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PROMOTING DRUG ABSTINENCE AMONG YOUNG ADULTS THROUGH GROUP MOTIVATIONAL INTERVIEWING

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Abstract
This study aims to evaluate the efficacy of Group Motivational Interviewing (GMI) in reducing drug use among university students in Pakistan and its impact on self-efficacy, well-being, coping appraisal, and stress appraisal. The research objectives include assessing the effectiveness of GMI in improving these psychological variables, identifying the predictive roles of self-efficacy and wellbeing in post-intervention outcomes, and exploring correlations between pre-test coping appraisal and post-test self-efficacy. Utilizing a quasi-experimental design, the study examines pre-test and post-test variables among participants from two public universities. Results indicate significant reductions in drug use and improvements in well-being and self-efficacy following GMI interventions. Multiple linear regression analyses confirm self-efficacy and well-being as key predictors of post-test outcomes, while strong correlations between pre-test coping appraisal and posttest self-efficacy are observed. The study highlights the bidirectional relationship between stress appraisal and drug use, emphasizing the potential of MI-based interventions in addressing substance abuse in Pakistan. Policy implications suggest expanding MI interventions across educational and rehabilitation settings. Future research should explore online platforms for wider reach and emphasize voluntary participation to enhance the intervention's effectiveness.

Keywords: Group Motivational Interviewing, self-efficacy, drug prevention, university students, Pakistan

Introduction

The misuse of drugs among young adults remains a significant public health concern, leading to a range of physical, psychological, and social issues. In Pakistan, drug use is a growing problem, particularly among the youth, with approximately 7.6 million drug addicts accounting for about 6 percent of the total population (Bandura & Benight, 2004). This issue is not only prevalent in urban centers but also extends to rural and remote areas, complicating efforts to mitigate its spread and impact. The socio-economic conditions, cultural norms, and limited access to education and employment opportunities contribute to a conducive environment for drug use, especially among university students.

The issue is further exacerbated by the unique socio-cultural dynamics of Pakistani society, where factors such as family systems, peer influence, and societal expectations play a pivotal role in shaping youth behavior. The traditional joint family system, while often serving as a support network, may also exert pressure on young adults, leading some to turn to drugs as a coping mechanism. Conversely, the shift toward nuclear families has reduced the protective oversight traditionally provided by extended family members, leaving young adults more vulnerable to peer influence and substance experimentation.

Moreover, drug use in Pakistan is intricately linked with its geographical and political context. Due to its proximity to Afghanistan, a major producer of narcotics, Pakistan serves as a transit route for drug trafficking, which increases the availability of substances such as heroin and cannabis. This easy access, combined with inadequate regulation and law enforcement, has made drugs more accessible to young people. The normalization of drug use in some social circles, particularly in affluent urban areas, further complicates efforts to combat this issue. Recent surveys indicate that approximately 53 percent of students in private institutions are involved in some form of drug use (Abbasi, 2016), reflecting the urgent need for targeted intervention strategies in educational settings.

Despite the rising prevalence of drug use, the application of innovative interventions such as Group Motivational Interviewing (GMI) in university settings, especially in non-Western contexts like Pakistan, remains underexplored. GMI offers a structured yet flexible approach to promoting drug abstinence through peer-supported settings, focusing on enhancing intrinsic motivation and resolving ambivalence toward change (DiClemente et al., 2017). However, the effectiveness of GMI in addressing drug use within culturally diverse and resource-constrained environments like Pakistan has not been thoroughly investigated.

This study addresses this gap by evaluating the efficacy of GMI in reducing drug use among university students in Pakistan and its impact on psychological variables such as self-efficacy, wellbeing, coping appraisal, and stress appraisal. Utilizing a quasi-experimental design, the study examines pre-test and post-test variables among participants from two public universities. The research objectives include assessing the effectiveness of GMI in enhancing these psychological factors, identifying the predictive roles of self-efficacy and well-being in post-intervention outcomes, and exploring correlations between pre-test coping appraisal and post-test self-efficacy.

By contextualizing GMI within the broader socio-cultural landscape of Pakistan, this research offers valuable insights for policymakers, healthcare professionals, and educational institutions aiming to address the complex issue of drug use among young adults. The findings of this study can contribute to the development of culturally sensitive, evidence-based strategies that not only promote drug abstinence but also enhance the overall well-being of young adults in Pakistan's educational settings.

Objectives

1. Investigate the effectiveness of Motivational Interviewing (MI) in preventing drug use among young adults in university settings by enhancing their self-efficacy, wellbeing, coping appraisal, and stress appraisal.
2. Assess the current levels of self-efficacy, wellbeing, coping appraisal, and stress appraisal among young adults regarding drug use in university settings.
3. Evaluate the effectiveness of GMI in improving self-efficacy, wellbeing, coping appraisal, and stress appraisal among young adults in the context of drug use in university settings.

Variables

The study examines the effectiveness of GMI in reducing drug use among young adults, utilizing selfefficacy, wellbeing, coping appraisal, and stress appraisal as variables. Self-efficacy significantly influences drug use among young adults, with higher levels associated with reduced likelihood of drug use and better treatment outcomes (Litt et al., 2021; Botvin et al., 2013). Well-being inversely correlates with drug use, promoting healthy behaviors and mitigating drug-related harms (Hammond et al., 2020; Lu et al., 2017). Coping appraisal evaluates available coping strategies, impacting drug use decisions and mental health outcomes (Folkman, 2020; McMordie, 2021). Stress appraisal

influences drug use likelihood, with reliance on drugs exacerbating stress levels in a bidirectional relationship (Lazarus & Folkman, 1984; Skinner et al., 2003; Szkody & McKinney, 2020). Interventions targeting these variables can deter drug use and promote long-term recovery across diverse populations.

Method

This study employed a comprehensive methodology to evaluate the efficacy of GMI in promoting drug abstinence among university students in Pakistan. Given the complex socio-cultural factors influencing drug use in the country, a quasi-experimental design was selected to accommodate both the intervention and control groups without random assignment. This approach allowed for a more practical examination of GMI's impact in real-world settings, considering the constraints of conducting research in educational institutions.

The study was conducted in three phases: adaptation of the intervention, a pilot study, and the main study. Each phase was meticulously planned and executed to ensure that the intervention was culturally sensitive and effectively tailored to the needs of the target population.

1. Phase I: Adaptation of the Intervention

- The adaptation phase involved translating and modifying the intervention materials to align with the cultural and linguistic context of the participants. The intervention was originally developed in English and then translated into Urdu, with careful attention given to maintaining the integrity and nuances of the motivational interviewing techniques.
- This phase also included training the facilitators in the principles of motivational interviewing and the specific adaptations needed for the Pakistani context. Facilitators underwent rigorous workshops and were provided with detailed manuals and guidelines to ensure consistency in delivering the intervention.

2. Phase II: Pilot Study

- The pilot study aimed to test the feasibility and acceptability of the adapted GMI intervention. A small sample of 15 students from two universities was selected to participate in this phase. The pilot study provided valuable insights into the practical challenges of implementing GMI in university settings and allowed for refinement of the intervention's content and delivery methods.
- Participants were assessed on various psychological variables, including self-efficacy, coping appraisal, stress appraisal, and drug use, both before and after the intervention. Feedback from the participants and facilitators was used to further fine-tune the intervention before moving to the main study.

3. Phase III: Main Study

- The main study involved a larger sample of 85 university students, selected from two public sector universities in Pakistan: Quaid-i-Azam University Islamabad and the University of Azad Jammu & Kashmir. Participants were recruited based on voluntary participation and specific criteria related to their drug usage intensity and demographics.
- The intervention was conducted in group settings with six to eight participants per group. This group size was chosen to balance fostering a supportive dynamic while allowing for individualized attention and interaction during sessions. Each group underwent six GMI sessions facilitated by trained professionals.

A total of 85 participants were recruited for the main study, with 55 students from Quaid-i-Azam University Islamabad and 30 students from the University of Azad Jammu & Kashmir. The participants were aged between 18 and 25 years, and the majority were male, reflecting the gender distribution typically observed in studies on drug use in Pakistan. The inclusion criteria required participants to have engaged in some form of drug use within the past six months and to have expressed ambivalence or willingness to change their behavior.

The study employed several validated instruments to measure the psychological variables of interest:

- **Brief Coping Orientation Inventory (BCI)**: Used to assess participants' coping strategies and their effectiveness in dealing with stressors. The BCI was adapted and validated for use in the Pakistani context.
- **Drug Abuse Screening Test (DAST-10)**: A brief instrument designed to assess the severity of drug use problems. It was translated and culturally adapted for this study.
- **WHO Well-Being Index**: A measure of general well-being, adapted to reflect cultural nuances in the perception of well-being among Pakistani youth.
- **General Self-Efficacy (GSE) Scale**: Assessed participants' confidence in their ability to resist drug use and handle difficult situations.
- **Stress Appraisal Measure (SAM)**: Measured how participants perceived and evaluated stressors in their lives.

The intervention was conducted over a period of six weeks, with participants attending one session per week. Each session lasted approximately 90 minutes and focused on enhancing intrinsic motivation, developing coping skills, and resolving ambivalence toward drug use. The sessions were structured as follows:

1. **Session 1**: Establishing rapport and trust among participants, and introducing the concepts of drug use and addiction.
2. **Session 2**: Exploring participants' values, goals, and their motivations for change using the Decisional Balance Sheet.
3. **Session 3**: Introducing and practicing motivational interviewing techniques such as reflective listening and change talk.
4. **Session 4**: Enhancing self-efficacy through role-play exercises and collaborative problemsolving activities.
5. **Session 5**: Building coping strategies to handle stress and resist peer pressure.
6. **Session 6**: Setting long-term goals, reviewing progress, and reinforcing commitment to change.

Pre-test assessments were conducted one week before the intervention, and post-test assessments were carried out one day after the final session to measure immediate effects. A follow-up assessment was conducted two weeks later to evaluate the sustainability of the intervention's impact.

Descriptive statistics, including means, standard deviations, and frequencies, were computed to summarize participants' demographic characteristics and baseline variables. Independent sample ttests were used to compare differences in variables between the two universities and between participants from joint and nuclear family systems. Multiple linear regression analyses were performed to identify significant predictors of drug use outcomes, with self-efficacy and well-being emerging as key variables influencing post-test results.

Reliability analysis was conducted to ensure the consistency of the adapted instruments, with Cronbach's alpha coefficients indicating high internal reliability for all scales used in the study. The data were analyzed using SPSS version 22, and significance levels were set at $p < 0.05$.

The study adhered to ethical standards and obtained approval from the National Institute of Psychology, Quaid-i-Azam University Islamabad. Informed consent was obtained from all participants, ensuring their voluntary participation and confidentiality of responses. Participants were provided with debriefing sessions and access to counseling services as needed.

Findings

An independent sample t-test compared pre-test variables between participants from University 1 ($n = 55$) and University 2 ($n = 30$) (Table 1). The results show that University 1 participants had significantly lower drug use and higher well-being and self-efficacy compared to participants from University 2 at the pre-test stage. However, no significant differences were observed in coping appraisal or stress appraisal between the two universities. These findings suggest that while participants from University 1 were better equipped in terms of psychological well-being and selfefficacy, both groups experienced similar levels of coping and stress before the GMI intervention. The significant differences in drug use, well-being, and self-efficacy highlight distinct patterns in psychological factors and substance use behaviors between the two university contexts.

Table 1 Independent Sample t-test for Universities of Participants on Pre-test Variables (N=85)

Variables	University 1 (*n* = 55)	University2 (*n* = 30)			95% *CI*		*Cohen's d*
	M (SD)	*M (SD)*	*t (83)*	*p*	LL	UL	
Pretest							
Coping Appraisal	71.61 (12.36)	66.43(12.17)	1.85	.06	-.36	10.73	-
Drug Use	3.81(2.64)	7.53 (2.04)	-6.67	.00	-4.82	-2.60	1.58
Wellbeing	12.90 (7.02)	6.60 (4.60)	4.42	.00	3.47	9.14	1.06
Self – Efficacy	31.05 (5.39)	20.20 (5.89)	8.57	.00	8.33	13.37	1.92
Stress Appraisal	80.14 (15.36)	77.40 (19.21)	.72	.47	-4.84	10.33	-

Note. t= Test Value; CL = Confidence Interval; LL = Lower Limit; UL = Upper Limit

An independent sample t-test compared follow-up variables between participants from University 1 (n = 55) and University 2 (n = 30) (Table 2). The follow-up analysis using an independent sample ttest (Table 2) compared the psychological and behavioral variables between participants from University 1 (n = 55) and University 2 (n = 30) after the intervention. The results indicated significant differences in coping appraisal, self-efficacy, and stress appraisal, with University 2 participants reporting higher levels on all three variables compared to University 1. Specifically:

- Coping Appraisal: Participants from University 2 had significantly higher coping appraisal scores (M = 82.16, SD = 9.72) than those from University 1 (M = 72.85, SD = 11.67), t(83) = -3.72, p < 0.001. The effect size (Cohen's d = 0.87) suggests a strong difference between the two groups in terms of perceived ability to cope with stressors.
- Self-Efficacy: Participants from University 2 reported significantly higher self-efficacy (M = 32.50, SD = 5.66) compared to University 1 participants (M = 29.56, SD = 5.81), t(83) = -2.24, p = 0.02. The moderate effect size (Cohen's d = 0.51) indicates a meaningful difference in participants' confidence to manage drug use and other challenging situations.
- Stress Appraisal: University 2 participants had significantly higher stress appraisal scores (M = 97.26, SD = 16.31) compared to University 1 participants (M = 82.01, SD = 13.02), t(83) = -4.71, p < 0.001. The large effect size (Cohen's d = 1.03) reflects a substantial difference in how participants from each university perceived and evaluated stress levels after the intervention.

In contrast, no significant differences were observed between the two universities in terms of drug use (t(83) = -0.11, p = 0.90) or well-being (t(83) = -1.37, p = 0.17), indicating that participants from both universities reported similar levels of drug use and well-being at follow-up. Overall, these findings suggest that while University 2 participants showed better coping strategies, higher selfefficacy, and greater stress appraisal at follow-up, both groups demonstrated similar levels of wellbeing and drug use reduction.

Table 2 Independent Sample t-test for Universities of Participants on Follow up Variables (N=85)

Variables	University 1 (*n* = 55)	University 2 (*n* = 30)			95% *CI*		*Cohen's d*
	M (SD)	*M (SD)*	*t (83)*	*p*	LL	UL	
Coping Appraisal	72.85(11.67)	82.16(9.72)	-3.72	.00	-14.29	-4.33	.87
Drug Use	2.67(2.35)	2.73 (2.01)	-.11	.90	-1.07	.95	-
Wellbeing	15.07(6.36)	16.76 (3.00)	-1.37	.17	-4.14	.75	-
Self – Efficacy	29.56 (5.811)	32.50(5.66)	-2.24	.02	-5.53	-.33	.51
Stress Appraisal	82.01 (13.02)	97.26 (16.31)	-4.71	.00	-21.68	-8.80	1.03

Note. t= Test Value; M = Mean; SD = Standard deviation; CL = Confidence Interval; LL = Lower Limit; UL = Upper Limit

The independent sample t-test results presented in Table 3 compare the post-test variables between participants from joint family systems (n = 39) and those from nuclear family systems (n = 46). The analysis revealed significant differences in coping appraisal and stress appraisal between the two family types, while no significant differences were observed in drug use, self-efficacy, or well-being.
 Coping Appraisal: Participants from nuclear family systems had significantly higher coping appraisal scores (M = 76.97, SD = 12.73) compared to those from joint family systems (M = 69.28, SD = 13.71), t(83) = -2.67, p < 0.001. The effect size (Cohen's d = 0.58) indicates a moderate difference between the two groups, suggesting that participants from nuclear families perceived themselves to have more effective coping strategies for dealing with stressors.

- Stress Appraisal: Participants from nuclear family systems also exhibited significantly higher stress appraisal scores (M = 91.69, SD = 15.00) compared to participants from joint family systems (M = 81.41, SD = 17.16), t(83) = -2.94, p < 0.001. The moderate effect size (Cohen's d = 0.64) reflects a meaningful difference in how the two groups evaluated and perceived stress levels, with participants from nuclear family systems experiencing higher stress.
- Drug Use: No significant difference was found in post-test drug use scores between participants from joint (M = 3.00, SD = 2.60) and nuclear family systems (M = 3.50, SD = 2.37), t(83) = -0.92, p = 0.35. This suggests that family system type did not significantly impact participants' drug use behaviors at the post-test stage.
- Self-Efficacy: Similarly, no significant difference was observed in self-efficacy scores between joint family participants (M = 29.82, SD = 6.39) and nuclear family participants (M = 31.43, SD = 5.93), t(83) = -1.20, p = 0.20, indicating that family system type did not influence participants' confidence in managing drug use or other challenges after the intervention.
- Well-Being: Well-being scores were also similar between participants from joint family systems (M = 15.74, SD = 6.56) and nuclear family systems (M = 15.60, SD = 4.38), t(83) = 0.11, p = 0.91, showing no significant difference between the two groups.

The results indicate that participants from nuclear family systems reported significantly higher levels of coping appraisal and stress appraisal compared to those from joint family systems. This suggests that nuclear family participants viewed themselves as having better coping mechanisms but also experienced higher levels of stress. However, no significant differences were found between the two groups in drug use, self-efficacy, or well-being at the post-test stage, suggesting that family system type may not have a major impact on these psychological outcomes following the intervention.

Table 3 Independent Sample t-test for Family System of Participants on Post-test Variables (N=85)

Variables	Joint (n = 39)	Nuclear (n = 46)			95% *CI*		*Cohen's d*
	M (SD)	*M (SD)*	*t (83)*	*p*	LL	UL	
Post Test							
Coping Appraisal	69.28 (13.71)	76.97 (12.73)	-2.67	.00	-13.40	-1.98	.58
Drug Use	3.00 (2.60)	3.50 (2.37)	-.92	.35	-1.57	.57	-
Wellbeing	15.74 (6.56)	15.60 (4.38)	.11	.91	-2.24	2.51	-
Self – Efficacy	29.82 (6.39)	31.43 (5.93)	-1.20	.20	-4.27	1.04	-
Stress Appraisal	81.41 (17.16)	91.69 (15.00)	-2.94	.00	-17.22	-3.34	.64

Note. t= Test Value; M = Mean; SD = Standard deviation; CL = Confidence Interval; LL = Lower Limit; UL = Upper Limit.

An independent sample t-test compared follow-up variables between participants from joint family systems (n = 39) and nuclear family systems (n = 46) (Table 4). Significant differences emerged in coping appraisal and stress appraisal, with participants from nuclear family systems showing higher coping and lower stress compared to joint family systems. However, no significant differences were

found in drug use, wellbeing, or self-efficacy between the family types during the follow-up assessment.

Table 4 Independent Sample t-test for Family System of Participants on Follow up Variables (N=85)

Variables	Joint (n = 39)	Nuclear (n = 46)			95% *CI*		*Cohen's d*
	M (SD)	*M (SD)*	*t (83)*	*P*	LL	UL	
Follow up							
Coping Appraisal	72.69 (11.76)	79.06 (11.21)	-2.55	.01	-11.33	-1.40	.55
Drug Use	3.05 (2.68)	2.39 (1.73)	1.36	.17	-.30	1.62	-
Wellbeing	15.74 (6.56)	15.60 (4.38)	.11	.91	-2.24	2.51	-
Self – Efficacy	29.82 (6.41)	31.26 (5.40)	-1.12	.26	-3.98	1.10	-
Stress Appraisal	82.43 (14.12)	91.60 (16.36)	-2.74	.00	-15.82	-2.51	.60

Note. t= Test Value; CL = Confidence Interval; LL = Lower Limit; UL = Upper Limit.

The multiple linear regression analysis indicated that GSE and Wellbeing were significant predictors of the pre-test variable (Table 5). Higher GSE levels were associated with lower pre-test variable scores, as were higher levels of Wellbeing. However, Coping Appraisal and SA were not significant predictors. The constant term in the model was statistically significant ($p < 0.001$), indicating a significant intercept even when other predictors were held constant. Overall, the model explained 50% of the variance in the pre-test variable ($R2 = 0.50$), with a statistically significant change in R2 ($\Delta R2 = 0.25$, $p < 0.001$) upon adding predictors, suggesting collective contribution to explaining variance in the pre-test variable.

Table 5 Multiple Linear Regression Analysis for Pre-test Predicting Variable (N=85)

Variables	Model I			*95%CI*	
	B	*β*	*SE*	LL	UL
Constant	10.10***		1.67	6.77	13.42
BCI	-.01	-.04	.02	-.05	.03
WHO	-.12**	-.29**	.04	-.20	-.04
GSE	-.12**	-.30**	.03	-.19	-.04
SA	.00	.03	.01	-.03	.04
R^2	.50***				
F	8.14***				
ΔR^2	.25***				
ΔF	.00***				

Note. CI= Confidence Interval; LL= Lower Limit; UL= Upper Limit; BCI= Brief COPE Inventory; WHO= Wellbeing Scale; GSE= General Self-Efficacy; SA= Stress Appraisal.

The regression analysis revealed that GSE and Wellbeing significantly predicted the post-test variable (Table 6). Higher GSE levels and Wellbeing were associated with lower post-test variable scores. However, Coping Appraisal and SA did not significantly predict the outcome. The model's constant term was statistically significant, indicating a significant intercept. Overall, the model explained 52% of the variance in the post-test variable, with a significant change in R2 upon adding predictors, indicating a collective contribution to explaining variance in the outcome.

Table 6 Multiple Linear Regression Analysis for Post-test Predicting Variable (N=85)

Variables	Model I			*95%CI*	
	B	*B*	*SE*	LL	UL
Constant	8.44***		1.67	5.09	11.78
BCI	.01	.06	.01	-.02	.04
WHO	-.12**	-.26**	.04	-.20	-.03
GSE	-.17**	-.41**	.04	-.25	-.09
SA	.01	.08	.01	-.01	.04
R^2	.52***				
F	9.03***				
ΔR^2	.27***				
ΔF	.00***				

Note. CI= Confidence Interval; LL= Lower Limit; UL= Upper Limit; BCI= Brief COPE Inventory; WHO= Wellbeing Scale; GSE= General Self-Efficacy; SA= Stress Appraisal.

The multiple linear regression analysis showed that GSE was a significant predictor of the follow-up variable, with higher levels associated with lower scores (Table 7). However, Coping Appraisal, Wellbeing, and SA were not significant predictors. The constant term in the model was significant. Overall, the model explained 31% of the variance in the follow-up variable, with a significant change in R2 upon adding predictors, indicating collective contribution to explaining variance.

Table 7 Multiple Linear Regression Analysis for Follow up Predicting Variable (N=85) Variables

Variables	Model I			*95%CI*	
	B	*B*	*SE*	LL	UL
Constant	6.05**		1.8	2.41	9.68
BCI	-.01	-.05	.02	-.05	.03
WHO	-.02	-.05	.04	-.10	.06
GSE	-.12**	-.30**	.04	-.20	-.04
SA	.01	.12	.01	-.01	.05
R^2	.31*				
F	2.51*				
ΔR^2	.09*				
ΔF	.04*				

Note. CI= Confidence Interval; LL= Lower Limit; UL= Upper Limit; BCI= Brief COPE Inventory; WHO= Wellbeing Scale; GSE= General Self-Efficacy; SA= Stress Appraisal.

Correlation

The correlation test revealed associations among demographic variables in the study. Gender was positively correlated with age and negatively correlated with education, university attendance, and family system. Education had positive correlations with university attendance, age, and job status, but negative correlations with gender and family system. University attendance was positively correlated with education and job status, but negatively correlated with gender and age. Age was positively correlated with education and university attendance, but negatively correlated with gender, family system, marital status, and job status. The family system was negatively correlated with gender and age. Job status showed positive correlations with education and university attendance, but a negative correlation with age. Marital status was positively correlated with education and university attendance, but not significantly correlated with age. Factors related to drug use in family and friends showed specific relationships with age, providing insights into the interrelationships among the variables under study.

Table 8 Correlation Test for Pre- Test Variables (N=85)

	1		2	3	4	5
1	Coping appraisal	-	-.15	-.00	.28**	.47**
2	Drug use		-	-.41**	-.51**	-.07
3	Wellbeing			-	.40**	-.10
4	Self-efficacy				-	.16
5	Stress appraisal					-

*p<0.05. **p<0.01 level.

Table 8 shows correlations between pre-test and post-test variables. Pre-coping appraisal correlates positively with post-coping appraisal and post-self-efficacy, while pre-drug use correlates negatively with post-drug use and post-coping appraisal. Pre-wellbeing correlates positively with postwellbeing, and pre-self-efficacy correlates positively with post-self-efficacy. Pre-stress appraisal correlates positively with post-stress appraisal. These correlations suggest higher pre-test coping appraisal and self-efficacy association with higher post-test levels, while higher pre-test drug use association with lower post-test levels of drug use and coping appraisal. Additionally, pre-test wellbeing and stress appraisal positively correlate with their respective post-test variables.

Table 9 Correlation Test for Post- Test Variables (N=85

		1	2	3	4	5
1	Coping appraisal	-	.03	-.01	.25*	.43**
2	Drug use		-	.38**	-.44**	-.02
3	Wellbeing			-	.27**	-.05
4	Self-efficacy				-	.37**
5	Stress appraisal					-

*p<0.05. **p<0.01.

Table 9 presents correlation coefficients between pre-test and post-test variables. Pre-coping appraisal correlates positively with post-coping appraisal and post-self-efficacy, while pre-drug use correlates negatively with post-drug use and post-coping appraisal. Pre-wellbeing correlates positively with post-wellbeing, and pre-self-efficacy correlates positively with post-self-efficacy. Pre-stress appraisal also correlates positively with post-stress appraisal. These correlations suggest associations between pre-test and post-test variables, indicating higher pre-test coping appraisal and self-efficacy linkage to higher post-test levels of coping appraisal and self-efficacy, respectively. Conversely, higher pretest drug use is associated with lower post-test drug use and coping appraisal. Additionally, pre-test wellbeing and stress appraisal positively correlate with their respective post-test variables.

Suggestions

Leveraging online platforms for delivering interventions offers several benefits, particularly in the context of sensitive topics such as substance use. Online formats, such as virtual workshops or telehealth sessions, provide participants with a greater sense of anonymity and confidentiality, which can lead to more open and honest communication. Anonymity is a crucial factor in encouraging participants to disclose personal experiences and feelings without the fear of stigma or judgment. This is especially important in conservative or culturally restrictive environments where discussing substance use may be frowned upon. Additionally, online platforms can reach a wider audience, including those who might otherwise be unable to attend in-person sessions due to geographical, financial, or social constraints.

Ensuring that participation in studies related to sensitive issues, like substance use, is completely voluntary is crucial for both the ethical integrity of the research and the authenticity of participant responses. When participants feel that they are voluntarily choosing to take part in a study, especially

when it involves topics that carry social stigma or personal vulnerability, they are more likely to be engaged and provide candid responses. This is particularly important when recruiting female participants, who may face additional cultural or societal barriers when discussing topics related to substance use.

Extending the scope of the study to include participants in rehabilitation settings can yield invaluable insights into the adaptability and effectiveness of GMI across diverse contexts. Rehabilitation centers present a unique environment where individuals are often navigating complex issues, such as cooccurring mental health disorders, trauma, or chronic substance dependence. Implementing GMI in such settings can provide a more comprehensive understanding of its potential to support individuals through various stages of recovery, from initial engagement to long-term maintenance. Rehabilitation settings also offer opportunities to explore how GMI can be integrated with other therapeutic approaches, such as Cognitive Behavioral Therapy (CBT), mindfulness training, or medicationassisted treatment. Understanding how GMI functions within these multidisciplinary frameworks can inform the development of tailored intervention strategies that address the holistic needs of individuals in recovery.

Conclusion

The study sheds light on the complexities of drug use among young adults in Pakistan and highlights GMI as an effective intervention strategy. Given the rising rates of drug usage, urgent interventions are needed, and MI offers a culturally sensitive, client-centered approach to behavior change.

Through a review of literature and empirical evidence, the study reveals the bidirectional relationship between stress appraisal and drug use, the influence of peers, and socio-cultural factors on attitudes and behaviors. It stresses the need for tailored interventions in educational settings to address Pakistani youth's unique needs.

MI is well-suited to tackle drug-related issues in Pakistan, offering a holistic framework for sustained behavior change.

These findings carry significant implications for policy, practice, and future research, advocating for MI-based interventions in educational and community settings to reduce drug usage and enhance well-being.

References

1. Botvin, G. J., Epstein, J. A., Baker, E., Diaz, T., & Ifill-Williams, M. (2013). School-based drug abuse prevention with inner-city minority youth. In *The Etiology and Prevention of Drug Abuse Among Minority Youth* (pp. 5-19). Routledge.
2. Fernández-Martín, F. D., Flores-Carmona, L., & Arco-Tirado, J. L. (2022). Coping strategies among undergraduates: Spanish adaptation and validation of the Brief-COPE inventory. *Psychology Research and Behavior Management*, 991-1003.
3. Folkman, S. (2020). Stress: appraisal and coping. In *Encyclopedia of behavioral medicine* (pp. 21772179). Cham: Springer International Publishing.
4. Hammond, C. J., Chaney, A., Hendrickson, B., & Sharma, P. (2020). Cannabis use among US adolescents in the era of marijuana legalization: a review of changing use patterns, comorbidity, and health correlates. *International review of psychiatry*, *32*(3), 221-234.
5. Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer publishing company. Litt, M. D., Kadden, R. M., Tennen, H., & Dunn, H. K. (2021). Momentary coping and marijuana use in treated adults: Exploring mechanisms of treatment. *Journal of consulting and clinical psychology*, *89*(4), 264.
6. López, G., Orchowski, L. M., Reddy, M. K., Nargiso, J., & Johnson, J. E. (2021). A review of research-supported group treatments for drug use disorders. *Substance Abuse Treatment, Prevention, and Policy, 16*(51). https://doi.org/10.1186/s13011-021-00371-0
7. Lu, F. Y., Wen, S., Deng, G., & Tang, Y. L. (2017). Self-concept mediate the relationship between childhood maltreatment and abstinence motivation as well as self-efficacy among drug addicts. *Addictive behaviors*, *68*, 52-58.

8. McMordie, L. (2021). Avoidance strategies: stress, appraisal and coping in hostel accommodation. *Housing studies*, *36*(3), 380-396.
9. Murad, H. A. S., AlHarthi, N. A., Bakarman, M. A., & Gazzaz, Z. J. (2022). Development and validation of an Arabic version of the Drug Abuse Screening Test-10 (DAST-10) among Saudi drug abusers. *Journal of psychoactive drugs*, *54*(5), 482-489.
10. Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: a review and critique of category systems for classifying ways of coping. *Psychological bulletin*, *129*(2), 216.
11. Szkody, E., & McKinney, C. (2020). Parental depression and emerging adult psychological problems: indirect effects by parents' social support and emerging adult engagement coping. *Basic and applied social psychology*, *42*(4), 209-218.