

TEST-RETEST RELIABILITY OF MODIFIED HAND TEST

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ABSTRACT

The present study was carried out to establish the test-retest reliability of Modified Hand Test (Anjum & Batool, 2017). A total of 50 participants were selected for retest in random fashion from a larger sample of 500 participants. The ages of the participants ranged from 11 years to 70 years with mean age of 34.42 ($\pm SD = 17.17$). The sample was retested with an average period of three and half months. Pearson Product Moment Correlation Coefficient remained statistically significant at .01 level for six categories: affection ($r = .61$), direction ($r = .56$), description ($r = .54$), bizarre ($r = .48$), communication ($r = .44$), and tension ($r = .40$) respectively. Further, correlation coefficient is demonstrated to be significant at .05 level for four categories: crippled ($r = .34$), aggression ($r = .30$), fear ($r = .29$) and failure ($r = .20$). Moreover, for remaining four categories the correlation coefficient is found to be insignificant: action ($r = .23$), dependence ($r = .19$), passive ($r = .09$), and acquisition ($r = -.08$). The satisfactory results of present study are an encouraging factor for researchers to use modified version of Hand Test in future studies.

Keywords: Test-retest, Reliability, Psychometric, Hand test

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INTRODUCTION

Hand Test, a projective and a diagnostic measure, was developed by Wagner in 1962 on the model of Thematic Apperception Test and Rorschach. According to (Wagner, 1962) it measures the prototype action tendencies and behavioral dispositions. He highlighted its unique characteristics of measuring faced self (closer to conscious and preconscious) rather than deep unconscious layer of personality (Woolman, 2012). The original hand test comprised of four domains: First domain is interpersonal which is further categorized into affection, dependence, communication, exhibition, direction and aggression. The second domain is environmental which is further categorized as action, acquisition and passive. Third domain is maladjustive category which is representative of neurotic protocol and is further categorized as tension, crippled and fear responses. Fourth domain is withdrawal which is representative of psychotic protocol and consists of description, fail and bizarre (Wagner, 1983)

The original Hand Test consists of ten stimuli out of which first nine are unbounded patterns of hands where the tenth card is blank one which is an invitation to imagination. Hand Test has been widely used by Wagner and other authors in various situations which depicted its strength in terms of classifying subjects across different poles for example normal versus abnormal which includes various categories of normal and abnormal sample, effects of moderator variables e.g. age, intelligence, gender and socio-economic status differences (Panek, Wagner, & Suen, 1979). It has the specialty and specificity to identify subjects with overt aggression and acting out behavior (Zehra, 1989). This instrument has also been used to detect cultural differences in terms of personality manifestation of people belonging to various cultures (Stetson & Wagner, 1980).

Studies have been reported in the literature using different time interval and on different samples to determine reliability of original Hand test. The first study to determine test retest reliability with two weeks interval was carried out by Panek, Stoner, and Suen (1979) on normal male and female undergraduate students of Midwest University in United States. Their mean age was 19.18 years. The correlation coefficient remained .51 to .89, .60 to .86 and .30 to .80 for quantitative scoring categories, combined scoring categories and summary scores respectively. Another study was conducted by McGeboney and Carter (1982) on male and female students for their acting out behavior because they were transferred to other school for behavior issues. The mean age of entire sample

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was 15.16 years and their IQ mean on Wechsler Intelligence Scale for Children was 102. The period determined for retest was 3 weeks. Out of 24 variables, 23 produced satisfactory results. The correlation remained as .21 for acquisition and .91 for fail. The correlation of 15 quantitative categories between the first and the second administration was at least .60. Acting out behavior was consistent. Further, Stoner and Lundquist (1980) carried out a study on mix pathological participants. The period of retest ranged from 1 to 10 years with a mean period of 4.25 years. Their mean IQ was 94.67. The correlation computed was .33 to .60 depending up on the score.

Kline (1976) has advocated about development of new projective test on the plea that it should contain specific pull, measures defense mechanism and have some structure to instigate the imagination of subject to respond. Anastasi (1997) claims that no single test is entirely culture free and in fact provides some favor to its inhabitant. The couple of efforts have already been made to enhance the stimulus of Hand Test previously with the plea to enhance its reliability (Hardesty, 1973) and to make it more appropriate with children, women and elderly people. To satisfy these professional queries Anjum and Batool (2017) has made an adaptation of Modified Hand test in Pakistani culture. Although the original Hand Test enjoys good reputation based on its psychometric properties related to validity and reliability, nevertheless there is a need to determine psychometric properties of Modified Hand Test. Test Retest reliability is the most appropriate type of reliability which provides consistency or stability coefficient of a measure (Barker, Pistrang, & Elliott, 2015). This type of reliability can be effected by practice effect, time period and certain changes in life situations of participants during the interim period from the first administration (Anastasi, 1997). Hence, present study is an endeavor to establish the test re-test reliability of Modified Hand Test (for details see: Anjum & Batool, 2017).

METHOD

Participants

The 50 participants (25 males & 25 females) were selected in random fashion out of 500 participants of Anjum and Batool (2017) adaptation study sample for the re-test in present study. The original sample consisted of 350 normal participants, 50 maladjusted participants, 50 clients with neurosis and 50 clients with psychosis. Out of 50 selected participants for the present study, 46

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participants belonged to normal category, and the rest four belonged to neurotic category. The age of the sample ranged from 11 years to 70 years, with mean age 34.42 ($\pm SD = 17.17$). They belonged to different educational institutions of Islamabad representing lower, middle and upper class. The demographic characteristics of the sample are described in detail in Table 1 & 2.

Measures

Modified Hand Test

The Original Hand Test (Wagner, 1962) consisted of ten stimuli. The Modified Hand Test (Anjum & Batool, 2017) consisted of 14 stimuli in total. Anjum and Batool adapted four additional stimulus from stimulus number nine to stimulus number thirteen, the present fourteenth stimulus is the same as of tenth card in original Hand Test. These four stimulus have been carefully selected to ensure cultural input as the same cues/ gestures of hands are being used to convey nonverbal messages or to support verbal communication by people of Pakistan. The respondents were instructed to “*tell the examinee what it looks like the hand might be doing*”, and for the last stimulus which is blank and invites to imagination, they were instructed to “*imagine a hand and tell the examinee what this hand might be doing*”. Subject’s responses are scored across fifteen scoring categories which comes under major four domains as under.

Interpersonal: This category has six sub categories which includes affection (to exchange love and support), dependence (to seek support and help from others), and communication (to tell someone about something). These three sub-categories are considered as socially desirable trait. The fourth category is exhibition where the stimulus is perceived as showing narcissistic attitude. The last two categories are direction (directing others to do what is being ordered or required in a way to influence others to obey one’s command) and aggression (to inflict, insult or an injury); these two are considered as socially undesirable traits (Wagner, 1983). Acting out ratio which is specific for this test and is famous amongst clinicians and researchers. Acting out ratio is computed between the first three and last two sub-categories, in a normal individual a balance is maintained between the two, however if more score is found in the latter category there is a probability about the person to act out or manifest overt aggression in the face of a slightly provoking situation.

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Environmental: It consists of action (stimulus is perceived as to perform an activity, acquisition (the stimulus is perceived in the process of making an effort and the task has not yet been completed) and passive (denoting fall of psychic energy).

Maladjustive: It comprises of tension (feels and express pressure e.g. holding a thing tightly), crippled (it is represented by an injury to one's own hand/ fingers) and fear (indicating avoidance because danger is ahead), these are typical of neurotic protocol.

Withdrawal: This constitutes of description (instead of performing an activity, it is just to describe a response comes in the form of description of the position of the hand), failure (people fail to give any response, it is an indication of shock or difficulty in area which is taped by the stimulus pull) and bizarre (stimulus is perceived indicating less contact with reality and typical of psychotic population)

Procedure

The 50 randomly selected participants were approached for re-test of Modified Hand Test with the minimum of 25 days and maximum of 194 days with an average duration of three and half month. The participants were individually approached on set time. They were briefed about the purpose of the study and were assured confidentiality. The consent was obtained through written consent form. Followed by the test was administered individually, stimulus was presented to participants one at a time. Responses were recorded in the form of verbatim, if there was any ambiguity in responses, the same was inquired in posttest inquiry session. When the subject showed reluctance in the beginning, they were prompted to make a guess, however prompt was offered in the beginning but was not followed later on. Participants were also instructed to give any number of responses. However, when a subject failed to give any response within 100 seconds this was scored as failure. At the end, participants were thanked for their time and cooperation.

Scoring & Statistical Analysis

The responses on Modified Hand Test were scored according to fifteen quantitative categories given by Wagner (1983). The Pearson Product Moment Coefficient of Correlation was computed to find the correlation between two administrations.

RESULTS

Table 1
Demographic Characteristics of the Participants

Variables	Categories	f	%
Monthly Income	Up to 20,000	4	8
	21,000 to 50,000	27	54
	51,000 to 100,000	11	22
	100,000 & Above	8	16
Education Status	Grade 8	15	30
	Grade 10	5	10
	Intermediate	3	6
	Graduation	6	12
	Masters	16	32
	M. Phil	3	6
	PhD	2	4

Table 2
Descriptive Statistics for the Age of Participants (N=50)

Variables	M	SD
Age	34.42	17.18

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Table 3

Pearson Product Moment Coefficient of Correlation between first and second administration

Category	r	N	Sig.
Affection	.61**	50	.00
Dependence	.19	50	.10
Communication	.44**	50	.00
Exhibition	-	50	-
Direction	.56**	50	.00
Aggression	.30*	50	.02
Interpersonal	.40**	50	.00
Action	.23	50	.06
Acquisition	-.08	50	.28
Passive	.09	50	.28
Environmental	.28*	50	.02
Tension	.40**	50	.00
Crippled	.34**	50	.01
Fear	.29*	50	.02
Maladjustive	.37**	50	.00
Description	.54**	50	.00
Failure	.20	50	.01
Bizarre	.48**	50	.00
Withdrawal	.54**	50	.00
Responses	.28*	50	.02
Acting out Score	-.01	50	.48

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Table 6
Comparison of Present Study with Previous Test and Retest Studies

Category	Present Study (3.6 Months)	Panek & Stoner (1979) (2 weeks)	McGibbonay & Carter (1982) (3 weeks)	Wagner, Maloney & Wilson (1981) (4.25 years)
Affection	.61	.60	.52	-
Dependence	.19	.64	.60	-
Communication	.44	.64	.80	-
Exhibition	-	.80	.58	-
Direction	.56	.65	.52	-
Aggression	.30	.51	.67	-
Interpersonal	.40	.78	.68	.44
Action	.23	.62	.69	-
Acquisition	-.08	.51	.21	-
Passive	.09	.59	.68	-
Environmental	.28	.60	.63	.37
Tension	.40	.63	.53	-
Crippled	.34	.71	.63	-
Fear	.29	.73	.68	-
Maladjustment	.37	.72	.61	.37
Description	.54	.70	.56	-
Failure	.20	.89	.91	-
Bizarre	.48	-	-	-
Withdrawal	.54	.86	.80	.60
Responses	.28	.80	.73	.37
Acting out	-.01	.55	.62	-
Score				

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DISCUSSION

The correlation coefficient between the first and second administration of Modified Hand Test overall demonstrates satisfactory stability of the scores. The findings indicate that correlation coefficient remained statistically significant at .01 level for six categories: affection, direction, description, bizarre, communication, and tension. Further, correlation coefficient is demonstrated to be significant at .05 level for four categories: crippled, aggression, fear, and failure. Moreover, for four categories the correlation coefficient is found to be insignificant: action, dependence, passive, and acquisition. Correlation could not be computed for the scoring category of exhibition as there were very few scores obtained by the participants in both administrations (Table 3). Moreover, results also reveal that out of four domains of Modified Hand Test, correlation was significant at .01 level for interpersonal, maladjustive, and withdrawal whereas for environmental it was statistically significant at .05 level (Table 3). Correlation for the summary score was statistically significant at .05 level whereas an insignificant negative correlation is found for the variable of acting out score (Table 3).

Thus, overall findings reveal satisfactory level of stability between scores at two different times of administration. However, it is to highlight that in the present study the duration between the 1st and 2nd administration was in the range of 25 days to 194 days with an average period of 3 and half months (107 days) which was relatively a higher duration as compared to previous test-retest studies (Panek, Stoner, & Suen, 1979; McGibonay & Carter, 1982). Thus, this duration may have affected the results in the present study however if we compare it with the result of previous studies it remained moderate (Table 4). To illustrate, affection .61 was computed against .60 and .52 in the previous studies. Description remained as .54 as compared to .70 and .56. Direction remained as .56 as compared to .65 and .52 (Panek, Stoner, & Suen, 1979; McGibonay & Carter 1982). It may be considered that people of this region are affectionate as well as directive and are consistent in these traits as compared to people of western culture, as all the previous studies on test retest reliability were carried out in the west. The high correlation of affection is an evidence of characteristic of this set of population that they attained negative acting out score. Further, there is another category bizarre where this sample remains highly consistent as .48, this sample remained moderately consistent in communication .44 and aggression .30, tension .40 and crippled .34. When we compare it with previous studies in term of its major domain it achieved moderate result in all the main

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domains i.e. interpersonal .40, environment .28, maladjustive .37 and withdrawal as .54.

In conclusion, the satisfactory results of the present study are an evidence of the stability of Modified version of Hand Test. Compatible results of the study are an indication of consistency of this measure as well as depiction of prominent personality characteristics of people of Pakistan. It is recommended that test-retest may be carried out with three to four weeks interim period with a larger sample to add to the soundness of the present study.

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