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## The phenomenon of inferiority and depression

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**Introduction.** In modern societal conditions, the pathology of the affective sphere occupies a special place among general medical problems. One of the central phenomena, both in depression and in another common affective disorder – mania, is the issue of self-esteem.

**Aim.** To study the presence of depressive disorders depending on the presence of the inferiority phenomenon.

**Methods of research.** The study uses data from the survey of 612 university students of higher education institutions of III and IV accreditation in Lviv, conducted in October – November 2021. Among the respondents, 57.35% (n=351) were men and 42.65% (n=261) were women. The average age of respondents was 20.31±2.99. Respondents filled out questionnaires of the Comparative Feeling of Inferiority Index (CFII) to determine the presence or absence of phenomenon of inferiority (PhI) and Beck's Depression Inventory – to determine the level of depression.

**Results.** Most often, depression was found in the group of individuals with the index of PhI superiority, who had signs of an extreme desire to compensate for an excessive feeling of inferiority in any way. In particular, about a third (32.35% [21.83–43.86]) of those surveyed had depression, while in the group with no altered self-esteem, the value was 21.36% [17.88–25.05] (p=0.042). The highest median value of scores on the depression scale was also found in the group of individuals with the index of PhI superiority (10 [6; 15] points), p<0.001, compared to respondents with no altered self-esteem. A comparison by gender showed a significantly higher number of women with depression than men; 46.67% [29.40-64.35] of women with the index of PhI superiority had symptoms of depression. Median values of depression scores were also higher in women in all studied subgroups (p<0.05).

**Conclusions.** Research and understanding the phenomenon of inferiority is important for its in-depth study in the context of association with other psychopathological human conditions, especially in the current environment.

**Keywords:** The phenomenon of inferiority, Beck's Inventory, depression, self-esteem, self-comparison, pathology of the affective sphere

## Introduction

In contemporary societal conditions, the pathology of the affective sphere has a special place among general medical problems [13]. The topicality of the issue of affective disorders is related not only to the rapid increase in their prevalence in the general population but also to their tangible impact on the quality of the person's social functioning [15]. The phenomenon of inferiority is one of the central and a sort of "subjective axis" of all affective disorders formed on its basis – from subclinical depression [2] and severe depression to manic states. Moreover, reduced self-esteem with a feeling of worthlessness and ideas of total guilt in depressive disorders [16], on the one hand, or an overestimation of one's capabilities and ideas of one's greatness, on the other hand, are among the most sensitive diagnostic criteria for depression and mania, respectively [1]. It should be noted that in both cases, pathologically low (up to suicidality) [17] or pathologically high (including socially dangerous actions) self-worth is, at the same time, one of the key factors in hospitalization and a component of impairment in social adaptation, making it ultimately the focus of integrative therapeutic efforts [3].

In the early 20th century, Alfred Adler defined the feeling of inferiority as one of the central psychological phenomena based on which a person builds a style and methods of self-fulfillment and shaping of a life path. This phenomenon is formed based on fundamental learning needs (through imitation, which is related to the mirror neurons of the brain, which react with varying degrees of activity to the actions of representatives of their culture and may cause problems of human social behavior with the corresponding emotional accompaniment [4]) and acquired competences as one of the central, "energetic and motivational" sources of social self-fulfillment, inextricably linked with the fundamental human property – social interest (A. Adler's term). The phenomenon of self-worth is formed through the processes of self-comparison with important objects in early childhood, which becomes a motivation for and promotes behavior to overcome feelings of inferiority and achieve life goals – a lifestyle, in Adler's terms [5]. This same process of comparing oneself with others was the basis of Leon Festinger's theory of social comparison already in the mid-20th century, which explained the emergence of one's self-esteem as a consequence of the process of comparing oneself with others [6]. However, only in the late 20th century did an assessment appear, allowing to reliably and qualitatively assess the phenomenon of inferiority – The Comparative Feeling of Inferiority Index (CFII), developed by Dixon P.N. and Strano D.A. [7]. The CFII questionnaire was translated, described, and adapted by us in Ukraine [8]. This questionnaire remains relevant and practical even today and allows identifying individuals with an altered sense of self-esteem. It is used by scientists in many countries worldwide and has a high level of reliability [7].

According to the available studies, social comparison plays a significant role in forming and consolidating depressive symptoms [9]. In particular, among persons with pathologically negative self-esteem, compared to others, major depressive episodes [18] are likely to occur more often. Conversely, a general decrease in the intensity of the phenomenon of negative self-esteem precedes a decline in depressive symptoms [10].

One of the first tests with a high level of validity and specificity for diagnosing and assessing depression in clinical practice was the Beck Depression Inventory (BDI) [11]. Even though this scale was created in 1961, it is not outdated and is widely used in psychiatric and psychotherapy practice even today. This questionnaire has three versions: BDI, BDI-1A, and BDI-II. In the original version of the BDI, the scale contained thirteen groups (A-H), each including four statements. The questionnaire was filled out with the participation of a qualified expert (psychiatrist, clinical psychologist, or sociologist), who read each item in the questionnaire and then asked the patient to choose the statement most appropriate to their current condition. The subsequent improved questionnaire versions were published in 1978 (BDI-1A) and 1996 (BDI-II). The last version contains 21 categories of symptoms and complaints and provides a simplified testing procedure: the questionnaire is handed out to the patient and filled out by them independently.

The phenomenon of inferiority (PhI) can create a hierarchical imagination in the social environment, accompanied by the fear of being rejected, which increases vulnerability to depression, anxiety, and stress [12]. Therefore, we considered it appropriate to test the group of surveyed young people for the presence of PhI and compare the obtained data with depressive feelings using the Beck depression scale [11].

**The aim of the study:** research the existence of depressive disorders depending on the presence of the phenomenon of inferiority.

## Materials and Methods

The study uses data from the survey of 612 university students of the III and IV accreditation level institutions in Lviv, conducted in October – November 2021. Among the respondents, 57.35% [53.42-61.24] (n=351) were men, and 42.65% [38.76-46.58] (n=261) were women. The average age of respondents was 20.31±2.99. All respondents filled out the informed consent, and participation in the study was anonymous.

Respondents filled out the questionnaire of The Comparative Feeling of Inferiority Index (CFII) without help to determine the presence or absence of PhI [7] and Beck’s Depression Inventory [11] – to determine the level of depression.

The respondents answered in two stages to determine The Comparative Feeling of Inferiority Index. In the first stage, an assessment of one of their relatives/friends in childhood (brother, sister, one of the parents or a friend) was performed; in the second stage – they evaluated themselves in childhood according to the same questionnaire, which included 30 adjective characteristics of an individual. The respondent evaluated each characteristic based on a 6-point scale (where 1 point was entirely agree and 6 points – entirely disagree). Then, the obtained scores were compared in two stages: with a significant negative difference (the respondent perceives themselves worse than their relative), the index of the inferiority phenomenon (PhI) was classified. In case of a reliable positive difference (the respondent perceives themselves much better than their relative) – the index of PhI superiority, in the absence of a reliable difference between these parameters – the absence of the phenomenon of altered self-esteem (Norma). According to the findings, all participants were divided into three groups:

- the index of the inferiority of PhI was found in 7.03%, [5.14–9.18] (n=43) of respondents;
- the index of the superiority of PhI – in 11.11% [8.75–13.72] (n=68) of respondents;
- the absence of altered self-esteem was found in most respondents – 81.86% [78.71–84.81] (n=501).

In each group, according to the CFII scale, the level of depression was studied based on the Beck’s Depression Inventory.

Beck’s Depression Inventory scale consisted of 21 categories of symptoms and complaints. Each category contained 4–5 statements corresponding to specific manifestations/symptoms of depression and was scored from 0 to 3 points according to the increasing severity of the symptom. All statements of Beck’s Inventory are direct; therefore, all the points corresponding to the selected statements were summed up to calculate the total result. The total score may range from 0 to 63 and increases as the condition deteriorates. Test results are interpreted in the following way [11]:

0–13 points	Norma / no depression
14–63 points	Depression, including:
14–19 points	Mild depression
20–28 points	Moderate depression
29–63 points	Severe depression

Therefore, the study’s design involved filling out the CFII questionnaire with the corresponding division of examinees into three groups according to the comparative feeling of inferiority index. Further, we determined the levels of depression in each of the selected groups and compared the groups.

Methods of descriptive and analytical statistics were used for statistical processing. Average indicators are shown as Median (Me) and 25% (Q1) and 75% (Q3) quartiles; frequency indicators are shown as percentages with 95% confidence intervals calculated by Fisher’s angular transformation method [95% CI]. A comparison of average indicators between three groups was performed using the Kruskal-Wallis test with Dunn’s post-hoc paired test. Proportions were compared using the Pearson test ( $\chi^2$ ). The reliability of the findings was considered minimally acceptable at  $p < 0.05$  [13, 14].

## Results

The conducted study of 612 university students of higher education institutions in Lviv region showed that almost every fifth respondent (18.14% [15.19–21.29]) had the phenomenon of altered self-esteem (Table 1).

**Table 1. Distribution of respondents with different comparative feelings of inferiority indices by gender (% [95% CI])**

Groups	Total			Men			Women			p
	n	%	95%CI	n	%	95%CI	n	%	95%CI	
Norma	501	81.86	78.71–84.81	289	82.34	78.18–86.14	212	81.23	76.27–85.72	0.72
Index of Inferiority	43	7.03	5.14–9.18	24	6.84	4.44–9.71	19	7.28	4.45–10.74	0.83
Index of Superiority	68	11.11	8.75–13.72	38	10.83	7.80–14.29	30	11.49	7.92–15.64	0.79
All respondents	612	100		351	100		261	100		

The assessment of the distribution by CFII in the group of men (n=351) showed a slightly smaller share of men with the phenomenon of altered self-esteem compared to women (n=261): 17.66% [13.86–21.82] versus 18.77% [14.28–23.73], but the difference was insignificant (p=0.72).

Testing according to the Beck’s Depression Inventory proved that 22.88% [19.64–26.29] of respondents had a total score of more than 13 points according to the results of passing the Beck’s test, which indicates the presence of depressive conditions. Among women, such test results were present in a third of respondents (34.10% [28.48–39.95]), while among men, it was 2.35 times lower (p<0.001), namely 14.53% [11.04–18.40] of respondents (Table 2).

**Table 2. Distribution of respondents with various depressive states by gender (% [95% CI])**

Groups	Total			Men			Women			p
	n	%	95%CI	n	%	95%CI	n	%	95%CI	
No depression	472	77.12	73.71–80.36	300	85.47	81.60–88.96	172	65.90	60.05–71.52	<0.001
Depression	140	22.88	19.64–26.29	51	14.53	11.04–18.40	89	34.10	28.48–39.95	<0.001
Mild depression	66	10.78	8.45–13.36	27	7.69	5.14–10.71	39	14.94	10.89–19.51	0.004
Moderate depression	50	8.17	6.13–10.47	16	4.56	2.63–6.98	34	13.03	9.22–17.37	<0.001
Severe depression	24	3.92	2.53–5.60	8	2.28	0.98–4.10	16	6.13	3.55–9.36	0.015
All respondents	612	100		351	100		261	100		

Every tenth respondent (10.78% [8.45–13.36]) had a mild level of depression of situational or neurotic genesis. Such a level of depression occurred much more often in women than in men: 14.94% [10.89–19.51] (n=39) vs. 7.69% [5.14–10.71] (n=27), respectively, p=0.004.

According to the self-survey results, a moderate level of depression (20–28 points) was diagnosed in 8.17% [6.13–10.47] (n=50) of young people. Moreover, it was almost three times more prevalent in women than in men (13.03% [9.22–17.37] (n=34) vs. 4.56% [2.63–6.98] (n=16), p<0.001). The same significant difference with predominance in women was also observed in a severe form of depression (29–52 points): 6.13% [3.55–9.36] (n=16) vs 2.28% [0.98–4.10] (n=8) in men (p=0.015).

The next stage of the study included comparing the distribution of the number of respondents with different levels of depression in the groups according to the indices of the feeling of inferiority. In particular, the most significant share of respondents with depression was found in the group with the index of Phi superiority of 32.35% [21.83–43.86], while in the group of respondents with the absence of altered self-esteem, only 21.36% of such individuals [17.88–25.05] ( $p=0.042$ ) were observed (Table 3).

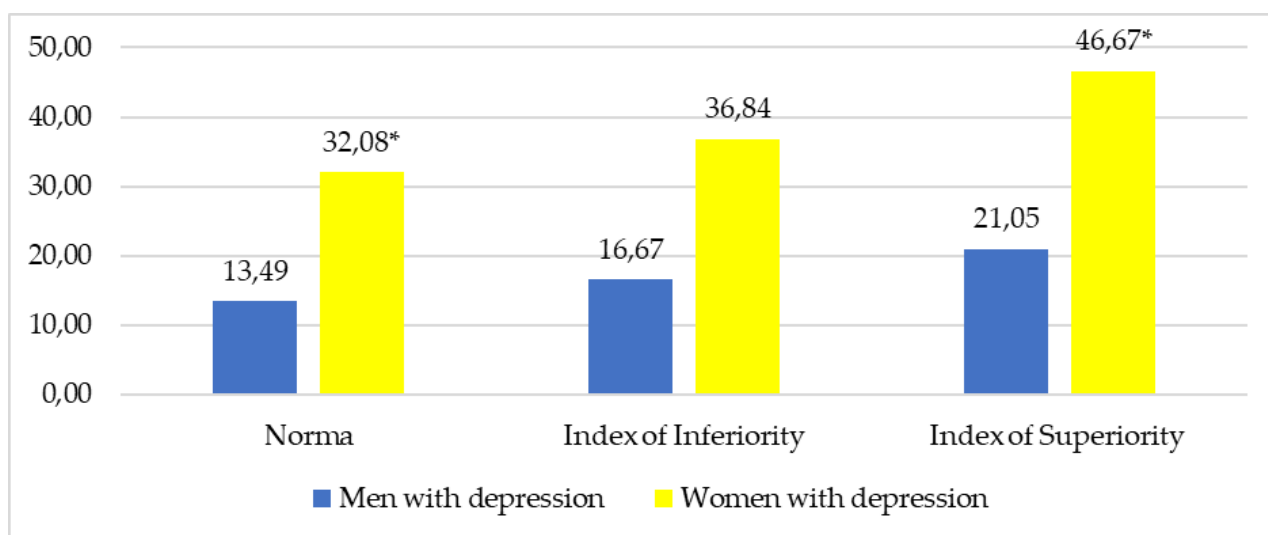
**Table 3. Distribution of the shares of respondents with depression in groups with different CFII (%)**

Groups	Norma			Index of Inferiority			Index of Superiority		
	n	%	95%CI	n	%	95%CI	n	%	95%CI
No depression	394	78.64	74.95–82.12	32	74.42	60.49–86.18	46	67.65*	56.14–78.17
Depression	107	21.36	17.88–25.05	11	25.58	13.82–39.51	22	32.35*	21.83–43.86
All respondents	501	100		43	100		68	100	

Note. \*  $p<0.05$  compared to the group without the phenomenon of altered self-esteem (Norma).

A significantly higher (by almost twice) share of individuals with moderate depression should also be noted among individuals with Phi than in the group of respondents with no altered self-esteem: 13.51% [7.82–20.47] vs 6.99% [4.92–9.38] respectively,  $p=0.023$ . The distribution of mild and severe depression in groups with different CFII did not have significant differences ( $p>0.05$ ).

A comparison of corresponding indicators by gender showed a significantly higher number of women with depression in almost all groups with different CFII compared to men. Thus, almost half of the women with an index of superiority of Phi had some manifestations of depression (46.67% [29.4–64.35]), while only 21.05% [9.76–35.25] of men with the same phenomenon suffered from depression ( $p=0.025$ ) (Fig. 1).



Note. \*  $p<0.05$  with corresponding indicators in men

**Figure 1. Distribution of the shares of surveyed men and women with depression in groups with different comparative feelings of inferiority indices (%)**

Among all women with Phi, 42.86% [29.46–56.81] of the respondents had depression, and among men of the same group, this value was only 19.35% [10.57–30.03],  $p=0.007$ . Moreover, in the group of respondents with no changed self-

esteem, the proportion of women with depression was higher than in men of the same group – 32.08% [25.97–38.5] vs 13.49% [9.81–17.67],  $p < 0.001$ ).

The comparison of median values of depression according to Beck’s inventory, based on the Comparative Feeling of Inferiority Index, also proved the presence of reliable differences ( $p = 0.0008$ ). Because most study participants did not have depression, median values in each subgroup did not exceed the threshold of 13 points (Table 4). However, the values of the third quartile (Q3) indicate that 25 per cent of individuals with the index of superiority of Phi and index of inferiority of Phi had depression, which was not observed in the group of individuals with the absence of the phenomenon of altered self-esteem.

**Table 4. Distribution of median values of depression scores according to Beck’s inventory in groups with different comparative feelings of inferiority indices**

Groups	n	Me [Q1; Q3]	p (Kruskal-Wallis)	p (Dunn)		
				Normal – Inferiority	Normal – Superiority	Inferiority – Superiority
Normal	501	7 [3; 12]	0.0008	0.33	<0.001	0.19
Index of Inferiority	43	8 [4; 13.5]				
Index of Superiority	68	10 [6; 15]				

Among individuals with Phi, the highest median score on the depression scale was found in the group with the index of Phi superiority (10 [6;15] points), which was similarly significantly higher ( $p < 0.001$ ) compared to the “Normal” group.

For respondents with the index of inferiority of Phi, the median score on Beck’s Depression Inventory amounted to 8 [4; 13.5] points. There was no significant difference between the level of depression scores on Beck’s inventory of this group and the corresponding depression scores of individuals with no altered self-esteem and with the index of superiority Phi ( $p > 0.05$ ).

The average score of depression in individuals with Phi (Index of Inferiority + Index of Superiority,  $n = 111$ ) amounted to 9 [5; 15] points and was significantly higher ( $p = 0.003$ ) compared to respondents with no phenomenon of altered self-esteem (7 [3; 12] points).

The analysis of compared depression scores in groups of men and women with different comparative feelings of inferiority indices proved a significant difference by gender ( $p < 0.05$ ) with a significant predominance of depression scores in women in all studied groups (Table 5).

**Table 5. Distribution of median values of depression scores according to Beck’s inventory in groups of men and women with different comparative feelings of inferiority indices**

Groups	Men	Women	p
Normal	5 [2; 10]	10 [5; 15]	<0.001
Index of Inferiority	5.5 [3; 10.5]	9 [5.5; 22]	0.041
Index of Superiority	9 [5; 12.8] *	12 [9; 21] *	0.007

Note. \*  $p < 0.05$  with the group with no altered self-esteem (Normal).

Comparison of median values of depression scores in groups of men with different comparative feelings of inferiority indices showed a significant difference between the groups ( $p=0.0086$ ). When comparing groups in pairs, significantly higher depression scores were found in men with an index of PhI superiority than in men with no altered self-esteem: 9 [5; 12.75] points vs 5 [2; 10] points ( $p=0.003$ ) (Fig. 2).

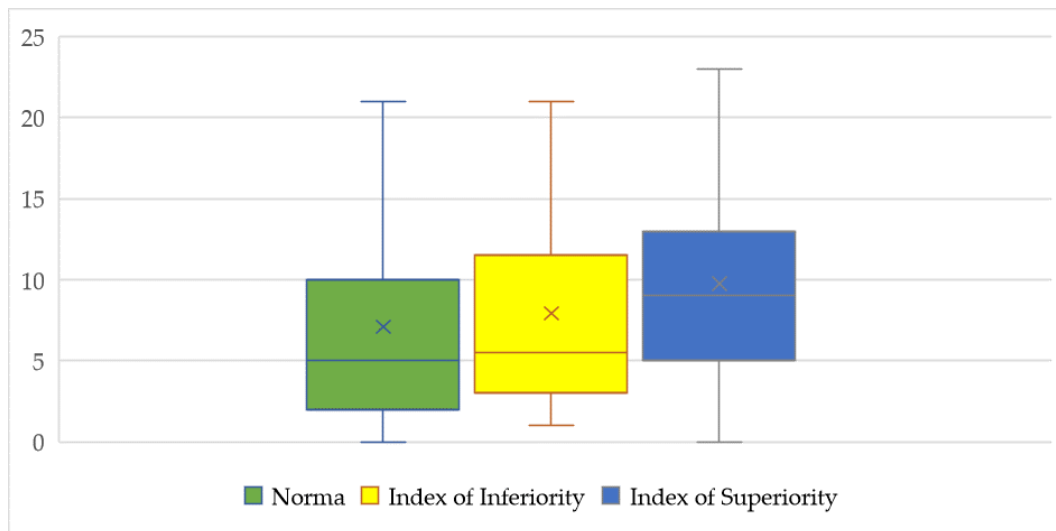


Figure 2. Comparison of median indicators of depression scores in groups of men with different comparative feelings of inferiority indices

At the same time, the comparison of depression scores in the group of men with the index of inferiority of PhI (5.5 [3.0; 10.5] points) showed no significant differences compared to other groups ( $p<0.05$ ).

Comparison of median depression scores in women with different CFII showed a significant difference between these groups ( $p=0.048$ ). A pairwise comparison between these groups revealed significantly higher depression scores in women with the index of superiority of PhI (12 [9; 21] points) than in women with no altered self-esteem (10 [5; 15] points,  $p=0.018$ ). Women with the index of inferiority of PhI had slightly lower scores (9 [5.5; 22] points) compared to other groups, but these differences were insignificant ( $p>0.05$ ) (Fig. 3).

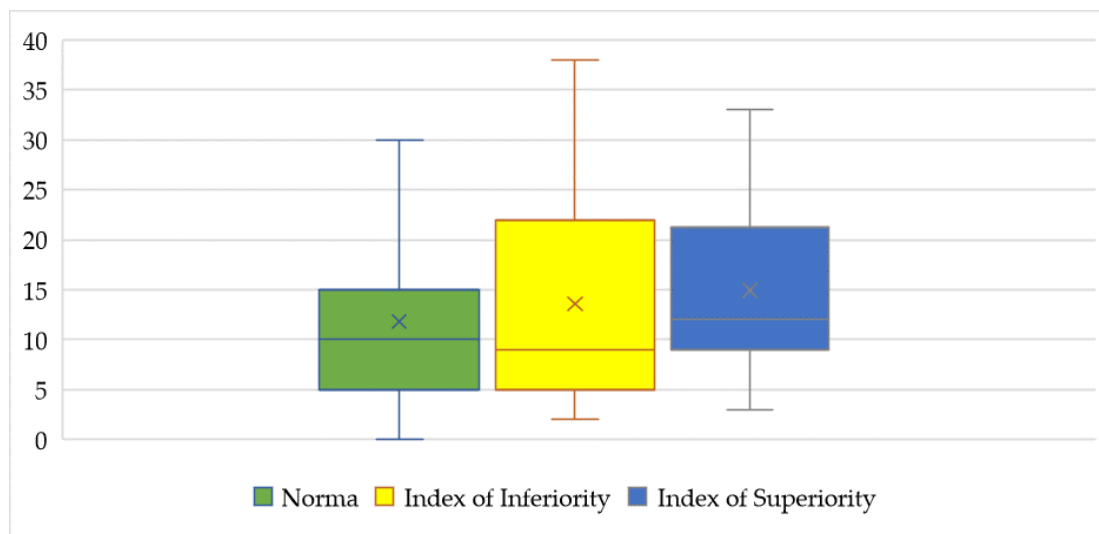


Figure 3. Comparison of median indicators of depression scores in groups of women with different comparative feelings of inferiority indices

## Discussion

Since the beginning of the 21st century, studies have demonstrated that PhI can be a strong predictor of psychopathological manifestations and can significantly affect the quality of life. This phenomenon in depression is a kind of resulting and integrative content-semantic symptom (“meta-phenomenon”) for the so-called affective triad of Kraepelin – suppression (in mania – disinhibition) of cognitive, emotional and all bodily-behavioral functions [15].

Sandra Hein et al. (2003) [16] indicate in their study that PhI symptoms in an individual during life can be the preclinical markers of late-onset depression. Research by Taiwanese scientists Lung F.W. and Lee M.B. (2008) [17] indicates that high scores of the comparative feeling of inferiority index (the index of superiority of PhI) are significantly correlated with aggressive experiences, depression and insomnia and may be a predictor of suicidal intentions.

Sturman Edward & Mongrain Myriam (2008) [18], during a prospective study with 146 students, substantiated that young people who had the phenomenon of inferiority in the form of unconscious, involuntary submission, which was characterized by a negative perception of their social status, a negative comparison of themselves with others and with a sense of the inevitability of unfavorable circumstances that would develop in their lives, had a greater risk of episodes of recurrent depressive disorder.

Thus, the research and understanding of PhI is essential for its in-depth study in the context of its association with other psychopathological human conditions, especially in the current environment.

In conclusions:

1. Depression was found to be most often in the group of individuals with an index of superiority of PhI, who had signs of an extreme desire in any way to compensate for an excessive feeling of inferiority. About a third (32.35% [21.83–43.86]) of respondents with this phenomenon suffered from depression, while the number of such individuals in the group of respondents with no altered self-esteem was 21.36% [17.88–25.05] ( $p=0.042$ ).
2. Depression was most often in women with the index of PhI superiority: 46.67% [29.4–64.35] of women with this phenomenon exhibited symptoms of depression.
3. The highest median value on the depression scale was also found in the group of individuals with the index of PhI superiority (10 [6; 15] points),  $p<0.001$ , compared to respondents with no altered self-esteem.
4. Analysis of the comparison of depression scores in groups of men and women with different comparative feelings of inferiority indices proved an essential difference by gender ( $p<0.05$ ) with a significant predominance of depression scores in women in all studied subgroups.

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