

# Perceived Aetiology and Therapeutic Attitudes: Mediating Role of Stigmatizing Attitudes in Substance Use Disorders

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## ABSTRACT

**Introduction:** Substance Use Disorders (SUDs) are among the most stigmatized mental health condition in Pakistan's health care system. Stigma serves as a chief barrier to successful treatment engagement including seeking, sustaining participation or receiving quality care by health care professionals.

**Purpose:** The present study aimed to investigate the mediating role of stigmatizing attitudes in explaining the relationship between perceived aetiology and therapeutic attitudes.

**Method:** Correlational research design and purposive sampling strategy were used to collect a sample of 100 MHP's (N= 100) consisting of n= 36 (M=33.64, SD=8.34) psychiatrists and n= 64 (M=30.38, SD=7.30) psychologist from hospitals, addiction centers and universities.

**Results:** Results indicated that bio-medical causal attributions predicted stigmatizing attitudes (i.e., permissiveness, non-stereotype treatment optimism and treatment intervention); however, only treatment intervention mediated the relationship between bio- medical causal attributions and therapeutic preparedness among MHPs. Similarly, psychosocial causal attributions predicted stigmatizing attitudes (i.e., non-stereotype and non-moralism), however neither of them mediated the relationship between psycho- social causal attributions and therapeutic preparedness among MHPs.

**Conclusion:** The study highlights the importance of combined aetiological information in anti-stigma interventions, advance training, and informed curriculum to reduce stigma and increase therapeutic preparedness.

**Keywords:** Perceived Aetiology, Therapeutic Attitudes, Stigmatizing Attitudes, Substance Use Disorders

## INTRODUCTION

Among the developing countries, Pakistan shares the highest burden of mortality due to illicit substance use. According to a report published by United Nations Office on Drugs and Crime (1), 6% of Pakistan's population or 6.7 million people are illicit substance users among them 4.25 million suffer from substance use disorders requiring psychiatric intervention and rehabilitation (1). Substance Use Disorders (SUDs) are among the most stigmatized mental health condition in Pakistan's health care system (2), thus negative attitudes among Mental Health Professionals (MHPs) serve as a major treatment barrier and results in sub- optimal care for SUDs patients (3). Among various factors, endorsement of specific etiological beliefs or psychosocial-biogenetic causal attributions lead to the exacerbation several stereotyped attitudes hence affecting therapeutic commitment and willingness of MHPs in working with SUDs patients. Therefore, the present research aimed to investigate the relationship between Perceived Aetiology of Addiction, Stigmatizing and Therapeutic Attitudes of Mental Health Professionals in Treating Patients with Substance Use Disorders.

Stigma serves as a chief barrier to successful treatment engagement including seeking, sustaining participation, or receiving quality care by health care professionals (4). Mental health stigma is a complex, multi- faceted phenomenon, it is defined as the mark of disgrace or infamy or dehumanization of an individual based on social identity or participation in an undesirable or socially condemned activity (5). Individuals with illicit substance use are commonly perceived as difficult, manipulative, dangerous, unpredictable, and aggressive (3). Therefore, evoking social distance, aversive opinions, and common disapproval among public as compared to other mental health issues (6). Health care professionals are considered to be at forefront of fighting stigma against substance use disorders; however, it has been observed that MHPs exhibit relatively favourable attitudes towards SUDs, nevertheless, the desire for social distance was not significantly different between general public and MHPs. Similarly, other studies have indicated that Psychiatrists exhibited more stereotypic attitudes than either the general public or other health care professionals (7).

The term Aetiology has been defined as the causal underpinnings or origin of disease, in other words the factors which produce or predispose an individual in acquiring a disease or a

disorder (8). The etiological beliefs are divided in 3 categories including Disease Model Beliefs which reflects the view that alcohol and drug dependence are primary, progressive and incurable illness that can only be cured by life- long abstinence. Instead of maladaptive learned behaviour, substance dependence is considered as a physical disease caused in part by hereditary, biological vulnerability and neural changes produced by chronic substance abuse. On the other hand, Psychosocial Model considers SUDs as predominantly a learned behaviour, therefore emphasizing the reinforcing properties of substances as central to the acquisition and maintenance of SUDs. Thus, it encompasses a broad array of interventions for training of relapse prevention and coping skills. Lastly, Eclectic Model holds the notion that patients with SUDs are diverse with respect to biological, social and psychological characteristics, it does not imply any specific treatment approach but a flexibility attitude about which intervention will work for each patient (9).

Etiological beliefs comprise of theories and models reflecting widespread knowledge and pervasive practices and attitudes (10). In order to evade substance abuse stigma, mental health literacy campaigns and anti- stigma interventions have largely focused on the endorsement of bio- medical model of addiction for the public acceptance of addiction as a brain disease instead of a choice (11). However, disease model is successful in lowering the blame but has perpetuated other forms of stigma due to its multi- faceted nature (12). Therefore, SUDs maintains its place as the most stigmatized mental health problem both in public and among MHPs. In health care settings the discriminatory attitude of major stakeholders impacts their willingness to care and therapeutic commitment, therefore accounting for lower quality of care for individuals with substance problem (13). As, discriminatory attitudes leads to lower investment in education campaigns and training programs for MHPs resulting in therapeutic ineffectiveness thus reinforcing the established therapeutic pessimism about SUDs (3).

Thus, MHPs often feel ill equipped to care for individuals with substance use disorders and find working with them unrewarding (13). In short, the stigmatizing attitudes predicated by etiological beliefs adversely impacts professional and therapeutic attitudes among MHPs resulting in the delivery of sub- optimal mental health services by Psychiatrists and Psychologists (14). Therefore, the present study aims to investigate the relationship

between Perceived Aetiology of Addiction, Stigmatizing and Therapeutic Attitudes of Mental Health Professionals in Treating Patients with Substance Use Disorder (SUDs). The study purpose is to highlight the importance of enhanced SUD curriculum, training and evaluation for improved attitudes and perceived preparedness to treat patients with substance use among MHPs

### Hypotheses

**H1:** The relationship of Perceived Bio- medical Causal attributions Addiction and Therapeutic Attitudes/ Preparedness is likely to be mediated by Non-Stigmatizing Attitudes.

**H2:** The relationship of Perceived Psycho- Social Causal attributions of Addiction and Therapeutic Attitudes/ Preparedness is likely to be mediated by Non- Stigmatizing Attitudes.

## METHOD

**Research Design:** Correlational research design was used to assess the relationship between perceived aetiology of addiction, stigmatising and therapeutic attitudes of mental health professionals in treating patients with substance use disorders.

**Sample Characteristics:** A sample of 100 mental health professionals (N= 100) consisting of n= 36 (M=33.64, SD=8.34) psychiatrists and n= 64 (M=30.38, SD=7.30) psychologists from psychiatric wards of public hospitals, private addiction centres and public universities. The sampling strategy was purposive as the targeted sample was chosen on the basis of certain characteristics as suggested by prior studies. Psychologist and psychiatrist having at least 1 year of experience who encounter addiction patients at least a few times a year.

### Instruments

**Drug Screening Questionnaire (DAST- 10).** It is a brief self-report instrument for population screening, clinical case finding and treatment evaluation research. It provided an index of drug abuse problems. The scale measures substance abuse problem with reference to past 12 months. The scale yielded drug abuse problems on a continuum (i.e., 0= None, 2= Low, 3-5= Intermediate, 6-8= Substantial/ Meeting DSM- V Criteria, 9-10= Severe). The scale had internal consistency of .92 (16).

**Short Understanding of Substance Abuse Scale (SUSS).** It consisted of 19 items and assesses beliefs in 3 domains: Disease Model subscale (7 items) emphasizing stable physiological factors (e.g., genetic predisposition), and the Psychosocial Model subscale (5 items), emphasizing social and environmental factors (e.g., social learning processes) and Eclectic Model subscale (7 items), reflecting a flexible approach to understanding and treating substance use disorders. The items were rated on a 4- point Likert scale (Strongly Disagree= '0' to Strongly Agree= '4'). High score indicates greater agreement with specific causal explanation. The internal consistencies were calculated to be .78 for the Disease model subscale, .75 for Psycho- social model subscale, and .61 for the Eclectic model subscale (9). In the present study Chronbach's Alpha was observed to be .76, .72 and .30 for Disease Model, Psycho- Social Model and Eclectic Model respectively.

**Substance Abuse Attitude Survey (SAAS).** It consisted of 43 items and measures 5 dimensions of stigmatizing attitudes namely, Permissiveness (10 items), Non- Stereotype (10 items), Treatment Optimism (5 items), Non- moralism (11 items) and Treatment Intervention (8 items). The items were rated on a 7- point likert scale (Strongly Disagree= '1' to Strongly Agree= '7'). Items 26, 27, 28 corresponding to Permissiveness subscale, item 30-39 corresponding to non- stereotype subscale, item 42- 44 in treatment optimism subscale, item 45- 54 corresponding to non-moralism and items 61- 62 present in treatment intervention subscale are reversed scored items. A higher score on the scale indicated lower stigmatizing attitudes. The subscales exhibited internal consistency of .77, .63, .81, .67 and .67 respectively (17). In the present study, Chronbach's Alpha was observed to be .73, .71, .68, .68 and .60 for corresponding subscales of permissiveness, non- stereotype, treatment optimism, non-moralism and treatment intervention respectively.

**Drug Users' Problems Perception Questionnaire (DPPQ).** It consisted of 20 items with 5 subscales including Role Adequacy (7 items), Role legitimacy (3 items), Role Support (3 items), Role-specific Self-esteem (4 items) and Role Satisfaction (3 items). Items were scored on a 7 point Likert scale (i.e., Strongly Disagree= '1' to Strongly Agree= '7'). Items 78- 80 corresponding to subscale of role specific self- esteem was reversed scored. A higher score indicated greater therapeutic readiness and role perception. The overall scale exhibited internal consistency (Cronbach's alpha = .92) (18). In the present study Chronbach's alpha was observed to be .92, .77, .90, .61 and .84 for role adequacy, role legitimacy, role support, task- related self- esteem and work satisfaction respectively.

**Procedure:** Firstly, the research proposal was presented and approved by Departmental Doctoral Program Committee (DDPC). Thereafter, permission to use the instruments was taken from the respective authors of the 3 suggested questionnaires. Subsequently, formal application for issuance of authority letters for respective hospitals, private addiction centres and universities was submitted to departmental authorities. After gaining authorization from research supervisor and chairperson, the targeted data collection sites were approached and a formal permission was taken from the heads of respective hospitals, addiction centres and universities. To ensure that questionnaire was easy to comprehend, a pilot study was conducted on 10 participants from a public hospital and a mental health institute. Afterwards a pilot and main study was conducted. A total of 178 questionnaires were given to the participants and 108 questionnaires were returned. Participants took 10-15 minutes to complete the questionnaire. The response rate of participants was 60.67%.

## RESULTS

A series of Mediation Analyses was conducted on PROCESS developed by Hayes to test the hypotheses that non- stigmatizing attitudes (i.e., permissiveness, non- stereotype, treatment optimism, non- moralism and treatment intervention) were likely to mediate the relationship between perceived aetiology (i.e., bio- medical and psycho-social explanations) and therapeutic attitudes/ preparedness (i.e., role adequacy, role legitimacy, role support, task related esteem and work satisfaction).

As indicated in table 1 the results of direct effects showed that bio- medical model was found to be a significant negative predictor of permissiveness, non- stereotype, treatment optimism and treatment intervention whereas, bio- medical model did not significantly predict non- moralism. Therapeutic intervention was found to be a positive predictor of therapeutic attitudes/ preparedness. However, it was observed that bio- medical model did not significantly predict therapeutic attitudes/ preparedness.

As demonstrated in table 2, results of the indirect effect revealed that treatment intervention was a significant mediator between bio- medical model of addiction and therapeutic attitudes/ preparedness. Whereas, permissiveness, non- stereotype, treatment optimism and non- moralism were non- significant mediators of relationship between bio- medical model on therapeutic Attitudes/ preparedness,

As indicated in table 3 the results of direct effects showed that psycho- social model of addiction was found to be a significant negative predictor of non- stereotype and non- moralism whereas, psycho- social model was not significant predictor of permissiveness, treatment optimism and treatment intervention. Among mediators, only therapeutic intervention was the significant predictor of therapeutic attitudes/ preparedness. However, permissiveness, non- stereotype, treatment optimism and non-moralism did not significantly predict therapeutic attitudes/ preparedness. Also, Psycho- social model did not significantly predict therapeutic attitudes/ preparedness.

As demonstrated in table 4, results of the indirect effect revealed that permissiveness, non- stereotype, treatment optimism, non- moralism and treatment intervention were not

significant mediators between psychosocial model of addiction and therapeutic attitudes/ preparedness.

Table1: Direct Effects of Bio- medical Model of Addiction on Therapeutic Attitudes through Permissiveness, Non- Stereotype, Treatment Optimism, Non- Moralism and Treatment Intervention in Mental Health Professionals (N= 100).

Antecedent	Permissiveness		Non- Stereotype		Treatment Optimism		Non- Moralism		Treatment Intervention		Therapeutic Attitudes	
	B	SE	β	SE	β	SE	B	SE	β	SE	β	SE
Bio- medical Model	-.19*	.10	-.31*	.09	-.25*	.11	-.05	.11	-.20*	.10	.10	.11
Permissiveness	-	-	-	-	-	-	-	-	-	-	-.13	.10
Non- Stereotype	-	-	-	-	-	-	-	-	-	-	-.13	.11
Treatment Optimism	-	-	-	-	-	-	-	-	-	-	.01	.09
Non- Moralism	-	-	-	-	-	-	-	-	-	-	-.11	.09
Treatment Intervention	-	-	-	-	-	-	-	-	-	-	.39**	.12
Covariates												
Age	-	-	-	-	-	-	-	-	-	-	-.52	.27
Treatment Type	-	-	-	-	-	-	-	-	-	-	-.05	.13
Experience	-	-	-	-	-	-	-	-	-	-	.56*	.26
Training Hours	-	-	-	-	-	-	-	-	-	-	.27**	.09
Frequency of Exposure to SUD	-	-	-	-	-	-	-	-	-	-	.14	.11
Occupation	-	-	-	-	-	-	-	-	-	-	-.12	.14
MHP's Status	-	-	-	-	-	-	-	-	-	-	-.01	.11
$R^2 = .41, F(8,71) = 6.33, p < .005$ $R^2 = .41, F(8,71) = 6.21, p < .05$ $R^2 = .24, F(8,79) = 3.17, p < .05$ $R^2 = .24, F(8,71) = 2.95, p > .05$ $R^2 = .36, F(8,71) = 5.20, p < .05$ $R^2 = .46, F(13,66) = 4.45, p > .05$												

Note. \*p<.05, \*\*p<.01 Treatment Type, 1= day care, 2= inpatient, 3= outpatient, 4= All above. Training Hours, 1= 0 hours, 2= 1-6 hours, 3= 26-90 hours 4= 90 hours, Frequency of Working with SUDs, 1= Few times a year, 2=weekly, 3=monthly, 4=daily. Occupation Status, 1= regular job, 2=self- employed, 3=volunteer work. MHPs Status 1=Post graduate psychiatrist, 2=Consultant Psychiatrist, 3=Clinical Psychologist, 4=Health Psychologist.

Table 2: Indirect Effects of Bio- medical model on Therapeutic Attitudes/ Preparedness through Permissiveness, Non- Stereotype, Treatment Optimism, Non- Moralism and Treatment Intervention (N=100).

Mediators	Therapeutic Attitudes/ Preparedness			
	β	Boot SE	LL	UL
Permissiveness	.01	.03	-.02	.11
Non- Stereotype	-.01	.03	-.08	.06
Treatment Optimism	-.01	.03	-.07	.05
Non- Moralism	.01	.02	-.02	.07
Treatment Intervention	-.08*	.05	-.22	-.02

Note: \*p<.05, \*\*p<.01, β= Standardized Regression Co-efficient, LL= Lower Limit, UL= Upper Limit

Table 3: Direct Effects of Psycho- social Model of Addiction on Therapeutic Attitudes through Permissiveness, Non- Stereotype, Treatment Optimism, Non- Moralism and Treatment Intervention in Mental Health Professionals (MHPs) (N= 100).

Antecedent	Permissiveness		Non- Stereotype		Treatment Optimism		Non- Moralism		Treatment Intervention		Therapeutic Attitudes	
	β	SE	β	SE	β	SE	B	SE	β	SE	β	SE
Psycho- Social Model	-.16	.09	-.25*	.08	-.04	.10	-.36**	.09	-.11	.08	-.07	.10
Permissiveness	-	-	-	-	-	-	-	-	-	-	-.14	.10
Non- Stereotype	-	-	-	-	-	-	-	-	-	-	-.13	.11
Treatment Optimism	-	-	-	-	-	-	-	-	-	-	-.01	.09
Non- Moralism	-	-	-	-	-	-	-	-	-	-	-.17	.10
Treatment Intervention	-	-	-	-	-	-	-	-	-	-	.34**	.10
Covariates												
Age	-	-	-	-	-	-	-	-	-	-	-.53	.27
Treatment Type	-	-	-	-	-	-	-	-	-	-	-.05	.14
Experience	-	-	-	-	-	-	-	-	-	-	.55*	.27
Training Hours	-	-	-	-	-	-	-	-	-	-	.27**	.09
Frequency of Exposure to SUD	-	-	-	-	-	-	-	-	-	-	.18	.11
Occupation	-	-	-	-	-	-	-	-	-	-	-.10	.14
MHP's Status	-	-	-	-	-	-	-	-	-	-	.01	.11
$R^2 = .38, F(8,79) = 6.15, p > .05$ $R^2 = .35, F(8,75) = 5.20, p < .05$ $R^2 = .20, F(8,78) = 2.57, p > .05$ $R^2 = .38, F(8,75) = 5.81, p < .05$ $R^2 = .26, F(8,80) = 3.51, p > .05$ $R^2 = .46, F(13,65) = 4.27, p > .05$												

Note. \*p<.05, \*\*p<.01, Treatment Type, 1= day care, 2= inpatient, 3= outpatient, 4= All above. Training Hours, 1= 0 hours, 2= 1-6 hours, 3= 26-90 hours 4= 90 hours, Frequency of Working with SUDs, 1= Few times a year, 2=weekly, 3=monthly, 4=daily. Occupation Status, 1= regular job, 2=self- employed, 3=volunteer work. MHPs Status 1=Post graduate psychiatrist, 2=Consultant Psychiatrist, 3=Clinical Psychologist, 4=Health Psychologist.

Table 4: Indirect Effects of Psycho- social Model on Therapeutic Attitudes/ Preparedness through Permissiveness, Non- Stereotype, Treatment Optimism, Non- Moralism and Treatment Intervention. (N=100)

Mediators	Therapeutic Attitudes/ Preparedness			
	β	Boot SE	LL	UL
Permissiveness	.01	.02	-.01	.10
Non- Stereotype	.01	.03	-.06	.10
Treatment Optimism	-.01	.01	-.04	.02
Non- Moralism	.05	.05	-.05	.17
Treatment Intervention	-.04	.03	-.12	.01

Note: \*p<.05, \*\*p<.01, β= Standardized Regression Co-efficient, LL= Lower Limit, UL= Upper Limit

The overall mediational analysis revealed that bio- medical causal attributions negatively predicted non- stigmatizing attitudes (i.e., permissiveness, non- stereotype, treatment optimism and treatment intervention), however, only treatment intervention mediated the relationship between bio- medical causal attributions and therapeutic preparedness among MHPs. Similarly, psychosocial causal attributions negatively predicted non- stigmatizing attitudes (i.e., non- stereotype and non- moralism), however neither of them mediated the relationship between psycho- social causal attributions and therapeutic attitudes/ preparedness among MHPs.

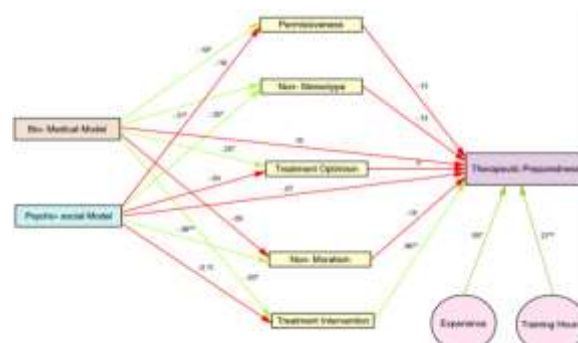


Figure 1: Emerged Model of PROCESS with Permissiveness, Non- Stereotype, Treatment Optimism, Non- Moralism and Treatment Intervention as Mediators Between Perceived Aetiology (Bio- Medical And Psychosocial Model) and Therapeutic Attitudes/ Preparedness.

## DISCUSSION

In Pakistan, 6.7 million people are illicit substance users among them 4.25 million suffer from substance use disorders (1). Due to limited number of treatment centres and access to health care facilities mortality due to illicit substance use has disproportionately increased up to 700 deaths each day, higher than terrorism accounting for 39 deaths every day (19). Among various barriers to treatment seeking, public stigma attached to drug addiction accounts for sub-optimal care and treatment among health care professionals (3). As surveys show, 76% of opiate users in Pakistan didn't seek professional help largely because of structural and public discrimination in health care sector (1). In this regard, anti-stigma campaigns to medicalize drug addiction in an attempt to improve therapeutic attitudes has further exacerbated negative attitudes among mental health professionals, largely due to multifaceted nature of public stigma (20). Therefore, the present study aimed to investigate the relationship between Perceived Aetiology of Addiction, Stigmatizing and Therapeutic Attitudes of Mental Health Professionals (MHPs) in Treating Patients with Substance Use Disorder (SUDs).

It was hypothesized that the permissiveness, non-stereotype, treatment optimism and non-moralism were likely to mediate the relationship between bio-medical causal attributions and therapeutic preparedness. The present study results demonstrated that bio-medical causal attributions significantly negatively predicted permissiveness, non-stereotype, treatment optimism and treatment intervention, however did not significantly predict therapeutic preparedness that is, stigmatizing attitudes did not explain the relationship between bio-medical causal attribution and therapeutic preparedness of MHPs. The statistical explanation lies in the fact that mental health professionals with increased age, experience, daily exposure and working in specialized addiction inpatient services had lower treatment optimism and non-stereotyped attitudes and greater therapeutic preparedness therefore demographic variables (i.e., age, experience, daily exposure and working in specialized addiction inpatient services) had a moderating effect in changing the direction of relationship between stigmatizing attitudes and therapeutic preparedness as it has been validated in various studies Skinner et al., (16) reviewed that years of experience and age lead to greater stigmatization that is treatment pessimism, non-permissiveness, stereotypes of dangerousness and coercive treatment interventions, partly explained by negative effects of professional's training and burn out (10). Similarly, in another study by Bina et al., (21) indicated SUDs experiential training and perceived knowledge was a causal determinant of therapeutic preparedness of post-graduate students. Thus, bio-medical causal attributions account for personal negative attitudes, however MHPs professional attitudes are pre-dominantly affected by the amount of accumulated knowledge and experience through increased hours of professional training and frequency of exposure (13).

Moreover, the hypothesis that treatment intervention was likely to mediate the relationship between bio-medical causal attributions and therapeutic preparedness was accepted. The study finding suggested that bio-medical causal explanations decrease treatment orientation attitude and hence increase therapeutic preparedness of MHPs in treating patients with SUDs. The counter-intuitive results are indicative of the fact that stereotypic and pessimistic beliefs are so much mainstream and popular to the extent that they are integrated in MHPs common treatment orientations that is mistakenly perceived as based on established treatment practice (10). MHPs feel prepared and adequate in carrying out drug interventions only in context of traditionally accepted treatment orientations based on prejudiced or culturally endorsed beliefs. In addition, the finding is suggestive of the fact MHPs with favourable treatment attitudes exhibited undifferentiated role perception in dealing with SUDs clients as the popular treatment approach is based on biased and culturally influenced attitudes in health care system at large therefore, accounting for lower role support and hence inadequacy and work

satisfaction among MHPs with optimal treatment orientations (22). In addition, the spuriousness of recognized treatment practices are a result of structural discrimination against addiction patients due to inadequacy in health policy and health care budget allocation leading to replication of imprecise treatment attitudes devoid to advance evidence based reforms. In this regard, organizational policies play an important role in advance training and professional attitudes of MHPs through organizational values of learning evidence based knowledge and developing a capacity to translate them into work practice while working with patients with SUDs pertaining to marginalization of SUDs knowledge and training in mainstream educational institutes (16).

On the other hand, the hypotheses the permissiveness, non-stereotype, treatment optimism, non-moralism and treatment intervention was likely to mediate the relationship between psychosocial causal attributions and therapeutic preparedness. The study results demonstrated that psychosocial causal explanations were a significant negative predictor of non-stereotype and non-moralism, however, it did not explain the relationship between psychosocial causal explanations and therapeutic preparedness of MHPs. The explanation that psychosocial model predicted stereotyped attitude is associated with the fact that non-stereotyped attitudes are multifaceted, where bio-medical explanations increase the belief in the stereotypes of dangerousness, unpredictability, social distance and differentness, emphasis on psychosocial causal attribution might lead to overestimation of personal control hence endorsement of blame by exacerbating the stereotyped and moralistic beliefs such as addiction being perceived as weakness of will or defect in character. Furthermore, social desirability of the MHPs in reporting perceived therapeutic preparedness can be potential reason for non-significant prediction, as the items of the scale for therapeutic preparedness were not subtle therefore, demand characteristics of the participant could have contaminated the actual outcome (23). Also, Loughran et al., (13) indicated that more than causal attributions training hours, frequency of exposure, years of experience, education and degree of evidence based knowledge on treatment intervention were the strongest predictors of therapeutic preparedness among MHPs therefore, the above mentioned factors can act as a moderator between stigmatizing attitudes and therapeutic preparedness hence changing the nature of relationship. As it was also observed in the present study as the training hours increase the belief in psychosocial causal explanations diminished which gives an indication on selection bias in choosing the content of SUDs curriculum and MHPs ability to critically appraise and override personal biases in the interest of delivering optimal care for SUDs patients (24).

The present study has highlighted the multifaceted nature of stigmatizing attitudes requiring multi-dimensional measures as the endorsement of a specific etiological belief lowers one form of negative attitudes while exacerbating other form of stigmatizing attitudes, that is, evidence based anti-stigma interventions involving combined etiological information should be emphasized in training and curriculum. The study implies the assimilation of various stereotypic cultural beliefs in mainstream treatment practice of SUDs; therefore, highlights institutional and personal measures to eliminate the amalgamation of unscientific ideas with treatment intervention as treatment services are provided in context of misinformed beliefs regarding SUDs.

## CONCLUSION

The present study investigated the mediating relationship of stigmatization between perceived aetiology of addiction, stigmatizing and therapeutic attitudes of mental health professionals in treating patients with substance use disorders. Result revealed that bio-medical causal attributions predicted stigmatizing attitudes (i.e., permissiveness, non-stereotype, treatment optimism and treatment intervention); however, only treatment intervention mediated the relationship between bio-medical causal attributions and therapeutic preparedness among

MHPs. Similarly, psychosocial causal attributions predicted stigmatizing attitudes (i.e., non- stereotype and non- moralism), however neither of them mediated the relationship between psycho- social causal attributions and therapeutic preparedness among MHPs.

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