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Does Handwriting Reflect Your Personality? An Empirical Study on the Validity of Graphology as a Valid Measure of Self-Esteem

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ABSTRACT

The objective of this research is the validation of handwriting as a measure of self-esteem. Handwriting analysis, is considered as indicative projective technique, which measures hidden and deeper aspects of personality structure, uniqueness of personality dynamics, and the reliable and valid tool for personality assessment (Broschk, 2003). It was hypothesized that handwriting analysis is a valid measure of self-esteem. Sample consisted of 106 participants (24 males and 81 females) age range from 19-38 years (M= 22.18, SD = 2.51), from different department of University of Karachi, Pakistan. Participants were provided with a consent form along with the Rosenberg Self-esteem Scale (RSES) and two separate blank sheets and asked them to draw a human figure on one sheet and write one paragraph about that human they drawn on other blank sheet. Descriptive statistics, reliability analysis, and correlation were applied to calculate the convergent validity by using Statistical Package for Social Sciences (SPSS, V-25). The results showed that there is a significant positive but weak correlation between high self-confidence measured by handwriting and RSES. Furthermore, there is a weak positive correlation of low self-confidence measured by HFD and handwriting. Implications of the study has been proposed.

Keywords*:* Handwriting analysis, Self-esteem, Human figure drawing, Projective test

INTRODUCTION

Communication is personal expression of a person. The importance of communication can be seen from the prehistoric times where people communicate through abstract ideas, pointing, and pantomiming. It covers the wider aspects of human interactions and continuously investigating how people evolved and applied different mode of communication to share ideas, information, and feelings (Morissan, 2023). As social animals, human beings has been evolving and adapting the mode of communication from prehistoric modes to more advance modes such as, writing, printing; photography, harnessing electricity; and exploring cybernetics (Enos, 1991; Morissan, 2023).

Handwriting has a unique place among the various forms of communication as a mode of personal expression. People express feelings, ideas, and a sense of self through handwriting. Despite the emerging trend of digital communication, handwriting is still considered as a significant form of personal expression. Handwriting analysis came into existence in 1609 as a proper mode of personality detection. Handwriting may reveal a person's character or personality, IQ, and talents (Gawda, 2014; Ploog, 2013; Asra & Shubhangi, 2017; Mishra, 2017); except physical characteristics (Ploog, 2013).

Handwriting analysis also known as graphology or brain writing is a scientific method specifically designed to assess an individual's personality through the writing patterns and styles. This fascinating field investigates the complex aspects of personality traits that shape an individual's character, including honesty, emotional expression, self-worth, anger, imagination, and fears etc. The act of writing becomes an integral aspect of an individual's identity because it serves as an important source of expressing thoughts and feelings, offering an outward manifestation of the personality. When people put pen to paper, they reveal their most authentic selves (Champa & AnandaKumar, 2010; Rahiman et al., 2010).

Each individual has a unique and distinct handwriting, similar to a fingerprint, which retains its unique characteristics regardless of its composition (hand, foot, or mouth). Graphology is distinct from the physical activity of writing, as it is derived directly from the complex processes of the human brain rather than being controlled by the limbs. Each neurological configuration conveys unique neuromuscular development which is similar for every person who has that particular character attribute. As a result, each stroke and curve in a person's handwriting reveals a unique and revealing character attribute, revealing the innermost depths of an individual’s personality (Kedar & Kulkarni, 2015; Rahiman et al., 2010). Emotional conflicts and psychiatric impairments have been found to affect muscular tension and handwriting pressure (Caligiuri et al., 2006; Peeples et al., 1995; Tucha et al., 2001). These findings might theoretically relate to the expression of neuroticism in handwriting. Caprara et al. (1993) discovered a connection between handwriting interpretation and the Big Five personality traits.

One of the key personality traits that handwriting analysis seeks to uncover is self-esteem. Self-esteem plays a crucial role in mental health and overall well-being. With the help of handwriting analysis, researchers try to measure an individual's self-esteem by observing specific characteristics in their writing, such as the size, slant, and pressure of the

letters (Crocker & Park, 2004).

Self-esteem is a building block of an individual's mental health and functioning. There are various definitions of self-esteem proposed by different renowned authors. Self-esteem is defined as a person's orientation towards oneself either it is positive or negative depends on the evaluation of their own self-worth (Rosenberg, 1965); a person's belief in their own capabilities in dealing with adverse life circumstances and considers oneself as worthy of happiness (Branden, 1969); self-perception of a person towards own values, competence, and self-worth (Baumeister, 1999); a feedback mechanism that effects individual's conduct and ability to socialize with others, this theory is famous as sociometer theory (Leary et al., 1995); based on the self-perception of competence based on different life domains such as, physical, academic, and social competence and the degree to which they are accepted and valued by significant others (Harter, 2006).

The significance of self-esteem in human's life and its relationship with overall mental well-being has been a topic of interest for many researchers. Having self-esteem to healthy level boost up learning experiences, socialization, sense of autonomy, and self-regulation (Crocker & Park, 2004). Because of the importance of self-esteem in every aspect of life, many authors developed instruments to measure self-esteem. However, two well-known and widely used measure are Rosenberg Self-Esteem Scale (RSES) and Harter's Self-Perception Profile (Alessandri et al., 2015; Donnellan et al., 2011; Gray-Little et al., 1997; Torrey et al., 2000). However, the use of these objective tests have been the matter of ongoing debate (Baumeister et al., 2003; Parker & Veldman, 1969). The limitations of social desirability and self-perception are the concerns of researchers in prevention of getting true and transparent responses from participants.

In addition to graphology, many researchers shift to the different methods of assessment and the use of projective test has become popular in psychology or even in other fields of social sciences. These tests get the person's instant unconscious responses. However, the reliability and validity of projective tests are also still in debate (Baumeister et al., 2003; Tafarodi & Ho, 2006). Psychologists and researchers have been administering projective tests to evaluate an individual's unconscious, indepth feelings, thoughts, and personality traits; and self-esteem is one the aspect that projective tests can measure (Robson, 1989).

Extensive researches have been done on the area of projective tests which measure various aspects of personality including self-esteem. For instance, Human figure drawing (HFD), Thematic Apperception Test (TAT) and Rorschach Inkblot Test. The responses from the tests were analyzed according to the scoring and interpretation criteria. Interpretation represents person's unconscious mind and their level of functioning. Content based on sense of reality, positive self-regard, introspection, competence, achievement, positive view towards significant others reflect the high self-esteem, whereas themes of incompetence, inachievement, or negative self-views reflect lower self-esteem (Stroebe et al., 1974; Weiner, 2001).

Among the above projective tests human figure drawing (HFD) used to measure psychological functioning and personality traits of a person. The drawing reflects their

underlying thoughts, emotions, and personality traits. The ambiguous nature of this test is hard to suspect by the participants and is considered as quick and fun game. It is widely used in clinical settings with children and adults to gain insights into their self-perception, emotional state, cognitive development, and even potential psychological issues. Self-esteem is revealed by a drawing size, proportion of parts, and the detailts of drawing (Ludwig, 1969; Saneei et al., 2011; Davis et al., 1978).

Despite the potential use of these test in the field of psychology, subjectivity remain a criticism of these tests. The interpretations of tests depend on the clinician psychological makeup, understanding, perception, and how they grab the concepts of psychological phenomena along with the concepts of these tests. It is possible to get two different interpretations of same responses of the client from different clinician or even from the same clinician with time difference. Sometimes client's get suspicious because of an ambiguous nature of the projective test and they become defensive not disclosing valid information or even don't proceed with the test despite of encouragement (Bornstein, 2021).

The aim of the present study was to explore the validity of handwriting checklist of self-esteem and how accurately it determines the self-esteem of a person. Till date, various tools have been developed to assess different aspects of personality, specifically self-esteem. Given the importance of self-esteem, it is an important and stable personality trait of a person and vital requirement for person's healthy development, increase positive attitude toward self, and boost social relationships (Branden, 1969; Budd et al., 2009). The less threatening form to engage someone in assessment is getting them into writing. This research is important and necessary in such times where people undergo the process of desirability effect and often fake or try faking the result for their projective assessments. This is a harmless and apparently non-threatening test and will help get the exact personality profile of the person. Handwriting analysis has important implications for clinical practice, psychological assessment, and our overall understanding of human behavior and personality.

Till now we do not have much of evidence based tools of handwriting analysis due to which reliable researches have not been done. The findings of the present study were of great significance as these would be added to the literature in Pakistani cultural context and will open the avenues for future research in the area of graphology. This study is as significant as any other research conducted in the field of personality and projective techniques as handwriting is a convenient field and method to detect the traits of personality. It was hypothesized that handwriting analysis is a valid measure of self-esteem.

METHODS

Participants

This quantitative research study depended on the specific characteristics, their feasibility, and willingness to participate in the study. Participants were selected through purposive sampling techniques from different department of University of Karachi. The entire sample was comprised of 106 participants age range from 19-38 years (M= 22.18, SD = 2.51) (See Table 1).

Table 1

Frequency and Percentages of Demographic Variable (N=106)

Variables	*F*	%
Gender		
Male	24	22.9
Female	81	77.1
Birth Order		
First born	22	21.2
Middle child	54	51.9
Last born	26	25.0
Occupation		
Working	91	85.5
Non-working	15	14.2
Socioeconomic Status		
Upper class	2	1.9
Middle class	103	97.2
Lower class	1	.9
Education		
Bachelors	96	90.6
Masters	10	10.4
Family system		
Nuclear	79	76
Joint	25	24

Measures

Demographic form

Demographic Form was used to obtain socio-demographic information of the participants, in which age, gender, birth order, qualification, socioeconomic status, occupation, and family system were taken from the participants.

Rosenberg Self-esteem Scale (RSES; Rosenberg, 1965)

Rosenberg Self-esteem Scale was administered to assess self-esteem. This likert scale consists of 10 items (5 positive and 5 negative) range from strongly agree = 3 to strongly disagree = 0. To get the score of self-esteem all items (negative items were reseverse scored) were added up. Cut off of this scale was 10-40. Higher scores indicate high self-esteem while low scores indicate low self-esteem. This is widely used scale and has high internal consistency (Cronbach's alpha 0.88) (García et al., 2019, Juth et al., 2008).

Human Figure Drawing Test (HFD; Gilbert, 1979)

Indicators of Gilbert (Interpreting Psychological Test Data) was used to interpret indicators of self-esteem and categorized into three categories high self-esteem (medium or large size drawing), low self-esteem (disheveled unkempt figure and facial scars on same-sex figure), and low self-confidence (drawing near margin and hands behind back or in pockets). Each category scores were given scoring criteria of 1 if present and 0 if not present. Items were summed up to get a composite score.

Handwriting Analysis

The list of items indicating self-esteem has been prepared by the help of referencing manuals and books below mentioned.

1. Handwriting Analysis: Plain & Simple by Eve Bingham (2019).
2. Finding Love through Graphology by Manhardeep Singh Ahluwalia (2016).
3. The Secrets of your Handwriting by Allan Conway (2015).
4. Sex, Lies, and Handwriting by Michelle Dresbold and James Kwalwasser (2006).
5. Handwriting Analysis: Putting It toWork for You by by Andrea McNichol with Jeffrey A. Nelson (1994).
6. Handwriting Analysis: The Complete Basic Book by Karen Amend and Mary S. Ruiz (1980).
7. Applied Graphology: A Textbook on Character Analysis From Handwriting by Albert J Smith (1920).

As mentioned above the scoring of self-esteem in HFD same criteria was followed for Handwriting interpretation. Four categories were made of high self-esteem (large writing, capital I exaggerated etc), low-self-esteem (low t bar, wide upper margin etc), high confidence (dominant middle zone, high crossed t bar etc), and low confidence (reduced middle zone, wide spacing etc). Each category scores were given scoring criteria of 1 if present and 0 if not present. Each item were summed up to get a composite score.

Procedure

The study was aligned with ethical standard of American Psychological Association. Permission was taken from the Head of Departments and teachers of the respective clasess. Teachers were requested to assign a class for the administration of test. Test was conducted in classroom setting. After taking permission, students were informed about the purpose of the research and upon their willing to participate, they were asked to sign the informed consent form, they were informed about the confidentiality of their information and right to withdraw from the study at any time during the study. Participants filled demographic sheet along with Rosenberg Self-esteem scale, and two separate blank sheet of papers. Instruction were given to them to fillout Rosenberg Self-esteem Scale. Then were asked to draw a human figure on a separate blank sheet given to them with the instruction of “I would like you to draw a complete human figure on this page, draw whatever you want, however, it should not be a cartoon or stick figure, here you go”. They were told about the nature of the HFD as it is not measuring their artistic abilities. After solving some queries they were then asked to write one paragraph about the person they have drawn. After collecting the data all

participants were thanked for their participation.

Finally, research measures were scored according to standard scoring criteria. Rosenberg Self-esteem Scale (RSES) was scored according to the standard scoring procedure of the scale. Indicators of Self-esteem on HDF and Graphology were scored according to the list prepared from the manual of these tests. Data was analyzed by SPSS-v25 (Statistical Package for Social Sciences, version 25). Descriptive statistics were applied to get the details of demographic variables, reliability analysis, and correlation were applied to calculate the convergent validity of both high and low levels of self-esteem and self-confidence on the variables of Human figure drawing, and Graphology, Rosenberg Self-esteem scale was based on the continuous values and interpretation were made according to the proposed hypotheses. Clustered bar graphs were made for the purpose of comparing the frequency of high and low self-esteem and high and low self-confidence indicators detected by Graphology with those seen in the HFD (Human figure drawing) emotional indicators of high and low self-esteem across individual instances. HFD indicators on the x-axis and graphology frequencies on the y-axis.

RESULTS

Table 2

Descriptive Statistics and Alpha Reliability Coefficients, Univariate Normality of Rosenberg Self-esteem scores-RSES (N=106)

Variables	Items	A	*M*	*SD*	Skewness	Kurtosis	Range	
							Actual	Potential
RSES	10	.76	1.78	.40	-.19	.21	6-27	0-30

Table 3 shows Mean, Standard Deviation, Skewness, Kurtosis, and range. The data is normally distributed (Gravetter & Wallnau, 2017) and the alpha reliabilities of all the RSES falls within acceptable range (Nunally & Bernstein, 1994).

Table 3

Pearson Product Moment Product Correlations of High Self-esteem scores of Rosenberg self-esteem scale, Self-esteem scores of human figure drawing, and Self-esteem scores of Graphology (N=106)

Variables	Self-esteem (Rosenberg)	High Self-esteem (Human figure drawing)
High Self-esteem (Graphology)	-.036	.103
High Self-confidence (Graphology)	.200*	.073

Note. *p<0.05

Table 3 showed that there is a weak positive significant correlation between RSES and high self-confidence measured by graphology ($r = .200$, $p < .05$). However, there is no correlation of high self-esteem measured by graphology with RSES and high self-esteem HFD. Furthermore, no correlation was found between graphological indicators of high self-confidences and HFD indicators high self-esteem.

Table 4

Pearson Product Moment Product Correlations of Low Self-esteem scores of Rosenberg self-esteem scale, Self-esteem scores of human figure drawing, and Self-esteem scores of Graphology (N=106)

Variables	Self-esteem (Rosenberg)	Low Self-esteem (Human figure drawing)	Low Self-confidence (Human figure drawing)
Low Self-esteem (Graphology)	.035	.060	-.010
Low Self-confidence (Graphology)	.165	-.014	.246*

Note. *p<0.05

Table 4 showed that there is a weak significant positive correlation between graphological indicators and HFD indicators of low self-confidence ($r = .246$, $p < .05$). However, there is no correlation between RSES, HFD, and graphological indicators of low self-esteem. Insignificant correlation was found between low self-confidence of graphology, RSES, and low self-esteem by HFD.

Figure 1

Clustered bar graph showing the comparison between indicators of high self-esteem of Graphology among the cases of HFD emotional indicators of high self-esteem.

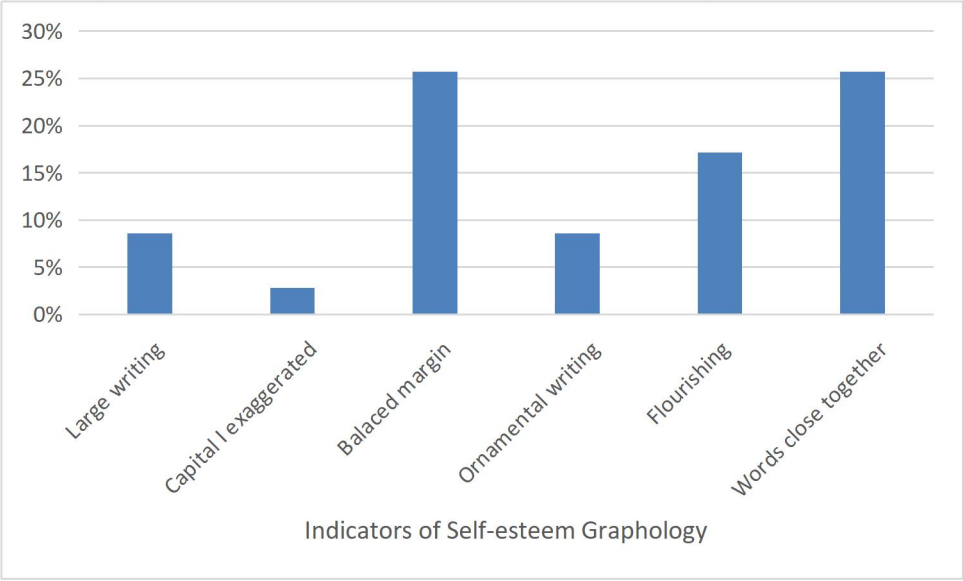

Figure 1 indicates that participants with high self-esteem on HFD achieved high scores in balanced margin and words close together (26%), implying that both serve as the most significant graphological indicators of high self-esteem among participants. Flourishing is observed in 17% of cases, indicating a moderate correlation with high self-esteem. Large writing and ornamental writing are observed in 9% of cases, suggesting a moderate to weak correlation with high self-esteem. The capital 'I' occurs the least frequently at around 3%, indicating it is the least dependable indication in this sample.

Figure 2

Clustered bar graph shows the comparison between indicators of high self-confidence of Graphology among the cases of HFD emotional indicators of high self-esteem.

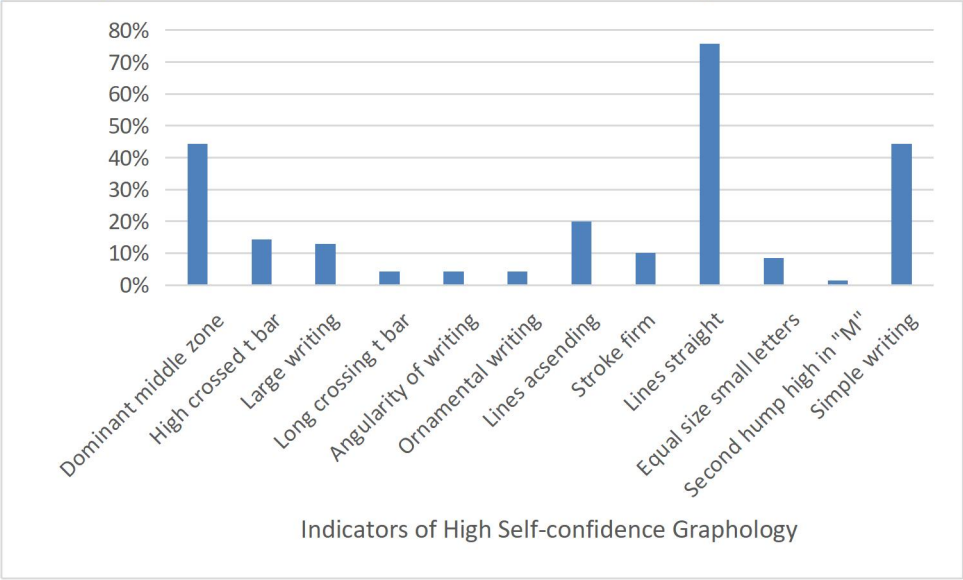

Figure 2 indicates that straight lines are the most significant graphological indicator, present in 76% of instances, implying significant correlation with high self-confidence. The dominant middle zone and simple writing are present in 44% of the cases. The ascending lines demonstrate a modest correlation, occurring in 20% of cases, suggesting that line ascending in writing may signify increased self-confidence. High crossed t-bar (14%) and large writing (13%) are less prevalent however maintain a correlation with self-confidence. Firm stroke (10%) and equal-sized small letters (9%) exhibit lowere prevalence. Additional characteristics such as Long crossing t-bar, Angularity of writing, Ornamental writing, and Second hump high in 'M' are observed in less than 5% of cases.

Figure 3

Clustered bar graph showing the comparison between indicators of low self-esteem of Graphology among the cases of HFD emotional indicators of low self-esteem.

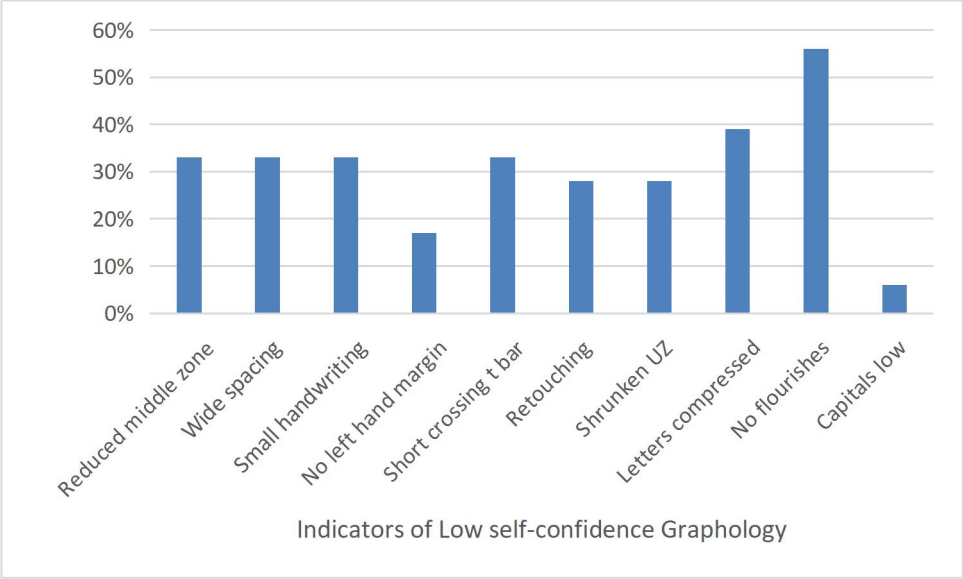

Figure 3 indicates that the wide upper margin is the most prevalent sign, observed in 20% of cases. This indicates that a wide upper margin is a notable indicator of low self-esteem. Irregular 'I', small handwriting, and low t-bar each occur in 7% of cases. These indicators demonstrate a significant but weak correlation with low self-esteem in contrast to the wide upper margin.

Figure 4

Clustered bar graph showing the comparison between indicators of low self-confidence of Graphology among the cases of HFD emotional indicators of low self-confidence.

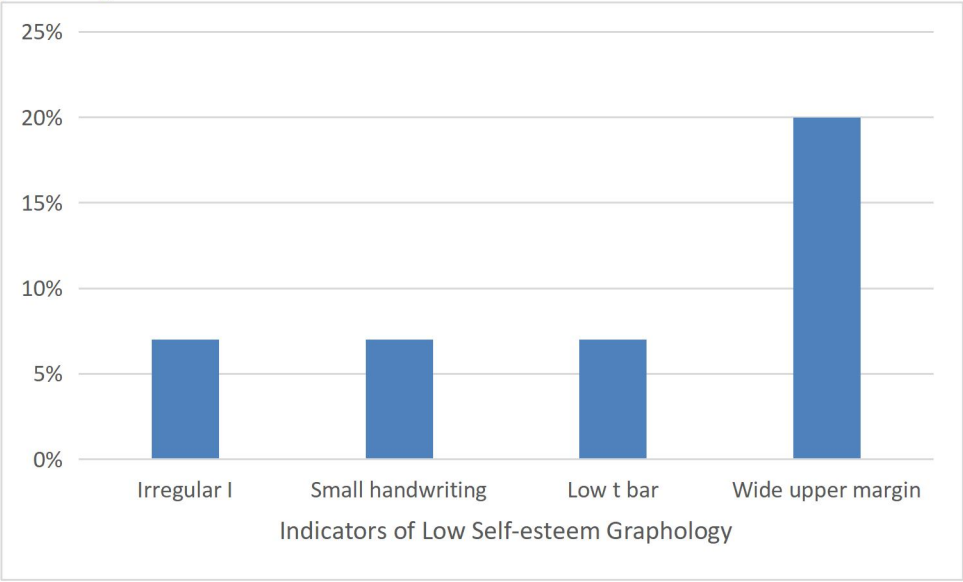

Figure 4 showed no flourishes occur most commonly at 56%, indicating that is the primary graphological indicator of low self-confidence. The compression of letters is correlated with 39%, suggesting a significant relationship between compressed letters and diminished self-confidence. Reduced middle zone, wide spacing, small handwriting, short crossing t-bar, and no left-hand margin are present in 33% of cases. These signs occurred less frequently than "No flourishes." Retouching and Shrunken UZ both occur in 28% of cases, indicating a moderate correlation. Low capitals manifest in just 6% of cases, indicating a far smaller correlation with low self-confidence relative to other indicators.

DISCUSSION

This study aimed to validate the handwriting analysis as a valid measure of self-esteem. Correlational analysis has been done with the three ways of measuring self-esteem: graphology (handwriting analysis), human figure drawing (HFD), and the Rosenberg Self-Esteem Scale (RSES). It was hypothesized that handwriting analysis is a valid measure of self-esteem.

According to table 2 and 3, Rosenberg Self-esteem (RSES) and High self-confidence-Graphology (HSC-G) showed significant weak positive correlation. This significance implies that the more relaibale and objective method of self-esteem (RSES) is associated with HCS-G. Furthermore, there is a weak but significant positive correlation between Low self-confidence-HFD (LSC-HFD) and Low self-confidence-Graphology (LSC-G). The correlation is significant but weak shows that need for empirical studies to prove the significance. Also suggesting the alignment between HFD and Graphology.

According to the graphs, straight lines were the most significant graphological indicator, observed in 76% of cases, strongly correlating with high self-confidence. Balanced margins and words close together followed at 26%, serving as key indicators of high self-esteem. Dominant middle zones and simple writing were present in 44% of cases, also associated with self-confidence. Ascending lines appeared in 20% of cases, showing a modest correlation with increased self-confidence. Flourishing handwriting was seen in 17% of participants, suggesting a moderate correlation with high self-esteem. Less frequent features, such as high crossed t-bars (14%), large writing (13%), and ornamental writing (9%), maintained weaker correlations with self-esteem and self-confidence. Finally, traits like firm strokes (10%), equal-sized small letters (9%), and the capital 'I' (3%) were the least common indicators, with the capital 'I' being the least dependable sign in this sample.

No flourishes was the most prevalent graphological indicator of low self-confidence, observed in 56% of cases, making it the primary sign. Compressed letters followed at 39%, showing a significant relationship with diminished self-confidence. Reduced middle zone, wide spacing, small handwriting, short crossing t-bar, and no left-hand margin were observed in 33% of cases, indicating notable but less frequent associations with low self-confidence. Retouching and shrunken upper zones (UZ) were present in 28% of cases, suggesting moderate correlations with lower self-

confidence. Wide upper margin, a key indicator of low self-esteem, was noted in 20% of cases. Other markers, such as irregular 'I', small handwriting, and low t-bar, each appeared in 7% of cases, showing weak correlations with low self-esteem. Finally, low capitals were the least frequent, occurring in just 6% of cases, signifying a smaller correlation with low self-confidence relative to other indicators.

However, high self-esteem (graphology) did not significantly correlate with the RSES or the human figure drawing. This implies that due to the projective nature of the handwriting and HFD the results did not show any significance. The weak correlation signifies the importance of the scientific researches in this area to prove its significance as a valid measure. Furthermore, there is no correlation between high self-esteem (HFD) and self-confidence (Graphology). The results also showed no significant relationship between low self-esteem (HFD), low self-confidence (HFD), low self-esteem (Graphology) and the RSES. Additionally, low self-esteem (HFD), low self-confidence (Graphology) were related. Up tomark, graphology is still in debatable position with lack of potential scientific evidences (Pandya et al., 2023).

The significant result aligned with the past researches suggesting that both handwriting analysis and HFD are projective methods that examine subconscious expressions to evaluate personality attributes like self-confidence and self-esteem. Graphology examines handwriting characteristics such as size, pressure, and style, whereas HFD assesses the size, detail, and proportion of human figures drawn. Because the two approaches capture how people view and project their own value, there may be a correlation between them. For instance, larger handwriting and more intricate drawings may both be signs of higher self-esteem, whereas smaller, less complex representations may be signs of lower self-esteem. Drawing and handwriting in school-aged children were found to have significant connections. In comparison to incompetent handwriters, competent handwriters also tended to do better on drawing assignments. Writing and drawing are closely associated in early infancy since they both require similar motor abilities and mental processes (Bonoti et al., 2005; Semeraro et al., 2019).

The significant result is consistent with previous research suggesting that the graphologists were successful in measuring five specific personality traits which are attentiveness, dominance, persistence, self-consciousness, and stubbornness (Galbraith & Wilson, 1964). It suggests that personality can be assess by using graphology. Using handwriting has a personality tests prove to have a major advantage to assess many aspects of personality at the same time without the drawbacks of social desirability and testing conditions for example, room, environment, weather, time etc (Chernov & Caspers, 2020; Galbraith & Wilson, 1964; Marum, 1945).

Handwriting analysis can reveal various personality traits, including self-esteem, through features such as slant, size, spacing, and pressure (Hemlata et al., 2018; Khan, 2023). Studies have shown a significant correlation between handwriting characteristics and self-esteem levels. For example, graphometric evaluations of students' handwriting showed agreement with self-esteem scores in a

majority of cases (Wellingham-Jones, 1989). Handwriting behavior, such as the application and distribution of pressure, can indicate self-confidence levels. Poor handwriting competency during school years can negatively affect self-esteem and academic success. Interventions to improve handwriting skills are essential as they can help mitigate these negative effects (Feder & Majnemer, 2007). Graphology can be used to assess self-esteem and other personality traits, providing a quick and accurate way to examine handwriting samples 4 Despite its potential, the reliability and validity of graphology as an assessment method are still debated, and its use in applied settings is considered premature by some researchers (Klimoski & Rafaeli, 1983).

CONCLUSION

This study concluded the significant of Graphology as a valid measure of Self-esteem through RSES and HFD. However, the strength of the relationship is weak which is due to subjective nature of the test. These results shed light for researchers to validate its effectiveness. This will add significance in the field of psychological assessment due to its non-threatening nature. Teachers and parents can identity the emotional problems from their child's handwriting and help them to deal with it. Recruiters can use it as an initial assessment to find fit person for the job according to his personality.

Handwriting analysis offers a unique window into understanding self-esteem and other personality traits. While there is evidence supporting the correlation between handwriting characteristics and self-esteem, the reliability and validity of graphology as a scientific assessment tool remain contentious. Nonetheless, improving handwriting competency can positively impact self-esteem, highlighting the importance of addressing handwriting skills in educational settings.

Limitations and recommendations

The main limitation of this study is the relationship between two tests which are subjective in nature i.e human figure drawing and handwriting analysis. Proceed with that, the sample size is 106 participant considered as not signitifcant enough to identify significant relationship. We have extracted the one aspect i.e self-esteem, more indicators should be included to identify significane. We used quantitative method to our methodology, it will be recommended to use qualitative approach to evaluate more indepth knowledge. Future research should include the handedness of participants in order to get the indepth study of the measure. To prove the significance of graphology, more researches need to be done to determine its validity and reliability as an evaluation tool.

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