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Development and Validation of the Criminal Aptitude Inventory (Urdu): A Comprehensive Assessment Across Convicted Prisoners and the General Population

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1 Original submission

2 comments · 18 May 2024 – 18 May 2024

Associate Editor

MAJOR REVISION 18 May 2024

Please revise your manuscript according to the reviewers' comments.

Editor-in-Chief

MAJOR REVISION 18 May 2024

Major revision

2

Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Reviewer 1:

Dear reviewer, We thank you for your valuable feedback. We have tried to incorporate maximum suggestions in the revised manuscript with full letter and spirit. Please note that the word limit of this journal is 3500 words. For this limit, we did not previously add detailed values and tables for the CFA. We intended to split the data of 1675 individuals to two different papers. But now, based on your suggestions, we have included that data in this paper as well to make the analysis more rigorous and robust. In the revised version, we have added all the missing information that you highlighted. Please see the yellow highlighted text and tables in the revised manuscript:

introduction:
the paragraphs is too long, also each paragraphs and sentences needs to be reference cited in right way.

The paragraphs have been restructured as advised. More references have been cited.

The construct of crime is difficult to define due to cultural variations [1,2]. It is legally described as intentional acts that violate criminal law, committed without defense, and penalized by the state [3]. Traditional views on crime often face criticism for favoring powerful societal groups over moral norms [4]. Crime manifests in various forms such as personal crimes (e.g., murder, robbery), property crimes (e.g., burglary, theft), consensual or victimless crimes (e.g., prostitution, illegal gambling), white-collar crimes (e.g., embezzlement, fraud), organized crimes (e.g., kidnapping, human trafficking), juvenile delinquency (crimes by those under 18), cybercrime (e.g., cyber terrorism, Internet fraud), and public safety violations [5].

Theorists often examine common traits among criminals when studying criminal behavior. Biological theories suggest that criminals are inherently predisposed to crime due to distinct biological characteristics. Sociological theories attribute criminal behavior to social opportunities and inequalities. Anthropological theories explore the influence of social relationships, class stratification, rapid social change, resource access, division of labor, colonized societies, power differentials, and wealth. Economic theories focus on cost-benefit analysis, proposing that individuals commit crimes when benefits surpass potential consequences. Psychological theories consider individualized and subjective factors such as cognition, personality, psychopathology, and positive reinforcement [1,3–6].

Genetics and psychosocial variables both influence criminality. Men are more likely to commit crimes [1,7]. Psychopathy and sociopathy are also linked to criminal activity, particularly antisocial personality disorder [8,9]. Criminals exhibit chronic lying, lack of empathy, conditional love, blame-shifting, irresponsibility, intolerance, and poor self-control. Impulsivity, sensation-seeking, cognitive-social anxiety, antagonism, and violence are also common [10]. Childhood environment, inconsistent love and discipline, physical abuse, maternal smoking during

pregnancy, low birth weight, perinatal trauma, child neglect, low parental attachment, family discord, substance abuse in the family, poor parental supervision, large family size, birth order, bed-wetting, school disciplinary issues, low academic performance, dropping out of school, and childhood lead exposure all contribute to criminal behavior [7].

Criminal aptitude testing is essential in forensic psychology for identifying criminal inclinations. The existing literature lacks measures to test criminal aptitude in Urdu. The current study was aimed to develop and validate Criminal Aptitude Inventory (CAI) to fill this gap. Data was collected from both the convicted prisoners and the general population. This dual-source data collection strategy adapted in the series of 4 phases of the current study strengthens and applies the CAI to other Urdu-speaking groups in Pakistan and India.

The similar articles in Pakistan and other countries needs to be added.

More literature has been added, as presented above.

why the general population is included in this study?

Since the scale measures criminal aptitude, we included both general population and convicted prisoners to compare which category has higher criminal tendencies. The same is reported in table 4.

is the specific instrument could be generalized for general population? or general instrument can detect Criminal Aptitude specificity?

The inclusion of both general population and convicted prisoners assures the scale’s generalizability for both the segments of the society.

it is seemed that the sample size is 608 participants or less. the sample size is based on the participant that filled out the questionnaire not the analysis rank. the sample size need to be corrected.

Sample size has been corrected. Sample for 3 separate phases of the study has been separately defined now with all the details under the section Participants.

The study involved 1675 participants across its three phases. Participants involved in phase 1 (n=608; men=66%; married=37%; prisoners=52%; age=18-73 years, M=29; education=5-18 years formal education, M=11), phase 2 (n=956; men=34%; married=89%; prisoners=4%; age=18-29 years, M=21; education=10-20 years formal education, M=14), and phase 3 (n=111; men=46%; married=19%; age=18-51 years, M=25; education=10-18 years formal education, M=14) were conveniently selected while visiting different prisons and educational institutions in Rawalpindi, Islamabad, Haripur, and Attock, Pakistan.

what was the inclusion and exclusion criteria in focus group and quantitative phase?

The sample was selected through convenient sampling technique.

The study involved 1675 participants across its three phases. Participants involved in phase 1 (n=608; men=66%; married=37%; prisoners=52%; age=18-73 years, M=29; education=5-18 years formal education, M=11), phase 2 (n=956; men=34%; married=89%; prisoners=4%; age=18-29 years, M=21; education=10-20 years formal education, M=14), and phase 3 (n=111; men=46%; married=19%; age=18-51 years, M=25; education=10-18 years formal education, M=14) were conveniently selected while visiting different prisons and educational institutions in Rawalpindi, Islamabad, Haripur, and Attock, Pakistan.

the study phase and steps should be present in flowchart

The steps involved have been defined at many places in the revised instrument, such as:

The present study involved 3 phases. The development and exploratory factor analysis of the Criminal Aptitude Inventory (CAI) was carried out in phase 1. Phase 2 involved the confirmatory factor analysis of the CAI. The convergent and discriminant validity of the CAI was established in phase 3.

Please consider the word and tables limit.

the extracted themes in focus group should be presented.

These themes have been incorporated in the Discussion, as:

The CAI is developed to measure criminal aptitude based on the common grounds that lead individuals toward criminal behavior. The items of the CAI deal with poverty, joblessness, immorality, violence, purposelessness, bad company, childhood experiences, rejection, loneliness, narcissism, envy, abuse, erroneous beliefs, drug addiction, injustice, and cognitive dissonance. All these factors have been regarded as significant contributors toward criminal behavior [1,3–6].

the main problem of this article is sampling due to general population , so analysis in order to different groups is recommend.

The main objective of this paper is the development and validation of the CAI. Due to the words and tables limitations, and because of the scope of the current paper, separate analysis for convicted prisoners and general population were not carried out.

how the participants filled out the questionnaire?

This has been discussed in the Procedure as:

The study obtained ethical approval from the Ethic Review Committee at the (blinded university). Researchers individually approached potential participants in various settings, including prisons, educational institutions, and public offices. Each participant received a detailed explanation of the study's purpose, and their informed consent to participate was obtained. The entire study adhered to ethical guidelines in accordance with the 1964 Helsinki Declaration and its subsequent amendments, ensuring the ethical conduct of research procedures.

the sampling and sample size need to be described

The sample has been described in detail now as:

The study involved 1675 participants across its three phases. Participants involved in phase 1 (n=608; men=66%; married=37%; prisoners=52%; age=18-73 years, M=29; education=5-18 years formal education, M=11), phase 2 (n=956; men=34%; married=89%; prisoners=4%; age=18-29 years, M=21; education=10-20 years formal education, M=14), and phase 3 (n=111; men=46%; married=19%; age=18-51 years, M=25; education=10-18 years formal education, M=14) were conveniently selected while visiting different prisons and educational institutions in Rawalpindi, Islamabad, Haripur, and Attock, Pakistan.

what is the year of study?

It has now been mentioned in the Procedure as:

Data was collected during October-November, 2023.

gender and age groups divided to general and criminal aptitude should be present in table.

The main objective of this paper is the development and validation of the CAI. Due to the words and tables limitations, and because of the scope of the current paper, separate analysis for gender and age were not carried out.

the figure of Conformity factor analysis as well as the values need to be presented.

Results for exploratory and confirmatory factor analysis have now been presented in detail, as:

The psychometric properties of Criminal Aptitude Inventory - CAI

In the initial development of the Criminal Aptitude Inventory (CAI), a total of 50 items were generated through three focus group discussions with 60 convicted prisoners, who shared their perspectives on criminality and criminals. Based on these discussions, 50 statements were formulated and submitted to a panel of 5 clinical psychologists for face validity assessment. The panel approved the

statements, affirming their validity for measuring the construct of criminal aptitude. Data gathered in all 4 phases of the study was found reliable (table 1).

Exploratory factor analysis (EFA) in phase 1 of the study employed Principal Component Analysis with Varimax Rotation and concluded with a single-factor solution for 36 items (table 2), discarding 14 items for having insufficient validity (item extraction values less than 0.4). The sample size (n=608) for EFA was found to be excellent (KMO=.984) and the variance explained was 64.73%. Cronbach's alpha reliability was 0.984. Communalities for all items were acceptable, ranging from 0.42 to 0.77 (table 2). Item-total correlations were highly significant for all items, affirming their relationship with the overall scale (table 2).

Confirmatory factor analysis (CFA) was conducted in phase 2 by involving 956 participants. The CAI comprising of 36 items was administered to test a single-factor solution. The factor loadings were statistically significant (table 3; $p<0.01$), indicating that the items were strongly related to the original factor. A heterotrait-monotrait ratio of 1 suggested good discriminant validity. Reliability was also good, with a Cronbach's alpha coefficient of 0.950. The CFA model demonstrated good fit according to several fit indices such as Comparative Fit Index (CFI): 0.936; Tucker-Lewis Index (TLI): 0.932; Bentler-Bonett Non-normed Fit Index (NNFI): 0.932; Bentler-Bonett Normed Fit Index (NFI): 0.904; Parsimony Normed Fit Index (PNFI): 0.852; Bollen's Relative Fit Index (RFI): 0.898; Bollen's Incremental Fit Index (IFI): 0.936; Relative Noncentrality Index (RNI): 0.936; Goodness of fit index (GFI): 0.939; Root mean square error of approximation (RMSEA): 0.043; and Kaiser-Meyer-Olkin (KMO) Test: 0.980.

The CAI was tested for convergent and discriminant validity during the 3rd phase of the study. The CAI revealed significant positive correlation with anti-social personality disorder ($r=.458$; $p<0.01$), and significantly inverse correlations with morality ($r=-.396$; $p<0.01$), religiosity ($r=-.318$; $p<0.01$), and spirituality ($r=-.453$; $p<0.01$). The overall findings from the validation indicate that the CAI is sufficiently reliable and valid for further use in assessing criminal aptitude.

Additional Findings

The contrast in criminal aptitude between prisoners and the general population was highly significant, showing a large effect size (table 4; M= 85.50 vs 46.68; $p=0.000$; Cohen's $d=1.185$). Moreover, a notable difference in criminal aptitude was observed between men and women, with men exhibiting significantly higher levels and a large effect size (table 3; M= 77.90 vs 45.64; $p=0.000$; Cohen's $d=0.925$). The distinction in criminal aptitude between married and unmarried individuals was also statistically significant, with a small effect size (table 3; M= 72 vs 63.89; $p=0.011$; Cohen's $d=0.214$). Additionally, individuals with insufficient monthly income demonstrated a significantly higher level of criminal aptitude, indicating a large effect size (table 3; M= 79.18 vs 55.45; $p=0.000$; Cohen's $d=0.655$).

what is the software Conformity factor analysis.

It has been mentioned under Analysis as:

The analysis utilized SPSS, and JASP software.

all question and themes needs to be presented in one table.

This has been provided in the annexure now, after rearranging the tables.

all references needs to be updated.

References have been updated.

2 Revision 1

3 comments · 8 Jun 2024 – 11 Jun 2024

Zahra Sadat Asadi Reviewer

ACCEPT 8 Jun 2024

The corrections are acceptable.

Associate Editor

ACCEPT 11 Jun 2024

accept

Editor-in-Chief

ACCEPT 11 Jun 2024

Accept