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Analysis of Aggression in Male and Female Populations in Two Coherent Ukrainian Generations

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ABSTRACT

Human aggression is a species characteristics and subject of interest for anthropologists, geneticists, criminologists, psychologists, psychiatrists and other specialists. This paper studies some types of aggression in Ukrainian population in two coherent generations. The researches involved 2305 people from Ukraine (including 741 men and 1501 women) aged 14 to 72 from Kharkiv and Kharkiv region mostly. It was found that distribution of aggression is mostly normal. The signs of sexual dimorphism and cohort effect related to the disparities between generations were revealed. For example physical aggression is more common for men of both generations. There are signs of verbal aggression and negativism among older generation. On the whole in terms of the majority of aggression types the differences between generations are traceable among women only.

Keywords: aggression; Ukraine; population distribution; sexual dimorphism; generations.

INTRODUCTION

The number of works devoted to biology of aggression in both animals and human is enormous [7, 8, 12]. It has been recognized that a human in terms of his biological natures is an aggressive creature. This aggression has been evolving during evolution of Homo *sapiens* as of a biological species. It is believed that inherent for a human are both pro-social behavior with its utmost trait of altruism and antisocial behavior with its utmost form as aggression. Aggression of a human is a species characteristics which means that a human possesses physical, cognitive and emotional systems capable for inflicting intentional harm to others. In animals and in humans aggression is an inborn response to potential threat or provocation. This conclusion is based on the researches of outstanding ethologists, anthropologists and psychologists: C. Laurentz [3], E. Wilson [15], S. Freud [15], R. Baron, D. Richardson [1] etc.

Apart from aggression which is typical to all the members of population antisocial behavior generally includes psychological disorders in particular psychopathy, antisocial personality disorders diagnosable in 5-10 % of population as well as offensive patterns of behavior demonstrated by 20-30 % of population. The variants of antisocial behavior

interpretation by psychologists, psychiatrists and criminologists are highly inter-correlated [14]. For this reason the behavioral genetics often most researches both antisocial behavior as it is and its individual components like aggression. Knowledge of the nature of aggression, genetic control of its physical and biochemical processes we can find a means of positive aggression control.

The aim of this research is to study population-related distribution of certain aggression types among the population of Ukraine in two successive generations.

THE MATERIAL AND METHODS OF RESEARCH

The research covered 2305 people of Ukraine (741 men and 1501 women) aged 14 to 72 from Kharkiv City and Kharkiv region mostly who gave informed consent for questionnaire survey. The information was collected in compliance with ethical standards of communication. The questionnaire gave social and demographic information. The probands were 741 men and 1501 women. The researched population comprised 74 married couples, 105 couples of siblings and 352 parent-child couples, 1174 peoples were researched with no relative. The groups were formed depending on the task of research. One group included the persons aged under 35 with the youngest one being 14 years old. The second group included the people who are more than 35 with the oldest being 72 years of age. The average age of the examined from younger generation was 19.3±0.1 years old (s = 3.8), modal age was 17 years old and medial age made 17 years old. Among the older generation respondents the average age was 43.8±0.3 years (s = 7.2), the modal age made 40 years and medial age was 42 years. The difference between the average ages of younger and older generations of respondents is 24.5 years which corresponds to the time segment equal to one generation in terms of genetics.

Different types of aggression were assessed under Buss-Durkey Inventory [4].

Verification of data for compliance with the law of normal distribution in big groups (n>30) was made by the method of Kolmogorov-Smirnov. The parameters of symmetry and excess with subsequent verification of zero hypothesis about their equaling to zero were calculated. Comparison of two groups arithmetic average was accomplished by Student method. The conclusion on statistical hypotheses was made at $p \leq 0.05$ level [2, 5].

The database was formed with the help of Microsoft Excel software. The calculations were made in Microsoft Excel и Biostat software.

FINDINGS AND DISCUSSION

Study of population distribution in terms of behavioral features is not only a means of behavior polymorphism assessment but rather an essential preliminary stage of genetic analysis, determination of population incidence, risks, etc. For population analysis the biologically interpreted behavioral features were selected which are significant in terms of medicine, education and social life and important for the professional performance. For all qualitative features which were studies under classic methodologies in two successive generations and which are described in this section the complete statistics was calculated which includes 13 indices: $\bar{x}$, *Me, Mo, min, max,* Q_{25}, Q_{75}, *s,* $s_{\bar{x}}$, *As,* s_{As}, *Ex,* s_{Ex}. The paper contains data on the significance of differences between representatives of different generations and different sexes as well as the results of correlation analysis between the ages within one generation and behavioral features.

In a number of researches completed in students sampling no sexual differences in the level of physical aggression were revealed [10]. As for the physical aggression Ukrainian population is not an exception from the general rule (Table 1). Thus younger generation men tend to be more aggressive than women ($\bar{x}$ = 5.0 and $\bar{x}$ = 3.9, p<0.001), the same being true for the researched men and women of older age ($\bar{x}$ = 4.6 and $\bar{x}$ = 3.5, p<0.001).

Some scholars explain aggression from the evolutionary point of view. According to this view the people having common genes tend to show less aggression towards each other [9, 11, 13].

For verbal aggression and negativism (Table 1) the gender differences were revealed in older generation while in younger generation they were absent. Some obtained data can be put down to the following factors of mixed biological and social nature. Thus the studies accomplished by the Western scholars reveal no sexual dimorphism [10]. Nevertheless the population researched in this study show a higher verbal aggression in men as opposed to women

($\bar{x}$ = 6.3 and $\bar{x}$ = 5.5, $p<0.01$). Gender differences specific for younger generation only were determined in 3 types of aggression only: resentment, sense of guilt and displaced aggression (Table 1).

The Western scientists believe that women more often tend to experience displaced aggression and interpersonal aggression in particular social expulsion [10]. The findings of our research confirm that the same regularity is also traced among the representatives of younger generation (Table1). Thus in women displaced aggression is higher ($\bar{x}$ = 5.0) than in men ($\bar{x}$ = 4.6, $p<0.01$). It is worth mentioning about a higher level of the sense of guilt in younger women as opposed to men ($\bar{x}$ = 5.7 and $\bar{x}$ = 5.1, $p<0.001$). As the sense of guilt is self-aggression which means aggression directed by the human to himself or herself than a higher level of this behavioral features in women sends them to the group of suicide behavior risk. Although the data available from foreign resources say that men are 3 to 4 times more likely to die as a result of suicide than women the attempts to kill oneself are more common among women but not men. A probable explanation of this is that men more often use the tools of suicide which lead to immediate death. Another cause is that women tend to self-injury more often in an attempt to attract attention or ask for help [6].

d. Table 1

i. Distribution of different aggression types among population under Buss-Durkey Inventory

Features of behavior	Statistical indices													
	N	$\bar{x}$	Me	Mo	min	max	Q_{25}	Q_{75}	s	$s_{\bar{x}}$	As	s_{As}	Ex	s_{Ex}
Younger generation, ♂														
Physical aggression	155	5.0	5.0	6.0	1.0	9.0	4.0	6.0	1.8	0.1	-0.17	0.19	-0.47	0.39
Displaced aggression	155	4.6	5.0	4.0	2.0	8.0	3.0	6.0	1.5	0.1	-0.01	0.19	-0.86	0.39
Irritation	155	5.0	5.0	6.0	0.0	10.0	3.0	6.0	2.3	0.2	-0.07	0.19	-0.35	0.39
Negativism	155	2.9	3.0	3.0	0.0	8.0	2.0	4.0	1.4	0.1	0.06	0.19	-0.06	0.39
Resentment	155	3.9	4.0	5.0	0.0	8.0	2.0	5.0	1.8	0.1	0.12	0.19	-0.69	0.39
Suspicion	155	5.8	6.0	7.0	1.0	12.0	4.0	7.0	2.2	0.2	0.06	0.19	-0.31	0.39
Verbal aggression	155	6.3	6.0	7.0	1.0	11.0	5.0	8.0	2.3	0.2	-0.12	0.19	-0.37	0.39
Sense of guilt	155	5.1	5.0	6.0	0.0	9.0	4.0	7.0	2.2	0.2	-0.38	0.19	-0.37	0.39
Younger generation, ♀														
Physical aggression	402	3.9	4.0	4.0	0.0	8.0	2.0	5.0	1.9	0.1	0.27	0.12	-0.77*	0.24
Displaced aggression	402	5.0	5.0	5.0	1.0	9.0	4.0	6.0	1.4	0.1	-0.14	0.12	-0.42	0.24
Irritation	402	5.6	5.5	5.0	0.0	11.0	4.0	7.0	2.2	0.1	0.01	0.12	-0.35	0.24
Negativism	402	3.1	3.0	4.0	0.0	5.0	2.0	4.0	1.4	0.1	-0.30	0.12	-0.83*	0.24
Resentment	402	4.3	4.0	4.0	0.0	8.0	3.0	6.0	1.8	0.1	-0.07	0.12	-0.59	0.24
Suspicion	402	6.0	6.0	6.0	1.0	11.0	4.0	8.0	2.1	0.1	0.00	0.12	-0.53	0.24
Verbal aggression	402	6.5	6.5	5.0	0.0	11.0	5.0	8.0	2.3	0.1	-0.18	0.12	-0.57	0.24
Sense of guilt	402	5.7	6.0	6.0	0.0	9.0	5.0	7.0	1.9	0.1	-0.45*	0.12	0.02	0.24
Features of behavior	Statistical indices													
	N	$\bar{x}$	Me	Mo	min	max	Q_{25}	Q_{75}	s	$s_{\bar{x}}$	As	s_{As}	Ex	s_{Ex}
Older generation, ♂														
Physical aggression	68	4.6	4.0	4.0	1.0	8.0	3.0	6.0	1.9	0.2	-0.01	0.29	-0.72	0.57
Displaced aggression	68	4.6	4.5	4.0	1.0	8.0	4.0	5.5	1.5	0.2	0.10	0.29	0.07	0.57
Irritation	68	5.3	5.0	6.0	0.0	11.0	3.0	7.0	2.6	0.3	-0.01	0.29	-0.61	0.57
Negativism	68	2.8	3.0	4.0	0.0	5.0	2.0	4.0	1.4	0.2	-0.15	0.29	-0.88	0.57
Resentment	68	4.4	4.0	4.0	1.0	8.0	3.0	6.0	1.9	0.2	0.03	0.29	-1.04	0.57

Suspicion	68	5.8	6.0	7.0	1.0	9.0	5.0	7.0	2.0	0.2	-0.69	0.29	-0.16	0.57
Verbal aggression	68	6.3	7.0	7.0	1.0	11.0	5.0	8.0	2.3	0.3	-0.61	0.29	-0.01	0.57
Sense of guilt	68	6.0	6.0	5.0	1.0	9.0	5.0	7.5	2.0	0.2	-0.29	0.29	-0.56	0.57
Older generation, ♀														
Physical aggression	180	3.5	3.0	2.0	0.0	8.0	2.0	5.0	1.7	0.1	0.35	0.18	-0.57	0.36
Displaced aggression	180	4.4	4.0	4.0	1.0	8.0	4.0	5.0	1.4	0.1	-0.00	0.18	-0.30	0.36
Irritation	180	4.6	5.0	5.0	0.0	10.0	3.0	6.0	2.1	0.2	0.05	0.18	0.03	0.36
Negativism	180	2.4	2.0	2.0	0.0	5.0	1.0	3.0	1.3	0.1	0.26	0.18	-0.70	0.36
Resentment	180	4.4	4.0	5.0	1.0	8.0	3.0	6.0	1.8	0.1	0.09	0.18	-0.75	0.36
Suspicion	180	5.8	6.0	5.0	2.0	11.0	4.0	7.0	2.2	0.2	0.23	0.18	-0.70	0.36
Verbal aggression	180	5.5	5.0	6.0	0.0	11.0	4.0	7.0	2.2	0.2	0.01	0.18	-0.49	0.36
Sense of guilt	180	5.8	6.0	6.0	1.0	10.0	4.0	7.0	1.8	0.1	-0.16	0.18	-0.35	0.36

*e. Note. * – $p<0.05$.*

In one types of aggression (the sense of guilt, Table 1) the differences were fixed between men of different generations. Thus younger men's sense of guilt was slighter as opposed to the men of older generation ($\bar{x}$ = 5.1 and $\bar{x}$ = 6.0, $p<0.01$). Hyper self-aggression can be a suicide risk factor not only in younger women as it has been noted above but in the men of older age group as well.

It is worth noting that in the majority of aggression the difference between representatives of different genders are characteristics for women only. For example younger generation women show higher levels of the following types of aggression as opposed to women of older generation: physical aggression ($\bar{x}$ = 3.9 and $\bar{x}$ = 3.5, $p<0.01$), displaced aggression ($\bar{x}$ = 5.0 and $\bar{x}$ = 4.4, $p<0.001$), verbal aggression ($\bar{x}$ = 6.5 and $\bar{x}$ = 5.5, $p<0.001$), irritation ($\bar{x}$ = 5.6 and $\bar{x}$ = 4.6, $p<0.001$), negativism ($\bar{x}$ = 3.1, and $\bar{x}$ = 2.4, $p<0.001$).

CONCLUSIONS

The analysis of aggression types in terms of different population has shown that distribution of the most of these types correspond to Gauss' Law. Defining the character of behavioral features distribution will make it possible to select the proper methods for assessing heritability coefficients in the subsequent genetic analysis. The value of gender differences was

in average 10% of the range of features deviation. More significant differences between representatives of different generations was fixed among women.

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