Personality Disorders and Unhealthy Lifestyle: A Cross-Sectional Study

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Abstract- Personality disorders (PDs) would be associated with an unhealthy lifestyle. To date, however, there have not been sufficient studies on the relationship between them. This study aimed to investigate the association between personality disorders and an unhealthy lifestyle by using an analytical cross-sectional study. We selected 1538 married women based on the multistage cluster sampling method. We used the Millon Clinical Multiaxial Inventory (MCMI) and Lifestyle Questionnaire (LSQ). Apart from descriptive statistics, a one-sample t-test, multivariate analysis, and structural equation modeling were used. Analysis of the data suggested that negativistic ($\beta= -0.321$), schizotypal ($\beta= -0.285$), schizoid ($\beta= -0.159$), borderline ($\beta= -0.136$), melancholic ($\beta= -0.079$) PDs had a significant association with an unhealthy lifestyle, respectively. Cluster A personality disorders were prone to an unhealthy lifestyle more than the other two clusters.
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Keywords: Millon clinical multiaxial inventory; Personality disorders; Unhealthy lifestyle

Introduction

Modern technology has affected psychology, biology, society, and lifestyle (1,2). Technological advancement has altered people's lifestyles. However, mental health professionals considerably underestimate the significance of lifestyle for mental health. They underrate the importance of an unhealthy lifestyle in diverse psychopathologies and the significance of a healthy lifestyle for treating psychopathologies, for developing psychological and social wellbeing, and for sustaining and optimizing cognitive capacities and neural functions (3).

Lifestyle factors can be very effective in determining mental and physical health. Some studies demonstrate the association between unhealthy lifestyles and personality disorders (PDs). For instance, in a population-based study, someone having avoidant personality disorders demonstrated significant ratios of physical inactivity, obesity, daily smoking, and alcohol problems (4). Studies revealed that antisocial (OR=1.03), avoidant (OR=1.04), obsessive-compulsive (OR=1.02), paranoid (OR=1.03), and schizoid (OR=1.03) PDs were associated with heightened BMI, such as obesity or extreme obesity (5,6,7,8).

Despite many pieces of research on the relationship between unhealthy lifestyle and mental disorders, such as depression, post-traumatic stress disorder, and hyperactivity, we are encountered a few studies on the association between personality disorders and unhealthy lifestyle. Thus, further research in this area is of importance due to the lack of enough information. On the other hand, lifestyles can be various among diverse communities due to cultural differences. That is why this question strikes us that what is the relationship between PDs and an unhealthy lifestyle in a non-western society. Given the previous backdrop, the purpose of the current work was to determine whether there is an association between unhealthy lifestyles and personality disorders among adults. This study would help to address current gaps, provide recommendations for future research and clinical practice.

Materials and Methods

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Participants

Based on a community-based study, we randomly selected 1538 married Iranian women aged 21-60 years, resided in Tehran province, by using a multistage cluster sampling method. First, we randomly selected the house clusters in the province according to the postal code. Then, in each cluster, we selected equal blocks of age and sex age groups. Finally, we sampled proportionally from both urban and rural areas of Tehran province.

Procedure

The clinical psychologists interviewed the women at the participants' homes. The interviewers had at least a master's in clinical psychology and underwent training for the instrument, diagnostic classification, and differential diagnostic issues. We found 91% inter-rater reliability among interviewers by checking the accuracy of the interviews over the research period. In respect to gaining information about participants' PDs and lifestyle, they were requested to complete two questionnaires; Millon Clinical Multiaxial Inventory (MCMI) and Lifestyle Questionnaire (LSQ). Apart from data on PDs and lifestyle, we also gained sociodemographic data including age, education, and career status.

Measures
Millon clinical multiaxial inventory-third edition (MCMI-III)

The Millon Clinical Multiaxial Inventory is a true-false questionnaire, consisting of 175 items that are widely used to assess personality disorders (9). It is originally based on the theories of Theodore Millon and modified to conform to diagnostic categories in the DSM-IV-TR (10). It contains 24 scales arranged into 4 groups: clinical personality patterns, severe personality pathology, clinical syndrome, and severe clinical syndrome. MCMI-III is intended for individuals over the age of 18 and who have a minimum reading level equivalent to the eighth grade (11). It maintains a particular theoretical focus (Millon's theory) across scales tapping a variety of constructs (12). Many of the scales of the MCMI-III were found to be valid and useful with a variety of samples (13). As an example, Blais *et al.*, (14) concluded from their study that the MCMI-III measures are consistent with other measures and provide valuable clinical information.

Lifestyle questionnaire (LSQ)

Lifestyle Questionnaire was designed by Lali, Abedi, & Kajbaf (15) in Iran. It consists of 70 items which are arranged in 10 subscales, including physical health,

exercise & wellness, weight management and nutrition, disease prevention, psychological health, spiritual health, social health, avoidance of drugs, alcohol, & opiates, accident prevention, and environmental health. The responses are based on a four-point Likert scale scoring in the range of 0 (=never) to 3 (=always). The high score in each factor and the whole questionnaire indicates a healthy lifestyle. LSQ's validity was confirmed by factor analysis, and its reliability was verified by the internal consistency method; the Cronbach's alpha ranged from 0.79 to 0.89 for distinct subscales (15).

Statistical analysis

Before conducting statistical analyses, the distribution of data was studied and confirmed to be appropriate for multivariate analysis. To analyze 1538 data, in addition to descriptive statistics, we used a one-sample t-test, multivariate analysis, and structural equation modeling (to extract structural coefficients).

Ethics

This study was conducted according to the Helsinki statement. The informed consent form was obtained from all participants. The gathered information remained confidential. Ethical approval was obtained from the National Institute for Medical Research Development (NIMAD). NIMAD Ethics Code for this study is IR.NIMAD.REC.1395.001.

Results

As you can see in Table 1, we studied 1538 samples overall. The average age of the study group was 38.45, and its standard deviation was 6.35. The majority of educational level among samples was high school diploma (n=629). Regarding occupation, most of the women in this research were housewives (n=1187).

To investigate whether having maladaptive personality traits is related to an unhealthy lifestyle, the base rates of participants in every PD were considered as predictors of lifestyle. Based on the base rates, the higher the score the participants got, the more they had that maladaptive personality trait. These rates divided participants into "no response," "exposed to disorder," and "having a disorder" on a continuum. Stepwise regression was used to extract the maladaptive personality traits associated with an unhealthy lifestyle.

Table 1. Demographic characteristics of the study group

Demographic Variables		N(P)/M±SD
Age		38.45±6.35
Education	Illiterate & Elementary School	154(10.7)
	Junior High School & High School	201(13.9)
	High School Diploma	629(43.6)
	Bachelor	373(25.8)
	Master's and higher	86(6)
	No Response	95
Occupation	Faculty Member	4(0.3)
	Teacher	48(3.3)
	Employee	135(9.3)
	Retiree	11(0.7)
	Tradeswoman	3(0.2)
	Manual Worker	57(3.9)
	Housewife	1187(82)
	No Response	90
Total		1538

Table 2 demonstrates the significance of the regression equation in each step based on the clinical personality patterns, which had an association with lifestyle, and indicates the significance of the regression equation in each step based on severe personality pathology, which was associated with lifestyle. Besides, regression coefficients are presented in Table 3 predicting the significant association between lifestyle and clinical personality patterns, and presents the regression coefficients of the association between lifestyle and severe personality pathology.

According to Table 3, the contribution of negativistic PD towards unhealthy lifestyle was the most, compared to other clinical personality patterns. It was 0.32 alone

and when histrionic PD accompanied it for study, its contribution became nearly 0.30, which was the most contribution yet. In the same way, when it was finally examined along with histrionic, compulsive, schizoid, and melancholic PDs, it continued to receive the highest score. As shown, negativistic PD followed by schizoid and melancholic PDs had the most contribution towards negative association with lifestyle, respectively. It means that they had a significant association with an unhealthy lifestyle.

In extracting the association between severe personality pathology and unhealthy lifestyle, Schizotypal and borderline PDs were proposed as significant predictors to prone to the unhealthy lifestyle because of a negative association with lifestyle. The results can be seen in Tables 2 and 3. Moreover, according to Table 3, the contribution of Schizotypal PD to lifestyle was 0.28 and 0.19, respectively, when it was studied alone and with borderline PD. It had the most contribution compared to other severe personality pathology.

Based on Tables 4 and 5, the association of PDs with each lifestyle factor is demonstrated. As shown, each PD is negatively associated with some lifestyle factors. For instance, Schizoid PD had a negative association with most lifestyle factors; it means that the more severe maladaptive schizoid personality traits, the less lifestyle health. "Weight management & nutrition", "social health", "spiritual health", "accident prevention", "disease prevention", "psychological health", and "physical health" had the most negative association with schizoid PD, respectively.

Table 2. Regression equation in each step regarding clinical personality patterns and severe personality pathology

Model			SS	df	MS	F	*P*
Clinical personality patterns	1^b	Regression	139591.404	1	139591.404	203.814	<0.0001
	R=.321 & R^2=0.103	Residual	1214323.073	1773	684.897		
	2^c	Regression	170030.543	2	85015.272	127.248	<0.0001
	R=.354 & R^2=0.126	Residual	1183883.933	1772	668.106		
	3^d	Regression	182843.700	3	60947.900	92.171	<0.0001
	R=.367 & R^2=0.135	Residual	1171070.776	1771	661.248		
	e	Regression	199996.338	4	49999.085	76.694	<0.0001
	R=.384 & R^2=0.148	Residual	1153918.138	1770	651.931		
	5^f	Regression	203214.613	5	40642.923	62.481	<0.0001
	R=.387 & R^2=0.150	Residual	1150699.864	1769	650.480		
Severe personality pathology	1^g	Regression	110065.235	1	110065.235	156.889	<0.0001
	R=.321 & R^2=0.103	Residual	1243849.241	1773	701.551		
	2^h	Regression	124014.072	2	62007.036	89.338	<0.0001
	R=.354 & R^2=0.126	Residual	1229900.404	1772	694.075		

Note. Dependent Variable: Lifestyle
b. Predictor: Negativistic; c. Predictors: Negativistic, Histrionic; d. Predictors: Negativistic, Histrionic, Compulsive; e. Predictors: Negativistic, Histrionic, Compulsive, Schizoid; f. Predictors: Negativistic, Histrionic, Compulsive, Schizoid, Melancholic
g. Predictor: Schizotypal; h. Predictors: Schizotypal, Borderline

Table 3. Regression coefficients based on a continuum of clinical personality patterns and severe personality pathology

Model		b	β	t	P
	Negativistic	-.417	-.321	-14.276	<0.0001
	Negativistic	-.391	-.300	-13.399	<0.0001
	Histrionic	.187	.151	6.750	<0.0001
	Negativistic	-.395	-.304	-13.617	<0.0001
	Histrionic	.158	.128	5.577	<0.0001
	Compulsive	.118	.100	4.402	<0.0001
Clinical	**Negativistic**	-.276	-.212	-7.462	<0.0001
personality	**Histrionic**	.095	.077	3.078	.002
patterns	**Compulsive**	.153	.130	5.589	<0.0001
	Schizoid	-.211	-.159	-5.129	<0.0001
	Negativistic	-.219	-.169	-4.877	<0.0001
	Histrionic	.089	.072	2.892	.004
	Compulsive	.158	.134	5.752	<0.0001
	Schizoid	-.181	-.136	-4.194	<0.0001
	Melancholic	-.079	-.079	-2.224	.026
	Schizotypal	-.460	-.285	-12.526	<0.0001
Severe personality	**Schizotypal**	-.313	-.194	-6.394	<0.0001
pathology	**Borderline**	-.212	-.136	-4.483	<0.0001

Table 4. Prediction of lifestyle factors based on a continuum of clinical personality patterns

Personality disorders	Lifestyle Factors	Composite Coefficients	β	t	P	Lifestyle Factors	Composite Coefficients	β	t	P
Schizoid			-.099	-2.668	.008*			-.124	-3.382	.001*
Avoidant			-.009	-.222	.825			-.031	-.774	.439
Melancholic			-.105	-2.464	.014*			-.074	-1.771	.077
Dependent			.073	1.946	.052			.111	3.010	.003*
Histrionic	Physical Health	R=.266 R²=.65 P<.001	.044	1.333	.183	Spiritual Health	R=.315 R²=.094 P<.001	.029	.890	.373
Narcissistic			.037	1.197	.231			.061	1.990	.047*
Antisocial			.074	2.068	.039*			.076	2.151	.032*
Sadistic			-.054	-1.407	.160			.035	.927	.354
Compulsive			.053	2.025	.043*			.118	4.526	<.001**
Negativistic			-.116	-2.778	.006*			-.225	-5.466	<.001**
Masochistic			.006	.139	.890			.006	.158	.875
Schizoid			-.126	-3.403	.001			-.138	-3.784	<.001**
Avoidant			.094	2.341	.019			-.017	-.441	.659
Melancholic			-.120	-2.835	.005			-.045	-1.074	.283
Dependent			-.007	-.185	.853			.119	3.234	.001*
Histrionic	Exercise & Wellness	R=.272 R²=.068 P<.001	.088	2.667	.008	Social Health	R=.330 R²=.103 P<.001	.050	1.540	.124
Narcissistic			.074	2.398	.017			.073	2.392	.017*
Antisocial			.039	1.090	.276			.064	1.835	.067
Sadistic			-.073	-1.909	.056			-.031	-.820	.412
Compulsive			.058	2.203	.028			.108	4.169	<.001**
Negativistic			-.074	-1.774	.076			-.218	-5.330	<.001**
Masochistic			.069	1.710	.087			.016	.410	.682
Schizoid			-.149	-4.094	<.001**			-.046	-1.233	.218
Avoidant			.034	.847	.397			-.093	-2.278	.023*
Melancholic			-.078	-1.859	.063			-.031	-.729	.466
Dependent			.041	1.122	.262			-.029	-.776	.438
Histrionic	Weight Management & Nutrition	R=.326 R²=.101 P<.001	.009	.287	.774	Avoidance of Drugs, Alcohol, & Opiates	R=.233 R²=.048 P<.001	.001	.011	.991
Narcissistic			-.032	-1.055	.291			-.078	-2.494	.013*
Antisocial			.001	.009	.993			-.075	-2.089	.037*
Sadistic			-.048	-1.269	.205			-.035	-.890	.374
Compulsive			.097	3.744	<.001**			.041	1.523	.128
Negativistic			-.136	-3.322	.001*			.022	.521	.602
Masochistic			-.010	-.264	.792			.024	.585	.559
Schizoid			-.107	-2.929	.003*			-.109	-2.970	.003*
Avoidant			-.047	-1.177	.239			.029	.734	.463
Melancholic			-.011	-.269	.788			-.122	-2.887	.004*
Dependent			.052	1.415	.157			-.056	-1.502	.133
Histrionic	Disease Prevention	R=.313 R²=.092 P<.001	.041	1.242	.214	Accident Prevention	R=.294 R²=.080 P<.001	.035	1.067	.286
Narcissistic			-.018	-.580	.562			-.072	-2.332	.020*
Antisocial			.108	3.062	.002*			-.009	-.255	.798
Sadistic			-.116	-3.057	.002*			-.008	-.202	.840
Compulsive			.130	5.014	<.001**			.176	6.729	<.001**
Negativistic			-.115	-2.784	.005*			-.057	-1.378	.168
Masochistic			-.057	-1.441	.150			.083	2.094	.036*

Cont table 4

Personality disorder		Composite Coefficients	β	t	P		Composite Coefficients	β	t	P
Schizoid	Psychological Health	R=.375 R²=.136 P<.001	-.099	-2.766	.006*	Environmental Health	R=.250 R²=.057 P<.001	-.089	-2.383	.017*
Avoidant			-.012	-.305	.760			-.041	-1.004	.316
Melancholic			-.142	-3.473	.001*			-.046	-1.085	.278
Dependent			.073	2.019	.044*			-.023	-.611	.541
Histrionic			.053	1.669	.095			.018	-.548	.584
Narcissistic			.086	2.906	.004*			.023	-.734	.463
Antisocial			.105	3.064	.002*			.050	1.391	.164
Sadistic			-.030	-.821	.412			-.034	-.871	.384
Compulsive			.097	3.824	<.001**			.134	5.051	<.001**
Negativistic			-.218	-5.439	<.001**			-.151	-3.588	<.001**
Masochistic			.022	.565	.572			.109	2.713	.007*

Note. Analysis method: multidimensional regression; *: significance at <0.05; **: significance at <0.001

Table 5. Prediction of lifestyle factors based on a continuum of severe personality pathology

Personality disorders	Lifestyle Factors	Composite Coefficients	β	t	P	Lifestyle Factors	Composite Coefficients	β	t	P
Schizotypal Borderline Paranoid	Physical Health	R=.221 R²=.047 P<.001	-.180 -.133 .122	-5.127 -4.154 3.772	<.001** <.001** <.001**	Spiritual Health	R=.211 R²=.043 P<.001	-.149 -.140 .091	-4.226 -4.351 2.821	<.001** <.001** .005*
Schizotypal Borderline Paranoid	Exercise & Wellness	R=.162 R²=.024 P<.001	-.162 -.020 .021	-4.541 -.609 .651	<.001** .543 .515	Social Health	R=.216 R²=.045 P<.001	-.150 -.123 .054	-4.260 -3.830 1.660	<.001** <.001** .097
Schizotypal Borderline Paranoid	Weight Management & Nutrition	R=.266 R²=.069 P<.001	-.155 -.109 -.033	-4.468 -3.425 -1.019	<.001** .001* .308	Avoidance of Drugs, Alcohol, & Opiates	R=.213 R²=.044 P<.001	-.152 -.037 -.046	-4.304 -1.155 -1.421	<.001** .248 .155
Schizotypal Borderline Paranoid	Disease Prevention	R=.263 R²=.067 P<.001	-.110 -.194 .027	-3.165 -6.107 .832	.002* <.001** .405	Accident Prevention	R=.205 R²=.040 P<.001	-.147 -.018 -.059	-4.152 -.568 -1.830	<.001** .570 .067
Schizotypal Borderline Paranoid	Psychological Health	R=.248 R²=.060 P<.001	-.144 -.146 .024	-4.108 -4.579 .760	<.001** <.001** .447	Environmental Health	R=.183 R²=.032 P<.001	-.072 -.100 -.035	-2.021 -3.092 -1.066	.043* .002* .287

Note. Analysis method: multidimensional regression; *: significance at <0.05; **: significance at <0.001

In sum, participants with negativistic (β= --0.321), schizotypal (β= -0.285), schizoid (β= -0.159), borderline (β= -0.136), and melancholic (β= -0.079) PDs tended to have unhealthy lifestyle behaviors, respectively. This finding confirms the hypothesis of the present study that there is a relationship between PDs and the unhealthy lifestyle.

Discussion

This study sought to determine whether a relationship was between PDs and an unhealthy lifestyle. Our results supported the hypothesis that PDs have an association with an unhealthy lifestyle. In line with the study hypothesis, negativistic, schizotypal, schizoid, borderline, and melancholic PDs had the most association with an unhealthy lifestyle, respectively. This is in synchrony with the research that linked personality problems with an unhealthy lifestyle (4).

In detail, there was an association between negativistic PD and an unhealthy lifestyle in the present study. Some research is in line with our findings. For instance, Powers and Oltmanns (16), in research studied in the USA, found that negative personality characteristics could lead to detrimental outcomes related to physical health. Czekoova, Shaw, and Urbaneks (17) also stated that negativistic personality styles had a negative association with existential wellbeing, meaning a sense of meaning, spirituality, and purpose in life. Apart from the previous research, our findings are also consistent with the clinical features of negativistic PD. For example, individuals with negativistic PD lack the requisite for efficient function and put their work off at the slightest excuse (18,19). Their intimate relationships are almost never calm and happy. They can be argumentative and oppositional (20,21,22). Moreover, in interpersonal relationships, they try to manipulate themselves into a dependent position (19).

There was an association between schizotypal PD and the unhealthy lifestyle in this study. The results are consonant with the research conducted by Abbott, Do, Byme (23), demonstrating a strong link between schizotypal PD and lower overall religious and spiritual wellbeing. Gerlach, Loeber, & Herpertz (24), based on a systematic review, demonstrated that women with schizotypal PD have a higher risk of obesity. Cramer,

Torgersen, and Kringlen (25) concluded that schizotypal PD was the most important statistical negative determinant of quality of life. Besides, in another study done by Skodol *et al.*, (26), patients with STPD were found to have significant impairment at work, in social relationships, and at leisure. Apart from that, consistent with our findings, STPD is characterized by interpersonal deficits, cognitive and perceptual aberrations, behavioral weirdness, and eccentric appearance (18,27). Persons with STPD have a conflicting interpersonal relationship and may have inappropriate behaviors. Additionally, Individuals with STPD might have transient psychotic experiences particularly in response to stress (20).

In the present research, schizoid PD had a significantly negative association with almost all lifestyle factors. Cramer, Torgersen, and Kringlen's (28,25) researches are in line with our research results. They stated that SZPD patients have the strongest and broadest reduction in quality of life. Given to a research conducted by Carrasco and Lecic-Tosevski (29), most people with schizoid PD are drawn to unconventional lifestyles and are unable to respond appropriately to social stimuli. Alperin (30) demonstrated that the schizoid persons feel an intense need of intimacy, but fear of fusion, fear of object loss, paranoid-schizoid anxieties, and sexual anxieties inhibit the development of intimacy. In addition, Petry, Barry, Pietrzak, & Wagner (7) observed a significantly association between schizoid PD and obesity. In contrast, a study conducted by Mather, Cox, Enns, & Sareen (6) in the United States found a significant relationship between underweight and schizoid PD. Moreover, the results of this research are in line with clinical features of this PD. For instance, Persons with schizoid PD have little interest in establishing or maintaining interpersonal relationships. They might have little sexual relationships and may never marry. Besides, they would rather work in isolation (20).

Like our findings of borderline PD and unhealthy lifestyle, Skodol *et al.*, (26) demonstrated that those with borderline PD have significant impairment at work, in social relationships, and at leisure. Moreover, Hill et al. (31) illustrated that BPD symptoms were especially associated with dysfunctional romantic relationship. Furthermore, Sansone, Kelley, and Forbis (32) found a significant negative correlation between spiritual wellbeing and borderline PD. Koenig, King, and Carson (33) reported a similar association between borderline PD and spirituality. Moreover, according to Sansone & Sansone (34), borderline PD would be significantly associated with obesity, and it likely is a contributory factor to initiating and maintaining obesity. On the other

hand, in line with our findings, those diagnosed with borderline PD usually experience intense negative emotions, abandonment fears, feelings of emptiness (20), and identity diffusion (35). Mood swings are especially common among these patients. Due to the feeling of attachment and hostility simultaneously, their interpersonal relationships are disturbed. They may have impulsive and self-damaging behaviors in some areas, such as sex and binge eating (18).

In regards to the melancholic PD and unhealthy lifestyle, on the one hand, the other studies are consistent with our results. For instance, Hill *et al.*, (36), in a meta-analysis study, explained that melancholic traits are associated with increased crash risk. Thorsen *et al.*, (37) also achieved the same results, and they found out the prevalence of melancholic features was higher among those who were physically inactive than among those who were physically active. In addition, Huprich and Frisch (38) concluded from their study that melancholic PD was correlated with low levels of quality of life, hope, and optimism. On the other hand, the clinical features of this disorder are consistent with our findings. The main characteristic of persons with a melancholic personality disorder is lifelong depressive traits. They are pessimistic, glum, despondent, disappointed, and hesitant (19,20). They admit to having low self-esteem and complain of chronic feelings of unhappiness. They are self-critical and disparage their work, themselves, and their relationships with others (19).

In the present research, the samples consisted of just women, so caution is appropriate when generalizing to other populations.

In sum, negativistic, schizotypal, schizoid, borderline, and melancholic personality disorders were inclined to an unhealthy lifestyle. Consequently, it could be said that cluster A personality disorders were prone to an unhealthy lifestyle more than the other two clusters. Our findings of the present research point to possible expansions of the conceptual frameworks guiding researches on the association between unhealthy lifestyle and personality disorders. Future research should attempt to spell out further the association between them in other populations.

Acknowledgments

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