Development of Forman Malingering Scale

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Abstract

The aim of the present study was to develop a valid and reliable scale to assess malingering. The scale was developed using one of the contemporary models of scale construction. The study was completed in three phases. Item generation was phase I, which was completed in two steps; conducting interview of clinical psychologists having experience with both clinical and forensic clients, and step two was extracting items from existing scales after a thorough review. Initially item pool was reviewed by researcher for initial cleansing. Content validity was established in the second phase of the study through content validity ratio (CVR). In phase III of the study, the scale was administered on clinical and forensic sample using purposive sampling technique. The scale along with demographic questionnaire was administered on clinical (N=123) and forensic (N=19) sample. The mean age of the 142 participants was 32.7 (10.9) years. The construct validity of the scale was established through exploratory factor analysis (EFA) which resulted in 37 items distributed in three factors. Factor one was named as Perceptual Inconsistency and reliability established through Cronbach's alpha was 0.93. Factor 2 was named as Imagined Inconsistency and reliability calculated to be 0.95. Factor 3 was named Cognitive Inconsistency. The internal consistency of the scale showed the reliability 0.97.

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Introduction

The term Malingering is specified under other condition that may be a focus of clinical attention - V codes of Diagnostic and Statistical Manual of Mental Disorders 5th Edition (DSM-5). The category of V codes of DSM-5 suggests that these corresponding conditions might influence in establishing diagnosis, predicting prognosis and course of treatment of a person presenting with problem.

Malingering is defined in DSM-5 under V-code of non-adherence to medical treatment. Malingering is defined as "the intentional production of false or grossly exaggerated physical or psychological symptoms, motivated by external incentives such as avoiding military duty, avoiding work, obtaining financial compensation, evading criminal prosecution, or obtaining drugs. Malingering can be intentionally opted as adaptive behavior; the example includes feigning illness while being captive of enemy during war time." (American Psychiatric Association, 2013).

DSM-5 also stated four categories for clinicians to suspect malingering, especially if they are present in combination. The first is presentation of client in medico-legal situation. It includes referral of a person from attorney for clinical examination or self-referral of an individual with criminal charges and awaited court case. The second is significant inconsistency between

individual's stated disability or stress, objective findings, and subjective observation. The third one is absence of cooperation with the concerned practitioner regarding diagnostic evaluations and treatment program. The fourth one is presence of anti-social personality disorder (American Psychiatric Association, 2013). Presence and classification of malingering specially in forensic contexts are crucial to forensic evaluation. Effectively evaluating responses of malingerers are critical components in forensic evaluation. The meticulousness of malingering evaluation is necessary because it constitutes sixth of all the forensic evaluation. The key distinguishing factor involved in evaluation of malingering is to estimate accuracy of symptoms reported by examinee, which is not the key assessment factor in other psychological screening or measurement tools (Golanics, 2018). Hence, determining validity of responses in forensic population is necessary procedural evaluation. Moreover, there has been considerable debate on suspecting an individual with malingering solely based on DSM-5 criteria. It was explained that DSM's detection strategy can result in mis-identification to 80%. For the authentic diagnosis of malingering, one should use multiple modes of assessment including clinical interview, structured interviews, screening tools and psychometric tests (Duffy, 2011).

Malingering has been identified in three domains as defined by Rogers and Bender (2020).

1. Feigned mental disorder. 2. Feigned cognitive abilities. 3. Feigned medical complaints/symptoms.

The review of literature has provided insight regarding current malingering scales available to assess feigning and faking of psychological symptoms. Duffy (2011) explained that malingering phenomenon is likely to be present in various culture and ethnic backgrounds. However, there is also an increase in the number of malingerers due to factors like

economical state and mental health status (Duffy, 2011). Keeping in view the perspective of Duffy (2011), it is imperative to note that Pakistan's economic standing and mental health facilities both are deteriorating. In addition to it, there is no reliable and valid scale for assessment of malingering in Pakistan. The interviews have also revealed the dire need for assessment tool of malingering which would aid them in psychological assessment. Furthermore, the subjective interview can render an individual at risk for misdiagnosis. Hence, Forman malingering scale has an aim to have a balance of sensitivity and specificity in scale to have reasonable cut-off score.

The study significantly provides help to the clinical practitioners in assessment of the referred case by court and other authorities for psychological assessment. Furthermore, the most important point in assessment is evaluation of an individual after committing a crime. The psychological assessment can affect the court order with respect to competency to stand trial, reduction of criminal charges or provision of facilitates during imprisonment. The Forman malingering scale will aid in assessment and evaluation.

Method

The Forman Malingering Scale's items were developed using systematic integrated steps. The scale was developed by using scale development model of Robert F. DeVellis (Kyriazos & Stalikas, 2018). The study has three phases.

Phase I

The first phase helped in item generation with the help of both deductive and inductive approaches. The deductive phenomenon included review of existing scales and inductive phenomenon included interviews of clinical psychologists. Phase I was comprised of two steps. *Step1-* of the study included interviews of clinical psychologists with sound experience of assessing malingering. Five senior clinical psychologist working regularly with medico-legal cases in hospital settings were

interviewed. The interview of subject matter experts was multi-purpose, which not only served as review of current methods used in clinical settings to assess malingering but also provided experts' criteria of assessing malingering. These interviews with psychologists revealed that currently there is no valid instrument being used for assessment of malingering in Psychiatric and forensic setting in Pakistan. However, commonly malingering was assessed through validity scales of MMPI-I along with House Tree Person, Rorschach ink blot test, observation and semi-structured interview.

In *Step 2* of Phase I, the items from commonly used scales were reviewed. The scales that were reviewed included Miller Forensic Assessment Symptom Test (M-FAST), Structured Interview of Reported Symptoms (SIRS), Structured Interview of Malingered Symptomology (SIMS), Malingering Test (M-TEST), Minnesota Multiphasic Personality Inventory (MMPI-2), Rey-15 item test and Self-report symptom Inventory (SRSI).

From these two steps helped generating 206 items in total. Some of the items were modified and rephrased according to the indigenous Pakistani context. 70 items which seemed irrelevant according to cultural perspective were discarded. Through this process a list of 107 items was finalized which were then translated according to MAPI guidelines.

Phase II

The objective of phase two was to carry out basic item analysis through content validity, construct validity and internal consistency.

Step 1 – the first step aimed to assess content validity and sample included 6 senior clinical psychologists working in clinical and forensic departments of Lahore. The criteria for selection of these experts included minimum five years of experience of working with forensic clientele. The 107 items were rated by 6 experts using a 4-point Likert scale. The 4-point scale constituted 0 = not relevant, 1= somewhat relevant, 2= quite relevant and 3= highly relevant. Scale's Item content validity index was established through content validity ratio (CVR) calculations. The items with high item content validity index values were retained and items having lower values were discarded. In total 46 items were retained at this stage.

Step 2 – was based on establishing construct validity of scale through exploratory factor analysis (EFA). The sample size was 142 participants from clinical and forensic background. The age of the participants was 18 and above, and the mean age was 32.7 (*SD*=10.9) years.

The ethical approval of the project was taken from the ethical and research review board of Forman Christian College University, Lahore. The permission of data collection was taken from the concerned authorities prior to starting that phase. Furthermore, consent from the participants was also taken before the administration of the scale. The applicants were notified about the confidentiality of the responses. In addition to it, they were also informed about right to withdraw from study. The analysis of data was conducted through Statistical Package for Social Sciences 22 (SPSS. V. 22).

Results

The personal demographics depicts the background information of the participants involved in the study. The mean age of the 142 participants was 32.7 (10.9) years. The age ranged from 18 to 63 years. The sample of 92(64%) were earning. The participants who had a job were asked about the average monthly income. The mode of the income was found to be 50000. The mean of the income was 33,935 (45,947). The participants who were residents of another country were hospitalized for psychological evaluation.
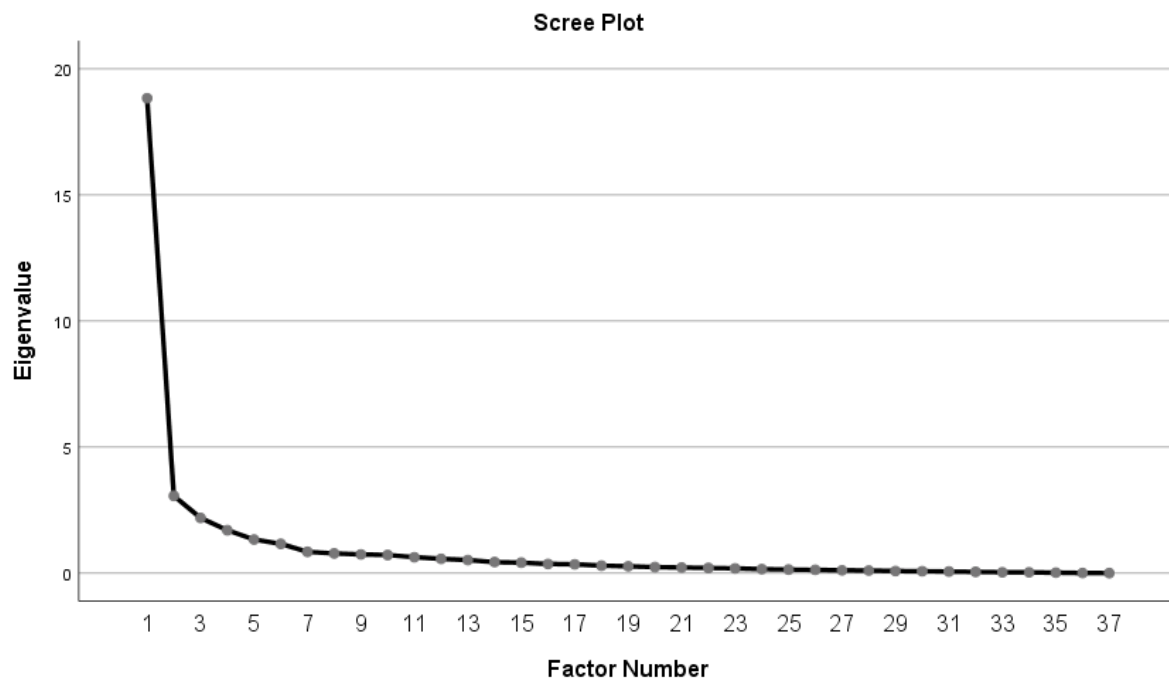
Exploratory factor analysis was conducted on 46 items in total. Principal Axis factoring was conducted through orthogonal- varimax rotation. Factor analysis with varimax rotation was conducted with three extracted factors

whose suppression of 0.4 was selected based on Steven's criteria (Field, 2018). 46 items with a factor loading >.40 were extracted on three factors. The criteria of factor loading >.40 resulted deletion of three items due to absence of loading. The factor analysis was rerun with 43 items with factor loading >.50, as Stevens recommends 0.5 factor loading on a small sample (Field, 2018). This process led to exclusion of five more items. The factor analysis was rerun which led to exclusion of another item. The next factor analysis yielded clear arrangement of 37 items with in three factors and explained 61% of variance.

The Kaiser-Meyer-Olkin and Bartlett's test of sphericity were run to check sample adequacy. measure of Sampling adequacy results is indicative of the adequate sample to carry out further analysis on the sample. The KMO value was 0.82 indicative of meritorious value. As the KMO value should be above 0.5 at least for factor analysis. Furthermore, the Bartlett's significance level should be less than 0.05. However, the current results showed significance level less than 0.001 which also provided the preliminary idea that sample is adequate and representative.

Figure 1

EFA - Exploratory Factor Analysis - Scree Plot - Rotated Factor Matrix

Note: The scree plot clearly suggested three factors.

The scree plot clearly shows 3 factors, that is why Exploratory factor analysis was reassessed. Additionally, the first three factors were explaining maximum cumulative variance.

Table 1

Factor Loadings for Exploratory Factor Analysis with Varimax Rotation of Items of Forman Malingering Scale (N = 142)

Items	Factor 1	Factor 2	Factor 3
Item 3	.433	**.531**	.042
Item 4	**.585**	.299	.093
Item 5	**.530**	.486	.229
Item 6	**.547**	.346	.103
Item 9	**.658**	.252	.038
Item 10	**.587**	.330	.050
Item 11	**.720**	.335	.211
Item 12	.452	**.557**	.111
Item 13	.565	**.610**	.152
Item 15	.368	**.675**	.095
Item 16	.455	**.575**	.090
Item 17	**.718**	.297	.197
Item 18	**.790**	.073	.318
Item 19	**.651**	.520	.284
Item 20	**.555**	.271	.126
Item 21	**.596**	.121	.353
Item 22	**.650**	.204	.203
Item 23	**.528**	.396	.182
Item 24	.554	**.701**	.183
Item 25	**.775**	.186	.181
Item 26	**.716**	.149	.326
Item 27	.300	**.568**	.342
Item 29	.247	**.547**	.291
Item 30	.303	**.733**	.429
Item 31	.363	.287	**.504**
Item 33	.444	**.590**	.430
Item 34	.401	**.713**	.444
Item 35	.276	**.731**	.324
Item 36	.119	**.748**	.327
Item 37	.093	**.726**	.322
Item 39	.227	**.763**	.393
Item 41	.322	**.537**	.231
Item 42	.376	.285	**.551**
Item 43	.202	.268	**.875**
Item 44	.201	.267	**.876**
Item 45	.122	.286	**.855**
Item 46	.173	.286	**.822**

Note: Items loading >.50 are bolded.

Principal Axis Factor Aanalysis (FA) was run on the 46 items with varimax rotation (orthogonal rotation). The Kaiser Meyer Olkin value validated the adequate sample of analysis, KMO=0.8 ('meritorious' according to Kaiser & Rice, 1974). The analysis showed three factor which had

Eigan values greater than 1 (18.8, 3 and 2.1) fulfilling the Kaiser's criteria. Additionally, the factors explained 68% variance in combination (49.9% variance of factor 1 7.4% variance of factor 2 and 5.04% of factor 3). The scree plot showed inflexion at three or four points. However, three

factors were kept due to sample size, The table 1 displays the factor loading of the corresponding items after varimax rotation. The three factors which emerged contained 16, 16 and 5 items. The items whose loading was greater than 0.5 were retained. Furthermore, items with greater loading were included in the respective factor. Further details are shown in Table 2.

Table 2

Final Factors, Items, Percentage of Variance, Cumulative Percentage and Eigenvalue (N =142)

Factors		Items Retained	Final Items	% Variance	Cumulative %	Eigenvalue
Factor Perceptual Inconsistency (PI)	1	4, 5, 6, 9, 10, 11, 17, 18, 19, 20, 21, 22, 23, 25, 26, 31	16	49.9	49.5	18.8
Factor Imagined Inconsistency (II)	2	3, 12, 13, 16, 24, 27, 29, 30, 33, 34, 35, 36, 37, 37,41	16	7.4	57.3	3
Factor Cognitive Inconsistency (CI)	3	42, 43, 44, 45, 46	5	5.04	62.4	2.1

The items which were discarded after the first analysis were item 7, 32 and 40. Items which were discarded after the second analysis were 1,2,8,14 and 28. The final analysis resulted in exclusion of item 38, resulting in 37 items questionnaire. The factor one majorly contains items related to psychological construct which were formulated according to Roger's detection strategies. Factor 2 majorly contained items which were related to factual knowledge and simple mathematical calculations. Factor 3 comprised of copying and writing within the box. The items within a factor were grouped together according to the similarity between them.

The Pearson product moment correlation between factor 1 and items of factor 1 showed significant at the 0.01 level. The Pearson product moment correlation between factor 2 and items of factor 2 showed significant at the 0.01 level. The Pearson product moment correlation between factor 3 and items of factor 3 showed significant at the 0.01 level.

Table 3

Pearson Product Moment Correlation Between Total Score of Factors and Total Score of Scale (N = 142)

	Imagined Inconsistency (II)	Cognitive Inconsistency (CI)	Forman Malingering Scale
Perceptual Inconsistency (PI)	.79**	.57**	.93**
Imagined Inconsistency (II)		.63**	.93**
Cognitive Inconsistency (CI)			.74**

**$p < .01$

It is evident from the table that factors are contributing significantly to total score. Hence, the factors correlation with the total score at 0.01 level.

Table 4

Pearson Product Moment Correlation between Factors (N = 142)

	Imagined Inconsistency (II)	Cognitive Inconsistency (CI)
Perceptual Inconsistency (PI)	.71**	.38**
Imagined Inconsistency (II)		.56**

**$p < .01$

It is evident from the table that all the factors are highly correlated. Hence, the decision of varimax rotation seems to be right.

Table 5

Final Factors and Reliabilities (N=142)

Factor No	α
Perceptual Inconsistency (PI)	.93
Imagined Inconsistency (II)	.95
Cognitive Inconsistency (CI)	.94
Forman Malingering Scale	.97

The factor 1, factor 2 and factor 3 of Forman Malingering Scale all had high reliabilities, all values above 0.92 falling in the excellent range of internal consistency.

Discussion

The rational-theoretical approach to item development used in present study has also added significance to a study (Simms, 2008). The current study not only included the researcher's intuition of selecting or discarding item from item pool (Initial cleansing). But it also included expert review on item pool after cleansing which led to greater content validity. However, one important consideration while using initial item analysis approach is to evaluate the internal consistency of the scale (Ruscio, 2015). Researchers ensured to evaluate reliability of the all the factors and total scale which ranged from 0.92 – 0.97 for factors and scale. This shows that the scale is reliable and is also likely to produce similar results under similar conditions. Hence, it can be concluded that even though rational approach to test development was used, the limitations of the approach were

also controlled by researcher. Furthermore, this method suggests minimizing response styles which could lead to intentional deception. The researcher has randomly organized items which do not have similar response format to reduce biased reporting (Ruscio, 2015).

The malingering scale, like other scales, cannot be formulated as self-report measure. The reason is that clinical judgement is adamant in scoring an item which is only possible if clinician himself has administered the test (Rogers et al., 1991). This is an effective way to control self-report bias. Hence, the clinician administered tool was developed. The present tool has its efficacy as screening rather than a diagnostic tool. Hence, the use and interpretation of Forman Malingering Scale should include caution.

A crucial part for psychological evaluation is the assessment of malingering, especially in forensic and medico-legal cases. The present study was based on developing an indigenous scale on malingering. The study's basic purpose was to develop a reliable and valid tool to help clinical practitioners to assess malingering in clinical and forensic context. The tool has had its significance to help clinicians decide regarding individuals who are referred for psychological assessment for competency to stand trial, for insanity plea etc.

The construct validity of the scale was next necessary step, which assessed through exploratory factor analysis (EFA) resulted in three factor structures. The items grouped in factor 1 "Perceptual Inconsistency (PI)" (total 16 items) were found to have strong theoretical relevance with each other as these items were developed according to Rogers' detection strategy. The item 4, 5, 6, 9, 10 were formulated on floor effect detection strategy which basically explain that malingerers have no idea that some cognitive tasks are very easy to attempt. Malingerers also try to feign those simplest tasks (Rogers, 2008). Hence, item 4 has been reported correctly by 88% of

participants in the sample. Likewise, item 5 has been reported correctly by 92% of the participants. Similarly, item 6, item 9, item 10 and item 11 has been reported by 88.8%, 88.8%, 80.4%, 93.4% individuals correctly. The items are endorsed by clinical population who had varied education level. Hence, these items were commonly known to people irrespective of their education level. The detection strategy which explains feigning of mental disorders in terms of presentation of symptoms have been used to formulate item 20, 21, and 26. The detection strategy of symptom severity has been used. It explains that some of the symptoms are reported with severity level by malingerers which is not present in majority of the people with same psychological problem (Rogers, 2008). The items are basically presenting extremity of symptoms of psychopathology which is not endorsed by majority of the population. It is evident from the study as well because majority of the sample responded wrong to the statements. The items 17 and 25 are basically derived from unusual presentation of hallucination (Miller, 2001). This detection strategy basically states that individuals who malinger have difficulty differentiating actual symptoms from unusual symptoms. Therefore, they attempt to hold on to unusual hallucinations which are very uncommon and rare. The items 18, 19 and 22 are formulated on detection strategy of improbable symptoms. The detection strategy explains that preposterous symptoms are endorsed by malingerers which are very often very extreme variation of rare symptoms (Rogers, 2008). Hence, malingerers are most likely to report these symptoms as compared to clinical population. It is also evident from the study that only 24.5% individuals reported yes on item 18 and 22.4% reported yes.

The items 23 and 31 formulated on overly specified symptoms. This detection strategy explains that malingerers are likely to endorse symptoms which are extremely specified and unrealistically precise. These

symptoms ae usually not endorsed by the clinical population. The item 23 and 31 include specification of time and frequency respectively, which is rather a rare phenomenon.

The Items of factor 2 "Imagined Inconsistency (II)" usually contains items from interview or literature review. The item 3,13 and 30 were formulated using inspiration from information subscale of Malingering Scale. The item 12 was suggested by one of the interviewers in initial phase. The item 15,16, 35,36, 37 and 41 were based on assumption that malingerers present themselves with low IQ (Schretlen, 1986). The items 24, 27, 33 and 34 were reported to be crucial in the screening of malingering in structured inventory of malingered symptomology (SIMS). Hence, the researcher included these items to distinguish response style of malingerers from clinical population. It is evident from research that frequency of individuals reporting positively to these items is very low. The item 29 was formulated on the detection strategy of symptom combination. This detection strategy basically states that the malingerer endorses two co-occurring clinical symptoms which rarely occur together. The empirical research has suggested that this detection strategy can be easily opted in multi-scale inventories as it has vast empirical basis (Rogers, 2008).

The factor 3 "Cognitive Inconsistency (CI)" was formulated over basic and easiest geometric figures to copy. This detection strategy basically states that malingerers are likely to produce incorrect responses which are very unlikely in individuals with true clinical conditions (Rogers, 2008). Furthermore, Bender also states that individuals who malinger would first perceive a correct image but then change the details of an image to simulate or feign the psychological problem (Schretlen,1986). Hence, it can be seen from the present study that items 42 – 46 were easily attempted by most of the participants belonging to any group of psychological disorder.

The convergent validity of the items was assessed by calculating inter-correlation among items loaded on the same factor and that factor's score which has explained the strong positive correlation of items within the factor and item to factor correlation ($p<0.01$). Furthermore, factors 1, 2 and 3 also revealed satisfactory inter-correlation with each other and total score ($p<0.01$) which strengthened the convergent validity of the scale and strengthened the three-factor structure.

One of the limitations of the study is that the sample size of the study was not distributed evenly among the clinical and forensic population. The reason of less number of participants of forensic sample is that the institutions which were required to give permission for data collection took a long time to process permission even though researcher had fulfilled all the necessary requirement to get information. Therefore, it was decided to run the preliminary analysis on the available sample. However, the second stage of item analysis included more participants from the forensic group. Hence, no analysis could be carried out to check the difference between clinical and forensic sample responses. Furthermore, sensitivity, specificity and cut off score was also kept for second stage of item analysis.

Contribution of Authors
Shaza Azam: Conceptualization, Investigation, Methodology, Data Curation, Formal Analysis, Writing – Original Draft
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