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Relationship between Depression, Anxiety, Stress and Mental Wellbeing among Poly Substance Users

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Abstract

The current research aimed to find out the relationship between depression, anxiety, stress and mental well-being among poly substance users in Pakistan. The cohabitation of depression, anxiety, and stress, as well as its nuanced interaction with mental well-being in individual, who use several substances, is a critical subject. As the global prevalence of poly substance use rises, understanding the complex interaction of these psychological aspects becomes critical for effective intervention, prevention, and holistic treatment. A quantitative research method with snowball sampling technique was used. Depression, Anxiety and Stress Scale - (DASS 21) and The Warrick Edinburgh mental well- being scale (WEMWBS) were used and SPSS 21 was used to analyze data of 350 individuals. Results show that Depression, Stress and Anxiety have a significant positive correlation with each other and a negative correlation with Mental Well Being (r= -.23, <0.01). The result also shows that there was not significant difference in depression, anxiety, and stress levels based on gender due to lower level of significant difference (F= 0.429, P= 0.652), also in case of Mental Well Being a significant difference was observed among poly substance users (F= 4.689, P = 0.010). Results also indicates that significant differences in depression, anxiety and stress levels (Nuclear: 16.39, Joint: 18.78) but not in mental well-being (Nuclear: 47.25, Joint: 47.62) between poly drug users according to family systems. The study's findings can help to design integrated treatment approaches that target both drug use and mental health of poly substance users. It may aid in the development of treatment regimens for poly substance users and to develop personalized and evidence-based therapies that target the unique requirements of this group by identifying specific patterns, risk factors, and protective factors to take into account the complexities of concurrent drug use and mental health concerns.

Keywords: Depression, Anxiety, Stress, Mental Wellbeing, Poly Substance Users

Introduction

Since its conception, the definition of poly drug use has evolved, as have methods of self-report evaluation. The World Health Organization (WHO) now defines poly drug usage as an individual using more than one type of drug. According to the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), the word refers to the simultaneous or sequential use of illegal narcotics and legal substances such as alcohol and pharmaceuticals. The global prevalence of poly drug use has increased significantly during the last several decades. This tendency is not restricted to certain demographic groups, but affects a wide range of people, including teenagers, young adults, and the elderly (Compton, 2000). Concurrent use of several substances, such as alcohol, illegal drugs, and prescription pharmaceuticals, has grown common, posing a significant challenge to healthcare providers, academics, and

legislators. Poly substance usage is linked to an increased risk of mental health issues such as depression, anxiety, and stress. Multiple drugs' synergistic effects can contribute to the worsening of psychological discomfort, resulting in a complicated interaction that requires careful evaluation. Understanding the exact nature of this interaction is critical for customizing therapies to the unique requirements of persons who use several substances (Compton, 2000). The variety of chemicals involved in poly drug usage complicates the mental health picture. Various chemical combinations may have diverse impacts on mood regulation, stress response systems, and overall psychological well-being. Because of the intricacy caused by these combinations, a detailed examination of the specific interactions and synergies at work is required. Depression, anxiety, stress, and poly substance use all have a bidirectional link, with each impacting and strengthening the other. Individuals suffering from psychological anguish may resort to drugs as a coping method in order to alleviate their symptoms (Arnold, 2014). Chronic drug use, on the other hand, may lead to the emergence or worsening of mental health issues, creating a difficult to break cycle.

Research Hypothesis

1. There is a correlation between depression, anxiety, stress total and mental well-being among poly drug users.
2. There is a significant difference in depression, anxiety, stress and mental well-being with respect to gender in poly drug users.
3. There is a difference in depression, anxiety, stress and mental well-being with respect to family system in poly drug users.

Methodology

Research Design

A quantitative research methodology is used.

Sampling Method

The non-probability sampling e.g. snowball sampling technique is used in this study. Using this strategy (snowball), researcher made first contact with someone who possesses attributes pertinent to my topic and then recommend to others. In this study, the researcher approached individuals who are using drugs through the acquaintances and first make contact with a willing participant. The individual will suggest to other individuals who use drugs who will then be contacted to see whether they are open to taking part in the study.

Analysis of data

The researcher used SPSS-21 for analyzing data.

Measures

The researcher used Depression, Anxiety and Stress Scale - 21 Items scale (DASS 21) and the Warrick Edinburgh mental well-being scale (WEMWBS).

Consent Form:

Informed consent briefly explains participants the purpose of the study, their right to withdraw at any time, the right of voluntary participation, and the maintenance of confidentiality, so that participants could make an informed decision.

Demographic Form:

In Demographic form, Participants were asked about their age, gender, educational background, Employment status, their family system. Participants were asked if any of their family members have taken drugs and what was their relation with them. Participants were asked about their time frame for drug usage.

Depression anxiety stress scale (DASS-21):

The 21-item scale, which has seven items for each category and a four-point rating system (0 to 3) for the presence of symptoms over the previous week, assesses stress, anxiety, and

depression. The score might vary from 0 to 21 for each scale. Translation and cross-cultural adaptation were carried out in accordance with Beaton et al. (2000)'s instructions. Correlations with other measures of stress, anxiety, and depression have shown moderate to strong connections, supporting the construct validity (Brown et al., 1997). According to Anthony et al. (1998), test-retest reliability coefficients over a two-week period ranged from.71 to.81 for the Depression subscale, .74 to .81 for the Anxiety subscale, and and .81 to.89 for the Stress subscale. These results were considered to be good.

Warrick Edinburgh mental well-being scale (WEMWBS):
The WEMWBS is a mental health well-being scale that only considers positive elements of mental health. It shows potential as a tool for population-level mental health monitoring since it is a brief, psychometrically sound scale without ceiling effects in a population sample. In addition to having lower correlations with scales evaluating general health, the WEMWBS demonstrated strong content validity and somewhat high correlations with other mental health measures. In population samples, its distribution was almost normal and it did not exhibit ceiling effects.

Procedure
First, data was collected from poly drug users through snow ball technique. It was conveyed that the anonymity and confidentiality of the participants would be maintained as an utmost priority. Next, they were requested to fill in demographic information. After that, participants were given two questionnaires: The first was Depression Anxiety Stress Scale 21 (DASS21), and second was Warrick Edinburgh Mental Well-Being Scale (WEMWBS). After that, the data were analyzed to see the relationship among variables via SPSS-21. For demographic variables, descriptive statistics were used. The correlation of variables was tested by Pearson correlation coefficient. The significance of variables was tested by ANOVA and independent group t-test.

RESULTS

TABLE 1: ***Age groups of respondents***

Age range	Frequency
20-24	**93**
25-29	**126**
30-34	**64**
35-39	**15**
41	1

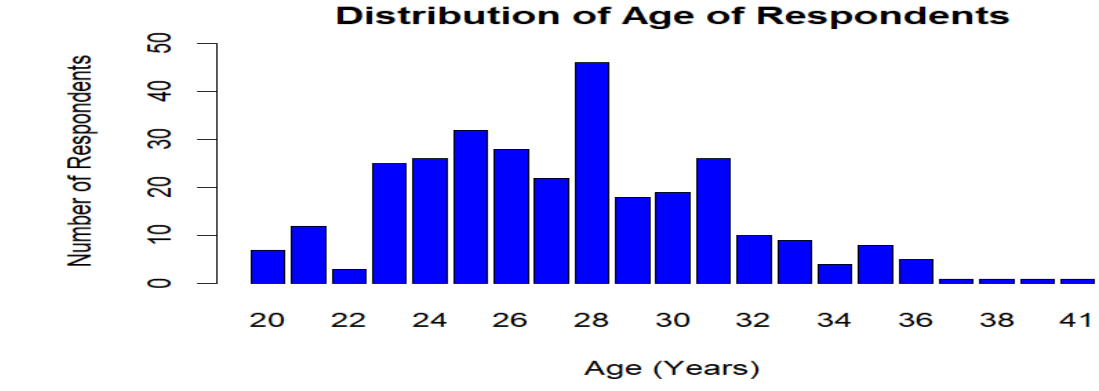

FIGURE 1: ***Age groups of respondents***

TABLE 2: ***Gender Distribution of respondents***

Gender	Frequency
Male	**95**
Female	**197**
Prefer not to say	**12**

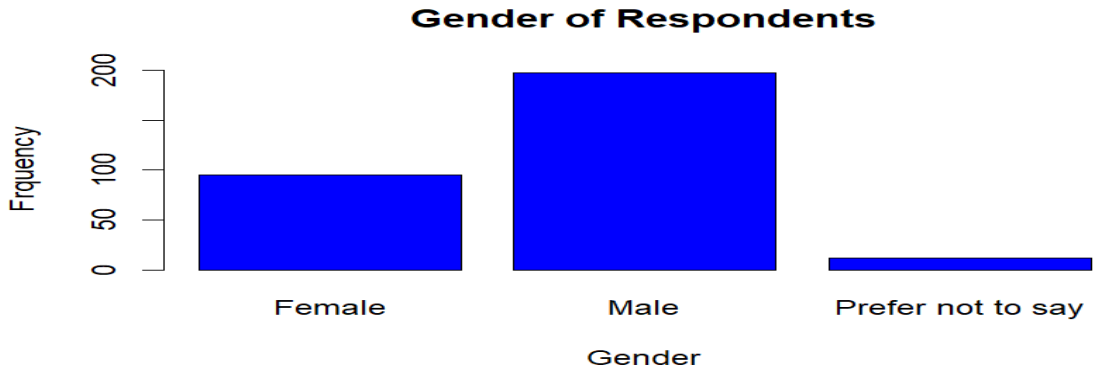

FIGURE 2: ***Gender Distribution of respondents***

TABLE 3: ***Educational background of respondents***

Education level	Frequency
High school	**14**
Post graduate degree	**144**
Under graduate degree	**146**

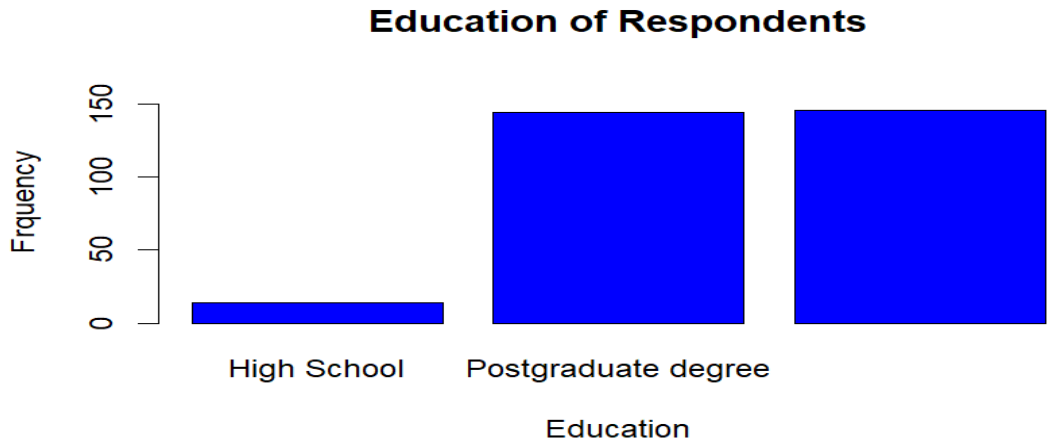

FIGURE 3: ***Educational background of respondents***

TABLE 4: ***Employment status of respondents***

Employment Status	Frequency
Full Time Employed	**95**
Part Time Employed	**25**
Consultancy/Freelancing	**1**
Visiting Faculty	**1**
Self Employed	**109**
Own Business	**1**
Student	**47**
Unemployed	**28**

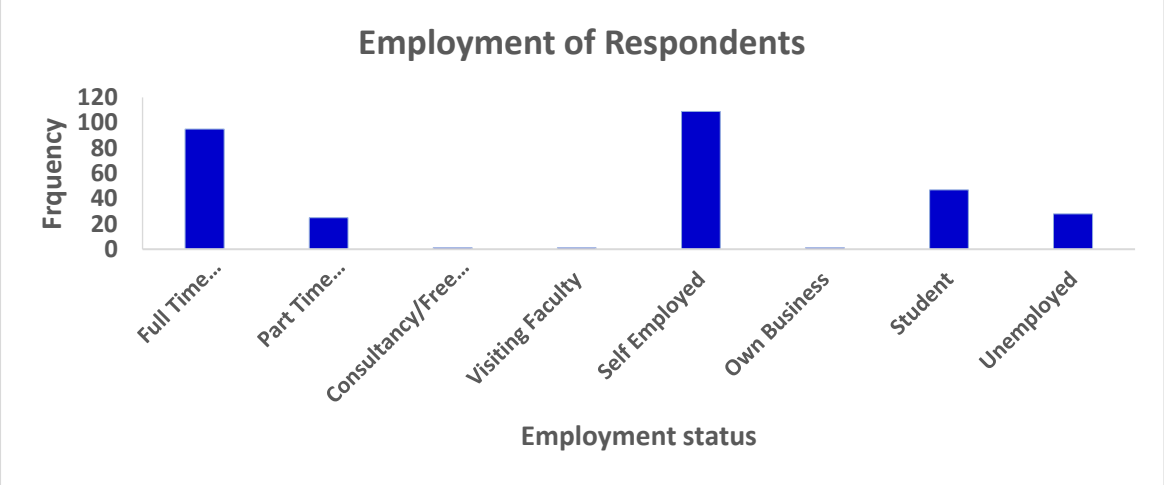

FIGURE 4: ***Employment status of respondents***

TABLE 5: ***Family system of respondents***

Family System	Frequency
Joint	**134**
Nuclear	**169**

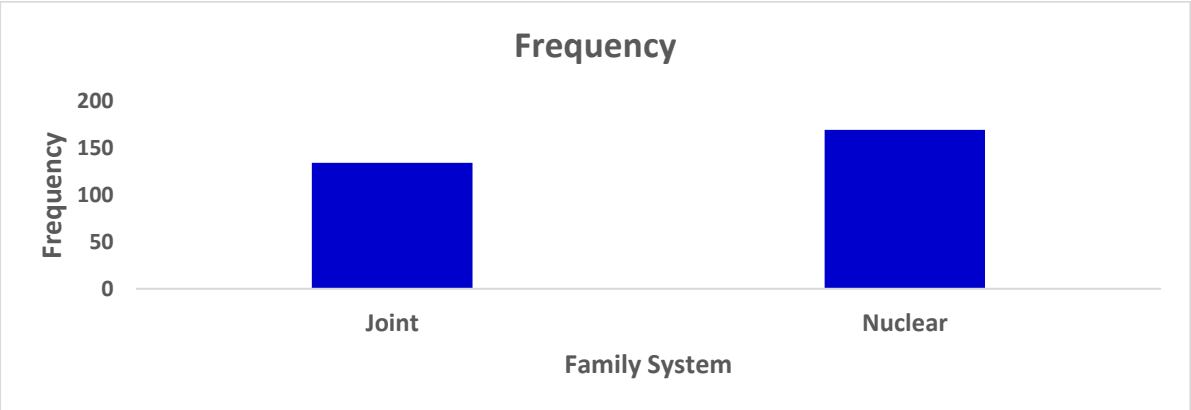

FIGURE 5: ***Family structure of respondents***

Hypothesis

Hypothesis 1: Correlation between Depression Anxiety Stress Total and Mental Wellbeing
In this section, hypothesis 1 was tested, which showed a correlation between DAS Total and Mental well-being (Table 8). The correlation analysis exhibited a significant negative correlation (r = -0.234) between DAS Total and MWB Total with p-value = 0.001. This negative correlation shows that with the increase in level of depression, anxiety, and stress among poly drug users, their mental well-being tends to decrease. This negative correlation showed significant results and accept our hypothesis that higher DAS scores are associated with lower mental well-being.

TABLE 6: Pearson Correlation

		DASScale	**MWBTotal**
DASScale	Pearson Correlation	1	-.234**
	Sig. (2-tailed)		.001
	N	215	193
MWBTotal	Pearson Correlation	-.234**	1
	Sig. (2-tailed)	.001	
	N	193	273

**. Correlation is significant at the 0.01 level (2-tailed).

TABLE 7:

	Mean	**Std. Deviation**	**N**
DAS Scale	17.5860	8.67054	215
MWB Total	47.4029	7.24966	273
Depression Total	5.4032	3.59243	248
Anxiety Total	6.3235	3.18989	272
Stress Total	7.6716	3.76217	268

	DAS Scale	**MWB Total**	**Depression Total**	**Anxiety Total**	**Stress Total**
DAS Scale	1	-.234**	.890**	.904**	.940**
MWB Total		1	-.377**	-.122	-.201**
Depression Total			1	.718**	.795**
Anxiety Total				1	.778**
Stress Total					1

Hypothesis 2: Significant difference in Depression, Anxiety, Stress and mental well-being with respect to Gender
The ANOVA results showed a significant difference in MWB scale but not in the DAS scale, thus supporting the hypothesis partially (Table 10). For the DAS scale, the ANOVA results showed F-value of 0.429 with a p-value of 0.652. As the p value of DAS sale is above the

conventional alpha level of 0.05, therefore this shows that there is no significant difference among gender about depression, anxiety and stress levels. On the other hand, in case of MWB scale with F-value of 4.689 and p-value of 0.010. As in this case, p value of MWB sale is below the conventional alpha level of 0.05, therefore indicating a significant difference in mental well-being among gender.

TABLE 8:

Variable	N	Male		Female		df	F	95% CI	
		Mean	SD	Mean	SD			LL	UL
DAS Scale	136	17.5588	9.07562	17.9571	7.97357	212	0.429	16.4205	18.7516
MWB Total	178	48.3708	7.47634	45.5632	6.51778	270	4.689	46.5391	48.2667

Hypothesis 3: Significant difference in DAS and mental well-being with respect to Family system

Analyzing the mean values from the Group Statistics table (Table 11), it is evident that for DAS Scale (Depression, Anxiety, Stress), individuals from joint family systems had higher mean scores compared to those from nuclear family systems. Specifically, for DAS Scale, the mean score for individuals from nuclear family systems was 16.39, while for joint family systems, it was 18.78. Similarly, for Mental Wellbeing Total (MWB Total), the mean score for individuals from nuclear family systems was slightly lower at 47.25 compared to 47.62 for joint family systems.

TABLE 9:

	Family system	N	Mean	Std. Deviation	Std. Error Mean
DAS Scale	Nuclear	105	16.3905	9.50354	.92745
	Joint	108	18.7778	7.71494	.74237
MWB Total	Nuclear	149	47.2550	7.31174	.59900
	Joint	122	47.6230	7.21033	.65279
Depression Total	Nuclear	133	4.9624	3.70791	.32152
	Joint	113	5.9027	3.42774	.32245
Anxiety Total	Nuclear	140	5.8071	3.24070	.27389
	Joint	130	6.9000	3.06480	.26880
Stress Total	Nuclear	138	7.1957	4.04330	.34419
	Joint	128	8.2109	3.39442	.30003

Discussion

In the demographic study, first of all age factor of respondents were considered with respect to their engagement in poly drug uses. A significant population in the age between 20 to 29 years was the most prevalent population. This age distribution factor is also considered in previous studies conducted by Bjerrum et al. (1999) where researchers concluded that poly drug prevalence is directly correlated with age (8.3% in minor and 1.2% in major) and health problems like cardiovascular disorders, respiratory disorder and anemia). Other studies conducted by Kelly et al. (2015) also concluded similar type of findings in which they reported that poly drug is most prevalent in adolescents. Poly drug users (mainly 8.2%) were mostly involved in psychological disorders. Similar type of results was evaluated in other studies given by Carlsen et al. (2020); Wang et al. (2017) and Hernández-Serrano et al.

(2015). While studying the prevalence of male and female with drug usage it was observed that majority of drug users were male (197), while a small proportion of population of female (95) were drug users. This is commonly seen in given socio-demographic population that mostly males are involved in drugs usage as compared to female. Similar results were observed in studies where it was observed that men were slightly more involved in drinking and smoking. On the other hand, very few females were reported to be involved in drinking and smoking (Zamboni et al., 2022; McCormack et al., 2021; Lewis et al., 2014 and Lewis & Nixon, 2014).

When it comes to study the relation between educational background and drug usage, it was a significant difference with highly qualified people (144 postgraduate and 146 undergraduate) that were reported to be involved in poly drug. Similarly self-employed people were more involved in drug-usages. These observations were also observed in other studies conducted by Pazan & Wehling (2021); Chang et al. (2020) and Gómez-Galán et al. (2020). According to our hypothesis, the influence of family system on mental health indicators was investigated, revealing that individuals from joint families exhibited higher mean scores for DAS Scale (M = 18.7778, SD = 7.71494) compared to those from nuclear families (M = 16.3905, SD = 9.50354). This pattern aligns with the findings of Bautista et al. (2023) and Suneel et al. (2021), who similarly reported a greater prevalence of drug use among individuals in nuclear families. A negative correlation between DAS (Depression, Anxiety, Stress) Total and Mental Wellbeing (MWB) Total was also observed in this study indicating the high usage of drugs causes high level of depression, anxiety and stress which causes the mental disturbance and health. Similar studies were conducted in which it was concluded that usage of two drugs was related with anxiety symptoms (βˆ (95% CI) = 1.32(0.34, 2.31)) and PMH (-3.64(-6.34,-0.95)). The cannabis-nicotine combination was related with anxiety symptoms (2.58(1.06, 4.10)) and PMH (-5.90(-10.04,-1.76)). The alcohol-nicotine grouping was related with PMH (-3.70(-7.30,-0.10)) (Chopra, 2023; Field et al., 2023; Richert et al., 2020).

Overall, findings corroborated with previous studied that both DAS and MWB are negatively correlated with each other. It was also observed that there is no significant difference among gender about depression, anxiety and stress levels as these psychological factors are not directly linked with gender in case of drug users. However, the negative effects of drugs on mental well-being of genders are significantly associated. These observations are in line with the studies like Fernández-Calderón et al. (2020), in which it was observed that prevalence of low poly substance use (67.7%), moderate poly substance use/hallucinogens (11.6%), and extensive poly substance use/stimulants (20.7%) were observed. It was concluded that group with extensive poly substance use/stimulants population was highly associated with memory losses tachycardia, and bad mood after drug use. Thus, directly lowers the mental health of the individuals. Also, it was observed that depression, anxiety, and stress often co-occur and are interconnected among poly drug users, thus accepting hypothesis that there is a relation among depression, anxiety, and stress. These findings were also studied by Carrasco-Garrido et al. (2024); Lawson et al. (2024); Rao et al. (2024); Lanza et al. (2022) and Feltmann et al. (2021). The incidence of poly drug on psychiatric condition of users is directly related to their mental health. These results are in line with previous studies conducted by Toftdahl et al. (2016) in which a comprehensive analysis included 463,003 patients was done and revealed varying prevalence rates of substance use disorders (SUDs) across different psychiatric conditions: 37% for schizophrenia, 35% for schizotypal disorder, 28% for other psychoses, 32% for bipolar disorder, 25% for depression, 25% for anxiety, 11% for OCD, 17% for PTSD, and 46% for personality disorders. Notably, alcohol use disorder emerged as the predominant SUD across all psychiatric categories, affecting 25% of all patients. Patients

with SUDs were predominantly male, had lower levels of formal education, were more likely to receive disability pension, and faced a higher risk of unnatural causes of death.

Conclusion

The current study's results offer compelling evidence that poly drug use is associated with heightened levels of depression, stress, and anxiety in populations, and they also underline significant adverse effects on mental health. Poly drug users' general well-being can be enhanced and the burden of co-occurring illnesses can be lessened by raising awareness, education, and access to mental health treatments. It is essential to acknowledge the limitations of this research, such as the cross-sectional nature of the study design, sample size limitations, and potential biases present in self-reporting measures. Further study using longer time spans and a wider range of sample methods is necessary to clarify the complex relationship between poly drug usage, mental health, and wellbeing.

Ethical Statement:

The integrity, validity, and societal worth of scientific investigation are contingent upon the ethical issues that permeate research. These factors take into account a number of rules and norms intended to preserve the integrity of scientific research as well as the rights, welfare, and dignity of study participants. The researcher provided participants with complete information on the goals, methods, risks, and advantages of the study. Participants had a right to withdraw at any moment without incurring penalties, and consent was acquired willingly and free from compulsion. Participants' privacy is safeguarded by maintaining the confidentiality of their data and, when practical, anonymizing it to avoid identification. To protect sensitive information, proper data handling and storage practices are in place. The goal of research is to minimize any possible risk to participants while optimizing the benefits of the study.

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