in explaining weight concern. *International Journal of Eating Disorders, 28,* 78-83.

Olson, D. H. (1993). Circumplex Model of Marital and Family Systems: Assessing family functioning. In: F. Walsh (Eds.), *Normal family processes.* New York: Guilford Press, 104-137.

Olson, D. H. (2000). Circumplex Model of Marital and Family Systems. *Journal of Family Therapy, 22*, 144-167.

Olson, D. H. (2011). FACES IV and the circumplex model: Validation study. *Journal of Marital and Family Therapy 3*(1), 64-80.

Pike, K.M., Rodin, J. (1991). Mothers, daughters, and disordered eating. *Journal of Abnormal Psychology, 100(2)*, 198-204.

Sakson – Obada, O. (2009). *Pamięć ciała. Ja cielesne w relacji przywiązania i w traumie* /Memory of the body. Body self in relation to attachment and trauma/Warszawa: Difin.

Schier, K. (2010). *Piękne brzydactwo. Psychologiczna problematyka obrazu ciała i jego zaburzeń /*Beautiful eyesore. Psychological issues of body image and its disorders/. Warszawa: Scholar.

Šerifović-Šivert, S., Sinanović, O. (2008). Body Dissatisfaction-Is Age A Factor? *Journal Series Philosophy, Psychology and History, 7*, 1, 55-61.

Steiger, H., Stotland, S., Trottier, J., & Ghadirian, A. M. (1996). Familial eating concerns and psychopathological traits: Causal implications of transgenerational effects. *International Journal of Eating Disorders*, 19, 147−157.

Streeck-Fischer, A., & van der Kolk, B.A. (2000). Down will come baby, cradle and all: Diagnostic and therapeutic implications of chronic trauma on child development. *Australian and New Zealand Journal of Psychiatry, 34*, 903-918.

Tiggemann, M. (1999). Body image and ageing. *Body Image Research Summaries.* Carlton, Vic.: Body Image & Health Inc.

Tiggemann, M. (2002). Body image development: Media influences. In T.F. Cash & T. Pruzinsky (Eds.), *Body images: A handbook of theory, research, and clinical practice*. New York: Guilford.

Tiggemann M. (2004). Body image across the adult life span: stability and change. *Body Image, 1,* 29-41.

Treuer, T., Koperdak, M., Rozsa, S., & Furedi, J. (2005). *Europian Eating disorders review, 13*, 106-111.

Van den Berg, P., Thompson, J.K., Obremski-Brandon, K., Coovert, M. (2002). The Tripartite Influence Model of body image and eating disturbance: A covariance structure modeling investigation testing the mediational role of appearance comparison. *Journal of Psychosomatic Research, 53*(5), 1007-1020.

Polish Journal of Applied Psychology
2014, vol. 12 (1), 45–58

Joanna Piskorz, Marcin Czub, Katarzyna Urbańska, Małgorzata Mrula, Paweł Hodowaniec, Mateusz Misiewicz[1]
University of Wrocław

How does interface influence the level of analgesia when Virtual Reality distraction is used?

Abstract:

This study investigates the effectiveness of virtual reality (VR) technology in distracting attention from pain. We tested how body engagement related to navigating the virtual environment (VE) influences the intensity of pain. Two different interfaces were used to play the same VE, and a cold pressor test was used for pain stimulation. A mixed design was used for the experiment. Sixty-six undergraduate students participated. One group navigated the game using a rotation sensor, head tracker and foot pedals (Body Movement Interface). Another group navigated only using their hands (Hand Movement Interface). Objective and subjective measures of pain were collected – the amount of time participants kept their hand in a container with cold water, and the participant's assessment of the pain intensity on a visual analog scale (VAS). Participants also filled in questionnaires designed to measure feelings of presence in VE and emotional attitudes towards the game. We found no significant difference between the two used interfaces in their analgesic efficacy. In both groups during VR distraction, participants showed significantly higher levels of pain endurance than without VR distraction.

Keywords:

virtual reality, pain tolerance, analgesia, virtual environment, thermal stimulation

Streszczenie:

Badanie eksperymentalne dotyczy efektywności rzeczywistości wirtualnej jako dystraktora od bodźców bólowych. Testowano wpływ zaangażowania ciała podczas sterowania grą na intensywność odczuwanego bólu. Dwa różne interfejsy zostały użyte do sterowania tym samym środowiskiem wirtualnym. Jedna z grup sterowała grą wykorzystując ruch całego ciała, druga grupa nawigowała wyłącznie za pomocą ruchu ręki. 66 studentów uczestniczyło jako osoby badane. Termiczna stymulacja zimnem została zastosowana jako bodziec bólowy. Miarą efektu analgetycznego był czas zanurzenia w zimnej wodzie ręki osoby badanej, oraz subiektywna ocena intensywności bólu na skali od 1 do 10. Osoby badane wypełniały także kwestionariusz poczucia obecności w środowisku wirtualnym, oraz odpowiadały na pytania dotyczące odczuć wobec gry. Zaobserwowano istotny efekt analgetyczny związany

[1] Joanna Piskorz, Marcin Czub, Katarzyna Urbańska, Małgorzata Mrula, Paweł Hodowaniec, Mateusz Misiewicz, Institute of Psychology, Faculty of Pedagogical and Historical Sciences, University of Wrocław, Dawida 1, 50-527 Wrocław; j.piskorz@psychologia.uni.wroc.pl; m.czub@psychologia.uni.wroc.pl.

z użyciem wirtualnej rzeczywistości. Jednak, nie wykryto istotnych statystycznie różnic w efekcie analgetycznym pomiędzy różnymi metodami sterowania grą.

Słowa kluczowe:
wirtualna rzeczywistość, ból, analgezja, środowisko wirtualne, stymulacja termiczna

Introduction

Virtual Reality technology (VR) is recently becoming more widely used in psychology and therapy. Research on possible applications of VR in psychology began in the late eighties. Currently, with more advanced and accessible technology, and increased knowledge, both the efficacy and scope of VR applications have improved. During VR treatment patients wear head-mounted displays (HMD) and have the opportunity to actively participate in a three-dimensional computer generated environment. One such VR application in psychology is pain alleviation, where VR acts as a distractor dragging a person's attention away from painful stimuli. (Gold *et al.,* 2007; Botella *et al*., 2008).

Several studies confirm the effectiveness of VR as a distractor from pain. (For a review see: Botella *et al*., 2008; Wiederhold & Wiederhold, 2007; Malloy & Milling, 2010). The results of a study done by Twillert and others (2007) showed greater effectiveness of VR distraction, compared with other methods. Authors compared the effectiveness of VR distraction with other types of distraction (like watching a movie). Analgesic efficacy of VR was shown to be effective both with clinical populations and in laboratory studies where experimentally induced pain stimuli were used. Some clinical applications include the treatment of pain in children (Das *et al*., 2005) or reduction of pain and stress associated with the therapy in cancer patients (Gershon *et al*., 2004), and dental treatments (Hoffman *et al*., 2001).

Currently only a few published studies have investigated how the content of virtual environments influences the analgesic effect. Mühlberger and others (2007) studied the effect of different virtual environments on hot/cold pain stimuli endurance. Another similar study was done on a group of post-stroke individuals (Shahrbanian & Simmons, 2008). A study by Dahlquist and others (2010) evaluated the effect of the avatar point of view on cold-pressor pain tolerance in young adults. Czub & Piskorz (2012) tested how the amount of stimulation in VE influences the analgesic effect.

The relationship between the analgesic effects of VR and the strength of the subjective presence in a virtual world was investigated by Hoffman *et al*. (2004). Results of this study indicate that the strength of an analgesic effect is associated with the quality of graphics and sound, and the degree of possible interactions with the virtual world.

Results of other studies further corroborate the hypothesis that active participation in a virtual environment is a more effective distractor from pain stimuli than passive observation of a recording where someone else plays a game (Dahlquist *et al.*, 2007).

Therefore, the level of interaction offered by VE seems to be a good candidate for a parameter differentiating the effectiveness of the analgesic influence, and - in the context of creating more effective VR distraction tools – it may be important to study in greater detail the factors that build interaction in VE.

Several factors can influence the degree of presence in a virtual environment. These factors can be related to the qualities of that virtual environment – like the first or third person perspective, the avatar used, or the graphics quality and complexity of the scene. They can also be connected to the technology that was used – resolution of HMD's, their field of view, or frame rate – which influences interaction in VE if it is experienced as jerky or smooth. Some most important factors influencing presence lie on the border between hardware and software, and are related to interface – means of interaction with a virtual environment, and means of bodily engagement in that interaction. Interface is directly related to proprioception in VE interaction. The extent to which simulated sensory data match proprioception is considered as one of the most important factors influencing presence (Sanchez-Vivez & Slater, 2005). Another crucial factor related to presence is the degree of possible actions in VE - to quote Sanchez-Vivez & Slater – 'the sense of "being there" is grounded on the ability to "do there"'. As authors suggest, participants become present in the virtual environment through meaningful motor activity. Several published studies report a significant relation between the degree of body engagement and experienced presence in the virtual environment (Slater et al., 1998; Slater & Steed, 2000). Slater and others (1998) tested the hypothesis that body movements executed in relation to a given environment enhance the feeling of being present in that environment. They studied two aspects of motor engagement: the extent of body movements, and complexity of the motor task executed in VE.

Bianchi-Berthouze and others (2007) state that increased bodily engagement leads to greater affective experience, in addition to increasing the feeling of presence in VE. They compared the influence of different interfaces on player engagement in the game, and found that the interface that allowed for more body movement was more effective in grabbing player attention, and evoking emotional reaction towards the game.

The focus of our paper is on how different interfaces (engaging the body differently) influence the feeling of presence in VE, and subsequently, influence the analgesic effect.

More precisely, we investigated how the amount of body parts engaged in navigating the VR game influence the experience of pain. We expected that the more body parts that would be engaged, the greater the observed analgesic effect would be.

This experiment is part of a larger research project, the results of which will be presented in Piskorz and others (in preparation) and Czub and others (in preparation). In that project two experimental studies were conducted, and in both of them the same virtual environment was used. However, in each of those studies, there was a different interface to interact with VE.

Materials and Methods

Participants. Sixty-six students from Wroclaw universities participated in the study. In the Body Movement Interface (BMI) group there were 31 participants: 19 females (average age: 21.37; SD 2.34; min 19, max 30) and 12 males (average age: 22.42; SD 1.51; min 20; max 24). In the Hand Movement Interface (HMI) group there were 35 participants - 19 females (age: average 22.21; SD 3.03; min 19, max 33) and 16 males (age: average 22.56; SD 2.94; min 19; max 29).

Virtual reality equipment. Participants received visual and aural stimuli from the game via a virtual reality headset (HMD) - E-magin Z-800. HMD goggles had SVGA resolution – 800x600 pixels per display (1.44 megapixels), view angle - 40 degrees diagonal FOV (which equals seeing a 2.7m diagonal movie screen from 3.7 m distance). The weight of the display set was 227g. Participants were hearing stereo sound from HMD's audio output.

Participants in the BMI group had an opportunity to look around in the virtual environment using an orientation tracker device Polhemus Minuteman. They were also able to rotate the avatar in the environment using the sensor held in their hands and move forwards/backwards with pedals from the USB TRACER GTR steering wheel. With such an interface many participant's body parts were engaged: hand, head and legs.

In the HMI group there was a change of interface: now the participants used a Microsoft Kinect device. Such an interface enabled navigating the game using only the hand movements.

Video game. We designed a game for the participants to play. In the course of the game they moved a 3D arrow into a space filled with spheres. The gamer's task was to hit white spheres with an arrow. Additionally, red spheres were interfering with completing the task. For each contact with a white sphere participants gained one point, and each contact with a red sphere resulted in subtraction of one point.

The pain stimuli apparatus. Thermal pain stimulation was used in the study. The apparatus consisted of a container (25x35cm) filled with cold water (temperature 4.5–5.5°C). The container had two chambers connected to each other: one of them was filled with ice in order to maintain the proper temperature of the water and participants kept the other one in their hand. The container was equipped with a water circulator whose task was to maintain constant temperature in both chambers. The water temperature was monitored by an electronic thermometer. Similar equipment was used in previously published studies (Dahlquist 2007; Forys, Dahlquist 2007).

Visual Analogue Scale (VAS) – a scale built on the basis of a horizontal 10cm continuous line. Each participant immediately after removing the goggles marked the strength of experienced pain, expressed on the scale in centimeters, where 0 was described as slight pain, and 10 as extreme pain.

Behavioral indicator of pain – the number of seconds during which participants kept their hand in cold water.

Igroup Presence Questionnaire (IPQ) - A scale created by Schubert, Friedmann & Regenbrecht for measuring the sense of presence experienced in the virtual environments. The scale consists of four subscales: Spatial presence – the sense of being located inside VE; Involvement – the level of engagement in VE; Realism – the sense of realism of VE; General – an additional item measuring the general "sense of being there". Reliability (Cronbach's Alpha) of IPQ is between 0.63 and 0.78 (Schubert, 2003).

Attitudes towards the game questionnaire (ATG) – a scale created by us to assess the emotional response towards games, and the difficulty of using the interface. The scale consisted of four questions on a scale from -3 to 3. Questions were related to emotions and difficulties experienced during the game. Participants assessed the game as being very frustrating/very pleasant, boring/interesting, engaging/not engaging. Additionally, participants assessed the level of difficulty in steering the game: very easy/very difficult.

Procedure

The experiment was conducted in a room belonging to Wroclaw University Institute of Psychology. The study was carried out according to a mixed design, where one group was playing the game using BMI interface, whereas another group used HMI. Additionally, for each participant, their pain threshold was assessed, in a non-VR condition where participants were undergoing the same procedure as during VR distraction, but were seeing only a blank screen on the goggles. In both groups the order of presentation of VR and non-VR conditions was counterbalanced.

Participants were told that the purpose of the experiment was to study how people feel their bodies in a virtual environment. They were also assured of the possibility to resign from participating at any moment. Participants were then shown the equipment and familiarized with the procedure. They immersed their hands in the cold water for a few seconds in order to become aware of its temperature. Then, detailed instructions of how to play the game were given to them, and they were able to practise navigating the game and using the interface. The participant's task during the practice was to hit several white spheres with an arrow-avatar.

During the experiment, participants wore HMD's and their heads were additionally covered with a black scarf to better isolate them from peripheral stimuli. The participants were instructed to put their hands in the container with cold water, and keep it there until the pain became difficult to bear (they were also told to signal verbally the moment when they remove their hands from the water). Participants were requested not to endure overwhelming pain. The experiment was terminated after four minutes if the participant did not remove their hand earlier. After one minute of playing the game, the participants' non-dominant hand was put in the container with cold water while they continued playing. Immediately after removing their hand from the cold water participants filled the VAS scale, IPQ and ATG questionnaires.

Non VR condition. As in the case of the VR conditions, participants were equipped with an HMD headset and covered with a black scarf. However, no images were displayed, participants saw only a blank screen. The rest of the procedure was identical as in VR conditions, the only difference being that participants did not fill in the IPQ and ATG.

Participants were given at least a 15-minute break between each pain stimulus. During the break they could warm their hand, and they also had the opportunity to put their hand in the container with room temperature water.

Results

Due to the lack of normal distribution in the results, we used non-parametric statistics (U-Mann Whitney test) in the analysis. Effect sizes were calculated using the formula $r = Z/\sqrt{N}$. According to Cohen (1988, 1992) it was assumed that the effect can be considered small when $r = 0.10$; medium when $r = 0.25$; and large when $r = 0.50$.

First, we analyzed the relationship between the used interface and both behavioral and subjective pain indicators. We did not find statistically significant differences, both in relation to behavioral ($U = 498.5$, $Z = 0.37$, $p = 0.71$) and subjective ($U = 506$, $Z = 0.27$, $p = 0.79$) measures. While using both types of interface, participants evinced similar levels of pain endurance – which means that participants in both groups kept their hand

in the cold water for similar amounts of time. Also, there were no significant differences in subjective pain ratings between the groups. In both groups pain intensity results concentrated in the middle of the scale (see Table 1, Figure 1, Figure 2).

Table 1. Descriptive statistics of behavioural and subjective pain indicators in non-VR and VR conditions.

	Time of immersion of the hand in the cold water – behavioural indicator		VAS scale – subjective indicator	
	M	SD	M	SD
VR - BMI	126.26	104.02	5.58	2.35
Non-VR - BMI	81.77	88.44	6.65	2.0
VR - HMI	109.35	93.83	5.44	1.82
Non-VR - HMI	60.66	71.31	6.14	1.71

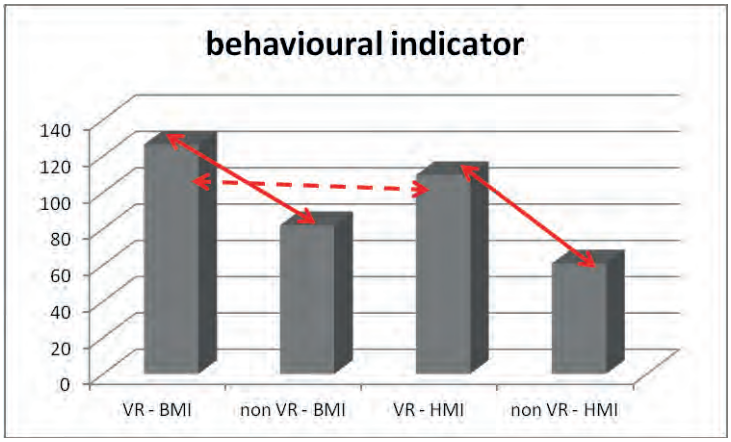


Fig. 1. Means of behavioural pain indicator for BMI and HMI in VR and non-VR conditions. Continuous line denotes statistically significant difference, dashed line – lack of significance.

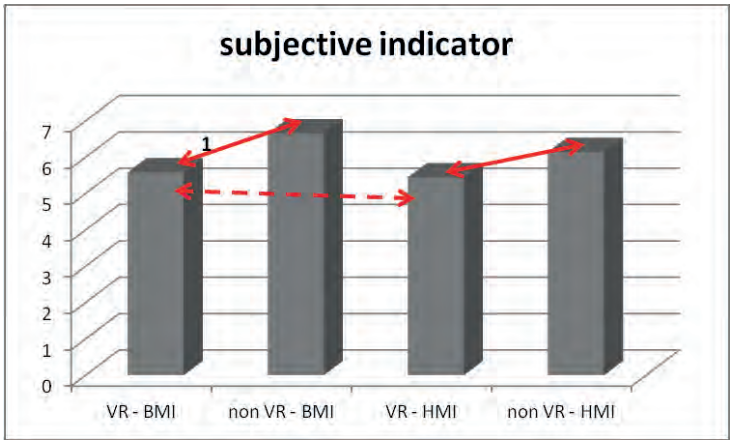


Fig. 2. Means of subjective pain indicator for BMI and HMI in VR and non-VR conditions. Continuous line denotes statistically significant difference, dashed line – lack of significance.

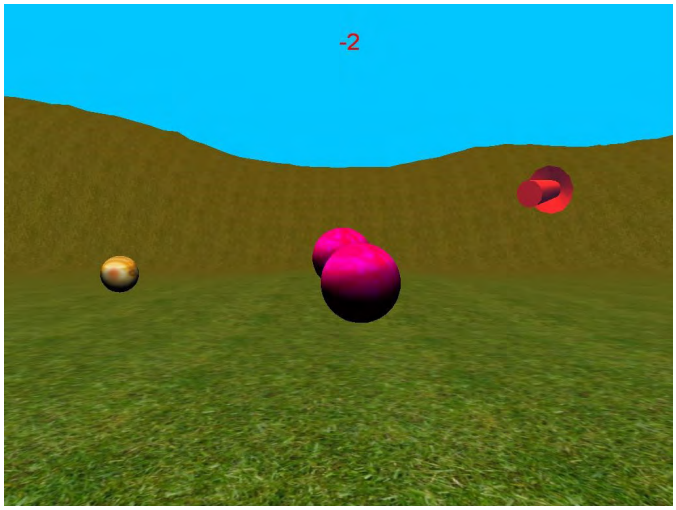


Fig. 3. Screenshot from the game used in the study.

In the next stage of statistical analysis we investigated the relationship between the used interface and emotions experienced during the game. We did not find any statistically significant differences between two groups. Participants were experiencing similar levels of frustration/satisfaction and engagement while using both types of interface.

There were significant differences in the assessment of game difficulty ($U = 202.5$, $Z = 3.65$, $p < 0.001$, $r = 0.47$), and subsequently in the number of points collected in the game ($U = 63$, $Z = -5.92$, $p < 0.0001$; $r = 0.75$). Participants assessed the HMI interface as significantly easier to use, and were collecting greater numbers of points (see Table 2).

Table 2. Descriptive statistics of the ATG questionnaire.

	BMI		HMI	
	M	SD	M	SD
Collected Points	2.17	9.45	54.32	43.35
Difficult	1.07	1.41	-0.53	1.55
Pleasant	0.90	1.52	1.07	1.34
Interesting	0.20	1.71	0.31	1.83
Not engaging	-1.23	1.77	-0.91	1.90

Subsequently we investigated how the interface relates to the level of presence in VE. Comparison of IPQ results did not reveal any significant differences between the two groups (spatial: $U = 475.5$, $Z = -0.65$, $p = 0.52$; involvement: $U = 389$, $Z = -1.22$, $p = 0.22$; realism: $U = 464.5$, $Z = -0.57$, $p = 0.57$; general: $U = 450$, $Z = 1.18$, $p = 0.24$). The two interfaces that were used gave rise to similar experiences of presence in the virtual environment (see Table 3).

Table 3. Descriptive statistics of IPQ in the BMI and HMI groups.

	BMI		HMI	
	M	SD	M	SD
Spatial	3.01	1.32	3.21	1.25
Involvement	2.88	1.19	3.23	1.35
Realism	1.88	1.08	2.08	1.10
General	4.16	1.95	3.66	1.92

In the next stage we compared results of behavioral and subjective pain indicators between VR and non-VR conditions in both groups. The VR condition was compared to the non-VR condition with the use of Wilcoxon's Signed Rank Test. The comparison revealed statistically significant differences in the BMI group between VR and non-VR conditions ($T = 41.5$; $Z = 3.10$; $p < 0.01$, $r = 0.45$). Participants in the BMI group could endure pain for a significantly longer period of time in VR than in non-VR conditions. Similar results were obtained in the HMI group when we compared behavioural pain indicators in non-VR and VR conditions ($T = 57.0$; $Z = 3.61$, $p < 0.001$, $r = 0.47$) (see Table 1, Figure 1).

The next step in our analysis was aimed at examining the influence of immersion in virtual reality on the level of subjective pain ratings. The results of VR and non-VR conditions were compared using Wilcoxon's Signed Rank Test. The results indicated that there was a statistically significant difference between the subjective pain assessment in the non-VR and VR conditions for BMI group ($T = 79.5$; $Z = 2.81$; $p < 0.01$, $r = 0.38$). The participants admitted having felt more pain during the non-VR trials. The comparison of results revealed statistically significant differences also between VR and non-VR conditions for the HMI group ($T = 149.0$; $Z = 2.35$; $p < 0.02$, $r = 0.29$). Participants reported experiencing more intense pain during non-VR conditions (see Table 1, Figure 2).

During the last stage of our analysis we tested whether the order of VR/non-VR conditions influenced behavioural and subjective pain indicators. The results have shown that in the BMI group, the VR condition ($U = 95.5$; $Z = 0.38$; $p = 0.70$), as well as in the non-VR condition ($U = 82$; $Z = 0.95$; $p = 0.34$) the order of testing had no impact on the level of pain tolerance measured as to the period of time during which one's hand was kept in the container with cold water. Subjective pain indicators were also independent from the order of testing (non-VR condition: $U = 77.5$; $Z = 1.14$; $p = 0.25$), and VR condition: $U = 71$; $Z = 1.42$; $p = 0.16$). Also in the HMI group the results indicated that in the case of the non-VR ($U = 125$; $Z = 0.43$; $p = 0.66$), and VR condition ($U = 120$; $Z = 0.22$; $p = 0.83$) the sequence of tests had no significance. The subjective assessment of pain was independent from the order of testing both for the VR condition ($U = 109$; $Z = 0.63$; $p = 0.53$), as well as for the non-VR ($U = 86$; $Z = 1.79$; $p = 0.07$).

Discussion

Results of our study do not support the hypothesis that interface influences the level of presence in the virtual environment. Also the interface does not seem to be related to the amount of pain experienced by the participants. However, several factors might be important in an interpretation of the results. In the BMI group participants navigated the environment using hands, legs, and also were able to look around by moving their heads. In the HMI group participants steered using only their hand. We expected greater bodily engagement, and subsequently a greater analgesic effect in the BMI group. However, the range of hand movements in the HMI group (using Kinect) was greater than in the BMI, and this might have counterbalanced the effect of engaging more body parts in the BMI.

In future studies, differences in body engagement should be better controlled, accounting not only for the area of the body that is engaged but also for the scope and dynamics of movements each interface elicits.

Moreover, participants experienced an unequal level of difficulty while using both interfaces. In the BMI group navigating the game was reported as more difficult than in the HMI group. That may have diminished the level of presence in VE in the BMI group. According to the theory of flow (Csikszentmihalyi, 1990) people engage most in tasks with optimal levels of difficulty. The interface used in the BMI group might have been too difficult to use, and therefore contradicted the effect of multiple body parts engagement. Greater difficulty of gaining points in the game might have weakened players' motivation in the BMI group.

Another factor that might have influenced results was the relation between the avatar arrow and hand movements, which was more natural in HMI – changes of arrow position in virtual three-dimensional space reflected the position of a participant's hand in space. BMI navigation was more abstract and involved rotating the sensor to point the avatar arrow towards a certain direction, and pressing foot pedals to move it forwards or backwards. Thus, the feeling of interface being natural might be a more important feature in evoking a presence than in engaging multiple body parts. Such hypothesis may find support from studies done by Sanchez-Vives and Slater (2005).

It is important to mention several other issues raised by our results. Significant differences in difficulty of using the interfaces did not influence the participants' emotional attitude towards the games. In both groups participants described the game as rather pleasant than frustrating. Nor did the number of points collected in the game influence the emotional attitude towards the game. This may be explained by the fact that the experimental procedure itself (e.g. using head mounted displays) was a new and unusual experience for most of the participants, and that made differences between interfaces

less pronounced. Bianchi-Berthouze (2013) suggests that the novelty of interface should be controlled in studies on relations between interface and engagement in the game.

Comparison of VR and non-VR conditions in both groups confirms the efficacy of VR as an analgesic tool (see: Botella et al. 2008, Czub & Piskorz, 2012). A similar analgesic effect was evoked by two different interfaces used in our study.

References:

Bianchi-Berthouze, N. (2013). Understanding the role of body movement in player engagement. *Human–Computer Interaction, 28,1*, 40-75.

Bianchi-Berthouze, N., Kim, W. W., & Patel, D. (2007). Does body movement engage you more in digital game play? And Why?. In *Affective Computing and Intelligent Interaction* (pp. 102-113). Springer Berlin Heidelberg.

Botella, C., Garcia-Palacios, A., Banos, R., Quero, S., Breton-Lopez, J. (2008). Virtual Reality in the Treatment of Pain. *Journal of CyberTherapy & Rehabilitation, 1, 1,* 93-100.

Csikszentmihalyi, M. (1990). Flow. New York: Harper Collins Publishers.

Czub, M., Piskorz, J. (2012). The Effectiveness of Different Virtual Reality Environments for Thermal Pain Distraction. How Does the Level of Stimulation Influence the Amount of Experienced Pain? *Polish Journal of Applied Psychology, 10, 2*, 7-19.

Czub, M., Piskorz, J. Misiewicz, M., Hodowaniec, P., Mrula, M., Urbańska, K. (in preparation). Influence of memory engagement on the level of experienced pain during Virtual Reality analgesia.

Dahlquist, L.M, McKenna, K.D, Jones, K.K, Dilliger, L., Weiss, K.E., Ackerman, C.S. (2007). Active and passive distraction using a head-mounted display helmet: effects on cold pressor pain in children. *Health psychology: official journal of the Division of Health Psychology. American Psychological Association,* 26, 6, 794-801.

Dahlquist, L.M., Herbert, L.J., Weiss, K.E., Jimeno, M. (2010). Virtual – reality distraction and cold – pressor pain tolerance: does avatar point of view matter? *Cyberpsychology, Behavior and Social Networking, 13, 5,* 587-91.

Das, D. A., Grimmer, K. A., Sparnon, A. L., McRae, S. E., Thomas B. H. (2005). The efficacy of playing a virtual reality game in modulating pain for children with acute burn injuries: A randomized controlled trial. *BMC Pediatrics,5, 1,* doi: 10.1186/1471-2431-5-1.

Forys, K.L, Dahlquist, L.M (2007). The influence of preferred coping style and cognitive strategy on laboratory-induced pain. *Health psychology, 26, 1*, 22-29.

Gershon, J., Zimand, E., Pickering, M., Rothbaum, B. O., Hodges, L. (2004). A pilot and feasibility study of virtual reality as a distraction for children with cancer. *Journal of the American Academy of Child Adolescent Psychiatry, 43, 10*, 1243-1249.

Gold, J. I., Belmont, K. A., Thomas, D.A. (2007). The Neurobiology of Virtual Reality Pain Attenuation. *CyberPsychology & Behavior, 10, 4,* 536-544.

Hoffman, H. G., Garcia-Palacios, A.., Patterson, D. R., Jensen, M., Furness, T. A., III, & Ammons, W. F., Jr. (2001). The effectiveness of virtual reality for dental pain control: A case study. *Cyberpsychological Behavior, 4*, 527-535.

Hoffman, H.G., Sharar, S.R., Coda, B., Everett, J.J., Ciol, M., Richards, T. Patterson, D.R. (2004). Manipulating presence influences the magnitude of virtual reality analgesia. *Pain, 111, 1-2,* 162-168.

Malloy, K.M., Milling, L. S. (2010). The effectiveness of virtual reality distraction for pain reduction: A systematic review. *Clinical Psychology Review, 30, 8*, 1011-1018.

Mühlberger, A., Wieser, M. J., Kenntner-Mabiala, R., Pauli, P. Wiederhold, B. K. (2007). Pain modulation during drives through cold and hot virtual environments. *Cyber Psychology & Behavior, 10, 4,* 516-522.

Piskorz, J. Czub, M., Urbańska, K., Mrula, M., Hodowaniec, P., Misiewicz, M. (in preparation). Distraction of attention with the use of virtual reality. Influence of the level of interaction on the level of experienced pain.

Sanchez-Vives, M. V., & Slater, M. (2005). From presence to consciousness through virtual reality. *Nature Reviews Neuroscience, 6*(4), 332-339.

Schubert, T. (2003). The sense of presence in virtual environments: a three-component scale measuring spatial presence, involvement, and realness. *Zeitschrift fuer Medienpsychologie, 15,* 69-71.

Shahrbanian, S., Simmonds, M. J. (2008). Effects of different virtual reality environments on experimental pain rating in post-stroke individuals with and without pain in comparison to pain free healthy individuals. *Annual Review Of Cybertherapy And Telemedicine,* 653-659.

Slater, M., Steed, A., McCarthy, J., Maringelli, F. (1998). The influence of body movement on subjective presence in virtual environments. *Hum Factors, 40*, 469-77.

Slater, M., Steed, A. (2000). Virtual presence counter. *Presence-Teleoperators and Virtual Environments, 9*, 413-434.

Twillert, B., Bremer, M., faber, A.W. (2007). Computer-generated virtual reality to control pain and anxiety in pediatric and adult burn patients during wound dressing changes. *Journal of Burn Care and Research, 28, 5,* 694-702.

Wiederhold, M. D., Wiederhold, B. K. (2007). Virtual reality and interactive simulation for pain distraction. *Pain Medicine, 8, 3,* 182-188.

Polish Journal of Applied Psychology
2014, vol. 12 (1), 59–74

Katarzyna Walęcka-Matyja[1]
University of Łódź

Adolescent personalities and their self-acceptance within complete families, incomplete families and reconstructed families

Abstract:

At the time of this work I had been concentrating on how the family gave shape to adolescent personalities and how adolescents would, as a consequence, accept themselves.

The purpose of this present study is to determine the differences in personality range and levels of self-acceptance among groups of women and men from complete, incomplete and reconstructed families. The study included a group of 314 adolescents, from the administrative region of Lódź. The following test methods were used: the Survey and standardised Inventory of Personality NEO - FFI by P.T. Costa and R. McCrae as adapted by B. Zawadzki, J. Strelau, P. Szczepaniak and M. Śliwińska; and the Scale of Interpersonal Attitude (SUI) as adapted by J. M. Stanik.

As a result of statistical analyses, it turned out that the dimension of personality the Openness to Experience had indeed diversified the examined adolescent groups. Statistically significant differences were also observed at the self-acceptance level between the study groups.

Keywords:

family structure, adolescence, personality, self-acceptance

Streszczenie:

W niniejszej pracy skoncentrowałam się na przedstawieniu roli struktury rodziny w kształtowaniu się osobowości i samooceny adolescentów. Celem prezentowanych badań było określenie różnic w zakresie wymiarów osobowości i poziomu samooceny między grupami kobiet i mężczyzn z rodzin pełnych, monoparentalnych oraz zrekonstruowanych. Badaniami objęto 314 młodych osób z województwa łódzkiego. Zastosowano następujące metody badawcze: ankietę, Inwentarz Osobowości NEO-FFI P.T. Costy and R. McCrae'a w adaptacji B. Zawadzkiego, J. Strelaua, P. Szczepaniaka i M. Śliwińskej oraz Skalę Ustosunkowań Interpersonalnych (SUI) w adaptacji J. M. Stanika.

W rezultacie przeprowadzonych analiz statystycznych okazało się, że wymiar osobowości różnicujący badane grupy stanowi cecha otwartości na doświadczenie. Istotne statystycznie różnice zaobserwowano także w zakresie samooceny badanych grup młodzieży.

[1] Katarzyna Walęcka-Matyja, Institute of Psychology, Faculty of Educational Sciences, University of Łódź, Smugowa 10/12, 91-433, Łódź; kwalecka@uni.lodz.pl.

Słowa kluczowe:
struktura rodziny, adolescencja, osobowość, akceptacja siebie

Introduction

Psychological literature widely discusses the multilateral influences of family on emotional and social life development as well as on the whole man's personality (Cartwright, 2003; Plopa, 2005; Liberska, 2011; Rostowska, Rostowski, 2011).

Researchers assume that an individual's correct development including the formation of personality, self image, self acceptance and the relation to oneself as well as to other people results from family experience (Reykowski, 1992).

Family experience can either help develop an individual or, in cases of adverse and very strong influences, impede the process of psychical and social development, not letting an individual form desirable human values.

The above-mentioned experience is extremely important because its impact concentrates mostly in the childhood period, when a child's psyche of is the most absorptive, vulnerable, flexible and hardly influenced by the external environment (Dunn, Munn, 1985).

Familiologists point out the importance of the parents' role in family functioning and the children's development. It is because in the initial life period, including the time from infancy to pre-school age, it is the family that plays the main role in the child's personality and self-esteem formation. Its first social contacts are established with the mother, then with the father, brothers and sisters and other housemates (Napora, Schneider, 2010).

Familial influence on the child's development is spontaneous in nature, and is not the effect of any particular educational program. Social stances, determined to a large extent by the socialization process in the first years of life, depend on the family atmosphere in the home, the educational methods applied by the parents, the family structure, and on the social behaviour patterns demonstrated by the parents.

The research done by G. Poraj (1988) shows that parents affect the children's personality and self-acceptance development through applying particular educational methods. Negative influences can be exerted by excessive severity, exaggerated rigorism, and using too much punishment and rules as well as by permissive education, excessive care, and solicitude linked with limited independence.

A number of researchers (Tyszkowa, 2006; Harwas-Napierała, 2006) point out that the relations of a child with adults, mainly concerning their personal qualities, are considered to be one of the most important factors in personal development.

There is also some empirical evidence that there is a close connection between personality and mature parenthood. Mature parenthood can help to reduce the child's self-centeredness, form the child's sense of responsibility and empathy, and trigger its readiness to perform social roles (Rostowska, 2003).

The family structure plays a very important role in personal development. It includes the fact that the child has both biological parents, a stepfather or a stepmother, as well as their age, job and social status. A different educational situation is created in a two-generation family as well as in an extended one. Furthermore, when a child has siblings, their age and number appear to be significant for personality and self-acceptance formation. Different personal qualities and self-acceptance levels will be formed in the eldest, the youngest or the only child, or the only boy among a few sisters or the only girl among a number of brothers (Tenikue, Bertrand, 2010). Knowledge of emotional and social experiences which were provided to a child in its family is often the key to understanding the difficulties the child has in social functioning (Kubik, 1999).

At the early school age and during adolescence a child comes into the secondary developmental context, whose range is much wider than the family environment. In this life period an individual's personal development takes place mainly through influences of non-family environments, such as school, friends and people met in various youth organizations, and later in work (Tyszkowa, 2006).

Our article concentrates on the family role in personality shaping and self-acceptance of adolescents (average age 21). An important argument for doing research in this field is to explore the changes which are currently taking place within the Polish family. They are structural, and functional, in nature and are connected with self-consciousness, thus creating a new kind of educational environment.

Modern families have a diversified structure. Increasingly, incomplete families as well as reconstructed ones are becoming visible in Polish society. Both cases have a tendency to increase, therefore it is so important to study how young people function in incomplete families after a divorce and in reconstructed ones since the psychological knowledge on this subject is still insufficient.

This study adopted the personality concept by R.R. McCrae and O.P. John. The authors singled out five main personality dimensions: Neuroticism, Extraversion, Openness to Experience, Agreeableness and Conscientiousness (John, 1990).These five dimensions were confirmed by numerous sample groups, kinds of data, and for a number of languages (Zimbardo, 2012).

Self-acceptance was determined based on the definition suggested by J. M. Stanik. The author defines it as a rather stable state of personality, resulting from an individual's relatively stable self-estimation, especially when comparing oneself with other people.

High scores obtained on the self-complacency scale for low self-estimation, connect a neurotic, suspicious and hostile personality with a high level of apprehension. On the contrary, low scores point to the lack of these symptoms in the surveyed person's self-description (Stanik, 1998).

It should be emphasized that the level of self-acceptance is connected with how an individual's personality acts, in other words, with its structuralization and organization level. Individuals with stable self-estimation have a better organized personality that individuals with unstable self-estimation. Moreover, worse structuralization results in greater susceptibility of the personality to emotional influences.

Research problems and hypotheses

The purpose of our research was to answer the following questions: Are there any differences in personality qualities between young people from full families, incomplete families and reconstructed ones? Are there any differences in the self-acceptance level between young people from full families, incomplete families and reconstructed ones? Are there any relations and of what kind between young persons' self-acceptance levels and personality qualities from differently structured families?

According to our designated purpose and the above-mentioned questions and based on the content-related literature, a number of research hypotheses have been formulated.

Hypothesis no. 1: There is a difference in personality qualities between groups of women from full families, incomplete families and reconstructed ones.

Hypothesis no. 2: There is a difference in personality qualities between groups of men from full families, incomplete families and reconstructed ones.

Hypothesis no. 3: There is a difference in the self-acceptance level between groups of women from full families, incomplete families and reconstructed ones.

Hypothesis no. 4: There are statistically significant differences in the self-acceptance level between groups of men from families of different structure.

Hypothesis no. 5: There are relations, different as far as strength and direction are concerned, between the self-acceptance level and the examined personality qualities.

Research methods

The following test methods were used to answer our research questions: Survey and Standardised Inventory of Personality NEO - FFI by P.T. Costa and R. McCrae as adapted by B. Zawadzki, J. Strelau, P. Szczepaniak and M. Śliwińska and Interpersonal Relationships Scale (SUI) in J. M. Stanik's adaptation. The survey method allowed us to

gather data on the socio-demographic situation of young persons (age, gender, family structure, domicile, marital status, education). NEO-FFI and SUI are psychometrically acceptable and allow for scientific research (Stanik, 1998; Zawadzki, Strelau, Śliwińska, 1998).

Participants

The study included a group of 600 young persons (average age 21; δ=1,181) from the administrative region of Łódź. The tests were anonymous and done in groups. Participation in the research was voluntary. To create an appropriate sample group, the following exclusion criteria were adopted: young person's attitude toward participation in the survey, demographic structure of the family of origin, and completion of the test sheets[2].

Taking into account the demographic structure of the family of origin, and according to our designated purposes, the distinguished environments included: the full family, the incomplete family as a result of parental divorce, and the reconstructed family. The above-mentioned familial typology was adopted due to methodological considerations connected with facilitating the conduct of research in this area. The appropriate sample group did not include any persons originating from other family types than the above-mentioned.

Ultimately, the test group comprised 314 people (158 women and 156 men). With respect to the family of origin criterion three comparative groups were identified. Comparative group I was made up of 105 people from incomplete families (53 men and 52 women). Comparative Group II consisted of 104 people from stepfamilies (51 men and 53 women). In contrast, comparative group III comprised 105 people from full families (52 men and 53 women).

The empirical material, collected through surveys, was subject to qualitative analysis. For elaborating the data, the test of independence chi - square (χ^2) was used. A number of statistical analyses were carried out using the computer program IBM SPSS Statistics 20. It turned out that the persons forming the appropriate sample group were characterized by domiciled uniformity (large cities, with a population of more than 100 thousand-χ^2=4.166;df=4;p=.384), marital status (single-χ^2=1.322;df=2;p=.516) and education level (secondary education-χ^2=1.031;df=2;p=.597).

[2] In order to determine the credibility degree of the received results, we used a rate which consisted of the number of question marks in the Interpersonal Relationships Scale by M. Stanik. It points to a protective and distrustful attitude towards the survey. Considering this fact, we excluded from the examination all those persons who had received high and extremely high scores in this scope (119 people) (Stanik, 1998).

Results

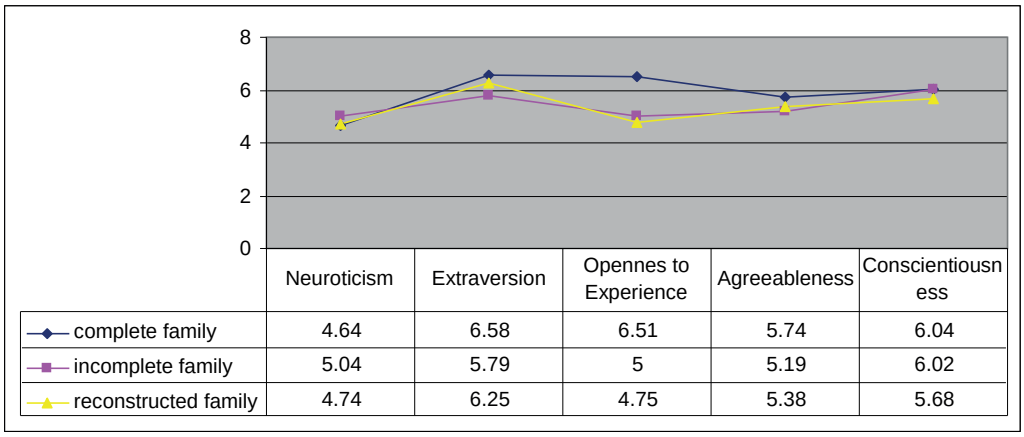
The results presented below were intended to answer the question: Did the surveyed groups of women and men from families of diversified structures differ in their personality qualities? For statistical results the F test and Tukey's multiple comparison test were used.

Since women and men react differently to the same stimuli and behave differently in social situations, is the difference being subject to both genetic factors as well as environmental ones the results for all the women and men in the comparable groups from differently structure families were taken into account (Mandal, 2006).

Variations in the personality dimensions of the tested young women from complete families, incomplete families and reconstructed families.

Bi-factor variation analysis taking gender into consideration pointed to a statistically significant difference between the women from the examined types of families. It concerned the quality of Openness (F=14.487; p=.0005) (Figure 1 and Table 1).

In the Openness dimension, the highest average results (above average) were obtained by women from full families in comparison with those from incomplete families and reconstructed ones. The results appeared statistically significant. A similar degree of Openness also characterized women from incomplete and reconstructed families, who otherwise obtained average results or results below average.



	Neuroticism	Extraversion	Opennes to Experience	Agreeableness	Conscientiousness
complete family	4.64	6.58	6.51	5.74	6.04
incomplete family	5.04	5.79	5	5.19	6.02
reconstructed family	4.74	6.25	4.75	5.38	5.68

Figure 1. Variations in the personality dimensions of the tested young women from families of diverse structure.

Table 1. The family structure and the dimensions of personality of women in the light of Tukey's test.

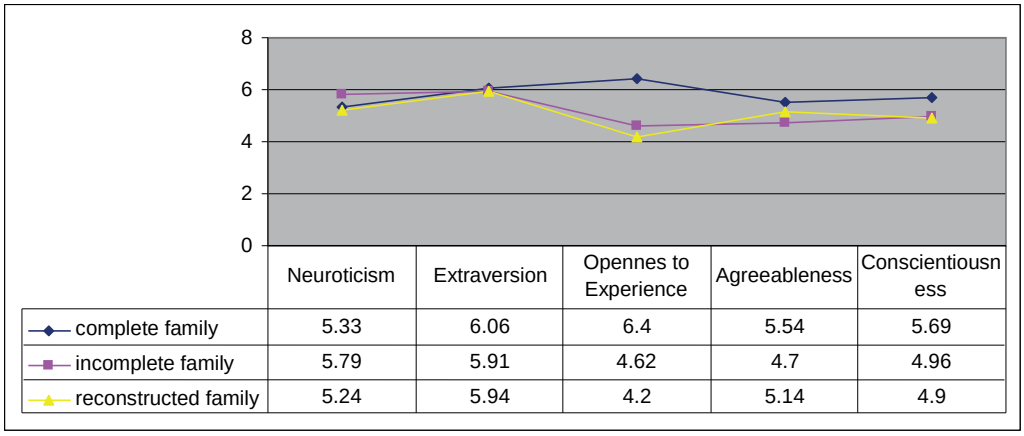
Openness to Experience		
Structure of family:	reconstructed	incomplete
complete	.0005	.0005
incomplete	.768	

In the other personality dimensions surveyed by the NEO-FFI test, namely Neuroticism, Extraversion, Agreeableness and Conscientiousness, there were no statistically significant differences between the surveyed groups of women. The results were on the average level. In this way Hypothesis no. 1 was supported.

Variations in the personality dimensions of the tested young men from complete families, incomplete families and reconstructed families.

Comparative analysis pointed out that the personality dimension significantly different among the men's groups was Openness (F=23.677; p=.0005) (Figure 2 and Table 2). Survey results for men from differently structured families were similar to those received by the women in this sphere.

In Openness, the highest average results (above average) were obtained by men from full families in comparison with men from either incomplete or reconstructed families, whose results were below average. The results appeared statistically significant. The quality of Openness characterized the men from incomplete families and those from reconstructed ones to a similar degree.



	Neuroticism	Extraversion	Opennes to Experience	Agreeableness	Conscientiousness
complete family	5.33	6.06	6.4	5.54	5.69
incomplete family	5.79	5.91	4.62	4.7	4.96
reconstructed family	5.24	5.94	4.2	5.14	4.9

Figure 2. Variations in personalities of the young men from diverse structured families.

Table 2. The family structure and dimensions of the men's personality in the light of Tukey's test.

Openness to Experience		
Structure of family:	reconstructed	incomplete
complete	.0005	.0005
incomplete	.423	

In the other personality dimensions surveyed by NEO-FFI, namely Neuroticism, Extraversion, Agreeableness and Conscientiousness, there were no statistically significant differences between the men's groups. The results were on the average level and in this way they supported Hypothesis no. 2.

Variations in self-acceptance of the young women from diversely structured families

The research results presented below (Figure 3 and Table 3) concerning variations in the self-acceptance for the female groups pointed to a statistically significant difference (F=32.664; p=.0005).

Figure 3. Variations of the average results as regards self-acceptance in the surveyed female groups.

Table 3. The family structure and the women's self-acceptance level in the light of Tukey's test.

Self-acceptance		
Structure of family:	reconstructed	incomplete
complete	.0005	.0005
incomplete	.984	

Considering the women's self-acceptance from the types of families, it was noticed that women from incomplete families were characterized by the highest average results on the self-acceptance scale, which means that they have a low level of self-esteem in comparison with women from full families.

The group from reconstructed families did not differ significantly as regards average results in self-acceptance from those growing up in incomplete families. The self-esteem level was similar in these two groups.

The optimum level of self-acceptance characterized the group from full families, which differed significantly in this scope from the groups of the women coming from other family types.

Variations in self-acceptance of the young men from diversely structured families.

Considering the influence of the family structure on the self-acceptance level in the tested men groups, a statistically significant difference was noticed (F=45.723;p=.0005). The results are presented by Figure 4 and Table 4.

Figure 4. Variations of the average results as regards self-acceptance in the male groups.

Table 4. The family structure and the men's self-acceptance level in the light of Tukey's test.

Self-acceptance		
Structure of family:	reconstructed	Incomplete
complete	.044	.0005
incomplete	.0005	

The statistical analysis shows that, as far as self-acceptance is concerned, men from incomplete families received the highest average results in comparison with men from reconstructed families (above average) and from full ones (low results). It means that they are characterized by a low level of self-esteem; they are tense and neurotic. The results appeared statistically significant.

Between the male groups from full families and reconstructed ones there was seen a tendency (p=.044) toward showing better socially adapted men from full families. As it appeared, men from full families received the lowest average results on the self-acceptance scale, which means the their self-esteem was optimal.

Correlation of self-acceptance with the personality dimensions in the young people from the examined families types.

The next research stage analysed the relations between self-acceptance and the young persons' personality dimensions from differently structured families. In order to do that, we used the r-Pearson correlation coefficient.

Taking into consideration that the correlation coefficients are not additive, we carried out a statistical analysis separately for each compared group.

In the situation when the same two psychological variations correlated with each other in two or/and three types of the surveyed families, the obtained correlation coefficients were compared with respect to their value compatibility.

Analysing the results with respect to correlations between self-acceptance and selected personality dimensions, we used a breakdown of these variations and received the results which are in Table 5.

Table 5. The relation between self-acceptance and some personal qualities of the young people from differently structure families.

Dimensions of personality	Self-acceptation		
	Structure of family		
	Family complete	Family incomplete	Family reconstructed
Neuroticism	.200 p=.041	.575 p=.0005	.339 p=.0005
Extraversion	-	-.255 p=.009	-
Openness to Experience	-	-	-
Agreeableness	-.200 p=.041	-	-
Conscientiousness	-	-	-.225 p=.022

The research results with respect to correlation between self-acceptance and some personal qualities showed that there are relations between the variations and that their strength and directions are different. In this way, Hypothesis five was confirmed.

Considering the relation between self-acceptance and neuroticism, we discovered that it occurs in all the surveyed groups from full families, incomplete families and reconstructed ones (p=.200;p=.575;p=.339). Correlation coefficient values were not significantly different (p=.029).

High levels of apprehension, emotional tension, frequently experienced feelings of hostility and anger, shyness, and minimal ability to cope with stress result in receiving

high scores in the self-acceptance scale, which can be interpreted as pointing to low self-esteem.

There was negative correlation between the extraversion and self-acceptance in the persons from incomplete families. This low level of self-acceptance appears to be related to behaviours aimed at seeking stimulation, willingness to dominate in company, and life activities. The mechanism of compensation might have taken place here. A young man from an incomplete family, having low self-esteem, wants above all to show psychic strength and vigour – and not to be perceived as weak and hesitant.

Agreeableness, or one's attitude about other people, correlated negatively with self-acceptance in persons from full families. It appears that a higher level of self-esteem characterizes persons who are less agreeable, more egocentric, and in relations with others oriented towards competition rather than cooperation. The last relation analysed concerned conscientiousness, which correlated positively with self-acceptance for young persons from reconstructed families. We found that strong-willed, highly motivated and persistent persons are characterized by an optimum level of self-acceptance.

Conclusions

From the dawn of time, humanistic thought has been interested in the family as an institution, its problems having always been the centre of attention of all religious, philosophical, ethical and legal systems, since the family constitutes man's most fundamental reality. Although the family still occupies a high position in the hierarchy of values declared by man, it is affected by a host of undesirable changes and threats, such as: consumptionism, unemployment, poverty, and social pathologies. More and more families are unable to perform all their roles correctly and because of this they cannot provide their children with optimal conditions for development. Phenomena of the kind mentioned concern both full, incomplete, and reconstructed families, which can also be affected by permanent conflicts or commonly existing social diseases such as alcoholism.

Content related literature concerning diversified family structures, shows a wide range of occurring problems. It is emphasized that they affect not only adults but also the younger generation, who are doomed to existence in atypical environments not always satisfying their needs. There is no doubt that any abnormalities in a family influence a young individual's personal development and self-acceptance.

Our research has shown that the functioning specificity of full families, incomplete families and reconstructed ones strongly determine young persons personalities and their self-acceptance levels.

Comparisons between the groups of women and men from differently structured families pointed to one differentiating personality dimension. It appeared that the women and the men from full families most frequently displayed cognitive curiosity, a tendency toward positive valuations of life experiences. Young people from incomplete and reconstructed families received Openness scores below average, which can point to conventionalism and conservatism demonstrated both in views and behaviour.

Openness characterizing the young people from full families could have resulted from the attitudes presented by the parents, expressing acceptance, respect and the right to gain experience. Being able to act independently and at the same time feeling secure, the young generation could fully concentrate on their cognitive activity development.

Openness is very important for young, contemporary men since the environment where people live is characterized by an unheard of confrontation of cultures, a variety of which can be defined both globally and in micro-sociological terms. It is the consequence of such phenomena as: availability of modern transport, communication, and information transmission as well as social mobility and environmental openness. People meeting each other, almost at every step, reveal their distinctness to each other. In such circumstances, even peaceful co-existence, not to mention agreement or cooperation, is impossible without openness or tolerance toward others.

It should be emphasized that nowadays a preferable personality structure is an "open" one as it is open to innovativeness and a high level of life aspirations. The occurring cultural changes intertwine with social culture differentiation, its mobility, tendency to be open to act according to new social rules, with its emergence of new social groups, institutions, jobs, development, and deepening individual autonomy (Doniec, 2005).

Therefore, people characterized by openness have more opportunities to find their place and succeed in the contemporary world than those people who do not have this quality.

There is no doubt that besides personal qualities, self-awareness and self-acceptance are crucial for social behaviours displayed by an individual.

Self-acceptance is an important element of self-awareness as it enables self-determination as well as enabling individuals to distinguish themselves from the environment. It allows a person to assume a critical attitude towards their abilities as well as towards new requirements set by the environment. It plays an important role not only in getting to know oneself but also in steering one's behaviour and realizing his/her life plans.

If a person knows what place they occupy in society and what they can achieve, that means that their self-awareness functions correctly and there are no intrapersonal conflicts.

If, on the other hand, there is a big discrepancy between a person's view of their abilities and their real achievements, we speak about a self-awareness disorder. This disorder, according to psychoanalysis, can result from a conflict between aspirations for significance and feelings of low self-esteem.

The results of our research with respect to self-acceptance in young people from differently structured families showed statistically significant differences between women's and men's groups.

Both women and men from full families received scores pointing to a high level of self-esteem. On the other hand, women and men from incomplete and reconstructed families received scores reflecting low levels of self-esteem, which were connected with neurotic and hostile attitudes.

Our results strongly indicate that the family which satisfies the needs of its members and provides them with support and unconditional love, constitutes the optimal educational environment for stimulating one's positive self-image.

Our results can be confirmed by the research results done by H. Szczęsna (2005). The author demonstrated empirically that young people from divorced families were characterized by an average self-acceptance level in comparison with young people from full, well-functioning families, who had a high level of self-acceptance.

Also, J. Conway (1997) in his research, demonstrated empirically that young people from incomplete families were more often characterized by low levels of self-acceptance and self-esteem.

Furthermore, research by K. Pospiszyl showed that the more the father is involved in the educational process and the stronger his emotional bonds with the child are, the higher the child's self-acceptance and self-confidence are in relations with other people (Pospiszyl, 1980).

As a result of our research, a few important observations were made, which are not only consistent with contemporary thought but also bring in some valuable elements modifying the general knowledge on the subject. The research results are significant psychologically because they show that the family structure and parental relationship influence, to a large extent, the personal development and the self-acceptance level of young people.

References:

Braun-Gałkowska, M. (1990). *Psychologia domowa*. [Psychology domestic]. Olsztyn: Wyd. WD.

Cartwright, C. (2003). Parent - child relationships in families of remarriage: What hurts? What helps? *Australian Journal of Psychology*, (55), 1-5.

Conway, J. (1997). *Dorosłe dzieci rozwiedzionych rodziców*. [An adult children of divorced parents]. Warszawa: Logos.

Doniec, R. (2005). Socjalizacja rodzinna w kontekście przemian współczesnej rodziny w Polsce. [Family socialization in the context of the changes in modern family in Poland]. In: H. Cudak, H. Marzec (Eds.). *Współczesna rodzina polska- jej stan i perspektywy*. [Contemporary Polish family-her condition and prospects]. Mysłowice: Górnośląska Wyższa Szkoła Pedagogiczna, 226-245.

Dunn J. Munn P. (1985). Becoming a Family Member: Family Conflict and the Development of Social Understanding in the Second Year. *Child Development*, (56), 480-492.

Ganong, L., Coleman, M. (1984). The effects of remarriage on children: review of the empirical literature. *Family Relations*, (33), 18-25.

Harwas – Napierała, B. (2006*).* Komunikacja interpersonalna i jej kształtowanie jako istotny wymiar jakości życia rodziny. [Interpersonal communication and its development as an important dimension of quality of life for families]. W: Rostowska T. (red.) *Jakość życia rodzinnego*.[The quality of family life]. Łódź: WSI, 29-42.

Horney, K. (1980). *Nerwica a rozwój człowieka*. [Neurosis and human development]. Warszawa: PIW.

John, O. P. (1990). The „Big Five" Factor Taxonomy: Dimensions of Personality in the Natural Language and in Questionnaires. In: L.A. Pervin (Eds.). *Handbook of Personality, Theory and Research*. New York, London: Guilford Press, 66-100.

Kubik, W. J. (1999). *Jaka jesteś rodzino?* [What are you Family?]. Kraków: WAM.

Kukołowicz, T., Kulczycka, B. (1988). Spełnianie funkcji przez rodziny niepełne. [The function of the single-parent families]. In T. Kukołowicz (Ed.). *Pomoc rodzinie niepełnej*. [Support single-parent family]. Sandomierz: WS, 13-20.

Liberska, H. (2011). Development in the family In: H. Liberska (Ed.). Relations in marriage and family: genesis, quality and development. Bydgoszcz: Wyd. Wydawnictwo Uniwersytetu Kazimierza Wielkiego, 13-31.

Maccoby, E. (1980). *Social development. Psychological growth and parent - child relationship.* New York: Harcourt Brace Jovanovich, INC.

Mandal E. (2006). Osobowość kobiet i mężczyzn: różnice generacyjne i rozwojowe. [The personality of men and women: generational differences and development.] *Psychologia Rozwojowa*. [Developmental Psychology]. (2), 23-34.

Napora, E., Schneider A.M. (2010). The Influence of Parenting style in Single Mother Families from the South of Poland on an Emotional Functioning of Adolescent Girls and Boys. *Polish Journal of Applied Psychology*, 8: 1.

Plopa, M. (2005). *Psychologia rodziny. Teoria i badania*.[A psychology of the family. Theory and research]. Elbląg: Wyd. EUHE.

Poraj, G. (1988). Rodzinne uwarunkowania w nawiązywaniu kontaktów interpersonalnych dzieci jedynych i mających rodzeństwo. [Family determinants of interpersonal networking and having children the only siblings]. In L. Niebrzydowski (Ed.). *Rodzinne uwarunkowania kontaktów interpersonalnych dzieci i młodzieży*. [Family determinants of interpersonal relations of children and young people.] Wrocław: Ossolineum, 65-133.

Pospiszyl, K. (1980). *Ojciec a rozwój dziecka*. [Father and child development]. Warszawa: Wiedza Powszechna.

Tyszkowa, M. (2006). Jednostka a rodzina: interakcje, stosunki, rozwój. [Individual and family: interactions, relationships, the development]. In M. Przetacznik – Gierowska, M. Tyszkowa (Eds.). *Psychologia rozwoju człowieka*. [Psychology of human development] T.1. Warszawa: PWN, 124-149.

Reykowski, J. (1992). Nastawienia egocentryczne a nastawienia prospołeczne. [Self-centered attitude and pro-social attitudes]. In J. Reykowski (Ed.). *Osobowość a społeczne zachowanie się ludzi*. [Personality and social behavior of the people.] Warszawa: KiW, 169-233.

Rostowska, T., Rostowski, J. (2011). Satisfying psychological needs and quality of life among married and cohabitating couples. In: H. Liberska (Ed.). *Relations in marriage and family: genesis, quality and development*. Bydgoszcz: Wyd. Wydawnictwo Uniwersytetu Kazimierza Wielkiego, 67-98.

Rostowska T. (2003). Dojrzałość osobowa jako podstawowe uwarunkowanie życia małżeńskiego i rodzinnego. [Personal maturity as a basic prerequisite of life marriage and family]. In I. Janicka, T. Rostowska (red.) *Psychologia w służbie rodziny.* [Family Psychology]. Łódź: WUŁ.

Stanik, J.M. (1998). *Skala Ustosunkowań Interpersonalnych*. [Interpersonal Relationships Scale]. Kielce: Wyd. Szumacher.

Szczęsna, H. (2005). Znaczenie ojca dla rozwoju i kształtowania się samoakceptacji młodzieży w świetle badań własnych. [The importance of the father for the development of self-acceptance and the development of youth in the light of their own]. In: H. Cudak, H. Marzec (Eds.). *Współczesna rodzina polska- jej stan i perspektywy.* [Contemporary Polish family-her condition and prospects.] Mysłowice: Górnośląska Wyższa Szkoła Pedagogiczna, 406-418.

Tenikue, M., Bertrand V. (2010). Birth Order and Schooling: Theory and Evidence from Twelve Sub-Saharan Countries. *Journal of African Economies*, (4), 459-495.

Winnicott, D.W. (1993). *Dziecko, jego rodzina i świat.* [The child, his family and the world]. Warszawa: Wyd. J. Santorski & Co.

Zawadzki, B., Strealu, J., Szczepaniak, P., Śliwińska, M. (1998). *Inwentarz Osobowości NEO - FFI P.T. Costy i R.R.McCrae'a*. [Inventory of Personality NEO - FFI P.T. Costy & R.R.McCrae'a]. Warszawa: Wyd. PTP.

Zimbardo, P.G. (2012). *Psychologia i życie*. [Psychology and life]. Warszawa: PWN.

Polish Journal of Applied Psychology
2014, vol. 12 (1), 75–98

Agata Chudzicka-Czupała[1]
University of Silesia

Psychological and moral determinants in accepting cheating and plagiarism among university students in Poland

Abstract:

The study investigates the psychological and moral acceptance of cheating and plagiarism among university students in Poland. A sample of 285 students participated. Results demonstrate that the locus of control, justice sensitivity, and some individual ethical philosophical dimensions are significant predictors for accepting dishonest behaviour. My research results support the basic theoretical arguments that point out the role of acceptable individual conditions for cheating and plagiarism. The research offers implications for the practice of moral awareness and for some possible training for university students.

Keywords:

academic dishonesty, unethical behaviour, justice sensitivity, moral philosophy, locus of control

Streszczenie:

W artykule ukazano wyniki badań poświęconych uwarunkowaniom akceptacji ściągania i plagiatowania, przeprowadzonych wśród 285 studentów uczelni wyższych w Polsce. Rezultaty dowodzą znaczenia indywidualnych cech i przekonań, takich jak wrażliwość na sprawiedliwość z perspektywy ofiary i nieuprawnionego beneficjenta oraz wybranych przekonań moralnych, które okazały się być istotnymi predyktorami akceptacji nieuczciwości akademickiej. Wyniki ukazują też na znaczącą rolę umiejscowienia kontroli wzmocnień i niosą ze sobą istotne implikacje praktyczne.

Słowa kluczowe:

nieuczciwość akademicka, zachowanie nieetyczne, wrażliwość na sprawiedliwość, filozofia moralna, umiejscowienie kontroli

[1] Agata Chudzicka-Czupała, Faculty of Pedagogy and Psychology, Institute of Psychology, University of Silesia, Grażyńskiego 53, 40-126 Katowice; e-mail: agata.chudzicka-czupala@us.edu.pl.

Introduction

In recent years, the problem of academic dishonesty has been growing in the whole world (Williams et al., 2010). It concerns students who are often too lenient towards cheating on examinations or plagiarised theses. The issue of academic dishonesty comprises a series of different phenomena. Research focuses mainly on various forms of cheating and on the determinants of that phenomenon (Whitley, 1998). Cheating is understood as "using, during examinations, results obtained by other students or materials prepared earlier" (Tyszko & Hrychorowicz, 2010, p. 3). Another form of dishonesty is unauthorised access to information during a test or to information about an examination before sitting it, without the teacher's consent and knowledge (Alleyne & Phillips, 2011). There are also other forms of dishonesty, discussed less often, such as plagiarism and data falsification (Carroll, 2004) which may be defined as consciously misleading others about the originality of the specific work, about the data and their author (Decoo, 2002). Many studies show, however, that the problem of plagiarism appears at universities as often as or even more often than the problem of cheating as such (Roig & Caso, 2005). One factor which undoubtedly contributes to this phenomenon becoming more intense, especially with regard to plagiarism, is the increasingly widespread and easier Internet access (Ma, Wan & Lu, 2008).

The forms of academic dishonesty mentioned above whose acceptance is discussed in the study may be defined as unethical behaviour, fraud or theft, since they involve violation of copyright, lying and obtaining information or providing it to others illegally. Remaining silent and passive when faced with cheating or handing in someone else's work as one's own is similarly dishonest, even though such behaviour differs significantly from active cheating and plagiarism. The psychological situation of a witness is different from that of the perpetrator, and the former's conduct may be influenced by many different factors. This led to the decision to include the witness perspective in the study presented here.

According to the research conducted in Poland (Kaczmarczyk & Borkowski, 2012) students perceived cheating at school as rather positive and not fraudulent behaviour. Only 28% of those surveyed agreed with the assertion that cheating on Polish secondary school leaving examinations (matura) was appalling (Kobierski, 2006). Plagiarism is perceived in a similar way. The attitude towards this phenomenon is best illustrated by the words of one respondent in research by Gromkowska-Melosik (2007, p. 75): "If there are sources to copy from, then why not do it? If someone publishes their work online, they probably agree to people copying from that." Both teachers and students are aware of the fact that cheating and plagiarism are widespread, but at the same time hardly anyone seeks to genuinely combat such phenomena.

Research concerning the above issues, especially psychological conditions of academic dishonesty, cheating and plagiarism, is definitely lacking in Poland. This study attempts to fill this research gap. It took into consideration the acceptance of obtaining information and materials for oneself, and the approach towards helping others cheat and obtain illegal information as well as the degree of the survey respondent's acceptance towards the passivity of a witness who knows about cheating and plagiarism (i.e. staying silent when one is aware of the offence being committed by others).

Individual factors in acceptance of cheating and plagiarism. Surveys concerning the determinants of academic dishonesty have so far examined the relationship between selected situational factors and the inclination to cheat (cf. Williams, Nathanson & Paulhus, 2010). Some authors ascribe key importance to situational factors, claiming that the external context plays a much bigger role than personal convictions or traits (Murdock & Stephens, 2007). Whitley and Keith-Spiegel (2002) emphasise that the most significant predictors of the inclination towards dishonest behaviour and cheating are the following: a disrespectful attitude towards learning and an inappropriate preparation for examinations, as well as the situational context – teachers' consent and the possibility of cheating. Using software to detect academic dishonesty and the frequency of punishment are two factors listed as significant in the reduction of the phenomenon of cheating and plagiarism (Haswell, Jubb, & Wearing, 1999). Additionally, some authors (cf. Whitley, 1998), challenge the usefulness in examining the role of an individual's selected personality and cognitive abilities dimensions as features determining the inclination to cheat on tests, emphasising that research should focus only on environmental characteristics which can be controlled and potentially changed, and that interest in them should be a priority.

It is difficult, however, to agree with that position. Individual moral convictions or sensitivity to unfair treatment should be modified, for example during specially planned training sessions. Studying moral convictions and personality traits which may prove key for explaining the acceptance of dishonest academic behaviour constitutes sufficient cognitive justification for research and analysis taking into account their role. This opinion is shared by Williams and others (2010) who challenge the pessimistic approach to the significance of personality-related factors. Punishment might perhaps be a good way to curb negative phenomena, but if the ultimate goal is to change the individual approach to cheating, it may prove essential to find out about individual traits, including moral convictions.

In a similar manner, many other authors point out that the individual's attitude towards the phenomenon of dishonesty is a significant predictor of the inclination to cheat (cf. Pino & Smith, 2003; Stone, Jahawar & Kisamore, 2009), which may depend

on individual traits. Storch and Storch (2003) insist that there is a strong positive correlation between one's predisposition towards unethical behaviour and the approval of such behaviour. Love and Simmons (1998) discovered a relationship between the inclination to cheat and attitudes towards ethical standards related to the profession students prepare to pursue during their studies, including attitudes towards academic dishonesty, namely cheating and plagiarism.

As McCabe, Trevino and Butterfield (1996) point out, the mere existence of "honor codes" at universities and the fact that students swear to observe them curb the inclination to behave dishonestly, also after graduation. There is a substantial amount of other research whose results emphasise the importance of individual traits, in particular moral convictions (Bampton & Cowton, 2009).

Direct inspiration for the research results reported in this paper was the willingness to find out whether – and to what extent – selected personality-related factors, justice sensitivity (Schmitt, Gollwitzer, Maes & Arbach, 2005), and locus of control as well as variables related to individual morality contribute to the acceptance of cheating and plagiarism. The research results show the significance of such factors. The innovative and different nature of the research described here results from the variable taken into account, namely justice sensitivity, whose relationship with the acceptance of cheating and plagiarism seems highly probable, but had never before been analysed. The inspiration for the research also came from the scarce number of empirical investigations on the subject in Poland.

The aim of the study, variables and hypotheses

The purpose of my research was to find answers to questions concerning the possible connections between selected personality-related variables: justice sensitivity and locus of control and the attitude of students towards academic dishonesty-cheating and plagiarism. It was assumed that acceptance of said phenomena should unquestionably be connected with the individual's morality. In my study an attempt was also made to test the role of individual moral philosophy (in its selected dimensions).

Justice sensitivity. Some social psychologists point out in their work that individuals differ not only in terms of their tolerance or sensitivity to physical stimuli, pain, uncertainty or frustration, but that their tolerance or sensitivity to the violation of moral standards or to injustice may also be diverse (Huseman, Hatfield & Miles, 1987; Lovas & Wolt, 2002; Schmitt et al., 2005). Schmitt, Neumann and Montada (1995) made a first step towards building a tool to measure *justice sensitivity*. The authors systematised existing knowledge about the trait, suggesting four indicators, namely the frequency of

experienced injustice, intensity of anger after injustice, mental intrusiveness of injustice and punitive orientation toward the perpetrator. Schmitt et al. (1995) also examined the relationship between that trait and other related characteristics, such as tolerance of frustration, inclination to react angrily towards others and oneself, trust in people, the need for control and satisfaction with life. Mohiyeddini and Schmitt (1997) discovered that students with a high level of justice sensitivity who were treated unjustly during the experiment reacted much more strongly in that situation and felt much more deprived. Schmitt and Dörfel (1999) also point out that justice sensitivity modifies to a large extent an individual's reaction to unjust treatment, impacting one's satisfaction derived from work and psychophysical well-being. This variable seems to be a factor that may be connected with the survey respondents' attitude towards cheating and plagiarism and constitutes an important predictor of internal acceptance of dishonest behaviour and the inclination towards it, since such phenomena are linked with the sense of being disadvantaged and experiencing injustice.

Schmitt et al. (2005) called for the study of three justice sensitivity types: victim sensitivity, that is, of the person feeling disadvantaged when others obtain something s/he thinks s/he deserves; observer sensitivity, namely, when the witness sees others being rewarded undeservedly; and beneficiary sensitivity, namely, the viewpoint of someone obtaining rewards s/he thinks someone else should have obtained.

The following research hypotheses were formulated and then tested on the basis of literature:

H1a: Justice sensitivity (from the victim, observer and beneficiary perspectives) is a predictor of accepting cheating and plagiarism for oneself,

H2a: Justice sensitivity (from the victim, observer and beneficiary perspectives) is a predictor of accepting cheating and plagiarism for others,

H3a: Justice sensitivity (from the victim, observer and beneficiary perspectives) is a predictor of a witness passively accepting cheating and plagiarism.

Locus of control. Another variable taken into account in the research was locus of control. According to the definition stated by the theory's author (Rotter, 1966), locus of control is the subjective conviction about one's potential and impact on one's destiny. People with an internal locus of control consider rewards to result from their own behaviour and efforts. They believe that the effect of their actions depends on their behaviour or on relatively stable traits they have. People with an external locus of control, on the other hand, are convinced that what happens to them results from independent forces and various external factors (Paszkiewicz, 1974; Drwal, 1995).

Thus an internal locus of control is connected with a clear lack of inclination towards conformist actions and with resistance to stress. Persons with an internal locus of

control are more willing to change their surroundings than adapt to them or succumb to them (Szmigielska, 1980; Tuszer, 1981). People focused on subjective actions live and behave in accordance with the principle that every everyone is the master of their own destiny and that what they achieve depends exclusively on themselves. Inner-directed individuals feel responsible for their actions and learn from earlier experiences. People with an internal locus of control constantly strive to ensure that their independent work and efforts are rewarded with success (Gliszczyńska, 1983), whereas those with an external locus of control, as suggested by what Rotter and Mulry (1965, p. 599), believe in "luck", which they regard "as a personal although unstable attribute".

Research by Burdzicka-Wołowik (2008) confirms the existence of a relationship between locus of control and morality – the more internal the locus of control of survey respondents is, the higher the position of morality in their hierarchy of values was, hence considered as behaving in line with rules or principles they accepted. This contradicts the results of research showing the existence of a relationship between an internal locus of control and the inclination to cheat on examinations, obtained by Lefcourt (1991). Although these research results are not utterly unambiguous, they make it possible to assume that locus of control may be connected with the acceptance of cheating and plagiarism and with the inclination towards such behaviour. Considering this trait in research will make it possible to look more closely at its significance and role. Therefore, the following hypotheses are proposed:

H1b: Locus of control is a predictor of accepting cheating and plagiarism for oneself,

H2b: Locus of control is a predictor of accepting cheating and plagiarism for others,

H3b: Locus of control is a predictor of a witness passively accepting cheating and plagiarism.

Individual moral philosophy. Individual moral philosophy is a further variable considered in my research. Phenomena such as cheating or plagiarism may be described as theft, since they involve the violation of copyright, dishonesty and fraud. The issue becomes particularly important, however, when one thinks of education aimed at training people for jobs in which ethical behaviour is particularly valuable due to the specific nature and importance of the role played by graduates of certain universities in contemporary society. This certainly concerns such fields as economics, accounting, banking, medicine, education, psychology, pedagogy, and sociology. Preparation for such professions without an emphasis on ethical conduct may lead to particular consequences. It is important, however, to obtain knowledge in an honest way at every university, since the appearance of unprofessional graduates on the labour market can always lead to serious and adverse effects. The results of numerous studies show that people who accept dishonest behaviour at university engage much more frequently in such behaviour as post-graduate

students (Harding, Mayhew, Finelli & Carpenter, 2007; Stone et al., 2009) as well as in the workplace after graduating (Alleyne & Phillips, 2011).

Many researchers studying ethical decision-making processes assert that it is important to diagnose individual moral philosophy in order to understand moral judgements and behaviour in situations when the individual is faced with the need to make ethical decisions (Bass, Barnett & Brown,1999; Stead, Worrell & Stead, 1990). Results of studies focusing on an individual's ethical view of the world show that moral values people follow determine their attitude towards various social phenomena and moral issues, determine their judgment of other people's behaviour, and influence responsibility for the effects of negative conduct. Moral principles also determine the judgment of one's own behaviour and predisposition, explain people's reaction to their own mistakes and ethical errors, as well as determine individual resistance to temptation in ethically ambiguous situations (Forsyth, 1992). This is why I focused attention on variables like individual moral convictions.

The theory of individual moral philosophy was derived from normative philosophical theories. Much of the research covered only one selected ideology. Reidenbach and Robin (1990) used a multi-dimensional scale to investigate ethical values (principles), and subsequently various versions of the same scale were used in many studies of ethical behaviour (Cohen, Pant & Sharp, 1993; Cruz, Shafer & Strawser, 2000; Hudson & Miller, 2005; McMahon & Harvey, 2007).

Moral idealism and *moral relativism* are two of the most significant moral philosophy dimensions taken into account most often in research concerning the determinants of ethical decision-making. According to Forsyth (1980) there is primarily one continuum that exists among the many possible and available moral philosophies, namely that of idealism – relativism, which can be used to classify most people. Idealists believe in the existence of universal standards, take into account the good of others and are concerned about it, while relativists seem to be less inclined to identify the unethical aspects of various situations.

Other moral dimensions of the "individual moral philosophy" construct subscribed to by an individual were also taken into account, such as *Machiavellianism, narcissism/egoism, the Golden Rule, utilitarianism, cost-benefit analysis* and *altruism* (cf. Chudzicka-Czupała, 2012, 2013a, 2013b).

Machiavellianism has been proven to have an impact on ethical decision making (Bass, Barnett, and Brown 1999). Machiavellianists tend to treat relationships with others instrumentally and to use other people for their hidden aims (Pilch, 2008). The researchers also underline the relationship between narcissistic inclinations and the manner of ethical decision-making. They show that narcissistic people are more likely to

behave unethically (Brown, Sautter, and Littvay, 2010). Williams et al. (2010) demonstrated the relationship between Machiavellianism and narcissism and the inclination to cheat. Both traits characterise individuals focused on themselves, and convinced of their own greatness are cynical and amoral in their behaviour. In the research reported in this paper, they do not appear as permanent personality traits, but more as moral convictions distinguished, together with others, on the basis of the subject literature and given attention (cf. Burton & Goldsby, 2005; Luthy, Padget & Toner, 2009).

The Golden Rule is one of the most universal ethical principles in the world. The rule, which states "do unto others as you would want done to you", has appeared among the moral imperatives of most world religions. As Burton and Goldsby (2005) emphasize: "Its universality… lies in the understanding of cultures and traditions throughout the world that consistency, the willingness to abide by rules we apply to others, is a vital component of moral thinking" (p. 382). The Golden Rule is a significant principle, taken into account many times in research related to ethics (Cunningham, 1998).

The utilitarian principle of moral philosophy suggests that individuals make ethical decisions by considering the negative or positive consequences of actions on others. In accordance with utilitarian ethics, every behaviour is morally legitimated if it brings advantages to others or contributes to the common good. Research confirms that utilitarian grounds are the most important criteria taken into account by people during the process of making ethical decisions (Erondu, Sharland, and Okpara, 2004). Altruism, which may be defined as "behaviour that promotes the welfare of others without conscious regard or one's own self-interest" (Davis, Andersen, and Curtis, 2001, p. 39), may be another important factor which influences acceptance of unethical behaviours such as cheating and plagiarism. Weber, Ames, and Blais (2005) underline that people use calculation-based decision making. It involves evaluating benefit components, decomposing choice alternatives and integrating those components to determine the best value. Calculation-based decision making, cost-benefit analysis, may include the use of mental shortcuts that help to simplify the task and to make a quick decision, which is not always ethical (Shah, and Oppenheimer, 2008).

Idealism, relativism, utilitarianism, altruism, the Golden Rule and cost-benefit analysis are frequently discussed in ethics manuals (De George, 1999, Velasquez, 1998). Based on the review, specific hypotheses are proposed:

H1c: Individual moral philosophy is a predictor of accepting cheating and plagiarism for oneself,

H2c: Individual moral philosophy is a predictor of accepting cheating and plagiarism for others,

H3c: Individual moral philosophy is a predictor of a passive witness accepting cheating and plagiarism.

Research methods

Methods based on self-description are used most often to study people's attitudes towards cheating and plagiarism: They are asked directly whether they have ever behaved in a given way. Studying the inclination towards cheating or plagiarism is not the simplest of tasks. People are reluctant to admit that they cheat or have cheated for various reasons, mainly in order to show themselves in the best possible light.

Asking survey respondents to judge unethical behaviour is more objective and brings the researcher closer to reality to a much greater extent than merely asking the respondents whether they behave in such a way themselves. Asking respondents about their acceptance of specific behaviour instead of asking them directly whether they behave in such a way "minimises the perceived hazard related to... idealising oneself in order to meet social expectations" (Vardi, 2001, p. 319) and mitigates potential fear of revealing intimate truths about oneself to others. Andreoli & Lefkowitz (2008) emphasise the need to study unethical conduct without asking the respondent to report his or her own behaviour.

Some authors additionally emphasise the existence of a positive relationship between the attitude towards cheating and acting in such a manner (Stone et al., 2009). This is why methods were chosen that investigated the individual's attitude towards specific forms of behaviour, that is, towards various methods of cheating and plagiarising, instead of tools consisting in asking people directly whether they behave in that way. Said methods are described below.

Acceptance of academic dishonesty (cheating and plagiarism). For investigating the acceptance of academic dishonesty, cheating and plagiarism for oneself and for others, I adapted for research the Polish version of the Acceptance of Academic Cheating and Plagiarism Scale by J. Bloodgood, W. H. Turnley and P. E. Mudrack (2010). The Polish version of the scale was developed using a back-translation (Brislin, 1986) in accordance with a standard procedure involving two translators of the English language and an academic lecturer proficient in English. Reliability of the scale (Cronbach's α) in said research was 0.91 for the entire scale, 0.84 for the Scale of Acceptance of Cheating and Plagiarism for Oneself, and 0.77 for the Scale of Acceptance of Cheating and Plagiarism for Others. Examination of the estimates indicated that reliabilities were acceptable. More specifically, Cronbach's α values obtained in this manner were higher than 0.70, often cited as indicative of a reasonable level of reliability (Nunnally & Bernstein, 1994).

Acceptance of cheating and plagiarism by a passive witness. The individual attitude towards a silent and passive approach of witnesses to situations where others cheat and teachers reward plagiarised work was investigated using the Scale of Acceptance of the Passivity of a Witness of Cheating and Plagiarism. It was developed for my research,

similarly to the Scale of Acceptance of Cheating and Plagiarism by Bloodgood et al. (2010), in accordance with the applicable procedure. The items were: (1) being silent when you see that somebody is copying another classmate's paper during an exam, (2) being silent when you witness using unauthorized notes (a ''cheat sheet'') during an exam, (3) being silent when you know that your teacher has given your classmate a very good mark for plagiarized work. The scale ranged from (1) Strongly Believe That It Is Not Wrong to (5) Strongly Believe That It Is Wrong. The measure was reverse-scored in order to have higher scores equate to greater acceptance of a witness's passivity of cheating and plagiarism. Cronbach's α for the scale is 0.85.

Justice sensitivity. The Polish version of the Justice Sensitivity Scales by M. Schmitt, M. Gollwitzer, J. Maes and D. Arbach (2005) was used to diagnose justice sensitivity. The scales are used to diagnose three types of justice sensitivity: from the victim, observer and beneficiary perspectives.

A back-translation (Brislin, 1986) was used to develop the Polish language version involving a translator of the German language and two university lecturers proficient in German. Reliability of the scales (Cronbach's α) in my research is 0.86 for the victim scale, 0.86 for the observer scale and 0.88 for the unjustified beneficiary scale. All Cronbach's α values obtained are higher than 0.70.

Locus of control. The locus of control variable was measured using the Delta Questionnaire for Locus of Control Measurement by R. Ł. Drwal (1995), developed on the basis of B. Rotter's I-E-J Scale (1966, 1975; Kmiecik, 1983, p. 43-45). The Delta Questionnaire is composed of 24 assertions, 14 of which indicate internalised and externalised loci of control (LOC), and the remaining 10 questions form a lie scale. Reliability of the scales calculated by means of Cronbach's alpha factor was 0.73 for the LOC scale.

Individual moral philosophy. The Ethical Ideology Scales (EIS) (Polish acronym SIFM) were developed by the author and were applied in the investigation of moral convictions (Chudzicka-Czupała, 2012; 2013a, 2013b). The tool included eight assertions. Each assertion is related to a different moral principle: *moral relativism, moral idealism, Machiavellianism, narcissism/egoism, the Golden Rule, utilitarianism, cost-benefit analysis and altruism.* Initial versions of the scales used were reviewed by professionals for technical accuracy and ethical complexity. The survey respondent is asked to evaluate, on a 5-step Likert scale, to what extent they agree with each of the assertions, providing a rating of 1 ("not at all") to 5 ("definitely").

Sample

The research was conducted in Poland, in the region of Upper Silesia, in 2012. Two hundred and eighty-five students from local universities were surveyed. The survey respondents were aged 19 to 57 (24 on average), and included 190 women (65.5%) and 95 men (34.5%). They included 210 public university students (73.5%), and 75 non-public university students (26.5%), with 144 full-time students (50.5%), and 141 extramural students (49.5%). The survey participants were mostly first-year students of uniform graduate studies (for an MA degree) and undergraduate students (for a BA or BSc degree).

The majority, or 173 respondents (60.5%), were students of arts & humanities (social sciences), there were 53 students of technology (18.8%), and 59 (20.7%) other students (of economics, medicine, nature studies, physical education).

Results

General description of the studied variables, intercorrelations and additional preliminary analyses. Table 1 presents a description of the research variables (mean values obtained, standard deviations) and correlations between the variables.

Table 1. Descriptive Statistics and Intercorrelations, N=285

Variable	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Acceptance of cheating and plagiarism for oneself	17.78	5.94	--													
2 Acceptance of cheating and plagiarism for others	11.61	3.59	**0.71**	--												
3 Acceptance of the passivity of a witness of cheating and plagiarism	9.98	2.80	**0.56**	**0.57**	--											
4 Moral relativism	3.07	1.24	**0.27**	**0.18**	0.12	--										
5 Moral idealizm	3.48	1.09	-0.10	-0.09	-0.06	**-0.36**	--									
6 Machiavellianism	2.29	1.29	**0.22**	0.11	0.12	**0.31**	**-0.19**	--								
7 Narcissism/egoism	2.25	1.22	0.15	0.04	0.01	**0.19**	**-0.18**	**0.32**	--							
8 Golden Rule	4.53	0.78	**-0.20**	-0.04	-0.00	-0.04	0.06	**-0.25**	**-0.18**	--						
9 Utilitarianism	3.78	1.04	**-0.16**	-0.12	**-0.23**	-0.03	0.05	-0.03	-0.12	**0.34**	--					
10 Cost-benefit analysis	3.71	1.12	**0.23**	0.15	0.05	**0.25**	0.03	**0.35**	0.13	-0.01	0.06	--				
11 Altruism	3.30	1.00	**-0.21**	**-0.15**	-0.12	**-0.21**	0.12	0.04	-0.14	0.13	**0.31**	-0.05	--			
12 Locus of control	5.55	2.76	0.12	**0.16**	0.02	**0.16**	-0.06	**0.21**	**0.21**	-0.04	0.10	0.13	0.10	--		
13 Justice sensitivity (victim perspective)	30.29	7.77	**0.18**	0.02	0.07	0.08	0.04	**0.15**	0.06	-0.03	-0.01	**0.17**	-0.10	**0.19**	--	
14 Justice sensitivity (observer perspective)	28.72	7.70	-0.01	-0.04	**-0.16**	0.04	0.07	0.00	0.06	**0.15**	**0.23**	0.07	0.09	**0.19**	**0.51**	--
15 Justice sensitivity (beneficiary perspective)	26.85	8.38	**-0.22**	**-0.16**	**-0.24**	-0.12	0.10	**-0.24**	-0.11	**0.27**	**0.29**	**-0.19**	**0.18**	0.01	**0.18**	**0.58**

p < 0,01

Because the information was obtained simultaneously from respondents in a self-report format there was concern for mono-method bias. That is why additional preliminary analyses were done. A confirmatory factor analysis was conducted. It indicates that all the constructs (justice sensitivity, locus of control, moral philosophy, and the three acceptance of cheating dimensions) are independent (χ^2/df=7.49, CFI=0.51, NFI=O.48).

Additionally, there was concern due to the personal nature of the survey questions, that respondents might have answered in "socially desirable" ways. To check if they might have distorted their answers to look good, results of the lie scale, a partial locus of control measure, were analysed. They show that the respondents' inclination to lie was low (M=1.7, SD=1.43). In order to investigate if respondents might not have answered truthfully about themselves, the results of a lie scale were correlated with the results of each scale used in the study. Statistically significant correlations were not found between the results of most of the scales and the results of the lie scale. That allowed the author to exclude the law validity of these scales. Some scales, though, like victim justice sensitivity and acceptance of witness passivity, demonstrated a weak significant positive relationship with the results of the lie scale (p=0.05). Such results do not discredit the high validity of the scales mentioned. Quite the reverse, they may be explained in the light of existing theories about submissive and egoistic characteristics of these variables and the individuals' vulnerability to show themselves in "socially desirable" ways to be under the influence of other people.

A multiple linear stepwise regression analysis was performed in order to verify the research hypotheses and to test the adopted research model.

Table 2. Multiple Linear Stepwise Regression Results.

Dependent Variables	Independent Variables Included into Model	Beta	T	p	Regression Summary
Accepting cheating and plagiarism for oneself	Moral relativism	0.16	2.84	0.00	Adjusted R^2=0.17 F=8.12 p<0.00
	Justice sensitivity (beneficiary perspective)	-0.13	-2.15	0.03	
	Justice sensitivity (victim perspective)	0.14	2.34	0.02	
	Golden Rule	-0.12	-2.01	0.05	
	Cost /benefit analysis	0.13	2.21	0.03	
Accepting cheating and plagiarism for others	Locus of control	0.15	2.55	0.01	Adjusted R^2=0.08 F=4.89 p<0.00
Accepting passivity of a witness of cheating and plagiarism	Utilitarianism	-0.20	-3.31	0.00	Adjusted R^2=0.11 F=6.18 p<0.00
	Golden Rule	0.15	2.41	0.02	
	Justice sensitivity (victim perspective)	0.15	2.25	0.02	

Predictors for accepting cheating and plagiarism for oneself. As results from Table 2 show, of all the studied factors, the one that is the most important predictor of the attitude towards cheating and plagiarism for oneself is accepting the following dimensions of individual moral philosophy: *moral relativism, the Golden Rule* (negative relationship) and *cost-benefit analysis*. Independent variables included in the model were also *justice sensitivity from the beneficiary perspective* (negative relationship) and *justice sensitivity from the victim perspective*.

The more one doubts the existence of universal moral principles, the more they believe that human beings should, in their actions, maximise their own benefits and minimise the costs, and the higher they rank on the justice sensitivity scale from the victim perspective (they feel bad when someone obtains something they think they deserved), the more they accept cheating and plagiarism. The stronger the respondent's conviction that others should be treated in the same way as one wishes to be treated (Golden Rule), and the higher they rank on the scale of justice sensitivity from the undeserved beneficiary perspective (they are concerned because they received something others deserved), the worse their judgment of cheating and plagiarism is for oneself. Hypotheses 1a and 1c were confirmed, hypothesis 1b should be rejected.

Predictors for accepting cheating and plagiarism for others. Results of regression analysis for the dependent variable *accepting cheating and plagiarism for others* (Table 2) show that the only independent variable included in the model was *locus of control*. The stronger the external locus of control, the higher the acceptance of cheating and plagiarism for others and the more inclined the individual is to praise helping others by writing theses and papers for them. It can be assumed that individuals with an external locus of control, due to their higher submissiveness, may be more inclined to agree to provide others with cribs and illegal materials or allow them to copy their work. Hypothesis 2b was confirmed. We should reject hypotheses 2a and 2c.

Predictors for accepting witness passivity of cheating and plagiarism. The following variables were found to be significant predictors of acceptance of witness passivity as a result of regression analysis: *utilitarianism, the Golden Rule* (dimensions of *individual moral philosophy*) and *justice sensitivity* (*victim perspective*). Said variables were included in the resulting model (Table 2).

The main predictor explaining the variability of that dependent variable is *utilitarianism.* This is a negative predictor, meaning that the more one accepts the principle that "the goal of action should be 'the greatest possible happiness of the largest possible number of people'", the less they praise silence when one witnesses cheating and plagiarism. Traits which are connected with the general acceptance of witness passivity were also found to be *justice sensitivity from the victim perspective* and acceptance of *the*

Golden Rule ("treat others in the same way as you wish to be treated"), leading to consent to silence when we witness someone's fraudulent behaviour. Hypotheses 3a and 3c were confirmed. Hypothesis 3b should be rejected.

Discussion and conclusions

My research results focused on selected conditions of acceptance of cheating and plagiarism, resulting from personal traits and individual morality. The results confirm the relationship suggested in the model between some predictor variables and the attitude declared by the survey respondents towards cheating and plagiarism. Such factors may be considered as variables important for understanding the acceptance of academic dishonesty - cheating and plagiarism and the acceptance of witness passivity to such forms of behaviour. It may also be assumed that they may increase the inclination towards such behaviour.

The following variables are connected with the acceptance of cheating and plagiarism: justice sensitivity (from the victim and the undeserved beneficiary perspectives), selected dimensions of moral philosophy (accepting moral relativism, the cost-benefit analysis principle, the Golden Rule and utilitarianism) and locus of control.

The results show the connection between justice sensitivity and one's attitude towards cheating. Justice sensitivity from the undeserved beneficiary and the victim perspectives supported significant, confirmed findings from earlier research. In fact, Lupfer, Weeks, Doan and Houston (2000) demonstrated that people sought strongly to change a situation when they were faced with injustice only if they themselves felt disadvantaged or strongly affected by its consequences in any manner. This is most probably why observer sensitivity may be less significant. People more inclined to feel injustice from the victim perspective are individuals who find situations hard to bear when others benefit instead of them. They most probably feel more jealous or angry then. These are probably individuals who find it hard not to be successful. It is easy to imagine them being more inclined to violate ethical laws in order to prevent their failing. This assertion requires, however, further empirical studies. In my research, these individuals accept cheating and plagiarism for oneself to a significantly higher extent and agree more easily to the passive role of witnessing cheating and plagiarism.

Individuals more sensitive to justice from the beneficiary perspective, tormented by a guilty conscience when they obtain rewards others deserved, react in the opposite way: they accept to a significantly smaller extent cheating and plagiarism in general, as well as cheating and plagiarism for oneself. Clearly, this perspective points to their high sense of justice. They would most probably feel bad knowing that they were obtaining benefits

without being entitled to them, and this is why persons more sensitive in this respect show definitely smaller acceptance of academic dishonesty.

Data concerning the locus of control obtained in my research show the submissive nature of persons with an external locus of control. Such individuals also accept to a larger degree (compared to those with an internal LOC) dishonesty consisting in helping others, and probably allow others more often to copy and plagiarise their work. Earlier results were not confirmed, on the other hand, pointing to the alleged relationship between locus of control and acceptance of cheating and plagiarism for oneself or acceptance of witness passivity toward of cheating.

Other variables which are connected with accepting cheating and plagiarism include selected dimensions of individual moral philosophy. Moral relativism proved to be the most significant of all ethical principles. Agreeing with it involves consenting to cheating and plagiarism in general and for oneself. Relativism and following the cost-benefit analysis principle may thus constitute significant predictors of the inclination towards cheating.

Forsyth (1992, p. 462) points out that relativists believe that "harm is sometimes... necessary to produce good." Relativists are convinced that no universal standards or principles can be found indicating how one should behave in a specific situation. Every situation is different and therefore one always needs to consider all the current circumstances before making a decision. People who are relativists seem less inclined to treat or define people's behaviour as "unethical" and to actively intervene in situations that spark ethical controversy, since they need to learn about the full background of the behaviour and know all its aspects before they make a decision and give an unequivocal opinion. Relativism may constitute a significant premise for acceptance of cheating for oneself: a relativist seems to be an individual who will find many justifications for the need to use someone else's work or materials. Recognition of the cost-benefit analysis principle is also connected with positive attitude towards cheating and plagiarism for oneself. Cheating and plagiarism may contribute to obtaining more benefits for oneself; so acceptance of such behaviour by someone performing cost-benefit calculations seems obvious.

I also found that the more one agreed with the Golden Rule, the less they accepted cheating and plagiarism for oneself and the more inclined they were to consent to passivity and silence when others cheat. Acceptance of the utilitarian maxim is connected with disagreement with silence and passivity when one witnesses others cheating or plagiarising. Erondu, Sharland and Okapara (2004) point out that any behaviour is morally right for utilitarians if it contributes to the general good and brings advantages to the entire community. Clearly, those who accept that moral principle consider silence when

faced with cheating and plagiarism as morally wrong. Perhaps passive consent to such behaviour does not contribute to the general good, in the respondents' opinion. Agreement with utilitarianism turns out to be a significant factor, which is confirmed by the position that utilitarian justifications are some of the most important criteria taken into account when people formulate moral judgements and make ethical decisions (cf. Kujala, Lamsa & Penttila, 2011). In my research, no connection between other moral principles: idealism, Machiavellianism, narcissism/egoism or altruism and the acceptance of cheating and plagiarism was found. This result is quite surprising, since research points to a relationship between the moral convictions listed above and the manner of making ethical decisions.

The obtained results require further empirical explorations. In further research it would be worthwhile examining the role of determinants from both groups at the same time: external and individual. Among factors related to situational and social contexts, it would be advisable to include in the model the probability of being caught cheating or plagiarising, the actual degree of consent to cheating or plagiarism on the lecturer's part as perceived by students, and the type of examination when cheating may occur most frequently. Research shows, in fact, that the type of task to be performed, and whether it depends on one's skill or just chance, influences the persons' cheating inclinations differently depending upon their internal or external locus of control (Karabenick & Srull, 1978). In order to consider such factors, a different methodology and experimental research would have to be applied. There are further individual difference traits that could legitimately be examined in future work, including just world beliefs, belief in immanent justice, and empathy.

To recapitulate, one needs to bear in mind that the purpose of university studies is to educate young people and to help them obtain the knowledge and skills they need to work in their future job, for which they should prepare themselves in a mature and responsible manner. Ethical decisions they will make in the future will determine their attitude towards clients, subordinates, co-workers, and perhaps even the fate of the companies employing them or run by them (Scott & Jehn, 2003).

Educating young people with regard to ethical conduct, even though it might not bring the expected results immediately, makes them more likely to take an ethical decision in the future (Bloodgood et al., 2010). Research results support the idea that teaching people how to behave ethically in various situations improves understanding of ethical issues and leads to ethical behaviour (Gautschi & Jones, 1998) as well as significantly improving ethical attitudes among students (Weber & Glyptis, 2000).

Poland is a post-Communist country and the Socialist regime probably contributed to a change in moral values recognised by its citizens. This conclusion may be derived

from the cultural comparisons made by Grimes (2004) or by the author and her collaborators (Chudzicka-Czupała, Lupina-Wegener, Borter & Hapon, 2013), who focused on Ukraine, Poland and Switzerland, three countries with different political systems and cultures. The results of the mentioned research show that despite the growth of institutional and social differences between Poland and Ukraine, cultural similarities still persist in terms of cheating and existing social norms. Our study suggests that Poles still might not have sufficient ethical awareness, and consent to such behaviour is perceived as high. On the other hand, in Switzerland the attitude towards dishonesty is different and different norms prevail there: social consent to such behaviour is significantly lower.

Dalton (1998) sees the sources of dishonesty in young people's conduct in the erosion of social and family values and structures, as well as in the reductionism of basic social institutions. The contemporary world is full of ethical traps and thus contributes to upsetting the systems of values which need to be rebuilt, at least concerning honesty at universities and schools.

This may potentially be achieved by talking and writing about cheating and plagiarism as unethical behaviour, as well as in preventing such behaviour by holding courses on ethics for students and teachers. Such courses could include diagnosing individual moral philosophy, justice sensitivity, and the participants' other predispositions, not in order to single out and discriminate against those who might be prone to manipulating others more often or are more inclined towards unethical behaviour, but in order to make people aware of the significance of certain traits and their relationship with cheating or with an observer's passivity. Realizing one's own predisposition, making efforts to modify it and attempting to change one's convictions or behaviour seem actions that are possible. Educating young people and instilling in them the sense that cheating and plagiarism do not contribute to the development of sound professional skills seem to be significant goals. Haswell and others (1999, p. 211) point out that "…students are the next generation of … professionals. The values they hold now are likely to be carried over into professional life unless modified by real-world exposure to the professional culture."

References:

Alleyne, P., & Phillips, K. (2011). Exploring Academic Dishonesty among University Students in Barbados: An Extension to the Theory of Planned Behaviour. *Journal of Academic Ethics, 9,* 323-338.

Andreoli, N., & Lefkowitz, J. (2008). Individual and organizational antecedents of misconduct in organizations. *Journal of Business Ethics, 85(3),* 309-332.

Bampton, R., & Cowton C. (2009). *Taking stock of accounting ethics scholarship: a review of the journal literature.* Working Paper of the Financial Ethics and Governance Research Group University of Huddersfield.

Bass, K., Barnett, T., & Brown, G. (1999). Individual Difference Variables, Ethical Judgments, and Ethical Behavioral Intentions. *Business Ethics Quarterly 9(2),* 183-205.

Bloodgood, J.M., Turnley, W.H., & Mudrack, P.E. (2010). Ethics Instruction and the Perceived Acceptability of Cheating. *Journal of Business Ethics, 95,* 23-37.

Brislin, R. W. (1986). The wording and translation of research instruments. In W. J. Lonner, J. W. Berry (Eds.), *Field methods in cross-cultural research.* Newbury Park, CA: Sage, 137-164.

Brown, T. A., Sautter, J. A., & Littvay, L. (2010). Ethics and Personality: Empathy and Narcissism as Moderators of Ethical Decision Making in Business Students. *Journal of Education for Business, 85*, 203-208.

Burdzicka-Wołowik, J. (2008). Poczucie umiejscowienia kontroli a system wartości studentów wychowania fizycznego. *Polish Journal of Sport Tourism, 15,* 59-68.

Burton, B. K., & Goldsby, M. (2005). The Golden Rule and Business Ethics: An Examination. *Journal of Business Ethics, 56,* 371-385.

Carroll, J. (2004). Deterring, detecting and dealing with plagiarism: A brief paper for Brookes staff for Academic Integrity Week, https://www.brookes.ac.uk/services/ocsld/resources/plagiarism.html.

Chudzicka-Czupała, A. (2012). Filozofia moralna jednostek jako przesłanka dobrych praktyk w biznesie. *Zarządzanie i Finanse. Journal of Management and Finance, 1(3),* 535-546.

Chudzicka-Czupała, A. (2013a). Ethical Ideology as a Predictor of Ethical Decision Making. *International Journal of Management and Bussiness, 4(1),* 28-41.

Chudzicka-Czupała, A. (2013b). Psychologiczne i moralne warunkowania ocen etycznych oraz intencji sprawcy przemocy w relacjach interpersonalnych w organizacjach. *Czasopismo Psychologiczne, 19(1)*, 135-147.

Chudzicka-Czupała, A., Lupina-Wegener, A., Borter, S., & Hapon, N. (2013). Students' attitude toward cheating in Switzerland, Ukraine and Poland. *The New Educational Review, 32(2),* 66-76.

Cohen, J., Pant, L., & Sharp, D. (1993). A Validation and Extension of a Multidimensional Ethics Scale. *Journal of Business Ethics, 12,* 13-26.

Cruz, C. A., Shafer, W. E., & Strawser, J. R. (2000). A Multidimensional Analysis of Tax Practitioners' Ethical Judgments. *Journal of Business Ethics, 24(3),* 223-244.

Cunningham, W. P. (1998). The Golden Rule as Universal Ethical Norm. *Journal of Business Ethics, 17*, 105-109.

Dalton, J. C. (1998). Creating a Campus Climate for Academic Dishonesty, In D. D.

Burnett, L. Rudolph, & K. O. Clifford (Eds.), *Academic Integrity Matters*. Washington: National Association of Student Personnel Administrators, 1-11.

Davis, M. H., Andersen, M. G. & Curtis, M. B. (2001). Measuring Ethical Ideology in Business Ethics: A Critical Analysis of the Ethics Position Questionnaire. *Journal of Business Ethics, 32*, 35-53.

De George, R. T. (1999). *Business Ethics*, 5th edition. Upper Saddle River, Prentice Hall, NJ.

Decoo, W. [With a contribution by Jozef Colpaert] (2002). *Crisis on campus: Confronting academic misconduct.* Cambridge, MA: The MIT Press.

Drwal, R.Ł. (1995). *Adaptacja kwestionariuszy osobowości: wybrane techniki.* PWN: Warszawa.

Erondu, E., Sharland, A., & Okpara, J.O. (2004). Corporate ethics in Nigeria: a test of the concept of an ethical climate. *Journal of Business Ethics, 51(4),* 349-354.

Forsyth, D. R. (1980). A Taxonomy of Ethical Ideologies. *Journal of Personality and Social Psychology, 39*, 175-184.

Forsyth, D. R. (1992). Judging the morality of business practices: The influence of personal moral philosophies. *Journal of Business Ethics, 11,* 461-470.

Gautschi, F. H., & Jones, T. M (1998). Enhancing the Ability of Business Students to Recognize Ethical Issue: An Empirical Assessment of the Effectiveness of a Course in Business Ethics. *Journal of Business Ethics,17,* 205-216.

Gliszczyńska, X. (1983). Poczucie sprawstwa. In X. Gliszczyńska (Ed.), *Człowiek jako podmiot życia społecznego.* Wrocław: Zakład Narodowy im. Ossolińskich, 133-136.

Grimes, P. W. (2004). Dishonesty in academics and business: A cross-cultural evaluation of student attitudes. *Journal of Business Ethics, 49,* 273-290.

Gromkowska-Melosik, A. (2007). *Ściągi, plagiaty, fałszywe dyplomy.* Gdańsk: Gdańskie Wydawnictwo Psychologiczne.

Haswell, S., Jubb, P., & Wearing, B. (1999). Accounting students and cheating: A comparative study for Australia, South Africa and the UK. *Teaching Business Ethics, 3,* 211-239.

Hudson, S., & Miller, G. (2005). Ethical Orientation and Awareness of Tourism Students. *Journal of Business Ethics, 62(4),* 383-396.

Huseman, R.C., Hatfield, J.D., & Miles, E.W. (1987). A new perspective on equity theory: The equity sensitivity construct. *Academy of Management Review, 12*, 222-234.

Kaczmarczyk, M., & Borkowski, M. (2012) Raport: Uczciwość w szkole. Fundacja Rozwoju Edukacji i Szkolnictwa Wyższego, źródło: Zadane.pl – Raport: Uczciwość w szkole, http://d.polskatimes.pl/k/r/6/fb/21/4e5e835f6a45a_z.pdf?1353382836.

Karabenick, S. A., & Srull, T. K. (1978). Effects of personality and situational variation in locus of control on cheating: Determinants of the "congruence effect". *Journal of Personality, 46(1),* 72-95.

Kmiecik, K. (1983). *Informacja oceniająca, samoocena i poczucie kontroli a myślenie twórcze*. Warszawa: PAN, Polish Academy of Science.

Kobierski, K. (2006). *Ściąganie w szkole. Raport z badań.* Oficyna Wydawnicza „Impuls", Kraków.

Kujala, J., Lamsa, A.M., & Penttila, K. (2011). Managers' Moral Decision-Making Patterns Over Time: A Multidimensional Approach. *Journal of Business Ethics,100,* 191-207.

Lefcourt, H. M. (1991). Locus of Control. In J.P. Robinson, P.R. Shaver, & L.S. Wrightsman (Eds.), *Measures of Personality and Social Psychological Attitudes.* Academic Press, San Diego, CA, Vol. *1***,** 413-499.

Lovas, L., & Wolt, R. (2002). Sensitivity to injustice in the context of some personality traits. *Studia Psychologica, 44,* 125-131.

Love, P. G., & Simmons, J. (1998). Factors influencing cheating and plagiarism among graduate students in a college of education. *College Student Journal, 32(4),* 539-550.

Lupfer, M.B.,Weeks, K.P., Doan, K.A., & Houston, D.A. (2000). Folk conceptions of fairness and unfairness. *European Journal of Social Psychology, 30*, 405-428.

Luthy, M. R., Padgett, B.L. & Toner, J.F. (2009). In the beginning: ethical perspectives of business and non-business college freshmen. *Journal of Legal, Ethical and Regulatory Issues, 12(2),* 85-101.

Ma, H. J., Wan, G., & Lu, E. Y. (2008). Digital cheating and plagiarism in schools. *Theory into Practice, 47,* 197-203.

McCabe, D., Trevino, L., & Butterfield, K. (1996). The inuence of collegiate and corporate codes of conduct on ethics-related behavior in the workplace. *Business Ethics Quarterly, 6,* 461-476.

McMahon, J. M., & Harvey, R. J. (2007). Psychometric Properties of the Reidenbach–Robin Multidimensional Ethics Scale. *Journal of Business Ethics, 72,* 27-39.

Mohiyeddini, C., & Schmitt, M. (1997). Sensitivity to befallen injustice and reactions to unfair treatment in a laboratory situation. *Social Justice Research, 10,* 333-352.

Murdock, T. B., & Stephens, J. B. (2007). Is cheating wrong? Student's reasoning about academic dishonesty. In E. A. Anderman, T., & B. Murdock (Eds.), *The psychology of academic cheating*. San Diego: Elsevier Press, 229-253.

Nunnally, J.C., & Berstein, I.H. (1994). *Psychometric Theory,* 3rd edition. New York: McGraw Hill, Inc.

Paszkiewicz, E. (1974). Ja a zachowanie. *Psychologia Wychowawcza, 2,* 192-205.

Pilch, I. (2008). *Osobowość makiawelisty i jego relacje z ludźmi*. Katowice: Wydawnictwo Uniwersytetu Śląskiego.

Pino, N. W., & Smith, W. L. (2003). College students and academic dishonesty. *College Student Journal, 37*, 490-500.

Reidenbach, R.E., & Robin, D.P. (1990). Toward the Development of a Multi-Dimensional Scale for Improving Evaluations of Business Ethics, *Journal of Business Ethics, 9,* 639-653.

Roig, M., & Caso, M. (2005). Lying and Cheating: Fraudulent Excuse Making, Cheating, and Plagiarism. *The Journal of Psychology, 139 (6),* 485-494.

Rotter, J. B. (1966). Generalized expectancies for internal versus external control of reinforcement. *Psychological Monographs: General and Applied, 80, 1,* Whole No. 609.

Rotter, J. B. (1975). Some problems and misconceptions related to the construct of internal versus external control of reinforcement. *Journal of Consulting and Clinical Psychology, 43,* 56-67.

Rotter, J. B., & Mulry, R. G. (1965). Internal versus external control of reinforcement and decision time. *Journal of Personality and Social Psychology, 2,* 598-604.

Schmitt, M., & Dörfel, M. (1999). Procedural injustice at work, justice sensitivity, job satisfaction, and psychosomatic well-being. *European Journal of Social Psychology, 29,* 443-453.

Schmitt, M., Gollwitzer, M., Maes, M., & Arbach, D. (2005). Justice Sensitivity: Assessment and Location in the Personality Space. *European Journal of Psychological Assessment, 21(3),* 202-211.

Schmitt, M., Neumann, R., & Montada, L. (1995). Dispositional sensitivity to befallen injustice. *Social Justice Research, 8,* 385-407.

Scott, E. D., & Jehn, K. A. (2003). About Face: Employee Dishonesty Influences a Stakeholder's Image of an Organization. *Business & Society, 42(2),* 234-266.

Stead, W.E., Worrell, D.L., & Stead, J.G. (1990). An Integrative Model for Understanding and Managing Ethical Behavior in Business Organizations. *Journal of Business Ethics, 9,* 233-242.

Stone, T., Jahawar, I., & Kisamore, J. (2009). Using the theory of planned behaviour and cheating justifications to predict academic misconduct. *Career Development International, 14(3),* 221-241.

Storch, E. A., & Storch, J. B. (2003). Academic dishonesty and attitudes towards academic dishonest acts: Support for cognitive dissonance theory. *Psychological Reports, 92,* 174-176.

Szmigielska, B. (1980). Cechy osobowości a poczucie kontroli wzmocnień. *Przegląd Psychologiczny, 23,* 271-278.

Tuszer, E. (1981). Poczucie kontroli nad otoczeniem a konformizm młodzieży. *Psychologia Wychowawcza, 2,* 197-206.

Tyszko, M., & Hryhorowicz, Z. (2010). Samodzielność pracy podczas egzaminów zewnętrznych. Raport z badań. Poznań: Wyd. Okręgowej Komisji Egzaminacyjnej.

Weber, E. U., Ames, D., & Blais, A. R. (2005). How Do I Choose Thee? Let Me Count the Ways: A Textual Analysis of Similarities and Differences in Modes of Decision Making in China and the United States. *Management and Organization Review, 1,* 87-118.

Weber, J. (1992). Scenarios in Business Ethics Research: Review, Critical Assessment, and Recommendations. *Business Ethics Quarterly, 2*, 138-159.

Whitley, B., Jr. (1998). Factors associated with cheating among college students: A Review. *Research in Higher Education, 39,* 235-274.

Vardi, Y. (2001). The Effects of Organizational and Ethical Climates on Misconduct at Work. *Journal of Business Ethics, 29,* 325-337.

Velasquez, M.G. (1998). *Business Ethics. Concepts and Cases*. 4th edition. Englewood Cliffs: Prentice-Hall.

Whitley, B. E., Jr. (1998). Factors associated with cheating among college students: A Review. *Research in Higher Education, 39,* 235-274.

Whitley, B. E., Jr., & Keith-Spiegel, P. (2002). *Academic dishonesty: An educator's guide.* Mahwah, NJ: Erlbaum.

Weber, J., & Glyptis, S. M. (2000). Measuring the Impact of a Business Ethics Course and Community Service on Students' Values and Opinions. *Teaching Business Ethics, 4,* 341-358.

Williams, K. M., Nathanson, C., & Paulhus, D. L. (2010). Identifying and profiling Scholastic cheaters: Their Personality, Cognitive Ability, and Motivation. *Journal of Experimental Psychology: Applied, 16 (3),* 293-307.

GUIDELINES FOR CONTRIBUTORS

Papers submitted to the *Polish Journal of Applied Psychology* are to be in English only with the exception of the abstract which should be prepared in both English and Polish. Send an e-mail copy of your submission to Marta Kochan–Wójcik PhD: m.kochan-wojcik@psychologia.uni.wroc.pl

Maximum article length is to be 20 typed pages (including references, footnotes, figures and figures captions, and tables as well as their caption). References should not exceed six typed pages. Typescripts should be Times New Roman and standard font size 12, double-spaced throughout, with 1.5-4 cm margins left and right. The e-mailed copy should be 1800 ASCII characters per computer page.

Papers should include an abstract (maximum 115 words) in both English and Polish, along with key words, typed text, references, footnotes, figures and tables (on separate pages in that order). Indicate in a separate footnote the address to which requests for re-prints should be sent. Tables are to be treated as self-contained: that is, do not repeat in the text data presented in the tables. Keep the number of tables and figures to a minimum. [(Please use quotation marks – not commas – in presenting the data there) – this statement is not understood]. Indicate the placement of these tables in the text.

Folowing the APA standards we propose using ”Podstwowe standardy edytorskie naukowych tekstów psychologicznych w języku polskim na podstawie reguł APA [Basic editorial standards of scientific psychological publications in Polish language according to APA' rules] (www.liberilibri.pl).

For example: for referencing, the most commonly used types of citations are given here:

Book: one, two, or more authors:

Smith, P.B., & Bond, M.H. (1998). Social psychology across culture. Hemel Hemstead, UK: Prentice-Hall.

Article in a scholarly journal:

Mączyński, J. (2001). The cultural impact on the leadership style of Polish managers. *Polish Journal of Applied Psychology*, (1), 107-132

Chapter (or article) in a book:

Sashkin, M. (1998). The visionary leader. In J. A. Conger & R. A. Kamungo (Eds.).

Charismatic leadership:

The exclusive factor in organizational effectiveness. San Francisco: Josey Bass, 122-160.

Titles of publications in languages other than English should be given in English in square brackets after the title of the original:
Wojciszke, B. (2002). Człowiek wśród ludzi. [A man among men].Warszawa: Wydawnictwo Naukowe „Scholar"

Taken from the internet: "When writing in APA Style, you can use the first person point of view when discussing your research steps ('I studied...') and when referring to yourself and your co-authors ('We examined the literature...'). Use first person to discuss research steps rather than anthropomorphising the work. For example, a study cannot 'control' or 'interpret'; you and your co-authors, however, can."
"APA Style encourages using the active voice ('We interpreted the results...'). The active voice is particularly important in experimental reports, where the subject performing the action should be clearly identified (e.g. 'We interviewed...' vs. 'The participants responded...')."
"Clarity and conciseness in writing are important when conveying research in APA Style. You don't want to misrepresent the details of a study or confuse your readers with wordiness or unnecessarily complex sentences."

Numbers one, two, three and through nine should be written out in longhand. Numbers 10, 11, 12, and through infinity should be written as digits.

Abbreviations like etc., e.g. are used only in parentheses ( ) or brackets [ ]. In the running text, that is, outside parentheses or brackets, these abbreviations should be written out: and so on, for example, such as.

"Of" phrases, proper in Polish but unfortunately not a good carry-over into English style, should not be overused. In their place use gerunds, verbs, or prepositional phrases other than ones beginning with of.
Example:

before:"Further analysis of the test results referred to the assessment of the dependency of..."
after:"Further test results assessed the dependency of..."

Papers submitted to PJAP are assessed by external reviewers according to the double blind principle. A list of reviewers from the last two years is available on the web site of our journal www.pjap.psychologia.uni.wroc.pl.

In order to facilitate the reviewing process, authors are asked to indicate names and e-mail addresses of three persons from their own country and an additional three from other countries, who on the grounds of factual consistence of scientific interest could be called on as potential reviewers of the submitted paper.

To prevent ghostwriting and guest-authorship phenomena[1], the editorial board of PJAP asks authors to indicate (on a separate page) the percent of each author's share in creating the submitted paper (general share, share in the concept, methods, analysis and interpretation of data). We also ask you to follow the financial disclosure principle.

THERE ARE TWO DEADLINES FOR SUBMITTING ARTICLES TO PRINT IN THE *POLISH JOURNAL OF APPLIED PSYCHOLOGY* :

30TH OF JANUARY

31ST OF MAY

[1] Ghostwriting – omitting in authorship of a paper any persons who take a significant part in preparing the submitted paper.

Guest authorship – putting down as co-author persons whose share in preparing the submitted paper is negligible or who did not take place at all.

AIMS AND SCOPE

The *Polish Journal of Applied Psychology* is devoted primarily to original investigations that contribute new knowledge and understanding to all fields of applied psychology. PJAP is mainly interested in publishing empirical articles, where quantitative as well as qualitative analyses of data enhance our understanding of individuals, groups or various social systems, and have practical implications within particular contexts. Conceptual or theoretical papers may be accepted if they bring a special contribution into the field for application. Although the paper version of our journal is primary, we are also available on the internet at www.pjap.psychologia.uni.wroc.pl

ISSN 2354-0052