

## Simian Crease Related Differences in Self-esteem and Depression Scores in University Students

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### ABSTRACT

**Background:** The simian crease is a single crease on the palm. However it can be seen in normal persons, it can be together with different health conditions such as Down's syndrome, leukemia, Alzheimer's disease, and some psychological problems.

**Methods:** Seventy-six Nigerian university students participated to the study. Participants were 45 men and 32 women who were 17-24 years of age. To get their self-esteem and depression scores were used the Rosenberg Self-esteem Scale and the Self Reporting Questionnaire (SRQ) 20 adapted from WHO was used, respectively.

**Results:** There were no simian crease status-related significant differences in self-esteem scores. There was a simian crease status-related the significant difference in the depression scores in only female subjects. The average depression scores were  $15.15 \pm 4.83$  in females with a simian line and  $11.06 \pm 5.09$  in females without the simian line.

**Discussion:** Sex-related differences in depression, higher scores in women than in men in the normal population, and the relationships between genetic factors and depression suggest that simian crease (single transverse palmar crease) may be an important factor in the pathogenesis of depression, especially in women.

**Conclusion:** Therefore, the simian crease status can be taken into consideration in the diagnosis and clinical follow-up of depression, especially in women.

**Key words:** Simian crease, Self-esteem, Depression, Genetic, Gender, Psychology

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### INTRODUCTION

The simian crease is a single crease on the palm and uncommon in normal population. It is produced congenitally by the unity of the two normal transverse palmar creases. The simian crease called attention because it is known that it can be correlated with some hereditary abnormalities and diseases [1]. It has been associated with different health conditions such as Down's syndrome, leukemia, Alzheimer's disease, and psychological problems such as developmental problems at young ages [2].

Simian crease positivity does not show an abnormality in all cases, as it can be seen in some normal individual and even in some exceptionally intelligent individuals [3].

Self-esteem is explained as feelings of one's self-worth [4]. It is person's overall subjective emotional evaluation of his or her worth. Also, self-esteem can be defined as positive or negative thoughts about ourselves [5]. Self-esteem is an valuable index of some behavioral, social and psychological parameters including school success [6,7], happiness [8], achievement in the family life [9], and criminal behavior [9].

Depression is a mental abnormality featured by consistent loss of interest, pleasure feeling of sadness and, which are together with somatic

and cognitive changes that continually affect the day-to-day living of the sufferer [10-12]. Depression can be secondary to psychological stress due to undesirable life experiences, including traumatic events, lack of social support, financial problems, interpersonal problems, and conflicts, as well as disorders of nervous and other systems including neurodegenerative diseases and cancer [10-13]. Genetic features may have a role in the pathogenesis of some behavioral disturbances such as anxiety and/or depression. As some studies show only associations with anxiety, few have shown association with both simultaneously [14]. Also, there is a specific association of gender with depression [15]. FMR1 gene polymorphisms, dopaminergic (DAT, DRD, COMT), serotonin (5-HTTLPR, HTR1A, HTR2A), interleukins, MCR1, HCN (potassium channel), GABA ergic (GABA, GAD, DBI) DBI, GABA receptors and GAD genes (GAD1, GAD2) appear to contribute to generate condition of depression or anxiety. Mutations in mitochondrial DNA in 124pb allele of D2S2944 in ofil 1 and 2 loci of chromosomes 4 and 7, respectively, and the chromosomes 8p, 17p and 15q appear to be associated with the origin of depression or anxiety [14].

No study has investigated the associations between simian crease status and self-esteem and depression amongst university students. This study aimed to investigate the relationships of simian crease status with self-esteem and depression in Nigerian university students.

## METHODS

### Participants

Students (seventy-seven) who had classes at the time of the study were approached and requested to participate in the study. Thirty-eight students with a simian crease and 39 students without a simian crease were included in the study. All of them accepted to participate in this study (32 women, average age=20.82 years, standard deviation, SD=1.92; 45 men, average age=21.72, SD=1.91). They were students of the different faculties (arts and humanities, science and engineering, law, college of health sciences) at Nile University of Nigeria, private tertiary institution in Abuja, Nigeria. The age of the participants was not different statistically by sex.

### Inclusion criteria

Willingness to participate.

Only students were allowed to participate.

Only undergraduate students studying were included in the study.

### Exclusion criteria

The study excluded participants that were not willing to be involved.

Students with respiratory, metabolic, cardiac, psychiatric or central and autonomic nervous system disease that might change the self-esteem and/or the depression scores were not involved.

Children were not included the study because these tests (self-esteem and depression) cannot be applied them.

### Procedure

The experimental protocol was by following international ethical standards. The study was performed per under the Helsinki Declaration (1975, revised in 1996-2013). It was a descriptive cross-sectional study. The aims and objectives of the study were explicitly explained to the participants before the commencement of the study. All participants voluntarily gave written informed consent to participate in the study. The study was anonymous. A paper-and-pencil based method of filling questionnaires was utilized. Participants were administered the Self Reporting Questionnaire (SRQ-20) to get depression and Rosenberg Self-Esteem scale to assess the self-esteem score. All questionnaires were distributed evenly among first-year students through the final (4<sup>th</sup>) year on the university campus. The study was made between May 2019 and September 2019.

### Assessment of depression

The English version of a structured self-administered World Health Organization's questionnaire (Self Reporting Questionnaire, SRQ-20) was used to collect the data on depression [16,17]. The SRQ-20 was developed and validated for international use. Compared to other scales for analysis of depression, the SRQ-20 has better validity and is widely used to assess depression among University students [18,19]. The SRQ-20 scale includes 20 dichotomous (yes/no) questions asking whether participants experienced symptoms of anxiety, depression, or somatic symptoms during the last 30 days before the study [18,19].

**Self-ssteem**

Rosenberg Self-esteem Scale [20] was used to collect the scores associated with self-esteem. The reliability and validity of the Rosenberg Self-esteem Scale have been well-demonstrated [21,22]. The participants were asked to rate the degree to which they agree with each of the statements using a five-point Likert rating scale that ranges from “strongly agree” to “strongly disagree.”

**Statistical analyses**

Measured values are given as a mean +/- standard deviation (SD). Statistical analysis was performed using SPSS for Windows version 18. The Student’s t-test was used to compare the depression scores in the participants. A p-value less than 0.05 was considered statistically significant.

**RESULTS**

In the total sample, of all participants (N=77), 38 were with the simian crease and 39 were without it. Of 45 men, 22 were with simian crease and 23 were without it. Of 32 women, 16 were with the simian crease and 16 were not with the simian crease. There were no simian crease status-related statistically significant differences in self-esteem scores in the total sample, in male and in female subjects (Table 1).

But, there was a simian crease status-related the statistically significant difference in the depression scores in only female subjects, not in the total sample and male subjects. The average depression scores were 15.15 ± 4.83 in females with a simian crease and 11.06 ± 5.09 in females without a simian crease (Table 2). Also, there was a gender-related the statistically significant difference in depression score (t=2.63, p=0.01).

The average depression scores were 12.77 ± 5.31 in females and 10.07 ± 3.67 in males in the total sample.

**DISCUSSION**

The simian crease is found in 5% of newborns and is frequently inherited as a familial trait. However, single palmar creases can be associated with Down's syndrome and other genetic disorders, or with fetal alcohol syndrome. Clinicians, anthropologists, and palmists were interested in the simian crease of the palm for hundreds of years. The simian crease has called attention to recognition medically and anthropologically due to its abnormal appearance and confounding cytogenetic etiology. However the incidence of the simian crease is very low in the normal population but its usefulness in diagnosing congenital disorders, discussion of cases of those disorders could provide clinicians with further helpful diagnostic knowledge [23].

Some possible relationships among being with simian crease and various psychological parameters including self-esteem and depression can be expected. In the present study, there is no relationship between self-esteem and simian crease. Because when the terms “depression” and “simian crease” were searched in PubMed, “No documents match your search terms” was written; it can be stated that this is the first study investigating the self-esteem scores in persons with a simian crease. In a recent study, self-esteem score was higher in left-handed students than in right-handed students [24].

In addition, the depression score is higher in women with simian crease than in women without it. Sex-related difference in depression, higher scores in women than in men in the normal population [15,25-28], and the relationships

**Table 1: The mean (± SD) self-esteem scores by simian crease status.**

	Subjects with a simian crease	Subjects without a simian crease	t	p
Total sample (N=77)	21.13 ± 4.79	20.74 ± 4.19	0.38	0.71
Men (N=45)	20.74 ± 3.82	21.3 ± 4.22	0.46	0.65
Women (N=32)	21.69 ± 6.03	20.11 ± 4.19	0.89	0.38

**Table 2: The mean (± SD) depression scores by simian crease status.**

	Subjects with a simian crease	Subjects without a simian crease	t	p
Total sample (N=77)	11.54 ± 4.69	10.85 ± 4.53	0.65	0.52
Men (N=45)	9.41 ± 3.06	10.69 ± 4.14	1.18	0.24
Women (N=32)	15.15 ± 4.83	11.06 ± 5.09	2.26	0.03

between genetic factors and depression [14] suggest that simian crease (single transverse palmar crease) may be an important congenital or genetic factor in the pathogenesis of depression, especially in women.

### CONCLUSION

The results of the present study suggested that the simian crease status can be taken into consideration in the diagnosis and follow-up of depression, especially in women. We need the robust replication studies with the large number of subjects to clarify the effects of simian crease on some different psychological parameters.

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