Research Article

PSYCHOMETRIC PROPERTIES OF THE HABAB MALEVOLENT CREATIVITY SCALE

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Abstract

Malevolent creativity refers to immoral Creativity and devoid of values, often combined with detrimental effects on others. The current study analyses the Habab Malevolent Creativity Scale (HMCS), It is use self-report, The scale contains 48 items and was designed to measure the ability of individuals to produce the largest diverse and unique number of ideas, emotions and behaviors related to hurting, lying playing tricks, it is one of the few scale available to directly measure Malevolent Creativity (MC). The scale was administered to 3406 male and female students in the Kingdom of Saudi Arabia and Sudan and to a sample of 115 male and female prisoners in Omdurman Prison in Sudan, The reliability of the scale was tested with nine indicators of validity, the instrument had high indicators of validity and stability, as the validity of internal consistency. Reliability coefficients using Cronbach's Alpha and MacDonald's Omega were high. Thus, it is a reliable instrument with which to measure Malevolent Creativity. *ASEAN Journal of Psychiatry, Vol. 25 (9) November, 2024; 1-11.*

Keywords: Malevolent Creativity; Developing New Scales; Behavior

Introduction

The term 'creativity' is generally used to refer to a combination of originality and impact [1]. However, it is often implicitly accepted that 'creativity' must be with regard to some sort of positive goal, such as artistic expression or scientific achievement, even if certain negative emotions can assist in creative accomplishment and even if highly creative people tend to display elevated psychopathic traits, allowing them to be competitive and not to care if their breakthrough ideas offend vested interests [2,3].

This implicit understanding of creativity as inherently positive has been questioned with the concept of malevolent creativity. A malevolently creative act involves creative processes but, it is essentially self-serving, though a by-product may be a damage to other individuals or to society [4]. Malevolent creativity refers, therefore, to inflicting deliberate harm on others *via* creative processes [5]. Studies by Cropley et al., and Harris et al., produced a functional model of Malevolent Creativity establishing showing that creativity can be employed to inflict deliberate harm on others [4,5]. Malevolent Creativity (MC) is examined through creative products and can manifest itself strongly in different aspects of creativity. Hao et al., define MC as high creative thinking abilities directed to harming one-self or others [6]. It correlates with different types of intelligence and personality traits. It takes different forms that vary in severity from lying, playing tricks and hypocrisy to crimes and even terrorism. A negatively creative act, by contrast, can refer to when neutral or even positive creative products are employed in anti-social ways [7]. Consistent with the definitions of MC discussed, researchers have recently distinguished between the 'genius' who makes a massively creative and important contribution to his field which is regarded as positive for society and the 'anti-genius' or 'evil genius' who makes an extremely negative contribution, though benefits his or her own status, employing a similarly highly creative psychology [8-10].

Despite recent research efforts, there is still no satisfactory solution to assess malevolent creativity. Osman analyzed 60 manuscripts on malevolent creativity and found that most common ways to measure it were tasks and situations [11].

However, most of these studies reported that the number of ideas generated that met the criteria for hurting people, lying and playing tricks were very limited [5]. For example, participants were given standard creative instructions and the results were limited. It was also found from the situations that malevolent creativity appeared mainly in unfair and provocative contexts [5]. Other researchers explicitly asked participants to produce creative ideas for malevolent purposes and used ideas for a single social scenario to identify malevolent creativity, which again limited idea generation [5,6].

Studies attempted to address the deficiencies in situational assessment and used four situations to measure malevolent creativity. These studies revealed an overlap between creative ideas and anger, impulsiveness, anxiety, depression and schizophrenia. The results indicated that different cognitive and emotional factors along with specific personality traits may contribute to the expression of malevolent creativity in different ways. Future investigations attempting to reveal the destructive potential of individuals toward others may benefit from the validated behavioral measurement of malevolent creativity.

Assessing malevolent creativity by self-report did not receive sufficient research attention. The original scale of the Malevolent Creativity Behavior Scale (MCBS) was introduced by Hao. Typical creative malevolent behavior in daily life showed positive associations with fluency and originality in malevolent ideas in previous studies and self-reported creative potential and self-reported malevolent creative behavior in real life [6]. A number of studies applied MCBS and concluded that it actually measures malevolent creativity found positive associations between self-reported creative potential and self-reported malevolent creative behavior in real life [6]. To enrich the experience of direct measurement of malevolent creativity, the researchers benefited from all previous efforts and the Habbab Malevolent Creativity Scale (HMCS) was presented in this study.

Cropley et al., reported a relationship between criminality and Malevolent Creativity (MC) [12]. Haslam et al., concluded that criminals act creatively [13]. Harris et al., identified three factors affecting the generation of MC: Implicit aggression, which is aggression that goes beyond the individual's awareness; persistence, which includes a planned impulse before acting and provocation [5]. Risk taking is often associated with creativity and criminality. In this respect, Hanoch et al., suggest that creativity may be associated with high-risk conflicts in the social sphere [14].

Hao et al., found that MCBS scores correlate positively with individuals' aggressive behaviors and recommended that future research on MC collect data from criminals or offenders [6]. The sample in Meshkova's et al., study of MC included 458 participants, many of them were individuals convicted with violent or profitable crimes, employees of law enforcement agencies and football fans [15]. The results revealed significant correlations with aggression. Aggression was found to be a significant positive predictor of MC. Finally, in his survey study, Osman reported that 39.7% of studies examined the relationship between creativity and aggression, persistence, provocation, breaking the law and risks taking [11].

Material and Methods

We used a sample of university students in the Kingdom of Saudi Arabia and Sudan and inmates in Omdurman prison in Sudan. An official approval was obtained from the Deanship of Scientific Research at the University of Tabuk, where it issued an official letter addressed to all parties outside and inside the university to facilitate the task of the research team to collect the required information. The research team also obtained another approval document from Omdurman Prison in Sudan to collect study data from prisoners. The researchers found cooperation and interaction from the student community, which facilitated the application. With regard to the prisoners, it helped the prison supervisors who were stimulated by the researchers to create an atmosphere of interaction, cooperation and interest.

Study sample

Students: The random stratified method was used to select students who were distributed into layers according to the type of colleges (Scientific and Humanities), study level (preparatory year, bachelors, diploma and master's) and gender (male's and female's). Students in each layer were randomly selected. Criminals (N=122 males and females) were purposively selected from Omdurman Prison in Sudan (Table 1).

Table 1. Description of the sample according to the study variables.

	Factor	Number	Percent
Stat	Saudi Arabia	1621	47.60%
	Sudan	1785	52.40%
	Total	3406	100%
Age	18 years-22 years	1470	43.20%
	23 years-26 years	1572	46.20%
	27 years-29 years	268	7.90%
	<30	96	2.80%
	Total	3406	100%
Sex	Male	1505	44.20%
	Female	1901	55.80%
	Total	3406	100%
College	Scientific	1537	45.1
	Humanity	1869	54.9
	Total	3406	100%
Class	Preparatory	1318	38.7
	Bachelor's	1806	53
	Diploma	157	4.6
	Master's	125	3.7
	Total	3406	100%
University	Tabuk	1787	52.5
	Sudan	1619	47.5
	Total	3406	100%
Average	Low	556	16.3
	Middle	1101	32.3
	High	1440	42.3
	Very high	309	9.1
	Total	3406	100%
Income	Low	311	9.1
	Middle	722	21.2
	High	1834	53.8
	Very high	539	15.8
	Total	3406	100%
Family	Bad	998	29.3
	Unstable	1579	46.4
	Stable	613	18
	Very stable	216	6.3
	Total	3406	100%

Data collection tools

The biodata form containing the respondents' biodata and application instructions. This form was arbitrated by experts who recommended measuring age by the ratio scale.

The Malevolent Creativity Scale (MCS) developed by Habab Osman. The development of the scale was funded by the Deanship of Scientific Research at Tabuk University and the Ministry of Education within the framework of the Kingdom's 2030 Vision programs to assist science within Saudi Arabia and protect creativity and academic research.

The scale probes creative mental abilities of intentional or unintentional hurting people, playing tricks and lying. Many procedures were employed in order to construct the scale, including focus groups, surveys and questions and discussions. This resulted in a self-report scale of 60 items distributed under three dimensions.

Respondents identify the frequency of practicing the behaviors included in items based on a 5-point Likert scale ranging from 5 "Always" to 1 "Never". The summative scoring is used to identify the respondent's level of malevolent creativity and is used judge if a respondent's malevolent creativity is low or high.

Statistical analysis

The statistical devices used included descriptive, inferential statistics, correlations, split-half, testing differences and exploratory factor analysis to discover the un-dimensionality of the scale and its other factors.

Results

Content validity

Establishing content validity requires logical rather than statistical evidence. It is mainly established by experts who judge the homogeneity of test items and the behavioural scope represented in items. The preliminary version of the scale was arbitrated by 30 professors working in public universities in Saudi Arabia, Sudan, Egypt, Jordan, Algeria, Kuwait and Oman.

Those experts who came from different scientific specializations were invited to judge the extent to which the scale measures the malevolent creativity construct. Overall, the expert's evaluation of the scale's content validity was favorable. However, they recommended that some items be reworded and/or deleted. The modifications that achieved an agreement of at least 60% were performed. This left the scale with 48 items instead of the 60 items that it possessed before arbitration.

Internal consistency validity

In order to establish the internal consistency of the HMCS, Pearson correlations among the scores of the items and the scores of their respective dimensions and the scale's total score were calculated. These correlations are shown in Table 2.

It is clear from Table 1 that the items of the first dimension "hurting people" correlated with the scale's total score with coefficients ranging between 0.545 and 0.660 and with the dimension's total score with coefficients ranging between 0.664 and 0.835. All correlations were statistically significant at the 0.01 level. Items of the second dimension "lying" correlated with the scale's total score with coefficients ranging between 0.298 and 0.450 and with the dimension's total score with coefficients ranging between 0.733 and 0.834. All correlations were statistically significant at the 0.01 level. Finally, items of the third dimension "playing tricks" correlated with the scale's total score with coefficients ranging between 0.401 and 0.613 and with the dimension's total score with coefficients ranging between 0.712 and 0.842. Again, all correlations were statistically significant at the 0.01 level. This indicates that scale has a high degree of internal consistency.

Furthermore, correlations among dimensions and the scale's total score were calculated. Table 3 shows these correlations.

It is clear from Table 2 that the scale's dimensions correlated with each other and with the scale's total score with coefficients ranging between 0.166 and 0.790, all of which are statistically significant at the 0.01 level. This indicates that the scale has good internal consistency.

Thus, the scale can be said to meet the third index of validity, i.e., validity based on the internal structure, which depends on the relationship between the components of the measure, i.e., internal consistency [16]. This validity was established by calculating correlations among items, dimensions and the scale's total score.

Table 2. Correlations among items and their respective dimensions and the total scale.

harmful people			Lying			Playing tricks		
Item	**With scale**	**With item**	**Item**	**With scale**	**With item**	**Clause**	**With item**	**With item**
1	0.578**	0.729**	22	0.445**	0.805**	32	0.580**	0.780**
2	0.650**	0.813**	23	0.370**	0.761**	33	0.607**	0.823**
3	0.626**	0.779**	24	0.298**	0.733**	34	0.401**	0.712**
4	0.652**	0.808**	25	0.447**	0.832**	35	0.423**	0.730**
5	0.618**	0.800**	26	0.408**	0.829**	36	0.401**	0.725**
6	0.627**	0.805**	27	0.429**	0.804**	37	0.613**	0.842**
7	0.650**	0.815**	28	0.450**	0.834**	38	0.559**	0.808**
8	0.660**	0.827**	29	0.447**	0.824**	39	0.581**	0.810**
9	0.590**	0.762**	30	0.438**	0.766**	40	0.610**	0.814**
10	0.639**	0.808**	31	0.412**	0.769**	41	0.594**	0.796**
11	0.627**	0.766**	-	-	-	42	0.588**	0.809**
12	0.598**	0.774**	-	-	-	43	0.561**	0.793**
13	0.637**	0.792**	-	-	-	44	0.556**	0.805**
14	0.545**	0.664**	-	-	-	45	0.560**	0.805**
15	0.651**	0.832**	-	-	-	46	0.608**	0.836**
16	0.612**	0.798**	-	-	-	47	0.599**	0.827**
17	0.653**	0.835**	-	-	-	48	0.603**	0.829**
18	0.595**	0.769**	-	-	-	-	-	-
19	0.630**	0.801**	-	-	-	-	-	-
20	0.556**	0.732**	-	-	-	-	-	-
21	0.552**	0.672**	-	-	-	-	-	-
Note: **=Significant at level (0.01).								

Table 3. Inter-correlations among dimensions and the scale's total score.

Items	Total marks	Harmful people	Lying	Playing tricks
Total marks	-	-	-	-
harmful people	0.790**	-	-	-
Lying	0.520**	0.166**	-	-
Playing tricks	0.696**	0.210**	0.236**	-
Note: **=Function at level (0.01).				

Construct validity

The construct validity of the HMCS was established by Exploratory Factor Analysis (EFA). To identify the factorial structure of the scale, EFA with principal component analysis was employed. Prior to conducting EFA, the Kaiser-Meyer-Olkin (KMO) test was performed to make sure data fitted factor analysis. The KMO value obtained was 0.939, which is greater than 0.60, the minimum required value [17]. The factorability of data was also supported by the Bartlett's Test of Sphericity: X^2=186117845, p=0.000, which is statistically significant according to the Guilford criterion. The correlation matrix of the scale items was analyzed using the Kaiser Criterion in selecting the number of factors. According to this criterion, a factor is considered significant if its Eigenvalue is ≥ 1.0. A value of 0.30 was set as a minimum to accept the loading of the items on factors [17]. After making sure of the factorability of the data, the EFA was conducted and it yielded six factors. Items distinctively loaded on three factors, while some item's loadings overlapped on the three other factors (Figure 1).

The three factors explained 72.581% of the total variance in the scale and the Eigenvalues of the factors ranged between 15.274 and 1.147. It was found that 17 items, 21 items and 10 items loaded significantly on the three factors respectively. Table 4 shows factor loadings on the factors.

Discriminant validity

In order to establish the scale's discriminant validity, it was applied to a sample of convicted criminals in prisons and ordinary people to make sure it significantly discriminates between the two types of respondents. This procedure could establish the fourth index of validity indices that support the explanation of the scale's score [17]. In order to calculate the discriminant validity of the responses of criminals and ordinary individuals, the t-test for independent samples was used (Table 5).

As can be seen in Table 5, there was a statistically significant difference (p=0.01) between the mean scores of the two samples on the "hurting people" dimension in favour of prison inmates (M=51.49, t=-7.672, df=138.806, p=0.000, Eta=0.170). The effect size was then calculated using Eta-squared η^2. The obtained η^2 was 0.170, which is a large effect size according to the calculated Eta criterion.

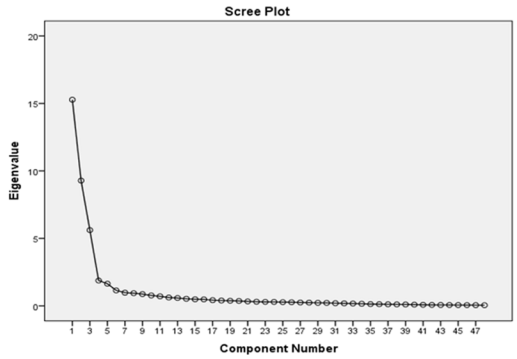

Figure 1. Scree plot showing the eigenvalues resulting from the analysis of the items of the HMCS.

Table 4. Items loadings on the factors.

N	Item	Items					
		1	2	3	4	5	6
1	HH1	-	0.722	-	-	-	-
2	HH2	-	0.824	-	-	-	-
3	HH3	-	0.842	-	-	-	-
4	HH4	-	0.777	-	-	-	-
5	HH5	-	0.76	-	-	-	-
6	HH6	-	0.76	-	0.302	-	-
7	HH7	-	0.824	-	-	-	-

8	HH8	-	0.826	-	-	-	-
9	HH9	-	0.488	-	0.63	-	-
10	HH10	-	0.808	-	-	-	-
11	HH11	-	0.837	-	-	-	-
12	HH12	-	0.534	-	0.586	-	-
13	HH13	-	0.852	-	-	-	-
14	HH14	-	0.545	-	0.356	-	-
15	HH15	-	0.526	-	0.7	-	-
16	HH16	-	0.442	-	0.768	-	-
17	HH17	-	0.516	-	0.719	-	-
18	HH18	-	0.398	-	0.779	-	-
19	HH19	-	0.46	-	0.741	-	-
20	HH20	-	0.353	-	0.785	-	-
21	HH21	-	0.464	-	0.49	-	-
22	LL22	-	-	0.788	-	-	-
23	LL23	-	-	0.765	-	-	-
24	LL24	-	-	0.741	-	-	-
25	LL25	-	-	0.827	-	-	-
26	LL26	-	-	0.832	-	-	-
27	LL27	-	-	0.79	-	-	-
28	LL28	-	-	0.821	-	-	-
29	LL29	-	-	0.808	-	-	-
30	LL30	-	-	0.746	-	-	-
31	LL31	-	-	0.753	-	-	-
32	PP32	0.681	-	-	-	-	0.335
33	PP33	0.724	-	-	-	-	0.485
34	PP34	0.47	-	-	-	0.841	-
35	PP35	0.49	-	-	-	0.836	-
36	PP36	0.488	-	-	-	0.834	-
37	PP37	0.742	-	-	-	-	0.467
38	PP38	0.738	-	-	-	-	-
39	PP39	0.789	-	-	-	-	-
40	PP40	0.874	-	-	-	-	-
41	PP41	0.776	-	-	-	-	-
42	PP42	0.714	-	-	-		0.5
43	PP43	0.816	-	-	-	-	-
44	PP44	0.833	-	-	-	-	-
45	PP45	0.829	-	-	-	-	-
46	PP46	0.858	-	-	-	-	-
47	PP47	0.892	-	-	-	-	-
48	PP48	0.891	-	-	-	-	-

Table 5. The t-test for the differences between criminal an ordinary individual on the HMCS.

Diagnostics		N	Mean	Std. deviation	t	df	Sig. (2-tailed)	Eta squared
Harmful	No criminal	67	35.54	5.492	-7.672	138.806	0	0.17
	Criminal	115	51.49	21.103				
Lying	No criminal	67	16.69	2.786	-6.796	139.898	0	0.138
	Criminal	115	23.7	10.455				
Tricks	No criminal	67	28.46	4.395	-8.161	136.422	0	0.187
	Criminal	115	42.73	17.843				
HMCS	No criminal	67	80.69	4.884	-8.628	118.409	0	0.196
	Criminal	115	117.92	45.837				

$$\eta^2 = \frac{t^2}{t^2 + df}$$

There are three levels of effect size based on Eta-squared η^2,

η^2=0.01 indicates a small effect

η^2=0.06 indicates a medium effect

η^2=0.14 indicates a large effect

With regard to the "lying" dimension, there was a statistically significant difference (p=0.01) between the mean scores of the two samples in favour of prison inmates (M=23.70) where (t=6.796, df=139.898, p=0.000, Eta=0.138). The effect size was found to be 0.138, which is medium according to the calculated Eta criterion. There was a statistically significant difference (p=0.01) between the mean scores of the two samples on the "playing tricks" dimension in favour of prison inmates (M=42.73, t=8.161, df=136.422, p=0.000, Eta=0.18). The effect size obtained was 0.187, which is a large effect size according to the calculated Eta criterion.

$$\eta^2 = \frac{t^2}{t^2 + df}$$

Finally, as for the scale items as a whole HMCS, statistically significant (p=0.01) differences were found between the participants' mean scores in malevolent creativity in favour criminals (M=117.92, t=-8.628, df=118.409, p=0.000, eta=0.196). Statistically significant differences in the participant's total scores were found by criminality. The effect size for these differences was calculated using squared Eta. The obtained effect size was 0.196, which is large according to the eta criterion calculated by the following equation:

$$\eta^2 = \frac{t^2}{t^2 + df}$$

Reliability

To establish the reliability of the HMCS, Cronbach's Alpha coefficient and McDonald's Omega were used (Table 6) [18,19].

It is clear from Table 6 that alpha and omega reliability coefficients of hurting people were 0.968 and 0.968 respectively. The lying dimension achieved an alpha coefficient of 0.935 and an omega coefficient of 0.963. Alpha and omega reliability coefficients for playing tricks were 0.963 and 0.963 respectively. The whole scale achieved a reliability coefficient of 0.938.

Table 6. The alpha and Omega reliability coefficients of the HMCS.

Factor	N	Alpha	Omega
Hurting	21	0.968	0.968
Lying	10	0.935	0.936
Playing tricks	17	0.963	0.963
HMCS	48	0.951	0.938

The MCBS and HMCS

The researchers also applied the MCBS on the same population of the current study and its predictive ability was established and it displayed acceptable degrees of validity and stability on

the Sudanese sample. Al-Mahdawi et al., used the scale on the same study population to detect differences between Sudanese males and females on MC and the results were good [20]. The correlation between the MCBS and the HMCS was also established.

Congruent validity was extracted, which is the fourth evidence of the eight-validity evidences that supports the interpretations of the results of the scale, which is the evidence of the external structure, according to what was reported by, as evidence of the ability of the scale scores to estimate the trait measured in terms of the criterion scale MCBS [16]. Because it is related to the final performance of the performance of the realistic sample and this was done by administering HMCS and the MCBS as a criterion that proved its validity and reliability in the study, on (400) male and female students and the correlation coefficient was calculated between the scores on the HMCS, with scores on the MCBS using Pearson Correlation, the first sub-scale Hurting correlated with (0.489), while the second sub-scale Lying correlated with (0.343) and its value for the third sub-scale Playing tricks correlated with (0.514) and the correlation for the total score of the scale was (0.669) and all of them are statistically significant at the level of (0.001), This indicates that there is a strong positive correlation between the two scales [6].

Discussion

HMCS is a new instrument and its psychometric properties have been tested in a variety of ways. The researchers now seek to develop a version of the scale and apply it to larger samples in order to further test its congruent validity. However, with the foregoing it can be seen that all of the coefficients are high, hence proving the HMCS to be reliable. The high reliability indices obtained for the whole scale and its individual dimensions indicate that the scale can be reliably used to make decisions about respondent's malevolent creativity. Scales achieving high degrees of reliability and consistency can be reliably used to collect data on the measured. In this same respect, suggests that the higher the reliability coefficients obtained for a given measure, the more reliable the results obtained from its application. A coefficient of 0.80 and higher indicates significant reliability. The HMCS achieved reliability coefficients greater than 0.80 using alpha and omega coefficients that support each other. In this respect, Cortina asserts that Cronbach's alpha coefficient is an index of the reliability of the scale scores, not of the scale itself [21]. Thus, some specialists recommend using McDonald's omega as a better option for estimating internal consistency. McDonald's omega can correct the bias reported in literature for Cronbach's alpha and control for the violation of any of its assumptions [22]. This is why McDonald's omega was used in this study along with Cronbach's alpha. Omega reliability coefficient is known to rely on the factorial analysis of the items. It analyses variance in test scores based on (1) variance caused by the general factor, (2) variance caused by f-group factors, i.e., common factors of some items (3) variance caused by unique specific factors for each item and (4) variance caused by measurement random errors.

Reliability coefficients obtained for the HMCS by both Cronbach's alpha and McDonald's omega are high based on the classification of reliability coefficients in terms of strength into low (<0.50), average (0.50-0.80) and high (>0.80) [23]. Furthermore, Tuckman set 0.75 as an acceptable value for Cronbach's alpha coefficient [24].

Drawing on what has been mentioned above, the HMCS achieved high alpha and omega reliability coefficients, as all obtained coefficients are greater than 0.80. Furthermore, the scale proved to be highly valid (content validity, construct validity and discriminant validity). This indicates that the HMCS can be used to give reliable information on respondents' malevolent creativity [25,26].

This is the few theoretical study on the concept from malevolent creativity, Researchers are currently working on developing the scale and its expressions so as to take into account non-repetition and independence from other concepts and apply it to a very wide sample [27,28].

Conclusion

Among the most important strengths of this study is the establishment of the validity of the behavioral test of malevolent creativity through daily life. The scale though self-report measures fluency, flexibility and originality in producing feelings, ideas and actions related to hurting people, lying and playing tricks. The sum of the participant's score refers to a general factor called malevolent creativity. Some of the scale's items were taken from the responses of some respondents from the study population. For example, university students

mentioned that car drifting is a malevolent creativity act, which is a kind of excitement and reckless driving that may end with death. The harm caused by car drifting, which is widespread in Gulf countries and some other Arab countries, was examined in several studies.

The current study benefited from a large group of previous studies that were mentioned in the study by Osman, all of which elucidated the concept of malevolent creativity, its components and its correlation with a set of variables such as aggression, creativity, intelligence, personality and morality. The current study used a wide sample from two different countries, including university students and prisoners, which is one of the most important strengths of the current study. The current study also used eight validity indices to establish the reliability and validity of the scale. All the reliability and validity estimates were good.

Limitations and Future Scope

The main contribution of this study lies in the direct measurement of malevolent creativity. Another good point in this study is the good validity and reliability of the HMSC with the self-report method. However, the most important limitation of this study is that neither did it examine the relationship between the subject's scores in HMCS and their scores in alternative tasks and situations, nor did it investigate the correlations between malevolent creativity and demographic, family and other variables such as the five factors of personality. This limitation was caused by procedural circumstances faced by the research team. These limitations will be addressed by the research team in further research. Also, the current study did not address important variables related to the sample of criminals, e.g., the motives beyond their crimes, the type of crimes, the years of imprisonment, etc. These will also be addressed in future research endeavors by the research team.

There is also a statistical limitation in this study, i.e., conducting only theoretical analysis and overlooking predictive analysis. The reason beyond this is that the scale is new to the environment. The researchers are currently preparing to apply the scale on wider, larger and more diverse samples to conduct more statistical devices.

Consent for Publication

The author mentioned above, gave consent for the publication of identifiable details, details within the text ("Material") to be published in this Journal and Article.

Availability of Data and Material

Raw data is available with the corresponding author upon request.

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