

The Mediating Effect of Psychopathic Personality Disorder as a Pathway to Recidivism

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Abstract

Testing the indirect effect of psychopathic personality towards recidivism has been one of the overlooked areas within criminological studies. Based on this fact, the current study articulated the mediated effect of psychopathic personality towards recidivism against criminality attitude, knowledge on criminality, prison syndrome, social exclusion, peer influence and drug abuse as premeditated factors. One-hundred and ninety-six adult offenders with repeated criminal records since three years later participated in the semi-structured interview. Structural Equation Modelling conferred drug abuse, associate influence, and social exclusions had indirect effect on recidivism through psychopathic personality. Yet, knowledge on criminality and drug abuse was partially mediated by psychopathic personality. Implications for crime prevention and reduction are discussed from the lens of policy and practice strategies.

Keywords: Psychopathic; Personality; Mediation; Effect; Recidivism

Abbreviations: AMOS: Analysis of Moment Structure; β : Beta Coefficient; BCC: Behaviour Change and Communication; CFI: Comparative Fit Index; CI: Confidence Interval; IFI: Incremental Fit Index; PCL-R: Psychopathic Checklist Revised; RMSEA: Root Mean Square Error of Approximation; TLI: Tucker-Lewis Coefficient; SD: Standard Deviation; χ^2 : Chi-square

Introduction

The growing concern of criminality has become contemporary global threat [1-3]. In the same way, recidivism is escalating [4,5]. With respect to its aching circumstances of recidivism, nations are toggling to reverse it through different mechanisms [6,7]. One of these approaches is confining criminals/recidivists within correctional systems. Notwithstanding, one of the basic critiques to this approach has been its focus on completing penal period regardless of behavioural transformation [8-12]. Besides, the approach has huge economic implications like placing enormous trouble on the state's cost of incarceration and expenditure of other resources [6,13]. For this reason, analysing the behaviour of recidivists and realizing restoration in terms of their mental, emotional and behavioural aspect as a vital remedy to be practiced under the role of community supervision.

Psychopathic personality as pathways to recidivism

Analysis on recidivism in terms of psychological background mainly attributed to the effect of psychopathic personality. Accordingly, studies show that large proportion of serious crimes and recidivism is due to the direct impact of psychopathic personality [14,15]. That is, psychopathic theory widens its horizon to discuss criminality beyond socio-demographic and economic factors [16-18] and articulates about the effect of antisocial behaviours and mental health problems towards recidivism [19].

Predictors of psychopathic personality

The link between criminal actions and psychopathic personality is widely documented in scientific studies. However, psychopathic personality does not occur in a vacuum rather to a certain extent it goes beyond the genetics influence [20,21]. Indeed, there have been environmental determinants like socio-economic status to cause to psychopathic personality and then to recidivism [22]. With this regard, for the purpose of the current study, six determinants such as drug abuse,

criminal cognitions, criminality knowledge, associate influence, prison syndrome and social exclusion have been considered for investigation. The emphasis given to psychopathic personality is due to its inherent nature that persistently obstinate and long standing challenge to transform in to adaptive behaviours. Hence, criminal conducts elicited by psychopathic personality calls for attention to predict a person's tendency to engage in repeated criminal behaviours which require caution and strategic arrangements to revert recidivism.

With the back drop of the above perspective the current study differentiates factors that predicate psychopathic personality and then articulate in relation to recidivism. These factors are sorted out as syndrome factors such as drug abuse and prison syndrome, behavioural factors including criminological attitude and criminological knowledge and social factors representing associate influence and social exclusions. Each of these factors discussed in the next section.

Drug abuse

Robust literature articulates that drug abuse positively correlates with criminal conducts [23-25]. Despite the paucity of substantial evidence to support drug abuse and illicit psychopathic personality to cause to recidivism studies suggest that substance abuse appeared to provide a pathway between psychosocial characteristics and delinquent decision making [26]. Notably, a study conducted by Hare and Neumann [27] reported that psychopathic personality frequently correlate with substance abuse and other mental and behavioural health problems.

Prison syndrome

Prison syndrome is another factor differentiated to examine its effect on psychopathic personality and recidivism. It is a concept casted by

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the researcher to refer to seeking to be prisoner due to recurrent prison adaptation. In the current study, the concept, operationally addresses the offender's tendency to "adapt" or "cope with prison regime" [28,29] and seeking persistently to stay in prison that includes offenders' tendency to experience feelings of safety, autonomy, and well-being when they are in prison [30]. Indeed, the concept of prison syndrome formerly described as a form of prisonization; that is, continued interest to adapt prison environment [31]. It means that offenders indulge into repeated criminal conducts due to their mental representation of prison environment as safe and secure setting. However, whether the mental representation urges offenders to develop psychopathic personality is open for scientific analysis.

Criminal attitude/cognition

In another literature criminal attitude/cognitions [32] suggested as predictors of recidivism, yet the association with psychopathic personalities is open for discussion. Criminal attitude in the current study denotes feelings that organize the actor's decision to act and behave towards a person, thing or action [33]. In other words, criminologic cognition embed antisocial cognition including attitudes, values, and thinking styles that is supportive of crime such as misperceiving benign remarks as threats and demanding instant gratification [34-37].

Knowledge on crime and criminalities

Knowledge regarding crime and crime related behaviours is another factor that sets boundary to differentiate criminal conducts from non-criminal actions. The basic assumption is better knowledge on criminality guides individuals to exercise knowledge based decision making and problem solving. To that point, capacity building in terms of public policy, criminal justice, human right, and civil codes prone to assist handling crime and criminal conducts [12].

Social exclusion

Social exclusion has been mentioned as a different factor which presumed to contribute to repeated criminal conducts [38,39] for the reason that it reduces opportunities for employment and social interaction [4,33,40]. In this regards, labelling and stigmatization can be powerful constituents that show the interface between inmates and the hierarchies of prison administration [9] which entail safe and secured social environment that dignifies the inherent need of human beings.

Associate influence

Associate influence (that is, antisocial associate) [41-43] consistently documented as strongest correlates of criminal behaviour through modelling and reinforcing [33]. Similarly, delinquent friends directly model and reward antisocial behaviour and discourage pro-social behaviour [41,44,45] and develop criminological thinking [5]. Additionally, hostile attributions (that is, external blame towards peer) by parents or other persons perhaps become a potential means through which negative experiences with peers guide to increases in children's aggressive and delinquent behaviours [46].

In the final analysis, considering the role of integrated model on crime and delinquency behaviours in the modern criminological study factors have been sorted out to explain recidivism through psychopathic personality. Based on the above assumptions the current research attempts to answer the following research questions:

- Does psychopathic personality significantly mediate recidivism given criminal attitude, knowledge on criminality, associate influence, prison syndrome, social exclusion and drug abuse as predictor variables?

Methods

The methodology section states about the sample size and techniques of sample selection, types and nature of data gathering tools, methods of validating the instruments and the reliability coefficient for each tool, as well as methods and procedures of data analysis.

Sample size and sampling technique

There were one thousand five hundred and thirty eight prison populations (i.e., one thousand five hundred and four were males and thirty four were females) in total for 2014. From the total prison population recidivists who had repeated criminal history had been three hundred and sixty. Among which one hundred and sixty were youth recidivists (i.e., below eighteen years), yet two hundred had been adult recidivists. From the entire numbers of adult recidivists four were non-response cases; based on their criminal history and consent to participate in the study (n=196) were involved in the study.

Regarding the sampling technique complete enumeration or census method was employed. There were two basic reasons to consider census technique to select the research participants. Firstly, although all the participants were adults they still lack homogeneity in terms of their age, educational status, type and level of crime, amount of daily income as well as their socio-cultural background. As such, differences in demographic factors demand to make use of the non-probability sampling [47,48]. Based on this procedure, the exact estimation of the sample size for the current study becomes (n=154) where the population size (N=200) [49,50]. However, due to heterogeneity factors and availability of resources, the author decided to consider the existing maximum possible sample size through the method of complete enumeration. As a result, the current study did not employ a prior method of sample size determination to analyze and evaluate the power and precision level of prediction. Conversely, as the rule of thumb established by Kenny [51] the effect sizes in regression model have been evaluated based on 0.01, 0.09 and 0.25 reference points.

Data gathering instruments and validation

The instrument for prison syndrome, associate influence, criminal attitude, drug abuse, knowledge on criminality, and social exclusions were developed based on inductive and deductive scale development approaches. That is, expert opinion (i.e., particularly to explore contextual realities) for inductive approaches, while ideas from pertinent literature for deductive approach were considered. Indeed, both approaches were helpful to produce adequate and relevant contents for each of scales [52].

Regarding the measure for psychopathic personality, the Hare's psychopathic personality checklist was adapted. Recidivism was measured based on the repeated criminal records that shows how many times the offender breached the law. Four variables (that were, prison syndrome, associate influence, drug abuse and social exclusions) were measured based on five point rating scale from 5=always true to 1=not true at all. However, criminological attitude was measured by a tool that demonstrates level of propensity towards criminal actions and related concerns from 1=strongly disagree to 5=strongly agree) and knowledge on criminality measured by a tool that shows level of understanding from 5=very well informed to 1=not informed at all.

For further understanding model items that represent each of the scales are presented. That are for *prison syndrome*: "I enjoy the conversation with my friends in the correction centre", "I consider other prisoners as my brothers and sisters I don't want to miss". *Associate pressure*: "Many of my friends are jailed more than once, The mocking

and teasing of my colleagues elicits my temper to commit another crime. *Drug abuse*: “I like drinks with heavy alcohol contents”, “I consume my favourite drugs all the time”. *Social exclusions*: “People in my surrounding defame me based on my criminal history”, “People in my area lost trust to offer me responsibilities in different jobs”. *Criminal attitude*: “It is the curse of God for me to perpetrate in repeated criminal behaviours”, “I become crimeholic (i.e., casted for addiction to criminal behaviours) and that is why I usually involve into repeated criminal behaviours”. *Knowledge on criminality*: “Criminality represents violating the rights of others”, “Criminality is one way of disrespecting private unique potential to be productive in life”.

Psychopathic Checklist Revised (PCL-R) [53] contains 20 statements which has been used to measure psychopathic personality. The items are rated on a 3-point scale (0=*doesn't apply*, 1 to 2=*definitely applies*). The items measure the person's lifetime functioning and that this state may be atypical of his/her usual functioning due to extreme situational factors or an exacerbation of acute psychopathology.

Recidivism was another factor which denotes repeated offensive actions [54] within a given period of time. In fact, it has been a common practice to measure recidivism [54-56] based on criminal history presumed that criminal history is a valid and objective method than self-report. As a result, the current study operationalized recidivism as repeated criminal actions within the follow up period (which was made by the prison administration) of three year.

Data gathering instruments were validated through pilot test. Thirty offenders were chosen from the same research setting for the purpose of pilot test. The pilot test was made through qualitative (i.e., expert opinion) and quantitative (i.e., test of item validity and consistency) tests. As an illustration, based on expert assessment eight items from PCL-R were removed from the original scale before conducting item validity and reliability. The reason was these items were not applicable to measure psychopathic personality among adult offenders. On the other hand, item validity and reliability were conducted through quantitative rigours. That is, regarding item validity, an item with, $r=0.4$ and above was retained in the final scale [52]. As a result, based on the approval of items with $r=0.4$ substantial level of scale coefficients were achieved, Chronbach alpha= 0.70 to 0.90 [57,58]. For further illustration, the alpha coefficient for each of the scales before and after validation demonstrated in Table 1.

Procedures of data collection

The procedures of data collection began with half day intensive training for interviewers. Five interviewers that all had first degree qualification in social sciences were chosen. Two of them were psychologists and one of them was the counsellor of Hawassa correction administration.

Variables	Number of items in the initial scale	Initial alpha	Items remained in the scale	Corrected alpha
Psychopathic personality	12	0.79	10	0.81
Drug abuse	5	0.78	5	0.78
Criminal attitude	6	0.69	5	0.71
Knowledge on criminality	6	0.68	4	0.70
Peer influence	5	0.73	5	0.73
Social exclusions	4	0.89	4	0.89
Prison syndrome	6	0.67	4	0.70

Table 1: Consistency coefficients.

Methods of data analysis

Structural Equation Modelling was applied to test the mediated causal effect [59-61]. With this consideration, the mediation test was conducted through Bootstrap Confidence Bias-Corrected Percentile Methods [61]. The test of mediator with goodness of fit measures such as χ^2 , Comparative Fit Index (CFI), Incremental Fit Index (IFI), Tucker-Lewis Coefficient (TLI) and Root Mean Square Error of Approximation (RMSEA) and path line demonstration were supplemented by descriptive statistics and correlation matrix. For the purpose of data analysis, Statistical Package for Social Sciences version 20 with add-on AMOS 23 was employed [59,62,63]. Moreover, the relationship between variables has been outlined in the following hypothetical model (Figure 1).

Results

This section discusses the major findings of the study including demographic variables, descriptive statistics, inter-correlation among study variables and mediation analysis complemented by path model.

Demographics

The demographic variables were gender, age, daily income and educational status. These variables were considered for analysis and discussion to find out the prominent gender category, and the level of age, income and educational status against recidivism. For further illustration, Table 2 in the following section demonstrates the proportion of each demographic variable.

Concerning gender as shown in demographic variable (Table 2), there were no female recidivists in the research setting, yet the entire participants, 196 of them were male recidivists. Regarding age as a demographic factor from the given sub-categories, the majority of

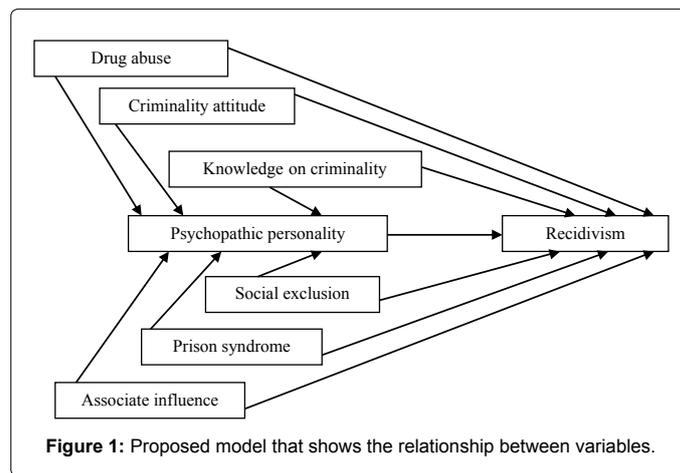


Figure 1: Proposed model that shows the relationship between variables.

Area	Category	N	%	Area	Category	N	%
Gender	Male	196	100	Educational status	Diploma	2	1
	Female	0	0		Degree	1	0.50
Age	18-19	156	79.59		Illiterate	26	13.30
	30-41	34	17.35		Junior	48	24.50
	42-53	6	3.06		Primary	90	45.90
Daily income	Nil	41	20.90		Secondary	29	14.80
	1-50	94	47.96				
	51-150	47	23.98				
	Above 150	14	7.14				

Table 2: Socio-demographic and economic variables of the participants.

recidivists were from 18-19 and that accounted for 79.59% followed by 30-41 which represented 17.35%. The other demographic variable discussed was the daily income of the participants and the study confirmed that 47.96% of recidivists earn 1-50 birr per day. The educational status of participants consists a large proportion of the recidivists (45.90%) attended primary school or from grade 1-6.

Descriptive statistics and inter-correlations

The following table draws our attention to differentiate the mean score, the standard deviation and the inter-correlation between the study variables. Details of the measures are in Table 3.

As Table 3, indicates that recidivism had significant positive correlation with knowledge on criminality, $r=0.16$, $p<0.05$, drug abuse, $r=0.39$, $p<0.01$, associate influence, $r=0.36$, $p<0.01$ and psychopathic personality, $r=0.19$, $p<0.01$.

Model test

The current study involves two consecutive procedures; testing the original model and testing the modified model. Testing the modified model was compulsory because the data did not substantially support the hypothesized model of the original model. Hence, the result section demonstrates testing the original model followed by testing the modified model and helped to find out the inconsistencies between the data and the specified model. In each process the direct, partial and indirect effects of predictor variables on recidivism through psychopathic personality was examined. The preceding part model fitness against the findings was also discussed. Finally, prediction direction or the relationship between variables was demonstrated by path diagram.

Testing the original model: The original model had six predictor variable (that is, drug abuse, criminal attitude, knowledge on criminality, associate influence, social exclusion and prison syndrome); a mediating variable (psychopathic personality) and an outcome variable (recidivism). With this analysis the model distinguished the effect levels; significant, direct effect, partial effect and indirect effects. For further elaboration, the result was indicated in Table 4.

Giving attention to the basic research question the indirect effect of psychopathic personality was computed based on the principle of Bootstrap Confidence Bias-Corrected Percentile Methods. This was done to reduce the overestimation of the effect from small sample size ($n=196$). Based on this analysis the model corroborated drug abuse $\beta=0.084$, $p=0.047$ at (95% CI=0.001, 0.084) only, had complete indirect effect on recidivism through psychopathic personality. Table 4 also illustrates the direct effect of each factor on recidivism without

demonstrating the mediated effect of psychopathic personality. It was found that the standardized direct effect of drug abuse $\beta=0.37$, $p=0.004$ at (95% CI=0.252, 0.476). Drawing my discussion to the partial indirect effects, drug abuse $\beta=0.398$, $p=0.003$ at (95% CI=0.279, 0.501) and knowledge on criminality $\beta=0.174$, $p=0.032$ at (95% CI=0.020, 0.303) were significantly mediated by psychopathic personality.

Goodness of fit in the original model: The overall model fit was, $\chi^2(15)=143.61$, $p=0.000$ which suggested the presence of significant differences between the data and the model. In addition, the other goodness of fit measures (i.e., CFI, TLI, IFI and RMSEA) confirmed that poor fit between the models with the data. Specifically, CFI (Confirmatory Factor Index)=0.362, Tucker-Lewis Coefficient (TLI)=-0.192, Incremental Fit Index (IFI)=0.40, and Root Mean Square Error of Approximation (RMSEA)=0.21. Thus, the chi-square result complemented by other goodness-of-fit indices compelled the researcher to modify the original model to produce fit model and examine the effect of the rest of the variables other than drug abuse through psychopathic personality. Thus, there has been no ground to endorse the original model as fit to the existing data.

The modified model: The chi-square and other goodness-of-fit measures informed that lack of congruence between the data with the original model. Based on this finding, model modification was made to find out fit model with more than one factors that possibly mediated by psychopathic personality. The newly tailored model carried out through opting out non-significant path lines and replacing alternate path lines by way of better effect size. The re-crafting of the relationship between variables based on the modification indices and significant levels confirmed the indirect effect of drug abuse, associate influence and social exclusions on recidivism through psychopathic personality. Yet, the variables such as criminality attitude and prison syndrome were not qualified to impact on recidivism. For further understanding, outlined the indirect and partial and the direct effects of the factors.

Indeed, giving special emphasis to the purpose of study *complete mediation* of psychopathic personality was obtained from three factors in the improved model. These are, drug abuse $\beta=0.081$, $p=0.034$ at (95% CI=0.000, 0.081), associate influence $\beta=0.107$, $p=0.046$ at (95% CI=-0.003, 0.107) and social exclusions $\beta=0.004$, $p=0.048$ at (95% CI=-0.030, 0.004). Moreover, *partial mediation* was explored from knowledge on criminality $\beta=0.163$, $p=0.029$ at (95% CI=0.019, 0.289) and drug abuse $\beta=0.398$, $p=0.003$ at (95% CI=0.285, 0.496).

Despite the real effect of drug abuse, associate influence and social exclusions on recidivism the strength of the effects calls for attention. It would have been more accurate if the strength of the effect for all of

Variables	Mean	SD	1	2	3	4	5	6	7	8
Attitude	13.91	4.39	-							
Knowledge	16.12	3.16	-0.22*	-						
Associate	9.12	2.63	0.37**	0.03	-					
Prison	9.06	2.05	0.24**	0.07	0.36**	-				
Exclusion	5.63	2.42	0.13	-0.01	0.34**	0.49**	-			
Drug	8.28	2.69	-0.03	0.01	0.11	-0.13	-0.05	-		
Psychopathic	11.07	5.10	0.05	-0.04	0.32**	0.03	-0.07	0.25**	-	
Recidivism	4	2.80	-0.04	0.16*	0.36**	-0.09	-0.08	0.39**	0.19**	-

* $p<0.05$, ** $p<0.01$

Note: N=196, SD=Standard Deviation. High score denotes high criminal attitude, lack of criminal knowledge, high peer influence, high prison syndrome, high social exclusion, high drug abuse, high psychopathic personality and repeated criminal conduct

Table 3: Descriptive and inter-correlation coefficient between study variables.

Model	Estimate	SE	p	95% CI lower	95% CI upper
Drug abuse to recidivism(Direct effect)	0.370	0.065	0.004**	0.252	0.476
Drug abuse to psychopathic personality	0.196	0.064	0.005**	0.059	0.330
Psychopathic personality to recidivism	0.146	0.071	0.097	-0.028	0.310
Drug abuse to recidivism(Partial effect)	0.398	0.065	0.003**	0.279	0.501
Indirect/mediation effect of drug abuse	0.084	-	0.047*	0.001	0.084
Knowledge on criminality to recidivism(Direct effect)	0.185	0.064	0.015*	0.043	0.313
Knowledge on criminality to psychopathic personality	-0.077	0.064	0.280	-0.223	0.069
Psychopathic personality to recidivism	0.146	0.071	0.097	-0.028	0.310
Knowledge on criminality to recidivism(Partial effect)	0.174	0.064	0.032*	0.020	0.303
Indirect/mediation effect of knowledge on criminality	0.006	-	0.174	-0.056	0.006
Criminal attitude to recidivism (Direct effect)	0.059	0.064	0.335	-0.079	0.201
Criminal attitude to psychopathic personality	-0.086	0.064	0.331	-0.237	0.093
Psychopathic personality to recidivism	0.146	0.071	0.097	-0.028	0.310
Criminal attitude to recidivism (Partial effect)	0.046	0.064	0.493	-0.088	0.190
Indirect/mediation effect of criminal attitude	0.008	-	0.210	-0.057	0.008
Associate influence to recidivism (Direct effect)	-0.134	0.069	0.153	-0.300	0.041
Associate influence to psychopathic personality	0.376	0.064	0.002**	0.229	0.511
Psychopathic personality to recidivism	0.146	0.071	0.097	-0.028	0.310
Associate influence to recidivism (Partial effect)	-0.079	0.069	0.303	-0.216	0.076
Indirect/mediation effect of associate influence	0.137	-	0.083	-0.009	0.137
Social exclusion to recidivism (Direct effect)	-0.008	0.065	0.908	-0.134	0.136
Social exclusion to psychopathic personality	-0.196	0.064	0.003**	-0.314	-0.052
Psychopathic personality to recidivism	0.146	0.071	0.097	-0.028	0.310
Social exclusion to recidivism (Partial effect)	-0.037	0.065	0.631	-0.154	0.100
Indirect/mediation effect of social exclusion	0.002	-	0.067	-0.082	0.002
Prison syndrome to recidivism (Direct effect)	-0.015	0.064	0.750	-0.175	0.123
Prison syndrome to psychopathic personality	0.038	0.064	0.623	-0.113	0.183
Psychopathic personality to recidivism	0.146	0.071	0.097	-0.028	0.310
Prison syndrome to recidivism (Partial effect)	-0.009	0.064	0.839	-0.159	0.123
Indirect/mediation effect of prison syndrome	0.043	-	0.412	-0.011	0.043

Table 4: Direct, partial and indirect effect of the original model.

the models were .80 for perfect prediction [64]. Nonetheless, perhaps heterogeneity among the participants caused variability of scores which in turn detracted perfect precision. Secondly, as long as the design was survey method, perhaps multitude of factors might be beyond control and likely hinder perfect prediction. Despite the facts that another rule of thumb provides alternative grid to evaluate effect size; that is, 0.01 for small effect size; 0.01 to 0.09 for medium effect size and greater or equal to 0.25 for large effect size [51,61,65,66]. Hence, based on the above cut points the precision level for the indirect effect of social exclusion was small and drug abuse was moderate. Yet, only the indirect effect of associate influence had large effect size.

Path model: Path model is a complimentary visual diagram that demonstrates the direction between significant and non-significant variables of the study. The path displays significant fully mediated path lines and the non-significant path lines between variables. Owing to this idea, Figure 2 in the following diagram shows the direct, partial and indirect significant pathway in the modified model.

In Figure 2, above significant direct, partial and indirect effects are indicated by path lines. Pathways through which there are significant indirect effects through psychopathic personality are blue, partial effects are red, direct effects are green and the line from mediator/psychopathic personality to recidivism is pink.

Goodness of fit test in the modified model: In a related step, the model fit analysis was made and it was found that perfectly good model was constructed compared to the original model. The $\chi^2(6)=4.714$, $p=0.581$ indicated that the presence of substantial congruence

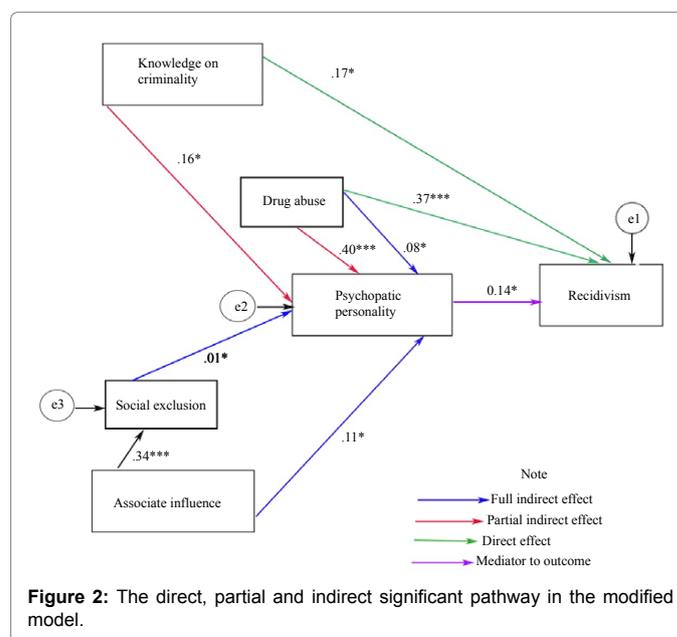


Figure 2: The direct, partial and indirect significant pathway in the modified model.

between the data and the adjusted model. Likewise, the goodness of fit indices proved that the model was very good model. Specifically, the Comparative Fit Index (CFI) 1.00; the Root Mean Square Error of Approximation (RMSEA), 0.000; Tucker-Lewis Coefficient (TLI)=1.00, and Incremental Fit Index (IFI)=1.00.

Discussion

The indirect effect of psychopathic personality on recidivism was examined against drug abuse, knowledge on criminality, associate influence, prison syndrome, social exclusion and criminality attitude. The maximum likelihood estimation differentiated the factors that had direct effect, partial effect and indirect effects towards recidivism.

The impact of drug abuse on recidivism was substantial. It had direct, partial and indirect effect on recidivism. In terms of partial and indirect effect, drug abuse is significantly mediated by psychopathic personality. In other words, drug abuse elicits anti-social behaviour through altering thoughts and actions contributing to the perpetration of criminal behaviours. Despite the vast documentation on the direct effect of drug abuse on recidivism [23-25] there has been paucity of empirical data on its indirect effect. However, a couple of previous studies that consistently highlight the harmonic link between drug abuse, psychopathic personality and recidivism are mentioned [26,27].

A criminal associate was a different factor and had indirect effect on recidivism through the influence of psychopathic personality. Indeed, the direct effect of criminal associates towards recidivism has been widely documented [36,41-43]. However, in contrast to the vast previous studies associate influence in the current study confirmed its indirect effect on recidivism through psychopathic personality. Indeed, criminal associates seem prone to stimulate other offenders to develop psychopathic personality and then infuse new undesirable behaviours. For example, through the process of conformity a partner mistakenly copy the behaviours of partners and engage into decision making [41,44,45]. Furthermore, offenders are likely to acquire (learn) thoughts, feelings and behaviours from criminal associates [5,33] either through finding reinforcement from other criminal associates or changing their mind sets erroneously.

Another factor is the social exclusion (responses from other community members on recidivists) which contributes to criminals recycling their criminal conducts [46]. The vast historical records on the adverse impact of social stigma and discriminations towards offenders [9] have additional empirical evidence from the current study. That is, social exclusions (from social roles and job opportunities) tend to make offenders liable to engage in violent behaviours such as aggression and revenge. Thus, regardless of criminal history there should be bestowing honoured opportunities for employment, vocational training and participation in social roles. The finding regarding the indirect effect of social exclusions on recidivism is consistent with previous studies conducted by different scholars [4,33,38-40].

Knowledge on criminality had direct and partial effect on recidivism. The partial mediation effect is about knowledge on criminality partly impacted by psychopathic personality to contribute to recidivism. This implies lack of information on criminal concerns such as law enforcement and socially desirable behaviours contributing offenders' tendency to develop anti-social behaviours which are then acted out in criminal conducts. These findings are consistent with the findings of previous studies.

Furthermore, psychopathic personality showed a strong impact on recidivism which are shown by the positive significant effect. There have been robust studies [14-18] that support the direct effect of psychopathic personality towards recidivism and in consistent with the current study.

Finally, despite the significant indirect effects or real effect of drug abuse, associate influence and social exclusions on recidivism; the ideas

on the strength of the effects calls for attention (Table 4 and Figure 2). Indeed, evaluation was made based on conventionally established degree of effect size (that is, 0.01 for small effect size; 0.01 to 0.09 for medium effect size and greater or equal to 0.25 for large effect size) [51,61,65,66]. In the current study, due to the variability of the scores the power and precision level for the indirect effect of social exclusion was small and drug abuse was moderate. Yet, only the indirect effect of associate influence had large effect size. Nonetheless, the study has provided new impetus to sense the indirect effect of psychopathic personality to fight against recidivism and further stimulates future studies on similar topic with larger sample size.

Conclusion

Recidivism has become a complex social ache that requires strategies beyond the usual correctional approach (incarceration) to integrated multidisciplinary prevention and intervention designs. In conventional understanding the purpose of incarceration is to prevent an offender from committing another crime and yet recidivism is the outcome of diverse factors. These are structural factors (e.g. genetic factors, Socio-Economic inequalities, and power difference), intermediate factors (e.g. psychopathic personality), and immediate factors (e.g. drug abuse, lack of knowledge and associate influence). Nations must have innovative and context based practices and policies in terms of drug prevention, adequate rehabilitation efforts.

Declaration

As to declaration, major concerns were accounted to maintain professional integrity and ethics in this study. Particularly, ethical approval and informed consent, consent for publication, availability of data and material, funding sources, competing interest, authors' contributions, and acknowledgement are addressed.

Ethical approval and consent to participate in the study

According to the regulation of Dilla University ethical standards were maintained through the evaluation of institutionally organized body. As one of the major jobs of this body the study rigorously evaluated and corrected during proposal phase. Secondly, regular and on-going supervisions were made to maintain the ethical standards of the study. Hence, based on these assessments the team ensured that the research had no physical, psychological and social harm to the participants as well as to their hosting institution. Besides, as to the guideline of the general ethical protocol informed consent and confidentiality realised from all research participants. This was conducted by debriefing about the nature, results, and conclusion of the study for each of the participants.

Consent for publication

This study had purposes in terms of knowledge construction and problem solving. Accordingly, these intentions may have live implications if the findings get shared to the concerned bodies and other communities within related disciplines. Owing this perspective, the author proactively debriefed the participants about the potential publication of the study. Beyond debriefing and discussions, the participants were allowed to sign on consent form which was prepared in Amharic (local language).

Availability of data and material

The study was conducted based on the data generated through self-report with close assistance of the author, but none of the information was composed of video, photograph or any other form of images. Accordingly, the only data currently available is MS excel database on each of the variables included under the study.

Competing interests

The author declares that there are no conflicts of interests with regard to authorship and publication.

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Author's contributions

The author has made substantial contributions to the formation and design

of concepts; collection, and analysis of data and interpretation of the findings. Furthermore, he drafted and revised the manuscript for intellectual content.

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