Projective Methods

Preliminary study on the standardization of the individual Zulliger test on non-clinical Italian population

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Abstract

Introduction: Projective methods are recognized as a core instrument in the description and interpretation of personality. The Zulliger test (Z-test) is based on the Rorschach Inkblot test, but it consists of only three cards. It has been mainly used in the collective administration mode and in the context of human resources assessment in organizations. The aim of the present study is to start a standardization of the Z-test on non-clinical Italian population, in individual administration mode.

Method: Sample was composed by 360 healthy subjects (180 male and 180 females, mean age 38.25), divided into age groups (18-30; 31-45; 46-60) and education (high and low). All subjects were administered the Z-test in individual form.

Results: Results show popular responses for each card, obtained by 17% of sample, and answers of statistical good formal quality, reported by at least 2% of subjects.

Conclusion: Although this study has some limitations, it can be considered a good starting point for introducing the Z-test into clinical practice. In future research the sample may be expanded, also including clinical population and detecting specific psychopathological indicators.

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1. Introduction

Projective methods have an irreplaceable place in personality knowledge (Lilienfeld, 2000). They should be part of every good diagnostic battery (Weiner & Greene, 2017) as they contribute to the description and interpretation of personality with data that cannot be obtained with other

types of tests or methods. The term "*projective methods*" was introduced by Frank (1939), who summarizes essential characteristics of projective techniques and defines projection, in a syncretic and not only analytic sense, as the process whereby the subject is called to project himself by revealing not only the expression of his inner experience but also the very structure of his personality.

In projective techniques, there is less directionality: stimuli presented are poorly structured and sometimes ambiguous and the delivery is often vague (Rapaport, 1942). The subject, in responding to the delivery, must interpret or structure the stimuli presented to him, and this grants a source of information for understanding associative processes, cognitive styles, imagination, conflicts, defense mechanisms, and the quality of interpersonal relationships (Weiss, Seidman, 1988; Caporale et al., 2023). Lis and Zennaro (1997) reiterate this concept, highlighting how the task entrusted to the subject calls for, at the same time, both an operation of perceptual restructuring and the ability to cope with personal meanings. The response provided by the subject is, therefore, considered the result of this dual process, during which he finds himself in the condition of having to satisfy, on the one hand, needs of the external world, represented by perceptual reality (gestalt of the cards, delivery to be respected, relationship with the examiner) and, on the other, those of his own internal world, represented by the projective stimuli emerging during the test (Sargent, 1945).

The Zulliger test (Z-Test) is a projective method developed by Hans Zulliger (Zulliger, 1969). It is based on the Rorschach Inkblot test, but it consists of only three cards, containing semi-structured and symmetric stimuli (Pereira & Villemor-Amaral, 2020). Following several studies and from an initial set of one thousand cards, Zulliger selected three of them for the favourable results they offered, by means of a comparative analysis with those derived from administering the Rorschach Test (Caporale et al., 2022, Caporale et al. 2023). Its first version was developed in 1942, in the form of group administration, the *Zulliger Group Test,* administered with the aid of slides, officially published in 1948 and expanded in 1959. Editions for individual administration, the *Zulliger Individual Test*, in form of cards, were published in 1954 and later in 1962 (Carruba, Castiello d'Antonio, 2008; Castiello d'Antonio, 2012). The collective form standardization was carried out on a sample of approximately 800 subjects belonging to the adult male population aged between 20 and 25 years (Zulliger, 1955). For the individual form, Zulliger used a sample of approximately 1,000 subjects belonging to the normal population. Results obtained from individual administrations were compared with those of the Rorschach and the Behn-Rorschach and this made it possible to support the conformity of the Zulliger

Test, both for the essential structural elements as well as for theoretical and methodological principles (Carruba & Castiello d'Antonio, 2008).

The Z-Test can be considered a useful and versatile instrument in psychodiagnostic investigation (Gonçalves & Villemor-Amaral, 2020), mainly with subjects who present fatigability, concentration difficulties and low frustration tolerance. It allows to "*go beyond the subject's defences and arrive at a sufficiently profound and, therefore, sufficiently reliable evaluation of personality dynamics*" (Castiello d'Antonio, 2012; Lis & Zennario, 1997). It consists of three cards: the first is achromatic, the second is polychromatic and the third is grey-black and red (Zulliger, 1955, 1969). The first card has diffuse grey-black shades with small white intramacular areas. It presents a compact and closed gestalt and is characterized by various upper and lower protrusions. Card characteristics elicit global interpretations or of large details. The second card is polychromatic and structured on three main areas: a central red detail with a large intramacular space inside; two lateral and symmetrical green details and a lower detail characterized by two symmetrical brown spots. It has more fragmentary characteristics than the first card, favoring a greater production of detail responses. The last card is bi-chromatic, with grey-black and red tones. It is organized in three main areas: two symmetrical black spots; a central red spot and two symmetrical lateral red spots. The whole picture is articulated around a large central intramacular space.

Zulliger's Technique spread initially in German-speaking countries, before achieving international visibility with the publication of volumes in Germany and the United States. Despite this, its use has always been limited due to the dominant presence of the Rorschach test, which is considered to be the elective instrument in the field of projective techniques. In Italy, the Z-test was introduced in the 1950s by psychologists of the National Research Council (CNR), but only partial reports of its use are available to date. In Anglo-Saxon countries, the decline of projective techniques in the 1960s compromised the diffusion of the instrument (Meschieri, 1950). Even in Anglo-Saxon countries the Z-Test has enjoyed little success, as it was introduced in the 1960s during a time of decline in projective techniques (Parisi, Pes, 2003). Since the 1990s, the Z-test has been widespread in its collective administration form in the context of human resources assessment in organizations (Castiello d'Antonio, 2012).

To date in Italy, the availability of normative data on the Z-test concerns the administration in collective mode on sample selected from organizational contexts in the process of selection, evaluation and orientation of human resources (Carruba & Castiello d'Antonio, 2008). The lack of studies (Nuñez et al., 2009; Lima et al., 2021) with respect to the use of the Z-test as an individual administration instrument, together with the awareness of the importance it could

assume in the field of clinical assessment (Gonçalves & Villemor-Amaral, 2020), has motivated this work. The aim is to obtain first normative data about the z-test conducted on healthy Italian adults through individual administration. The definition of a standardized sample will make it possible to use the test by referring to objective criteria, according to rules of correctness and methodological rigor.

2. Material and methods

We enrolled a total of 360 healthy subjects (mean age 38.25, SD 9.96) of Italian nationality, balanced by gender (180 male and 180 females) and divided into age groups (18-30; 31-45; 46-60) and education (high for education years ≥14 and low for education years ≤13).

We excluded subjects with known psychiatric disorders (pervasive developmental disorders, delirium, schizophrenia, delusional disorder, psychotic disorder, depression, anxiety), intellectual disability, use of substances or psychotropic drugs and attempted suicides. All subjects underwent an anamnestic interview to detect any medical and/or clinical information.

All subjects were administered the Z-test in individual form. The delivery and scoring method are those originally proposed by Zulliger (1969). Instructions are "*I have here three cards with some pictures printed on them. They have no fixed meaning. Please tell me what you think this may be*". Localization areas are those proposed by Carruba and Castiello d'Antonio (2008).

The cut-off established for the attribution of popular responses, indicating "*the adaptation of thinking to collective thinking*" (Zulliger, 1969), is a statistical frequency of at least 17%, while responses of good formal quality, indicating the accuracy of engrams, were defined as those seen by at least 2% of the sample. In choosing cut-offs, we followed the policy of scientific community regarding standardization of both the Rorschach and the Z-test (Cicioni, 2016; Carruba & Castiello d'Antonio, 2008, Gianbelluca et al., 1995).

All subjects gave written informed consent for participation in the study in accordance with the Declaration of Helsinki. All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The research was approved by the Ethical Committee of the Integrated Psychodynamic Psychotherapy Roman Institute. Prot. n: 01 January 2024.

2.1 Statistical analysis

Continuous variables were presented as mean and standard deviation, and categorical variables as frequencies and percentages. After taking the square roots of the indices, the mean-

independent standard deviation was obtained, albeit approximated, as in the Gaussian model. Both parametric and non-parametric analyses were conducted, even though the results of Shapiro's normality test indicated that most of the target variables did not follow a normal distribution.

A standard deviation of 12.12 suggests dispersion with variability. It presents a rather wide range that might indicate possible uncertainties or variability in the data.

For indices expressed as proportions, average incidental error margins were calculated, quantifiable through the standard error estimated by Guilford's formula. By calculating the average incidental error, a range was determined around the index expressed as a proportion. Thus, for each of these indices, the percentage obtained from the standardization sample is known, but also the range of variation, by chance, around the true percentage. This calculation of the range around the index expressed as a proportion was carried out on the entire sample.

So, for means and standard deviations, it becomes possible to compare the values of each subject with the normative values of the entire group.

The statistical error of 0.64, in combination with a sample mean of 5.96, provides an indication of the precision of the estimate concerning the population mean; this estimate appears to be sufficiently precise, with a relatively narrow margin of error.

It can be reasonably assumed that the true population mean is in the approximate range between (5.96 - 0.64) and (5.96 + 0.64).

3. Results

Preliminary results emerged from the standardization process show interesting data. As expressed in the methodology section, we present below popular responses emerging from a 17% cut-off and responses of good formal quality emerging from a 2% cut-off. At first card, results showed only a popular response, that is "Insect" seen in W localization by 20,39% of the sample (Table 1).

Table 1. Popular responses Card I

RESPONSES	LOCALIZATION	FREQUENCY (%)
INSECT (head in 2, front legs in 6, body the rest) Answers are included: Cockroach, Hornet, Bug, Beetle, Fly, Spider, Cockroach and other round insects	W	20,39

In Table 2, we show responses of good formal quality for Card I.

Table 2. Responses of good formal quality for Card I

RESPONSES	LOCALIZATION	FREQUENCY IN THE SPECIFIC LOCALIZATION (%)
LEAF (any kind)	D 1	70,71
INSECT (head in 2, front legs in 6, body the rest) Answers are included: Cockroach, hornet,bug,beetle,fly,spider,beetle and other round-shaped insects	W	49,82
CRAB CLAWS	D 6	33,33
COCKROACH HEAD	D 4	28,57
FAWNS/DEER AND THE LIKE	D 14	22,22
v HUMAN BODY SHEET	D 33	16,67
FAGGIANS DANCING LOVELY (Dd33+33)	D 33	16,67
CRAB	W	16,61
BUTTERFLY (including tropical butterfly, flying butterfly)	D 1	14,29
CRAB HEAD (4)	D 4	14,29
TWO HUMAN FIGURES (Heads in 29 and bodies the rest)	W	12,92
BEETLE	W	12,92
BRANCHES	D 14	11,11
HEAD OF ELEPHANTS	D 14	11,11
BRAIN	D 14	11,11
HUMANOID FACE monster, fantastic and extraterrestrial answers are included.	D 1	9,29
CRAB and crustaceans of round shape (head in 2, claws in 6, body the rest)	W	9,23
MASK	D 1	8,57
BAT (Head in 2 and body the rest)	W	7,75
HUMANOID (Head in 2, and body the rest) Human,	W	7,75
BABOON HEAD (2)	D 2	7,50
MUZZLE OF CANID (DOG,WOLF,BEAR)	D 1	4,29
BUTTERFLY (head in 2 and body the rest)	W	4,06
FROG and ROSE (Head in 2,legs in 6 and body the rest)	W	3,69
FLOWER, FLOWERS (of all kinds)	W	2,58

In the second card, we did not obtain answers reported more than 17% of the sample, so in this card we do not have a popular response.

In Table 3 are included responses of good formal quality for Card II.

Table 3. Responses of good formal quality for Card II

RESPONSES	LOCALIZATION	FREQUENCY IN THE SPECIFIC LOCALIZATION (%)
INSECT Answers are included: bees, wasps,crickets, grasshoppers, flies,cockroaches, ants (1+1)	D 1+1	48,92
BUTTERFLY (including moth) (1)	D 1	42,86
HUMAN FIGURES IN MOTION (7)	D 7	72,00
SPINE/SPINE (4)	S 4	44,64
FISH (2+2)	D 2+2	38,20
LUNGS(5)	D 5	36,00
TREES (including forest, savanna, forest)	W	20,00
TREES (2+2)	D 2+2	18,60
HEART (7)	D 7	16,00
LION'S HEAD (3)	D 3	13,29
FLOWER (4)	S 4	10,71
VAGINA (3)	D 3	10,20
HUMAN FACE (D9 eyes in D7, mouth in D1, rest in black)	W	10,00
TOTEM (4)	S 4	8,93
BUSHES (2+2)	D 2+2	8,53
PAGODA, CHINESE TEMPLE, JAPANESE BUILDING, JAPANESE HOUSE	W	5,71
BUFFALOES, BISON, RAMS, COWS (1)	D 1	5,63
ALGAE (including seaweed in 2+2)	D 2+2	5,62
PELVIS	S 4	5,36
LANDSCAPE	W	4,29
FLOWERS (4)	S 4	3,57
EYES (2)	D2	2,25
LOBSTERS AND SHRIMP (1+1)	D 1+1	2,23

Results obtained at the third card showed two popular responses (Table 4), that are "Human figures" seen in W localization by 17,28% of the sample and "Butterfly" in detail localization (D1) reported by 17,18% of subjects.

Table 4. Popular responses Card III

RESPONSES	LOCALIZATION	FREQUENCY (%)
HUMAN FIGURES (head in 7, legs in 3 and torso the rest)	W	17,28
BUTTERFLY	D 1	17,18

In table 5 we present responses of good formal quality given in Card III.

Table 5. Responses of good formal quality for Card III

CARD III

RESPONSES	LOCALIZATION	FREQUENCY IN THE SPECIFIC LOCALIZATION (%)
BUTTERFLY (1)	D 1	84,89
MICE (12)	D 12	58,33
HUMAN FIGURES (head in 7, legs in 3 and torso the rest)	W	45,74
RAT TAILS, TOAD (12)	D 12	25,00
HUMAN FIGURES (2)	D 2	24,72
HUMAN FACE (9)	D 9	17,39
HUMAN/HUMAN FIGURES IN MOTION (9)	D 9	13,04
DRAGONFLY (1)	D 1	10,07
HUMAN FACE (eyes in 7 mouth in 1)	W	8,91
CRAB CLAWS (9)	D 9	8,70
MOUSE (12)	D 12	8,33
CRAWS (2)	D 2	7,87
EARTHWORMS,WORMS,CATERPILLARS (3)	D 3	6,90
INSECT (3)	D 3	6,67
THOUSAND FEET (3)	D 3	6,67
MICE (3)	D 3	6,67
FELINES (1)	D 1	2,16

4. Discussion

The Zulliger test is a high potential instrument, however, its use to date has been mainly limited to the organizational context (Villemor-Amaral, 2005; Ferreira et al., 2005; Bolcek et al., 2012). The aim of this study was to provide first interesting results with respect to the administration of Z-test in the individual mode.

Comparing results obtained in this study with normative data proposed from the standardization of the test in collective form (Carruba & Castiello d'Antonio, 2008), we noted some substantial differences. In particular, in Card I our sample only produced one popular response (Insect), reported also in the standardization of collective form together with "Leaf" in detail localization. In the first card we confirmed what suggested by Zulliger (1955, 1969), that is increased frequency of global response, rather than detailed response. We did not find popular responses for Card II, while in the collective administration was reported the response "Fish" in detail area. In card III, according to the standardization of collective form we reported "Human figures" in the whole area and "Butterfly" in the detail. Carruba & Castiello d'Antonio

(2008) also reported "Human figures" in detail area. Normative statistical data of the Z-test in its individual form administration could expand the use of the instrument that is currently limited to the organizational context. Studies comparing the results obtained from the Z-test with those obtained from other tests such as the Rorschach or the MMPI support its effectiveness (Eble et al., 1963; Mattlar et al., 1990; Lefkowitz, 1968). Other authors (Grazziotin & Scortegagna, 2022; Grazziotin et al., 2023; Cardoso et al., 2018) investigated the reliability and the temporal stability of the Z-test with respect the evaluation of personality characteristics, confirming the usefulness of the instrument in a clinical assessment.

These data are obtained from the administration of the Z-test on healthy population, so they can be compared with those obtained from psychopathological population and can allow drawing up normative data necessary for an application of the test in clinical settings. Such as other authors (Villemor-Amaral & Gomes, 2020) demonstrated, this instrument is able to differentiate healthy and pathological variables, allowing a first level of psychopathology screening.

5. Conclusions

In the clinical practice, psycho-diagnostic assessment plays an important role, especially in order to better direct specific therapeutic interventions. Today, the effectiveness of multi-method assessments, which integrate different assessment instruments, is particularly recognized (Mihura, 2012; Morey & McCredie, 2019; Caporale & Roberti, 2019).

The highlighted importance of projective tests in understanding individual psychological functioning (Dalgleish et al., 2020; Merlo et al., 2022) reinforces the usefulness of an instrument such as the Z-test, which, compared to others, is characterized by greater ease of use, given its brevity.

This study aims to show preliminary results of a more extensive standardization work. It represents a good starting point for introducing the Z-test into clinical practice. It has, at present, some limitations. The sample would need to be expanded and also clinical groups should be tested to detect specific psychopathological indicators. The comparison of our current sample with a control group will permit a probabilistic analysis, allowing inferential considerations that cannot be made with the present study. Additionally, further studies aim at re-creating a new numbering of location areas in accordance with results obtained from individual administration.

Ethical approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. The research

was approved by the Ethical Committee of the Integrated Psychodynamic Psychotherapy Roman Institute. Prot. n: 01 January 2024.

Data availability Statement

All authors take full responsibility for the data, the analyses and the interpretation, and the conduct of the research; we have full access to all data and the right to publish any.

Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any potential conflict of interest.

Authors' Contribution

All listed authors have contributed significantly to the manuscript. Final version has been seen and approved by all authors.

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