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## PERFECTIONISM AND AGGRESSION IN ARTISTICALLY GIFTED PERSONS

**Abstract:** Some scholars define perfectionism as the relationship between one's abilities and expectations. A strong emotional reaction to the discrepancy between these can be maladaptive and even lead to aggressive behaviour. The study covered 133 students and graduates of colleges around Poland, including 67 persons of various specialties in visual arts. In order to characterise perfectionism, the Polish version of the *Goals and Work Habits Survey* (Schuler, 1994) was used, while the tool called *Inwentarz Psychologiczny Agresji* [Aggression Psychological Inventory] (Gaś, 1980) was used for description of aggression. The aim of the study was to analyse the relationship between specific aspects of perfectionism and aggression in artistically gifted persons.

The results of the study indicate that artistically gifted persons scored higher in respect of some aspects of perfectionism than persons from the control group. The assumption that the studied groups differ in terms of aggression syndrome has not been confirmed. The artistically gifted men differed from the control group men in terms of aspects of perfectionism and in terms of *transferred aggression*. No statistically significant differences in terms of perfectionism or aggression syndrome have been established between the women. Moreover, gender did not differentiate perfectionism in the group of artistically talented persons.

**Keywords:** perfectionism, aggression, gifted persons, visual arts, gender differences.

### INTRODUCTION

The construct of perfectionism is difficult to describe because the literature on this subject offers many different approaches. Some scholars describe its dichotomous nature by naming two contrasting types of perfectionism. Bransky, Jenkins, Friedman and Murphy (1987) differentiate between enabling perfectionism and disabling perfectionism. Enns and Cox (2002) define positive aspects of perfectionism as adaptive perfectionism and negative – as maladaptive perfectionism. Patricia A. Schuler (2000) sees adaptive aspects as healthy perfectionism and maladaptive – as unhealthy. Other scholars (Barrow, Moore, 1983; Greenspon, 2000; Pacht, 1984) see perfectionism as a purely negative trait.

In some personality theories (Adler, 1973, Dąbrowski, 1975a; Maslow, 1971), perfectionism is described as an indispensable element of development. Wendy C. Roedell (1984) claims that positive perfectionism can direct energy towards big achievements. On the other hand, precise attention to detail, involvement and perseverance keep artists at their easels (Dąbrowski, Piechowski, 1977).

Kazimierz Dąbrowski (1979a) has proposed a theory of positive disintegration (Polish: *teoria dezintegracji pozytywnej*, TDP) connected with personality development. According to this author, development is based on disintegration of an integral, original structure, which occurs so that it can be merged into a new, better one on a higher level. This process, which initially occurs spontaneously, with time adopts a conscious and targeted form. Achieving further levels of an individual's development entails some very important *dynamisms*, including lack of agreement to the existing reality, a sense of guilt, inferiority, lack of confidence, dissatisfaction with oneself, shame, etc. These lead to self-improvement and are inseparably connected with perfectionism (Piechowski, 1979).

Dąbrowski has defined and characterised perfectionism occurring at five developmental levels. At the first one, which is the furthest from perfection, it is narcissistic expectation of perfection from others, whose shortages are treated as attack on oneself. At the further levels, person learns to pursue his or her independent vision with altruistic intentions. Thus, directing perfectionism at oneself leads to full personality development and when perfectionism is directed at others, it can cause improper expectations, disappointment and paralyse beneficial actions (Silverman, 2007).

Apart from views pointing to the innate character of perfectionism, the literature also offers concepts referring to its dependence on environmental factors. Many theoreticians believe that perfectionist children have perfectionist parents. Wayne D. Parker (1998) has noticed that children are gifted disproportionately – perfectionists are more likely to be found among single children and the eldest of siblings. Research by Schuler (1999) has shown that groups to which a person belongs in the period of growing up (parents, school, peers) are important for the development of healthy or dysfunctional perfectionism.

Measurement of perfectionism has evolved from a homogeneous to a multi-dimensional concept. Currently, two tools with similar names are available: *The Frost Multidimensional Perfectionism Scale (FMPS; Frost et al., 1990)* and *The Hewitt-Flett Multidimensional Perfectionism Scale (H&F-MPS; Hewitt, Flett, 1991)*. Randy O. Frost, Patricia Marten, Cathleen Lahart and Robin Rosenblate (1990) studied university students in the United States and Canada. They have created a tool consisting of 35 statements and defining: concern over mistakes, personal standards, parental expectations, parental criticism, doubts about actions, and organisation.

Paul L. Hewitt and Gordon L. Flett (1991) have developed a scale consisting of 45 statements and measuring three dimensions connected with perfectionism: self-oriented perfectionism, socially-prescribed perfectionism and other-oriented perfectionism (Frost et al., 1993). Self-oriented perfectionism means strong motivation to be perfect, setting unrealistic standards, compulsive pursuit of goals and dichotomous thinking in which only total success or total failure exist. At extreme, it can be related to work addiction. Other-oriented perfectionism sets demanding standards, punishing and hostile attitude and narcissistic tendencies to blame others. Socially-prescribed perfectionism is defined as belief that others expect us to be perfect. Persons with such a conviction are very prone to criticism and have a strong need for acceptance (Hewitt, Flett, 1991).

Schuler (1999) has adapted *FMPS* (Frost et al., 1990) and developed *The Goals and Work Habits Survey* (Schuler, 1994). Her research has shown that as many as 87.5% of talented young people exhibit perfectionist tendencies. Among her subjects, 58% were students with healthy perfectionism, while 29.5% – with neurotic perfectionism. A healthy perfectionist is one who has a strong need for order and organisation as well as positive models concerning pursuit of goals, who is free from parents' expectations and accepts his or her mistakes. On the other hand, a dysfunctional (neurotic) perfectionist lives in fear of committing errors, has extremely high standards, has faced very high expectations and negative criticism in the childhood, questions his or her own judgements, lacks effective strategies for dealing with stress, seeks and needs acceptance. Interestingly, gender did not differentiate the level of perfectionism (Schuler, 1999).

Research using this questionnaire was conducted in Poland by Joanna Śliwińska, Wiesława Limont and Katarzyna Dreszer (2008). It has revealed significant differences between gifted students with high and low school achievement in three aspects of perfectionism: parental expectations, parental criticism and organisation. Like in the studies by Schuler (1999), no differences between boys and girls were recorded in any of the studied aspects, also among persons with similar school achievement level.

Gifted students were also the subject of study of Wayne D. Parker and Carol J. Mills (1996). They compared 600 gifted persons with a control group which lacked this property. For their study, they used the *FMPS* tool (Frost et al., 1990). The results revealed that gifted persons were characterised by healthy perfectionism in the form of high standards and organisation.

Alison Ram (2005) studied PhD candidates using *FMPS* (Frost et al., 1990) and proved that positive perfectionism was positively related to academic achievement, achievement motivation and general sense of well-being. Negative perfectionism, on the other hand, was related to negative affect, depression, anxiety, stress or more frequent use of non-constructive methods of dealing with problems. The latter group can be reluctant to learn difficult tasks for fear of failure or leave tasks uncompleted to avoid poor grades (Ram, 2005).

## PERFECTIONISM AND AGGRESSION

In some approaches, aggression is defined as intentional or unintentional behaviour resulting from an impulse to fight against forbidden or threatening situations and causing harm to oneself or to others (Ayan, 2007).

Joachim Stoeber and collaborators (2017) have studied the relationship between perfectionism and aggression among 1133 university students using, among others, *H&F-MPS* (Hewitt, Flet, 1991). They have concluded that self-oriented perfectionism and socially-prescribed perfectionism are related to social disconnection and hostility, while self-oriented perfectionism – to low physical aggression and malice.

Demet E. Öngen (2009) has assumed that perfectionism is the relationship between one's own high abilities and expectations (Hamachek, 1978; Rice, Ashby, Slaney, 2007) and observed in high school students that discrepancy between these is a positive predictor of anger, physical aggression and hostility, while order is a negative predictor of anger, physical and verbal aggression; high standards are a negative predictor of hostility and positive – of verbal aggression.

The discrepancy problem has also been considered in the studies of David S. Chester, Lauren M. Merwin, C. Nathan DeWall (2015). It has turned out that persons reacting strongly with negative affect to unpleasant feedback are characterised by maladaptive perfectionism. This consists in excessive focus on the perceived discrepancy between the standards set by oneself and the real efficiency (Rice, Ashby, Slaney, 2007). The study results suggest that maladaptive perfectionists have a bigger tendency to hurt themselves and others. This is caused by negative feedback, which has a stronger affective effect in persons accepting aggression as a means of dealing with a difficult situation (Chester, Merwin, DeWall, 2015). This happens because aggression leading to tension drop is rewarding. It encourages the tendency to ascribe negative traits to victims, which justifies the negative reaction (Poraj, 2003). However, they do not react aggressively on an every-day basis, but only in frustrating situations. Therefore, stronger negative affect can lead to a bigger tendency to use aggression (Chester, Merwin, DeWall, 2015).

David M. Dunkley, David C. Zuroff and Kirk R. Blankstein (2003) have set out to explain the relationship between perfectionism and affect and studied over 150 university students. *Self-critical perfectionists* have been characterised by problems in dealing with stress and low perception of social support; they reacted emotionally to stressors which implied potential failure, loss of control and criticism from others. Paul L. Hewitt et al. (2002) have proven that in 114 children aged 10–15 (investigated using, among others, the *Child-Adolescent Perfectionism Scale*), self-oriented perfectionism is related to depression and anxiety, while socially-prescribed – to depression, anxiety, social stress and anger.

Fatih Camadan and Hikmet Yazici (2017) believe that aggression is a product of interaction of innate and acquired traits. They have studied nearly 3 thousand Turkish university students in seven cities using, among others, *H&F-MPS* (Hewitt, Flett, 1991) and proven that aggression can be accounted for by perfectionism ( $\beta = 0.13$ ;  $p < 0.001$ ), forgiving ability ( $\beta = -0.40$ ;  $p < 0.001$ ), and stress management ( $\beta = 0.17$ ;  $p < 0.001$ ). Other scholars point to significant negative correlation between perfectionism and forgiving (Earl, 2012; Kim, Johnson, Ripley, 2011) and perfectionism and stress management (Park, Heppner, Lee, 2010).

Öngen (2009) has investigated the relationship between perfectionism and aggression in 445 high school students using *The Almost Perfect Scale-Revised (APS-R)* (Slaney, Rice, Mobley, Trippi, Ashby, 2001) and the *Aggression Questionnaire (BPAQ)* (Buss, Perry, 1992). Aspects of perfectionism were high standards, order (adaptive perfectionism) and discrepancy (maladaptive perfectionism); aspects of aggression were anger, physical aggression, hostility and verbal aggression. Discrepancy has been a positive predictor of anger, physical aggression and hostility, while order has been a negative predictor of anger, physical and verbal aggression. High standards have proven a negative predictor of hostility and positive – of verbal aggression.

## PERFECTIONISM AND AGGRESSION IN ARTISTS

In this article, we have focused on aggression and perfectionism in artists. Aforementioned Kazimierz Dąbrowski (1979a) was interested in prominent artists in the context of the positive disintegration theory. In his view, perfectionism predisposed persons to extraordinary achievements and personality development could

be accompanied by psychic problems such as depression and anxiety (Dąbrowski, 1975a, b).

There have been other scholars to investigate artists: Mohammad Behroozi and collaborators (2014) have proven the relationship between *negative perfectionism* and low self-esteem and depression in 200 artists. Jon Arcelus and collaborators (2015) have recorded the relationship between concern about mistakes (Frost et al., 1990) and eating disorders in 281 Spanish female dancers. Joachim Stoeber and Ulrike Eismann (2007) have studied perfectionism in 146 young musicians using a tool (Stoeber, Rambow, 2007) adapted from the *Multidimensional Inventory of Perfectionism in Sport*. The results have shown that striving for perfection is related to adaptive behaviour, while negative reactions to imperfection and perceived parental pressure to be perfect can weaken motivation and well-being of students. Studies of professional musicians (Mor et al., 1995) conducted using *H&F-MPS* (Hewitt, Flett; 1991) stress the relationship between perfectionism and fear of performance and satisfaction of goal achievement.

In the Polish context, we lack research into relationships between perfectionism and aggression in artists. The aim of the study was, therefore, the analysis of relationships between individual aspects of perfectionism and aggression in artistically gifted persons. The following hypotheses have been formulated:

- H1: Artistically gifted persons and persons without such talents differ in terms of perfectionism and aggression levels.
- H2: Gender differentiates the levels of perfectionism and aggression in artistically gifted and not gifted persons.
- H3: Artistically gifted women differ in terms of perfectionism and aggression from control group women.
- H4: Artistically gifted men differ in terms of perfectionism and aggression from control group men.
- H5: There is a relationship between aggression and perfectionism in the groups of artistically gifted and not gifted persons.

## METHOD

### Procedure and study subjects

The study was completed via the Internet. Due to shortages identified in the study, 13 persons were covered using direct contact. The number of study participants was  $N = 133$  persons (51% female) aged  $M = 27.87$ ,  $SD = 3.69$ , mainly students and graduates of colleges from around Poland. Voluntary participation in the study was declared by  $N = 35$  artistically gifted women aged  $M = 28.63$ ,  $SD = 3.67$  with various visual art specialties, i.e. architecture, interior decoration, artistic print, industrial design, clothing design, photography, painting, paintings preservation. The control group included  $N = 33$  women aged  $M = 27.64$ ,  $SD = 3.95$ . The study covered also 65 men, including  $N = 32$  artistically gifted men aged  $M = 27.88$ ,  $SD = 3.5$  with the following visual art specialties: architecture, landscape architecture, artistic print, painting, design, computer graphics and multimedia, visual education, photography, sculpture, and  $N = 33$  men aged  $M = 27.39$ ,  $SD = 3.66$  in the control group. The study was anonymised. Among the subjects, 41% came from small towns (up to 20 thousand residents), 15% from middle-sized towns (between 20 and 100 thousand residents) and 41.4% from

big cities (over 100 thousand residents). The biggest number of study subjects had completed MA education programmes (66.2%), followed by high school education (21.8%), BA programme (9.8%) and others (2.3%).

### Tools

In search of an answer to the questions, we used the following tools: to investigate perfectionism – the Polish version of *Goals and Work Habits Survey* (Schuler, 1994); the *Aggression Psychological Inventory* (Gaś, 1980) was used for characterization of aggression syndrome.

The *Goals and Work Habits Survey* (GWHS, Schuler, 1994) translated into Polish by Joanna Dreszer is a modification of the *Multidimensional Perfectionism Scale* test (Frost et al., 1990). The questionnaire contains 35 statements with 5-point Likert scale from 1 – *does not absolutely describe me* to 5 – *describes me very well*.

The test measures six aspects connected with perfectionism: concern about mistakes (CM), personal standards (PS), parental expectations (PE), parental criticism (PC), doubts about actions (D), and organisation (O).

Following a study, three types can be distinguished: a) non-perfectionist, b) healthy and normal perfectionist, and c) dysfunctional and neurotic perfectionist type.

The *Aggression Syndrome Psychological Inventory* (*Inwentarz Psychologiczny Syndromu Agresji – IPSA*; Gaś, 1980) is used to measure severity of aggression symptoms in adults. An aggression syndrome is understood here as an “ensemble of experiences, attitudes and behaviours whose aim or effect (intended or not) is doing harm (directly or indirectly) to another person or to oneself” (Gaś, 1980, p. 143). Thus, the scale is clearly founded on a very broad understanding of aggression as aggressive tendencies of which one is aware or unaware, demonstrated, but also experienced and directed at oneself or the environment.

The inventory consists of 83 statements which make up 10 scales. These are: emotional self-aggression, physical self-aggression, hostility towards environment, unrealised aggressive tendencies, transferred aggression, indirect aggression, verbal aggression, physical aggression, control and retaliation tendency. The first eight scales make it possible to identify the dominant direction of aggression according to three indices: self-aggression (Polish: *samoagresja* – S), hidden aggression (Polish: *agresja ukryta* – U) and externalised aggression (Polish: *agresja skierowana na zewnątrz* – Z). At the same time, using these data and indices of K (control – Polish: *kontrola*) and O (retaliation – Polish: *odwet*), it is possible to calculate the overall score of aggression syndrome (Polish: *wynik ogólny* – WO).

The reliability has been verified with the stability estimation method. The same group of persons was studied twice at the interval of two weeks; the absolute stability index was obtained at the level of 0.94 for women, 0.91 for men, significant in the both cases at the level of  $p = 0.001$ .

## RESULTS

In order to verify whether the group of artistically gifted persons (Z) and the control group (K) differed between each other in respect of aggression and perfectionism, we conducted a single factor variance analysis. The relations between the variables were



investigated using the Pearson correlation coefficient for the scales for which the normal distribution condition was met and using the Spearman correlation coefficient for those for which the condition was not met (the Shapiro-Wilk test).

## PERFECTIONISM

The data presented in Table 1 show that the artistically gifted persons and persons from the control group statistically significantly differed between each other in terms of perfectionism.

TABLE 1. Differences between mean scores of the artistically gifted group ( $N = 67$ ) and the control group ( $N = 66$ ) in respect of aspects of perfectionism ( $M$  and  $SD$  in italics)

Perfectionism	Z		K		F	p
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Overall score	90.03	17.19	82.83	19.69	5.045	<b>0.026 *</b>
Concern about mistakes (CM)	28.40	7.15	24.91	8.12	6.941	<b>0.009 **</b>
Personal standards (PS)	25.03	4.06	23.24	4.94	5.208	<b>0.024 *</b>
Parental expectations (PE)	13.00	4.47	13.30	4.93	0.138	0.711
Parental criticism (PC)	10.54	3.70	10.00	3.91	0.662	0.417
Doubt about actions (D)	13.06	3.63	11.38	3.29	7.832	<b>0.005 **</b>
Organisation	22.07	4.38	22.14	5.77	0.005	0.945

Key: \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

A comparative analysis of the mean scores shows that the artistically gifted persons scored higher ( $M = 90.03$ ,  $SD = 17.19$ ) than the persons from the control group ( $M = 82.832$ ,  $SD = 19.69$ ) in respect of the overall score  $F(1,131) = 5.045$ ;  $p = 0.026$  and some specific aspects. Concern about mistakes  $F(1,131) = 6.941$ ;  $p = 0.009$  was higher in the artistically gifted persons ( $M = 28.40$ ;  $SD = 7.15$ ) than in the persons from the control group ( $M = 24.91$ ;  $SD = 8.12$ ). We have also recorded statistically significant differences in personal standards  $F(1,131) = 5.208$ ;  $p = 0.024$ . Here also the artistically gifted persons scored higher ( $M = 25.03$ ;  $SD = 4.06$ ) than the persons from the control group ( $M = 23.24$ ;  $SD = 4.94$ ). The study subjects differed also in doubt about actions  $F(1,131) = 7.832$ ;  $p = 0.006$ . The artistically gifted persons scored higher ( $M = 13.06$ ;  $SD = 3.63$ ) than the persons from the control group ( $M = 11.38$ ;  $SD = 3.29$ ).

The effect size showed low value for the overall score ( $\eta^2 = 0.037$ ), concern about mistakes ( $\eta^2 = 0.050$ ) and personal standards ( $\eta^2 = 0.038$ ) and medium value for doubt about actions ( $\eta^2 = 0.056$ ).

Furthermore, statistical analysis revealed no statistically significant differences between the artistically gifted and the control group in respect of perceived parental expectations, parental criticism and organisation.

In the next part, we present results in respect of perfectionism in the artistically gifted persons broken down according to gender. This is illustrated in Table 2.

It is visible that the artistically gifted women do not differ from the artistically gifted men in respect of perfectionism. Statistical analysis revealed no statistically sig-

TABLE 2. Differences between women ( $N = 35$ ) and men ( $N = 32$ ) in respect of aspects of perfectionism in the group of artistically gifted persons

Perfectionism	Z				F	P
	Women		men			
	M	SD	M	SD		
Overall score	89.09	18.65	91.06	15.68	0.218	0.642
Concern about mistakes (CM)	29.06	7.62	27.69	6.64	0.610	0.438
Personal standards (PS)	24.20	3.89	25.94	4.10	3.168	0.080
Parental expectations (PE)	12.77	4.65	13.25	4.33	0.189	0.665
Parental criticism (PC)	10.29	3.79	10.81	3.65	0.335	0.565
Doubt about actions (D)	12.77	3.90	13.38	3.34	0.458	0.501
Organisation	22.80	4.25	21.28	4.46	2.038	0.158

Key: \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

TABLE 3. Differences between women ( $N = 33$ ) and men ( $N = 33$ ) in respect of aspects of perfectionism in the control group

Perfectionism	K				F	P
	women		Men			
	M	SD	M	SD		
Overall score	86.67	20.21	79.00	18.68	2.562	0.114
Concern about mistakes (CM)	27.27	7.38	22.55	8.25	6.025	<b>0.017*</b>
Personal standards (PS)	23.39	5.38	23.09	4.54	0.061	0.805
Parental expectations (PE)	13.64	5.32	12.97	4.57	0.298	0.587
Parental criticism (PC)	10.85	3.76	9.15	3.94	3.206	0.078
Doubt about actions (D)	11.52	3.56	11.24	3.03	0.112	0.739
Organisation	22.91	5.56	21.36	5.95	1.187	0.280

Key: \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

nificant differences according to gender in respect of the overall score and its specific aspects: concern about mistakes, personal standards, parental expectations, parental criticism, doubt about actions and organisation.

An analogous analysis broken down according to gender has been conducted for the control group. Table 3 shows results according to which no differences between the compared groups have been revealed in respect of overall perfectionism score, personal standards, parental expectations, parental criticism, doubt about actions, organisation and the overall score. The only recorded difference concerns concern about mistakes  $F(1,64) = 6.025$ ;  $p = 0.017$ , where women scored higher ( $M = 27.27$ ;  $SD = 7.375$ ) than men ( $M = 22.55$ ;  $SD = 8.25$ ). The effect size for anxiety due to committed errors showed medium value ( $\eta^2 = 0.086$ ).

In accordance with the assumed study objectives, we have compared the results of women from the artistically gifted group and from the control group (Table 4), but the



TABLE 4. Differences between women from the group of artistically gifted persons ( $N = 35$ ) and the control group ( $N = 33$ ) in respect of aspects of perfectionism

Perfectionism	Women				F	P
	Z		K			
	M	SD	M	SD		
Overall score	89.09	18.65	86.67	20.21	0.264	0.609
Concern about mistakes (CM)	29.06	7.62	27.27	7.38	0.960	0.331
Personal standards (PS)	24.20	3.89	23.39	5.38	0.506	0.479
Parental expectations (PE)	12.77	4.65	13.64	5.32	0.511	0.477
Parental criticism (PC)	10.29	3.79	10.85	3.76	0.378	0.541
Doubt about actions (D)	12.77	3.90	11.52	3.56	1.914	0.171
Organisation	22.80	4.25	22.91	5.56	0.008	0.928

Key: \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

TABLE 5. Differences between men from the group of artistically gifted persons ( $N = 32$ ) and the control group ( $N = 33$ ) in respect of aspects of perfectionism

Perfectionism	Men				F	P
	Z		K			
	M	SD	M	SD		
Overall score	91.063	15.678	79.000	18.680	7.927	<b>0.006**</b>
Concern about mistakes (CM)	27.688	6.640	22.545	8.247	7.638	<b>0.007**</b>
Personal standards (PS)	25.938	4.103	23.091	4.537	7.025	<b>0.01*</b>
Parental expectations (PE)	13.250	4.325	12.970	4.572	0.064	0.801
Parental criticism (PC)	10.813	3.649	9.152	3.938	3.106	0.083
Doubt about actions (D)	13.375	3.338	11.242	3.031	7.278	<b>0.009**</b>
Organisation	21.281	4.459	21.364	5.952	0.004	0.950

Key:\*\*  $p < 0.01$ ; \*  $p < 0.05$ .

statistical analysis has not revealed any statistically significant differences in respect of the overall perfectionism score and all its specific aspects: concern about mistakes, personal standards, parental expectations, parental criticism, doubt about actions and organisation.

An analogous analysis has been carried out in both male groups. The data presented in Table 5 show that the artistically gifted men and the men from the control group differ between each other in respect of the overall perfectionism score  $F(1.63) = 7.927$ ;  $p = 0.006$ , for which the men from the experimental group again scored higher ( $M = 91.06$ ;  $SD = 15.68$ ) than the men from the control group ( $M = 79.00$ ;  $SD = 18.68$ ). Concern about mistakes  $F(1.63) = 7.638$ ,  $p = 0.007$  was higher in the men from the artistically gifted group ( $M = 27.69$ ;  $SD = 6.64$ ) than in the men from the control group ( $M = 22.55$ ;  $SD = 8.25$ ). Moreover, personal standards  $F(1.63) = 7.025$ ;  $p = 0.010$  were higher in the artistically gifted men ( $M = 25.94$ ;

$SD = 4.1$ ) than in the men from the control group ( $M = 23.09$ ;  $SD = 4.54$ ). A similar picture can be seen when it comes to doubt about actions  $F(1.63) = 7.278$ ;  $p = 0.009$ , where the men from the control group ( $M = 13.38$ ;  $SD = 3.34$ ) scored higher than the men from the control group ( $M = 11.24$ ;  $SD = 3.03$ ). The effect size showed medium value for the overall perfectionism score ( $\eta^2 = 0.112$ ), concern about mistakes ( $\eta^2 = 0.108$ ), personal standards ( $\eta^2 = 0.100$ ) and doubt about actions ( $\eta^2 = 0.104$ ).

At the same time, no significant differences between the group of artistically gifted men and the control group have been recorded in respect of parental expectations, parental criticism and organisation.

To sum up, the study results presented above have confirmed that the level of artistic talent differentiates groups in respect of aspects of perfectionism. Artistic talent did not differentiate perfectionism in women, however the artistically gifted men scored higher in respect of most scales of perfectionism than the men from the control group. Surprisingly, in the artistically gifted group, the women got similar scores on the perfectionism scales as the men. In the control group, women scored higher than men only on the scale of concern about mistakes.

## AGGRESSION

In the first place, we have compared the results of studies of aggression syndrome in the both groups. We revealed that the artistically persons did not differ from the control group in terms of aggression (Table 6).

TABLE 6. Differences between mean scores of the artistically gifted group ( $N = 67$ ) and the control group ( $N = 66$ ) in terms of aspects of aggression

Aggression syndrome	Z		K		F	p
	M	SD	M	SD		
Overall score	40.701	24.839	36.848	21.514	0.913	0.341
S (self-aggression index)	6.090	5.044	5.652	4.850	0.260	0.611
U (hidden aggression index)	7.687	5.821	6.848	5.438	0.736	0.393
Z (externalised aggression index)	14.881	9.227	12.955	8.284	1.603	0.208
Control	15.507	4.875	15.515	4.990	0.000	0.993
Retaliation	3.284	3.976	3.439	4.232	0.048	0.827
Scale I – Emotional self-aggression	6.985	4.381	5.803	4.534	2.338	0.129
Scale II – Physical self-aggression	1.373	1.774	1.318	1.807	0.031	0.860
Scale III – Hostility towards environment	4.716	3.892	4.333	3.836	0.327	0.569
Scale IV – Unrealised aggressive tendencies	2.970	2.866	2.515	2.537	0.939	0.334
Scale V – Transferred aggression	3.642	3.467	2.621	2.955	3.333	0.070
Scale VI – Indirect aggression	3.642	3.274	2.621	2.423	4.166	<b>0.04*</b>
Scale VII – Verbal aggression	6.821	4.082	6.909	4.630	0.014	0.907
Scale VIII – Physical aggression	0.776	1.526	0.803	1.417	0.011	0.916

Key: \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

We have recorded no statistically significant differences in terms of the overall score and specific aspects: self-aggression, hidden aggression and externalised aggression indices, control, retaliation, emotional self-aggression, physical self-aggression, hostility towards environment, unrealised aggressive tendencies, transferred aggression, verbal aggression and physical aggression.

Indirect aggression  $F(1.131) = 4.166$ ;  $p = 0.043$  was higher in the group of artistically gifted persons ( $M = 3.642$ ;  $SD = 3.274$ ) than in the control group ( $M = 2.621$ ;  $SD = 2.423$ ), while the effect size for indirect aggression showed low value ( $\eta^2 = 0.031$ ).

Subsequently, we have analysed the results of the aggression syndrome level in the artistically gifted persons broken down according to gender. This is shown in Table 7. We have recorded no statistically significant differences between women and men in terms of the overall score, self-aggression and externalised aggression indices, control, emotional self-aggression, physical self-aggression, hostility towards environment, transferred aggression, indirect aggression, verbal aggression and physical aggression. The differences between the groups lied in the hidden aggression index  $F(1.65) = 4.591$ ;  $p = 0.036$ , where men ( $M = 4.344$ ;  $SD = 4.660$ ) scored higher than women ( $M = 2.314$ ;  $SD = 2.978$ ); moreover, these have been recorded in terms of unrealised aggressive tendencies  $F(1.65) = 15.675$ ;  $p = 0.001$ , where men ( $M = 4.281$ ;  $SD = 3.324$ ) scored higher than women ( $M = 1.771$ ;  $SD = 1.664$ ), and retaliation  $F(1.65) = 4.591$ ;  $p = 0.036$ , in terms of which men ( $M = 4.344$ ;  $SD = 4.660$ ) also scored higher than women ( $M = 2.314$ ;  $SD = 2.978$ ). The effect size showed medium

TABLE 7. Differences between women ( $N = 35$ ) and men ( $N = 32$ ) in terms of aspects of aggression in the artistically gifted group

Aggression syndrome	Z				F	p
	Women		Men			
	M	SD	M	SD		
Overall score	35.914	21.366	45.938	27.545	2.796	0.099
S (self-aggression index)	4.971	4.239	7.313	5.614	3.750	0.057
U (hidden aggression index)	5.686	4.317	9.875	6.499	9.814	<b>0.003**</b>
Z (externalised aggression index)	13.600	8.128	16.281	10.243	1.421	0.238
Control	15.571	4.901	15.438	4.925	0.012	0.912
Retaliation	2.314	2.978	4.344	4.660	4.591	<b>0.036*</b>
Scale I – Emotional self-aggression	6.829	4.098	7.156	4.732	0.092	0.762
Scale II – Physical self-aggression	1.057	1.327	1.719	2.129	2.374	0.128
Scale III – Hostility towards environment	3.914	3.425	5.594	4.226	3.218	0.077
Scale IV – Unrealised aggressive tendencies	1.771	1.664	4.281	3.324	15.675	<b>0.001**</b>
Scale V – Transferred aggression	2.857	3.117	4.500	3.672	3.919	0.052
Scale VI – Indirect aggression	3.286	3.064	4.031	3.496	0.865	0.356
Scale VII – Verbal aggression	6.857	3.882	6.781	4.353	0.006	0.940
Scale VIII – Physical aggression	0.600	1.241	0.969	1.787	0.976	0.327

Key: \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

value for the hidden aggression index ( $\eta^2 = 0.131$ ) and retaliation ( $\eta^2 = 0.066$ ), and high value for unrealised aggressive tendencies ( $\eta^2 = 0.194$ ).

The analysis broken down according to gender was also conducted in the control group (Table 8). We have recorded no statistically significant differences between women and men in terms of the overall score and specific aspects, i.e.: self-aggression, hidden aggression and externalised aggression indices, control, retaliation, emotional self-aggression, hostility towards environment, unrealised aggressive tendencies, transferred aggression and physical aggression. The differences between the groups concerned verbal aggression  $F(1.64) = 4.787$ ;  $p = 0.032$  and indirect aggression  $F(1.64) = 4.114$ ;  $p = 0.047$ . In terms of indirect aggression, women ( $M = 2.03$ ;  $SD = 1.776$ ) scored higher than men ( $M = 3.212$ ;  $SD = 2.837$ ). Similarly, in terms of verbal aggression, women ( $M = 8.121$ ;  $SD = 4.827$ ) also scored higher than men ( $M = 5.697$ ;  $SD = 4.149$ ). The effect size for indirect aggression ( $\eta^2 = 0.060$ ) and verbal aggression ( $\eta^2 = 0.070$ ) showed medium value.

TABLE 8. Differences between women ( $N = 33$ ) and men ( $N = 33$ ) in terms of aspects of aggression in the control group

Aggression syndrome	K				F	p
	Women		Men			
	M	SD	M	SD		
Overall score	36.152	17.529	37.545	25.137	0.068	0.795
S (self-aggression index)	5.182	4.004	6.121	5.594	0.615	0.436
U (hidden aggression index)	6.273	4.193	7.424	6.466	0.737	0.394
Z (externalised aggression index)	13.424	7.830	12.485	8.811	0.210	0.649
Control	15.394	4.769	15.636	5.273	0.038	0.845
Retaliation	2.758	2.916	4.121	5.189	1.732	0.193
Scale I – Emotional self-aggression	6.182	4.081	5.424	4.981	0.457	0.502
Scale II – Physical self-aggression	0.909	1.378	1.727	2.096	3.512	0.065
Scale III – Hostility towards environment	4.273	3.538	4.394	4.168	0.016	0.899
Scale IV – Unrealised aggressive tendencies	2.000	2.136	3.030	2.823	2.796	0.099
Scale V – Transferred aggression	2.606	3.142	2.636	2.804	0.002	0.967
Scale VI – Indirect aggression	2.030	1.776	3.212	2.837	4.114	<b>0.047*</b>
Scale VII – Verbal aggression	8.121	4.827	5.697	4.149	4.787	<b>0.032*</b>
Scale VIII – Physical aggression	0.667	1.242	0.939	1.580	0.608	0.438

Key:\*\*  $p < 0.01$ ; \*  $p < 0.05$ .

In accordance with the study objectives, we have compared the results of the women from the artistically gifted and the control group (Table 9), however the analysis revealed no statistically significant differences between them in terms of the overall aggression score and specific aspects: self-aggression, hidden aggression and externalised aggression indices, control, retaliation, emotional self-aggression, physical self-aggression, hostility towards environment, unrealised aggressive tendencies,

TABLE 9. Differences between the women from the artistically gifted group ( $N = 35$ ) and the control group ( $N = 33$ ) in terms of aspects of aggression

Aggression syndrome	Women				F	p
	Z		K			
	M	SD	M	SD		
Overall score	35.914	21.366	36.152	17.529	0.002	0.960
S (self-aggression index)	4.971	4.239	5.182	4.004	0.044	0.834
U (hidden aggression index)	5.686	4.317	6.273	4.193	0.323	0.572
Z (externalised aggression index)	13.600	8.128	13.424	7.830	0.008	0.928
Control	15.571	4.901	15.394	4.769	0.023	0.880
Retaliation	2.314	2.978	2.758	2.916	0.384	0.538
Scale I – Emotional self-aggression	6.829	4.098	6.182	4.081	0.425	0.517
Scale II – Physical self-aggression	1.057	1.327	0.909	1.378	0.204	0.653
Scale III – Hostility towards environment	3.914	3.425	4.273	3.538	0.180	0.673
Scale IV – Unrealised aggressive tendencies	1.771	1.664	2.000	2.136	0.244	0.623
Scale V – Transferred aggression	2.857	3.117	2.606	3.142	0.109	0.742
Scale VI – Indirect aggression	3.286	3.064	2.030	1.776	4.206	<b>0.044*</b>
Scale VII – Verbal aggression	6.857	3.882	8.121	4.827	1.424	0.237
Scale VIII – Physical aggression	0.600	1.241	0.667	1.242	0.049	0.826

Key: \*\*  $p < 0.01$ ; \*  $p < 0.05$ .

transferred aggression, verbal aggression and physical aggression. Indirect aggression  $F(1.65) = 4.206$ ;  $p = 0.044$  was higher in the artistically gifted group ( $M = 3.286$ ;  $SD = 3.064$ ) than in the control group ( $M = 2.030$ ;  $SD = 1.776$ ), whereas the effect size for indirect aggression showed medium value ( $\eta^2 = 0.060$ ).

An analogous analysis has been conducted in the both groups of men. As the data presented in Table 10 reveal, no statistically significant differences between the men from the artistically gifted and the control group have been recorded in terms of the overall score and the specific scales: self-aggression, hidden aggression and externalised aggression indices, control, retaliation, emotional self-aggression, physical self-aggression, hostility towards environment, unrealised aggressive tendencies, indirect aggression, verbal aggression and physical aggression. The only difference concerned transferred aggression  $F(1.64) = 5.309$ ;  $p = 0.025$ , in respect of which the artistically gifted men scored higher ( $M = 4.5$ ;  $SD = 3.672$ ) than the men in the control group ( $M = 2.636$ ;  $SD = 2.804$ ). The effect size for transferred aggression showed medium value ( $\eta^2 = 0.078$ ).

To sum up, the presented study results have revealed no differences in the levels of aggression syndrome between the group of artistically gifted persons and the persons from the control group. The artistically gifted women did not differ from the women from the control group, while the men from the artistically gifted group obtained higher transferred aggression index than the men from the control group. Further analysis has shown more differences in terms of gender in the group of artistically gift-

TABLE 10. Differences between the men from the artistically gifted group ( $N = 33$ ) and the control group ( $N = 33$ ) in terms of aspects of aggression

Aggression syndrome	Men				F	p
	Z		K			
	M	SD	M	SD		
Overall score	45.938	27.545	37.545	25.137	1.648	0.204
S (self-aggression index)	7.313	5.614	6.121	5.594	0.734	0.395
U (hidden aggression index)	9.875	6.499	7.424	6.466	2.322	0.133
Z (externalised aggression index)	16.281	10.243	12.485	8.811	2.571	0.114
Control	15.438	4.925	15.636	5.273	0.025	0.879
Retaliation	4.344	4.660	4.121	5.189	0.033	0.856
Scale I – Emotional self-aggression	7.156	4.732	5.424	4.981	2.063	0.156
Scale II – Physical self-aggression	1.719	2.129	1.727	2.096	0.000	0.987
Scale III – Hostility towards environment	5.594	4.226	4.394	4.168	1.328	0.254
Scale IV – Unrealised aggressive tendencies	4.281	3.324	3.030	2.823	2.681	0.107
Scale V – Transferred aggression	4.500	3.672	2.636	2.804	5.309	<b>0.025*</b>
Scale VI – Indirect aggression	4.031	3.496	3.212	2.837	1.079	0.303
Scale VII – Verbal aggression	6.781	4.353	5.697	4.149	1.057	0.308
Scale VIII – Physical aggression	0.969	1.787	0.939	1.580	0.005	0.944

Key:\*\*  $p < 0.01$ ; \*  $p < 0.05$ .

ed persons. The men were characterised by higher hidden aggression index, unrealised aggressive tendencies, i.e. manifestation of seemingly non-aggressive and non-confrontational behaviours, and transferred aggression, or transfer of attack from persons to objects, at a higher level than the women.

## RELATIONS BETWEEN PERFECTIONISM AND AGGRESSION

The main objective of the study was the search for a relationship between aggression syndrome and perfectionism. In order to determine the effect size between the studied variables, we have calculated the Pearson correlation coefficient for the index of externalised aggression Z in the control group and the Spearman correlation coefficient for the remaining scales. The results of the correlation analysis of the artistically gifted persons are presented in Table 11.

The analysis of the results of the artistically gifted group has revealed that concern about mistakes showed moderate positive correlation with the overall aggression score ( $\rho = 0.461$ ) and some specific scales, i.e. high with emotional self-aggression ( $\rho = 0.595$ ), moderate with self-aggression index ( $\rho = 0.421$ ), hostility towards environment ( $\rho = 0.353$ ), hidden aggression index ( $\rho = 0.328$ ), externalised aggression index ( $\rho = 0.343$ ), physical self-aggression ( $\rho = 0.332$ ) and verbal aggression ( $\rho = 0.335$ ); lower correlation was revealed with indirect aggres-



TABLE 11. Coefficients of correlation between aggression and perfectionism in the artistically gifted group ( $N = 67$ )

Aggression syndrome / Perfectionism	<i>r</i> coefficient; <i>rho</i>	CM	PS	PE	PC	D	O	Overall score
	/Significance <i>p</i>							
Overall score	<i>Rho</i>	<b>0.461**</b>	0.076	0.205	<b>0.266*</b>	<b>0.467**</b>	<b>-0.411**</b>	<b>0.427**</b>
	<i>P</i>	<b>0.001</b>	0.543	0.096	<b>0.030</b>	<b>0.001</b>	<b>0.001</b>	<b>0.001</b>
Self-aggression index – S	<i>rho</i>	<b>0.421**</b>	0.123	0.138	<b>0.262*</b>	<b>0.303*</b>	<b>-0.304**</b>	<b>0.382**</b>
	<i>P</i>	<b>0.001</b>	0.320	0.264	<b>0.032</b>	<b>0.013</b>	<b>0.012</b>	<b>0.001</b>
Hidden aggression index – U	<i>rho</i>	<b>0.328**</b>	0.130	0.096	0.140	<b>0.287*</b>	<b>-0.352**</b>	<b>0.306*</b>
	<i>P</i>	<b>0.007</b>	0.293	0.439	0.257	<b>0.019</b>	<b>0.003</b>	<b>0.012</b>
Externalised aggression index – Z	<i>rho</i>	<b>0.343**</b>	-0.007	0.151	0.211	<b>0.397**</b>	<b>-0.406**</b>	<b>0.324**</b>
	<i>P</i>	<b>0.004</b>	0.952	0.221	0.087	<b>0.001</b>	<b>0.001</b>	<b>0.007</b>
Control	<i>rho</i>	<b>-0.390**</b>	0.043	-0.109	-0.098	<b>-0.358**</b>	<b>0.395**</b>	<b>-0.274*</b>
	<i>P</i>	<b>0.001</b>	0.728	0.379	0.431	<b>0.003</b>	<b>0.001</b>	<b>0.025</b>
Retaliation	<i>rho</i>	<b>0.247*</b>	0.012	0.102	0.102	<b>0.321**</b>	<b>-0.421**</b>	0.233
	<i>P</i>	<b>0.044</b>	0.921	0.412	0.410	<b>0.008</b>	<b>0.000</b>	0.058
Scale I – Emotional self-aggression	<i>rho</i>	<b>0.595**</b>	0.203	<b>0.257*</b>	<b>0.409**</b>	<b>0.509**</b>	-0.181	<b>0.561**</b>
	<i>P</i>	<b>0.001</b>	0.100	<b>0.036</b>	<b>0.001</b>	<b>0.001</b>	0.143	<b>0.001</b>
Scale II – Physical self-aggression	<i>rho</i>	<b>0.332**</b>	0.114	0.107	<b>0.311*</b>	<b>0.272*</b>	-0.163	<b>0.307*</b>
	<i>P</i>	<b>0.006</b>	0.360	0.389	<b>0.010</b>	<b>0.026</b>	0.187	<b>0.011</b>
Scale III – Hostility towards environment	<i>rho</i>	<b>0.353**</b>	0.102	0.091	0.173	0.236	<b>-0.328**</b>	<b>0.305*</b>
	<i>P</i>	<b>0.003</b>	0.410	0.462	0.162	0.055	<b>0.007</b>	<b>0.012</b>
Scale IV – Unrealised aggressive tendencies	<i>rho</i>	0.171	0.180	0.063	0.037	0.230	-0.235	0.204
	<i>P</i>	0.165	0.145	0.613	0.769	0.061	0.056	0.099
Scale V – Transferred aggression	<i>rho</i>	0.207	-0.017	0.072	0.096	<b>0.276*</b>	<b>-0.266*</b>	0.199
	<i>P</i>	0.093	0.894	0.562	0.440	<b>0.024</b>	<b>0.030</b>	0.107
Scale VI – Indirect aggression	<i>rho</i>	<b>0.292*</b>	0.076	0.189	0.178	0.191	<b>-0.314**</b>	<b>0.289*</b>
	<i>P</i>	<b>0.016</b>	0.542	0.126	0.150	0.122	<b>0.010</b>	<b>0.018</b>
Scale VII – Verbal aggression	<i>rho</i>	<b>0.335**</b>	-0.059	0.087	<b>0.269*</b>	<b>0.373**</b>	<b>-0.400**</b>	<b>0.292*</b>
	<i>P</i>	<b>0.006</b>	0.632	0.485	<b>0.028</b>	<b>0.002</b>	<b>0.001</b>	<b>0.017</b>
Scale VIII – Physical aggression	<i>rho</i>	0.056	-0.205	-0.073	0.047	0.179	<b>-0.245*</b>	0.002
	<i>P</i>	0.651	0.095	0.558	0.706	0.148	<b>0.045</b>	0.988

Key: \*\*  $p < 0.01$ ; \*  $p < 0.05$ ; abbreviations: concern about mistakes (CM), personal standards (PS), parental expectations (PE), parental criticism (PC), doubt about actions (D), organisation (O).

sion ( $\rho = 0.292$ ) and retaliation ( $\rho = 0.247$ ); negative correlation was revealed with control ( $\rho = 0.335$ ).

Doubt about actions showed moderate positive correlation with the overall score ( $\rho = 0.467$ ) and some specific scales, i.e. strong with emotional self-aggression ( $\rho = 0.509$ ), moderate with self-aggression index ( $\rho = 0.303$ ), externalised aggression index ( $\rho = 0.397$ ), retaliation ( $\rho = 0.321$ ), verbal aggression ( $\rho = 0.373$ ), lower with physical self-aggression ( $\rho = 0.272$ ), hidden aggression index ( $\rho = 0.287$ ) and transferred aggression ( $\rho = 0.276$ ); negative and moderate with control ( $\rho = -0.358$ ).

Organisation showed negative and moderate correlation with the overall aggression score ( $\rho = -0.411$ ), retaliation ( $\rho = -0.421$ ), externalised aggression index ( $\rho = -0.406$ ), self-aggression index ( $\rho = -0.304$ ), hidden aggression index ( $\rho = -0.352$ ), hostility towards environment ( $\rho = -0.328$ ), verbal aggression ( $\rho = -0.400$ ) and indirect aggression ( $\rho = -0.314$ ); negative low with transferred aggression ( $\rho = -0.266$ ), indirect aggression ( $\rho = -0.294$ ) and physical aggression ( $\rho = -0.245$ ); while positive moderate with control ( $\rho = 0.395$ ).

The overall perfectionism score showed high and positive correlation with emotional self-aggression ( $\rho = 0.561$ ), moderate with overall aggression score ( $\rho = 0.427$ ), self-aggression index ( $\rho = 0.382$ ), physical self-aggression ( $\rho = 0.307$ ), hostility towards environment ( $\rho = 0.305$ ), hidden aggression index ( $\rho = 0.306$ ), externalised aggression index ( $\rho = 0.324$ ); low with indirect aggression ( $\rho = 0.289$ ), verbal aggression ( $\rho = 0.292$ ) and low negative with control ( $\rho = -0.274$ ).

Parental criticism showed positive low correlation with the overall aggression score ( $\rho = 0.266$ ), moderate with emotional self-aggression ( $\rho = 0.409$ ) and physical self-aggression ( $\rho = 0.311$ ), lower with verbal aggression ( $\rho = 0.269$ ) and self-aggression index ( $\rho = 0.262$ ). Parental expectations showed only correlation with emotional self-aggression ( $\rho = 0.257$ ). No significant correlations of aggression with personal standards have been found.

The results of the correlation analysis of persons from the control group are presented in Table 12.

The obtained results of the persons from the control group indicate occurrence of many moderate or low correlations: concern about mistakes showed moderate positive correlation with the overall score ( $\rho = 0.484$ ), self-aggression index ( $\rho = 0.441$ ), externalised aggression index ( $r = 0.369$ ), emotional self-aggression ( $\rho = 0.496$ ), hostility towards environment ( $\rho = 0.399$ ), verbal aggression ( $\rho = 0.445$ ), hidden aggression index ( $\rho = 0.384$ ), physical self-aggression ( $\rho = 0.301$ ), positive low with transferred aggression ( $\rho = 0.282$ ) and moderate negative correlation with control ( $\rho = -0.390$ ).

Personal standards showed low correlation with the overall aggression score ( $\rho = 0.256$ ) and negative with control ( $\rho = -0.278$ ). Parental expectations showed moderate positive correlation with the overall aggression score ( $\rho = 0.385$ ), retaliation ( $\rho = 0.305$ ) and externalised aggression index ( $r = 0.315$ ), lower with transferred aggression ( $\rho = 0.297$ ), emotional self-aggression ( $\rho = 0.279$ ), verbal aggression ( $\rho = 0.275$ ), negative moderate with control ( $\rho = -0.373$ ).

Parental criticism showed positive correlation with the overall aggression score ( $\rho = 0.472$ ), self-aggression index ( $\rho = 0.353$ ), hidden aggression index ( $\rho = 0.323$ ), externalised aggression index ( $r = 0.410$ ), emotional self-aggression ( $\rho = 0.496$ ), transferred aggression ( $\rho = 0.357$ ), verbal aggression ( $\rho = 0.335$ ),

TABLE 12. Coefficients of correlation of aggression and perfectionism scales in the control group (N = 66)

Aggression syndrome / Perfectionism	<i>r</i> coefficient; <i>rho</i>	CM	PS	PE	PC	D	O	Overall score
	/Significance <i>p</i>							
Overall score	<i>rho</i>	<b>0.484**</b>	<b>0.256*</b>	<b>0.385**</b>	<b>0.472**</b>	<b>0.296*</b>	-0.098	<b>0.501**</b>
	<i>p</i>	<b>0.001</b>	<b>0.038</b>	<b>0.001</b>	<b>0.001</b>	<b>0.016</b>	0.435	<b>0.001</b>
Self-aggression index – S	<i>rho</i>	<b>0.441**</b>	0.162	0.213	<b>0.353**</b>	<b>0.276*</b>	-0.069	<b>0.392**</b>
	<i>p</i>	<b>0.001</b>	0.193	0.086	<b>0.004</b>	<b>0.025</b>	0.579	<b>0.001</b>
Hidden aggression index – U	<i>rho</i>	<b>0.384**</b>	0.164	0.230	<b>0.323**</b>	<b>0.293*</b>	-0.093	<b>0.358**</b>
	<i>p</i>	<b>0.001</b>	0.187	0.063	<b>0.008</b>	<b>0.017</b>	0.456	<b>0.003</b>
Externalised aggression index – Z	<i>rho</i>	<b>0.369**</b>	0.159	0.315**	<b>0.410**</b>	<b>0.172*</b>	-0.210	<b>0.382**</b>
	<i>p</i>	<b>0.002</b>	0.201	0.010	<b>0.001</b>	<b>0.166</b>	0.091	<b>0.002</b>
Control	<i>rho</i>	<b>-0.390**</b>	<b>-0.278*</b>	<b>-0.373**</b>	<b>-0.416**</b>	<b>-0.296*</b>	-0.026	<b>-0.471**</b>
	<i>p</i>	<b>0.001</b>	<b>0.024</b>	<b>0.002</b>	<b>0.001</b>	<b>0.016</b>	0.838	<b>0.001</b>
Retaliation	<i>rho</i>	0.212	0.217	<b>0.305*</b>	0.166	0.022	0.115	<b>0.250*</b>
	<i>p</i>	0.088	0.080	<b>0.013</b>	0.184	0.864	0.358	<b>0.043</b>
Scale I – Emotional self-aggression	<i>rho</i>	<b>0.496**</b>	0.212	<b>0.279*</b>	<b>0.496**</b>	<b>0.322**</b>	-0.168	<b>0.477**</b>
	<i>p</i>	<b>0.001</b>	0.087	<b>0.023</b>	<b>0.001</b>	<b>0.008</b>	0.179	<b>0.001</b>
Scale II – Physical self-aggression	<i>rho</i>	<b>0.301*</b>	0.155	0.222	<b>0.293*</b>	0.203	-0.072	<b>0.317**</b>
	<i>p</i>	<b>0.014</b>	0.214	0.073	<b>0.017</b>	0.102	0.564	<b>0.009</b>
Scale III – Hostility towards environment	<i>rho</i>	<b>0.399**</b>	0.125	0.179	<b>0.319**</b>	<b>0.267*</b>	-0.068	<b>0.341**</b>
	<i>p</i>	<b>0.001</b>	0.316	0.150	<b>0.009</b>	<b>0.030</b>	0.585	<b>0.005</b>
Scale IV – Unrealised aggressive tendencies	<i>rho</i>	0.239	0.119	0.199	0.217	0.226	-0.192	0.236
	<i>p</i>	0.053	0.342	0.109	0.081	0.068	0.122	0.056
Scale V – Transferred aggression	<i>rho</i>	<b>0.282*</b>	0.164	<b>0.297*</b>	<b>0.357**</b>	0.182	-0.162	<b>0.345**</b>
	<i>p</i>	<b>0.022</b>	0.187	<b>0.016</b>	<b>0.003</b>	0.144	0.195	<b>0.005</b>
Scale VI – Indirect aggression	<i>rho</i>	0.113	-0.044	0.218	0.165	-0.026	<b>-0.273*</b>	0.120
	<i>p</i>	0.367	0.724	0.079	0.184	0.839	<b>0.027</b>	0.336
Scale VII – Verbal aggression	<i>rho</i>	<b>0.445**</b>	0.172	<b>0.275*</b>	<b>0.335**</b>	0.188	-0.112	<b>0.396**</b>
	<i>p</i>	<b>0.001</b>	0.166	<b>0.025</b>	<b>0.006</b>	0.130	0.371	<b>0.001</b>
Scale VIII – Physical aggression	<i>rho</i>	0.122	0.055	0.059	0.112	0.052	0.034	0.086
	<i>p</i>	0.329	0.660	0.636	0.369	0.678	0.787	0.492

Key: \*\*  $p < 0.01$ ; \*  $p < 0.05$ ; abbreviations: anxiety due to committed mistakes (CM), personal standards (PS), perceived parents' expectations (PE), perceived parents' criticism (PC), excessive doubt in one's actions (D), order and organisation (O).

hostility towards environment ( $\rho = 0.319$ ), lower with physical self-aggression ( $\rho = 0.293$ ), negative moderate with control ( $\rho = -0.416$ ).

Doubt about actions showed moderate positive correlation with emotional self-aggression ( $\rho = 0.322$ ), low with the overall aggression score ( $\rho = 0.296$ ), self-aggression index ( $\rho = 0.276$ ), hidden aggression index ( $\rho = 0.293$ ), hostility towards environment ( $\rho = 0.267$ ), and negative low with control ( $\rho = -0.296$ ).

Organisation showed low negative correlation only with indirect aggression ( $\rho = -0.273$ ). The overall perfectionism score showed high positive correlation with the overall aggression score ( $\rho = 0.501$ ), moderate with self-aggression index ( $\rho = 0.392$ ), hidden aggression index ( $\rho = 0.358$ ), externalised aggression index ( $\rho = 0.382$ ), emotional self-aggression ( $\rho = 0.477$ ), physical self-aggression ( $\rho = 0.317$ ), hostility towards environment ( $\rho = 0.341$ ) and transferred aggression ( $\rho = 0.345$ ); lower with retaliation ( $\rho = 0.250$ ), while negative moderate with control ( $\rho = -0.471$ ).

## DISCUSSION

The results of the study have partially confirmed hypothesis H1 which has assumed that artistic talent does differentiate the groups in terms of aspects of perfectionism. The artistically gifted persons scored higher in doubt about actions. The result differed slightly from the one obtained by Parker and Mills (1996), where gifted people were characterised by higher scores in terms of the scale 'high standards'. Parental criticism and expectations did not significantly differ in the compared groups, similarly to organisation; this was inconsistent with the results obtained by Śliwińska, Limont and Dreszer (2008), where significant differences between gifted pupils with high and low school achievement occurred precisely in terms of parental expectations, criticism and organisation. This discrepancy may result from age differences and the type of talent. The aforementioned authors studied pupils who were particularly gifted in terms of intelligence, at the age of 13–18, while the average age of the artistically gifted persons covered in this article was  $M = 27.89$ . Likely, as a person gets older, parents' opinion plays a smaller role, even more so for artists. Moreover, another cause for the recorded differences might be the fact that students in Śliwińska's study attended a school for especially gifted children, which can suggest that their parents had very high expectations of them. Also the results obtained in the scale 'organisation' by Śliwińska, Limont and Dreszer (2008) and Parker and Mills (1996) were higher in gifted persons. Perhaps the lack of differences in the presented study between the scores of the gifted persons and the control group can be explained by the specific character of the artistic talent, where creative abilities are one of key components (Limont, 1984, 2008), creative chaos is valued and there is no need to be better organised than persons in other talent areas.

One surprising result which was contrary to the expectations (H1) was the lack of differences in all aspects of aggression between the groups of artistically talented persons and control. We assumed that it was possible for artistically gifted persons to be more predisposed to aggressive reactions in connection with stronger perfectionist tendencies (Camadan, Yazici, 2017; Chester, Merwin, DeWall, 2015; Öngen, 2009; Schuler, 1999). The obtained result indicates that aggression can be connected not with artistic talent but with other abilities or personal traits. It is possible that there

were persons in the control group who were talented in other fields than visual arts, therefore the lack of differences in aggression between our subjects can indicate that aggression is probably a significant component of talent, not only artistic. This conclusion should be treated as hypothetical and calls for verification.

The analyses presented in the article have shown partial confirmation of hypothesis H1. Artistically gifted persons differ from control group persons in terms of the perfectionism level (higher scores in the artistically gifted in respect of concern about mistakes, personal standards, doubt about actions).

The further studies have partially confirmed hypothesis H2. The analysis of the results has shown that in the control group women scored higher in terms of concern about mistakes; unlike in the studies conducted by Iryna Macsinga and Oana Dobrita (2010), in which men were more focused on mistakes than women. These are results obtained from 62 persons not divided according to the profession or talent fields. The difference between the results of the cited study and those analysed in the article can be related to different characteristics of functioning and gender roles in non-artistic environment.

Surprisingly, gender did not differentiate the scores of persons from the artistically gifted group, which is the reason why hypothesis H2 has been partially rejected. Similar results were obtained by Schuler (1999) and Śliwińska, Limont and Dreszer (2008) in studies of pupils, where no differences between boys and girls were recorded in any aspect. In the research of Hala K. Hassan, Sabry M. Abd-El-Fattah, Mohamed K. Abd-El-Maugoud, and Aly H.A. Badary (2012) on university students gender did not differentiate the scores of self-oriented perfectionism and socially-prescribed perfectionism as well as performance expectations.

We have also studied differences between women and men within the artistically gifted group for aggression. The men were characterised by higher hidden aggression index, unrealised aggressive tendencies and higher retaliation index than women. On the other hand, in the control group, the men were characterised by higher indirect aggression than women. It is highly probable that there are psychophysical and social factors in the men community which prevent them from showing their aggression directly and, therefore, they select art as a tool for expression of unrealised conflicts. Men can have bigger problems with communication than women and choose a homogeneous channel to express accumulated feelings. Perhaps women communicate their feelings using more ways. Moreover, the study subjects had obtained different education and specialised in different fields of visual arts, which could also have an impact on the differences in the scores.

We have also confirmed our speculation that in the control group women are characterised by higher *verbal aggression* than men, similarly to what research of Stanisław Lipiński (2003) has shown, which can be explained by the fact that women have more developed linguistic skills than men and use language more fluently. In the literature, studies of aggression in women and in men have also pointed to gender differences but in terms of other aggression aspects. In the Polish research by Elżbieta Aranowska and Jolanta Rytel (2011) on persons of the average age of 26, differences have been recorded between the scores obtained by women and men for all the scales of the *Aggression Questionnaire* (Buss, Perry, 1992). In the men, average aggression for all the scales of the questionnaire apart from anger was significantly bigger than in the women. The strongest, moderately high effect of gender has been revealed for physical aggression (Aranowska, Rytel, 2011).

The results of the study presented in the article suggest that men are not characterised by significantly higher aggression than women, unlike in the results obtained by Marta Wojdat et al. (2017), John Archer (2004) or Jolanta Rytel (2011). The latter have shown the greatest differences in the level of physical aggression to occur between women and men aged 18–21 and 22–30 (long dash), i.e. at the age of the study subjects. Differences in respect of verbal aggression have proven smaller for all age groups. Similarly to the results of studies carried out by József Gerevich, Erika Bácskai and Pál Czobor (2007), no differences in respect of hostility towards environment have been revealed. Also in the research by Gernot von Collani and Ronny Werner (2005), no statistically significant differences in the level of hostility were found. The discrepancy with the study results presented in this article can be caused by the division of the subjects into artistically gifted and non-gifted persons; this division can also produce other differences.

The conducted analysis indicates partial confirmation of hypothesis H2. The women and men in the control group differed from each other in respect of perfectionism (higher scores by the men in respect of concern about mistakes) and in respect of aggression syndrome (indirect aggression higher in the men, verbal aggression higher in the women). The assumption that artistically gifted women and men differ in terms of perfectionism has not been confirmed.

No differences have been recorded between the artistically gifted women and the women from the control group in respect of perfectionism and aggression apart from higher indirect aggression in the women from the control group, which was decisive in the partial acceptance of hypothesis H3. We have, however, recorded a great number of differences in respect of perfectionism in the group of men (hypothesis H4). The artistically-gifted men scored higher than the men from the control group in respect of: overall score, concern about mistakes, personal standards and doubt about actions. Perhaps the artistic environment of men imposes different requirements, produces even more anxiety or sense of competition than environment of women. The grounds for the differences can also be found in different psychophysical properties of men. Moreover, the artistically gifted men have scored statistically significantly higher on transferred aggression index in comparison with the control group of the same gender. This can indicate that aggression is more important for artistically gifted men than artistically gifted women.

In the next step of the analysis, we have compared relations between perfectionism and aggression. We have recorded statistically significant moderate or low correlations in nearly all scales of perfectionism and aggression, which is also confirmed in the research of Camadan and Yazici (2017), where aggression of the youth was accounted for in terms of perfectionism, forgiving ability and ability to deal with stress. The results have confirmed hypothesis H5.

In the group of artistically gifted persons, the overall score of perfectionism showed strong correlation with emotional self-aggression, moderate with the overall aggression score, self-aggression index, hidden aggression index, externalised aggression index, physical self-aggression, hostility towards environment, low positive with indirect aggression, verbal aggression and low negative with control. The overall aggression score showed moderate correlation with the overall perfectionism score, doubt about actions, concern about mistakes, parental criticism and negative – with organisation.

Surprisingly, we have recorded no correlations between aspects of aggression and personal standards and parental expectations (apart from emotional self-aggression).



This result does not accord with the research of Öngen (2009) as well as Chester, Merwin and DeWall (2015), where the authors found relations different from those described in this article. These researchers assumed that perfectionism could be defined as a relationship between one's own high standards and abilities (Hamackek, 1978). They observed that discrepancy between standards established by oneself or others and abilities was a positive predictor of anger, physical aggression and hostility, while high standards were a negative predictor of hostility and a positive – of verbal aggression. Are we to conclude that the artists studied in the article were free from the aforementioned discrepancy? The control group could have also included persons talented in other fields, such as music, literature, etc., therefore the relation between aggression and perfectionism does not have to depend on visual arts talents, but can be dependent on talents regardless of their specific character. This conclusion requires further, empirical verification.

In the control group, the overall aggression score showed positive correlation with all the perfectionism scales apart from organisation. This result does not accord with the research of Öngen (2009), who believes that 'order' is a negative predictor of anger, physical and verbal aggression. The overall perfectionism score showed correlation with all the scales of aggression apart from unrealised aggressive tendencies, indirect aggression and physical aggression.

So many relations between the aggression and perfectionism scales are confirmed in other studies (Camadan, Yazici, 2017; Chester, Merwin, DeWall, 2015; Hamackek, 1978; Öngen, 2009). Stoeber and collaborators (2017) claim that attaching much significance to requirements of others and excessive expectations of them lead to hostility towards environment.

Perfectionism can prove a destructive force with harmful consequences, but it can also adopt the form of a force stimulating an individual's development. Knowledge about this topic can be important for the pedagogical and educational community and help them appropriately direct perfectionism of talented individuals.

The results of the study have confirmed that artistically gifted persons are characterised by specific aspects of perfectionism. It is, therefore, important to consider problems connected with the specific character of their future professional activity in the process of artistic education. Artists can feel depressed due to their perfectionism, they need help in establishing priorities and learning from mistakes. It is possible for perfectionists to feel satisfaction if they derive happiness from the activity itself and do not treat it only as a means to achieve the goal (Csikszentmihalyi, 2005). Artists should not equate assessments with their own value. The pedagogical community can help individuals focus not on their weaknesses but on their strengths and on appreciating what they have already achieved. It is also important to clearly formulate the goals and strategies to achieve them which increase motivation to action (Pyrty, 2007).

The study has foregrounded the significance of artistic talent in the severity of perfectionism and aggression in men, which can point to men being in bigger need of development of communication skills and training in expressing emotions and tensions in a constructive manner.

The presented study shows interesting relations which are worthy of verification on a bigger group of subjects, not only among persons talented in the field of visual arts, but also showing other talents specific for various fields.

It is worth noting that the author of the Goals and Work Habits Questionnaire (Schuler, 1994) believes that higher scores obtained by artistically gifted persons in the

aspects of personal standards and organisation need not mean neurotic perfectionism, but only show statistically significant differences between the groups. Regardless of the indicated limitations, the obtained results point to relations which are worthy of verification in persons talented in fields other than visual arts.

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