

The Role of Personality Factors, Social Support and Coping Strategies on Psychological Adjustment of Patients with HIV

Maryam Nazemi^{1*}, Marjan Hassani Raad², Sahar Kermanian², and Narges Rahmani³

¹M. A graduate in Personality Psychology, Department of Personality Psychology, Islamic Azad University Karaj branch, Iran

²M.A. graduate in General Psychology, Department of General Psychology, Islamic Azad University Tehran branch, Iran

³PhD Student in Educational Psychology, Department of Educational Psychology, Islamic Azad University Saveh branch, Iran

Received: April 20, 2015

Accepted: June 15, 2015

ABSTRACT

The purpose of this study was to examine the correlation of psychological adjustment to HIV/AIDS with perceived social support, coping strategies and personality factors in a sample of 157 HIV-positive persons (145 men and 30 women). The measures included perceived social support, coping strategies scales and NEO questioner. Multiple regression analysis was used to examine relationships between perceived social support, coping strategies and personality factors in psychological adjustment. The results indicate that among people with HIV/AIDS, those individuals who are more satisfied with their social support, used problem solving, and are more agreeable, are more likely to experience positive psychological adjustment. Implications for opportunities for intervention are discussed.

KEYWORDS: AIDS, HIV, coping strategies, perceived social support, personality factors, psychological adjustment with HIV.

1. INTRODUCTION

Acquired immunodeficiency syndrome (AIDS) has been one of the greatest disasters of human society in the past years. The increasing number of HIV patients has caused that AIDS become a national health emergency in recent years.

Human Immunodeficiency Virus (HIV) is a human lymphoma and blood cancer retrovirus and the cause of AIDS. It remains dormant in the body and gradually begins to multiply and develop into AIDS by the time. AIDS is a new disease which was unknown until 1980 and is transmitted through blood and sexual contact [1]. Moreover, one person is infected with HIV every 13 seconds; and every 9 minutes, one person dies from HIV infection. According to the World Health Organization (2013) [2], almost 35 million people are infected with HIV. Also, two million and one hundred thousand of people were added to the rate of HIV in 2013, and one and a half million people have died of AIDS only in the same year. Eighty percent of adults between the ages of 15 and 49 years old are living with AIDS worldwide and Africa has the highest rate.

After the diagnosis of chronic diseases, patients are confronted with a new situation which demands double adjustment. Adjustment can be defined as a response to changes in the environment in a way that allows the organism to better adapt to the changes. This definition implies that the adjustment in psychology often refers to a desirable situation or end.

Psychological adjustment includes involuntary emotional reactions to threatening events as well as threat assessment [3]. The findings indicate that mental adjustment affects the prognosis and progression of chronic diseases such as cancer and AIDS. The examples would include defiance [4-6], religious and spiritual beliefs [7], denial, acceptance of fate [8, 9], and finding positive meaning [10, 11].

People with AIDS encounter with the fear of an early death from the very beginning of diagnosis and this causes a lot of psychological distress. Thus, adjustment is very important in this period. Goodstein & Lanyon [12] consider adjustment as a general concept which includes all strategies to manage stressful life situations, both real and unreal threats. If a person's physical and mental balance is so impaired that he is effected by unpleasance, he needs to use the internal forces and external support in order to create the balance. In this case, if he succeeds to use the new mechanisms and solves the problem, the process of adjustment has been created. Adjustment dimensions include psychological, social, physical and moral adjustment. Psychological adjustment is above all others in such a way that it is considered as the prelude to the social and moral adjustment [13].

Most people spend a lot of time on challenging the disease till they accept it and they lose critical periods for treatment. That's why the identification of important factors contributing to psychological adjustment and determination of the predictive power of each variable can play an effective role in the promotion of patients' psychological adjustment. Among the psychosocial variables that can affect the psychological adjustment are personality factors, social support and coping strategies.

Personality can be assumed as the unique and distinct pattern of thought, emotion and behavior that makes each person's personal style of interaction with the physical and social environment. In other words, personality can be defined as a set of relatively stable and unmatched characteristics that may change in different situations [14, 15]. Personality factors, i.e. the individual differences in tendencies which reflect thoughts, feelings and actions in particular ways, affect the way they behave with their patients. Some personality traits result in low physical and mental health and others improve physical and mental health. Identifying the personality factors that encourage people to start treatment can be effective in improving their psychological adjustment [16].

Social support is the caring, love, respect, comfort and help that other individuals or groups of individuals offer to patients. This support may be provided by various sources, such as a spouse, fiancée, family, relatives, friends and colleagues [17]. Perceived social support has great effect on individuals' physical and mental health, life satisfaction and different aspects of quality of life and it is known as an effective regulator in psychological adjustment [18].

Lazarus & Folkman [19] have defined coping strategies as a set of cognitive and behavioral responses that seek to minimize the stress in stressful situation. They defined coping as "the constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as stressful or exceeding the individual's resources [1]. Coping refers to behavioral and cognitive efforts to prevent, regulate and relieve stress [18]. It is a mediator between negative life events and mental health and adjustment in individuals.

In recent years, researchers have made great efforts to clarify the psychological and biological aspects of AIDS. Most of these research were on informing the patients and familiarizing them with their disease. Studies on the role of personality factors, social support and coping strategies in patients with AIDS are very few and they often examined the adjustment with heart disease or cancer. Due to the lack of research in this field in the country, this study sought to examine the role of personality factors, social support and coping strategies in the psychological adjustment of patients with AIDS. The results of this study can help to use psychosocial interventions in solving the problems of AIDS patients and providing them with healthier and less stressful lives. Also, the personality factors which are more effective in improving psychological adjustment can be identified and used in psychological interventions.

2. MATERIALS AND METHODS

This is a correlational descriptive study. The population consisted of all men and women with AIDS in Haghghat-e Narenj Center, Nedaye Aramesh Center, Tolou-e Rahaei Center, and Sabzehparvar Triangular Clinics of Karaj in the first quarter of 2014. The sample consisted of 180 men and women who were eligible for the study and were selected using random sampling.

2.1. Research Tools

2.1.1. Psychological adjustment to AIDS scale

Psychological adjustment to AIDS scale has 40 items. Ross et al. [20] revised the psychological adjustment to cancer scale and changed the word cancer to AIDS / HIV. The results of factor analysis provided five factors: helplessness / hopelessness, fighting spirit, i.e. positive attitude toward facing the disease, anxious preoccupation, i.e. the belief that individuals' response type can affect the development of the disease, avoidance, and fatalism i.e. the tendency to have a fatalistic tendency towards disease. Cronbach's alpha coefficients were 71%, 55%, 80%, 62% and 55% for five subscales, respectively. The authors have noted that the attitude toward HIV is different from the attitude toward cancer; because there is more faith in the ability of an HIV patient affecting his disease during the disease development. Nazemi obtained Cronbach's alpha coefficient equal to 0/875 for the Persian version [21].

2.1.2. NEO Five-Factor Inventory (NEO-FFI)

The revised version of the NEO-FFI (Costa and McCrae, 1992), is a self-report personality inventory which is based on a well-known personality model called five-factor model [22].

According to the revised version of NEO inventory, the five areas include neuroticism, extraversion, and openness to experience, agreeableness, and conscientiousness. Each area has six subsidiary aspects or scales. Cronbach's alpha coefficients reported by Costa and McCrae varied from 0/74 to 0/89 with the mean equal to 0.81 [23].

Considering the complexity and length of NEO-PI-R, numerous minor aspects related to each of the Big Five personality traits, the need for rapid screening when necessary, and above all, subjects' lack of tendency towards a lengthy tool in clinical and research situations, a short version of this inventory was designed, namely, "Five-Factor Inventory" (NEO-FFT). This inventory consisted of 60 questions which were obtained based on the factor analysis of NEO-PI scores conducted in 1986.

Regarding the reliability and validity of the short form of the inventory, the results of several studies suggest that its subscale enjoy a good internal consistency. For example, Costa and McCrae [24, 25] reported Cronbach's alpha coefficient from 0.68(for agreeableness) to 0.86 (for neuroticism). Holden (1999) reported Cronbach's alpha coefficient ranging from 0.76 (openness to experience) to 0.87(for neuroticism).

This inventory has been normalized by Garousi [27]. Using test-retest, the reliability of the inventory for neuroticism, extroversion, openness, agreeableness and conscientiousness was obtained, respectively, 0.83, 0.75, 0.80, 0.79, and 0.79 about 208 students within 3 months.

2.1.3. Multidimensional Scale of Perceived Social Support (MSPSS)

This scale was developed by Zimet et al. [28] to measure participants' perceptions of the adequacy of social support from their family, friends and significant others. This tool is a 12-item scale that includes 3 subscales. Each subscale consists of 4 questions. Questions are answered on a 7-point Likert scale (strongly agree to strongly disagree). Its validity and reliability have been evaluated among multiple populations, including students, women, adolescents and psychiatric patients. Moreover, the construct validity of this scale has been confirmed [28].

The Cronbach Alpha coefficient of the total scale and subscales varied from 0.85 to 0.91 and its reliability was reported to vary from 0.72 to 0.85 using the test-retest [28]. Psychometric properties of the scale were separately examined on Iranian samples by Bagherian et al. [29]. Cronbach's alpha was obtained 0.82 for this scale in a sample of 176 Iranian patients. The test-retest reliability of the scale was reported 0.84 in a sample of 71 Iranian healthy people within a month.

2.1.4. Coping Strategies Inventory Short Form (CSI-SF)

This inventory has 21 questions and it evaluates three coping strategies: problem-focused strategies that include purposeful efforts to solve the problem, cognitive restructuring or trying to change the situation. This strategy emphasizes on the task, planning and attempts to solve the problem. Emotion-focused strategy is related to individuals' emotional reactions aiming at reducing stress. These reactions include emotional responses, self-preoccupation, and fantasising. Avoidance strategy refers to cognitive changes and activities aimed at moving away from a stressful situation, such as distracting oneself through other tasks or situations, or involving in group activities to reduce stress [30]. Each subscale has 7 questions and participants should answer on a 5-point scale of (1) "not at all" to (5) "very much".

The Coping Inventory for Stressful Situations-21 (CISS-21) is a valid and reliable measure of generic coping strategies in adult samples with various chronic diseases [31]. Calsbeck et al. [31] examined the psychometric properties of this scale in 521 patients with chronic digestive diseases (food allergy). The Cronbach Alpha coefficient of the total scale in all groups of patients varied from 0.79 to 0.86.

This scale has been normalized by Monirpour, Beshrat, Sadeghian & Alavi (2009) in Iran. The reliability and validity of this tool has been confirmed in different domestic studies. Ghahvechi and Mohammad Khani [32], reported the validity coefficients using Cronbach's alpha as 73% for avoidance, 74% for problem-oriented, and 68% for emotion-oriented coping strategies.

3. RESULTS

The first part (descriptive statistics) describes the demographic characteristics of the sample consisting of (frequency, mean, standard deviation, skewness and kurtosis in variables). In the second part (inferential statistics), the research hypotheses are examined through the results obtained from Pearson correlation test and simultaneous multivariate regression analysis.

The mean and standard deviation of participants in psychological adjustment were, respectively, 22.89 and 45.19. Also, the results in Table 1 show that skewness and kurtosis values are less than one. Therefore, psychological adjustment scores are normally distributed.

The mean and standard deviation of subjects in neuroticism were, respectively, 21.6 and 14.20; in extraversion, respectively, 39.24 and 17.6; in openness to experience, respectively, 80.23 and 75.6; in agreeableness, respectively, 91.21 and 65.6; and in conscientiousness, respectively, 77.21 and 41.6. The skewness and Kurtosis values were between +1 and -1 in all personality factors and it indicates that score distribution of these factors is normal in patients with AIDS.

The mean and standard deviation of participants in social support were, respectively, 64.41 and 88.12. Also, skewness and kurtosis values were less than one which shows that social support scores are normally distributed.

As can be seen in Table 4, the mean and standard deviation of subjects in problem-focused coping strategies were, respectively 61.23 and 60.5; in emotion-focused coping strategies, respectively, 24.21 and 85.5; and in avoidant coping strategies, respectively, 13.21 and 49.5. The skewness and Kurtosis values were between +1 and -1 in all personality factors and it indicates that score distribution of these strategies is normal in patients with AIDS.

Table 1. Descriptive indexes of participants' scores on psychological adjustment questionnaire

Variables	Indexes	Mean	Standard deviation	Skewness	Kurtosis	Minimum	Maximum
Psychological adjustment		89.22	45.19	033.0	-0.934	00.55	00.103

Table 2. Descriptive indexes of participants' scores on personality traits questionnaire

Variables	Indexes	Mean	Standard deviation	Skewness	Kurtosis	Minimum	Maximum
Neuroticism		20.14	21.6	738.0	291.0	00.9	00.42
Extroversion		39.24	17.6	068.0	114.0	00.9	00.40
Openness to experience		80.23	75.6	206.0	-858.0	00.11	00.39
Agreeableness		91.21	65.6	294.0	-724.0	00.7	00.36
Conscientiousness		77.21	41.6	224.0	-856.0	00.10	00.36

Table 3. Descriptive indexes of participants' scores on social support questionnaire

Variables	Indexes	Mean	Standard deviation	Skewness	Kurtosis	Minimum	Maximum
Social support		64.41	88.12	369.0	-378.0	00.18	83.00

Table 4. Descriptive indexes of participants' scores on coping strategies questionnaire

Variables	Indexes	Mean	Standard deviation	Skewness	Kurtosis	Minimum	Maximum
Problem-focused coping strategies		61.23	60.5	-314.0	-390.0	00.10	00.35
Emotion-focused coping strategies		24.21	85.5	-216.0	-771.0	00.09	00.34
Avoidance coping strategies		13.21	49.5	-031.0	-970.0	00.10	00.31

Part II: Hypotheses testing

Hypothesis 1: Personality factors predict psychological adjustment in patients with AIDS.

The results in Table 5 show that personality factors (neuroticism, extraversion, agreeableness, openness and conscientiousness) were entered into the regression equation. The value of correlation with psychological adjustment is equal to 0.534; R-squared is equal to 0.286 and adjusted R squared is equal to 0.264. This means that these variables together predict 26% of the changes in psychological adjustment in patients with AIDS. Also, Table 5 describes the regression equation, where the observed value of beta (β) is equal to -0.401 for neuroticism, and -0.325 for extraversion. This means that with one unit change in each of these variables, the psychological adjustment value changes equally and the value of calculated t for each variable is significant in the $p < 0.01$ level. So, it can be said with 0.99 confidence that each of these variables can predict the psychological adjustment. The results also show that the observed value of beta (β) is equal to 0.170 for conscientiousness. This means that with one unit change in this variable, the psychological adjustment value changes equally and the value of calculated t for this variable is significant in the $p < 0.05$ level. So, it can be said with 0.95 confidence that this variables can predict the psychological adjustment. The results in Table 5 also suggest that openness to experience ($\beta=0.052$ & $p=0.494$) and agreeableness ($\beta=0.145$ & $p=0.054$) cannot predict psychological adjustment in people with AIDS. Finally, according to the findings in table 5, the regression equation of personality factors for predicting and explaining the psychological adjustment is as follows:

$$Y = (-0.401) X_1 + (-0.325) X_2 + (0.170) X_3 + 115.404$$

Y = psychological adjustment

X1 = neuroticism

X2 = extroversion

X3 = conscientiousness

Table 5. Simultaneous regression and regression coefficients

Model	Non-standardized values		β	T	p	R	R ²	adjusted R ²
	B	SE						
Fixed value	115.404	9.485		12.167	0.000			
Neuroticism	-1.255	0.217	-0.401	-5.771	0.000			
Extroversion	-1.025	0.223	-0.325	-4.603	0.000	0.534	0.286	0.264
Openness to experience	0.149	0.217	0.052	0.686	0.494			
Agreeableness	0.425	0.219	0.145	1.942	0.054			
Conscientiousness	0.517	0.230	0.170	2.242	0.026			

(Fixed) predictors: personality factors

Hypothesis 2: There is a positive correlation between social support and psychological adjustment in patients with HIV.

To examine this hypothesis, Pearson correlation coefficient between social support and psychological adjustment scores in patients with AIDS was calculated. The results are presented in Table 6.

The results in Table 6 indicate that there is a significant positive correlation between social support scores and psychological adjustment scores ($r=0.535$, $P < 0.01$). So, this hypothesis is confirmed. This means that as social support increases, the psychological adjustment in patients with HIV increases, too.

Table 6. The results of correlation coefficient for the relationship between social support and psychological adjustment

Psychological adjustment		
Significance level	Correlation coefficient	
0.000	0.535	Social support

Hypothesis 3: There is a positive correlation between problem-focused coping strategies and psychological adjustment in patients with HIV.

To examine this hypothesis, Pearson correlation coefficient between scores of problem-focused coping strategies and psychological adjustment scores in patients with AIDS was calculated. The results are presented in Table 7.

The results in Table 7 indicate that there is a significant positive correlation between scores of problem-focused coping strategies and psychological adjustment scores ($r=0.454$, $P < 0.01$). So, this hypothesis is confirmed. This means that as the use of problem-focused coping strategies is increased in patients with HIV, their psychological adjustment increases, too.

Table 7. The results of correlation coefficient for the relationship between problem-focused coping strategies and psychological adjustment

Psychological adjustment		
Significance level	Correlation coefficient	
0.000	0.454	Problem-focused coping strategies

Hypothesis 4: There is a negative correlation between emotion-focused coping strategies and psychological adjustment in patients with HIV.

To examine this hypothesis, Pearson correlation coefficient between scores of emotion-focused coping strategies and psychological adjustment scores in patients with AIDS was calculated. The results are presented in Table 8.

The results in Table 8 indicate that there is a significant negative correlation between scores of emotion-focused coping strategies and psychological adjustment scores ($r=-0.164$, $P < 0.05$). So, this hypothesis is confirmed. This means that as the use of emotion-focused coping strategies is increased in patients with HIV, their psychological adjustment decreases.

Table 8. The results of correlation coefficient for the relationship between emotion-focused coping strategies and psychological adjustment

Psychological adjustment		
Significance level	Correlation coefficient	
0.030	-0.164	Emotion-focused coping strategies

Hypothesis 5: There is a correlation between avoidance coping strategies and psychological adjustment in patients with HIV.

To examine this hypothesis, Pearson correlation coefficient between scores of avoidance coping strategies and psychological adjustment scores in patients with AIDS was calculated. The results are presented in Table 9.

The results in Table 9 indicate that there is a significant negative correlation between scores of avoidance coping strategies and psychological adjustment scores ($r=-0.170$, $P < 0.05$). So, this hypothesis is confirmed. This means that as the use of avoidance coping strategies is increased in patients with HIV, their psychological adjustment decreases.

Table 9. The results of correlation coefficient for the relationship between avoidance coping strategies and psychological adjustment

Psychological adjustment		
Significance level	Correlation coefficient	
0.024	0.170	Avoidance coping strategies

H6: Social support predicts psychological adjustment in patients with AIDS.

The results in Table 10 show that social support was entered into the regression equation. The value of correlation with psychological adjustment is equal to 0.535; R-squared is equal to 0.286 and adjusted R squared is equal to 0.282. This means that this variable predicts 28% of the changes in psychological adjustment in patients with AIDS. Also, Table 5 describes the regression equation, where the observed value of beta (β) is equal to 0.535 for social support. This means that with one unit change in this variable, the psychological adjustment value changes equally and the value of calculated t for this variable is significant in the $p < 0.01$ level. So, it can be said with 0.99 confidence that this variable can predict the psychological adjustment. Finally, according to the findings in table 5, the regression equation of social support for predicting and explaining the psychological adjustment is as follows:

$$Y = (0.535) X_1 + 55.585$$

Y = psychological adjustment

X₁ = social support

Table 10. Simultaneous regression and regression coefficients

Model	Non-standardized values		β	T	p	R	R ²	Adjusted R ²
	B	SD						
Fixed value	55.585	4.227		13.151	0.000	0.535	0.286	0.282
Social support	0.808	0.097	0.535	3.329	0.000			

(Fixed) predictors: social support

H7: Coping strategies predict psychological adjustment in patients with AIDS.

The results in Table 11 show that coping strategies (problem-focused, emotion-focused, and avoidance) were entered into the regression equation. The value of correlation with psychological adjustment is equal to 0.461; R-squared

is equal to 0.213 and adjusted R squared is equal to 0.199. This means that these variables together predict 19% of the changes in psychological adjustment in patients with AIDS. Also, Table 11 describes the regression equation, where the observed value of beta (β) is equal to 0.441 for problem-focused coping strategies. This means that with one unit change in this variable, the psychological adjustment value changes equally and the value of calculated t for each variable is significant in the $p < 0.01$ level. So, it can be said with 0.99 confidence that this variable can predict the psychological adjustment. The results in Table 11 also suggest that emotion-focused coping strategies ($\beta=0.011$ & $p=0.886$) and avoidance coping strategies ($\beta=-0.83$ & $p=0.261$) cannot predict psychological adjustment in patients with AIDS. Finally, according to the findings in table 11, the regression equation of coping strategies for predicting and explaining the psychological adjustment is as follows:

$$Y = (0.441) X_1 + 58.562$$

Y = psychological adjustment

X₁ = Problem-focused strategy

Table 11. Simultaneous regression and regression coefficients

Model	Non-standardized values		β	T	p	R	R ²	Adjusted R ²
	B	SD						
Fixed value	58.562	9.965		5.887	0.000			
Problem-focused coping strategies	1.530	0.250	0.441	6.116	0.000	0.461	0.213	0.199
Emotion-focused coping strategies	0.036	0.253	0.011	0.143	0.886			
Avoidance coping strategies	-0.295	0.261	-0.083	-1.128	0.261			

(Fixed) predictors: coping strategies

Conclusion

This study aimed to study the role of personality factors, social support and coping strategies in psychological adjustment of patients with AIDS. The results showed that there is a negative relationship between neuroticism and psychological adjustment. This means that as the neuroticism score increases, the psychological adjustment in patients with HIV reduces and vice versa. The review of past researches suggests that this relationship has also been confirmed in studies by Löckenhoff *et al.* [33], and Ironsn *et al.* [34]. Traits such as anxiety, aggression, anger, impulsivity, negative emotions, vulnerability to mental stress and other aspects associated with neuroticism can negatively affect human behavior and provide the context for the absence of mental health [35]. On the other hand, these fragile emotions impede adjustment in people so as patients with high levels of neuroticism are susceptible to irrational beliefs and are less able to control their impulses and thus, they are much weaker than others in coping with the stress of illness. So it can be concluded that patients with HIV have low levels of psychological adjustment to their disease due to these negative emotions arising from neuroticism.

Also, results showed that there is a negative relationship between extroversion and psychological adjustment in patients with AIDS. But this relationship is not significant. Thus, the research hypothesis about the positive relationship between extroversion and psychological adjustment was not confirmed. The review of previous research shows that no direct research has been done in this area to be compared in terms of consistency or inconsistency with the present study. As Watson and Hubbard [36, 37] found that extroverted individuals show high levels of joy, energy, interest and tirelessness and this feature is described by traits such as sociability, activity and talkativeness, it should be expected that this trait can help people to have a significant psychological adjustment. But this expectation was not met for patients with AIDS in the present study. The reason can be that patients with AIDS show much extroversion in social environments due to their disease labels and are deprived of many of their natural and human rights. Some people with HIV refuse to refer to health care and social institutions due to stigma or discrimination. As such, they are led to secrecy and this could exacerbate their psychological vulnerability [34].

According to research findings, there is a positive relationship between openness to experience and psychological adjustment. This means that as openness to experience increases, psychological adjustment in patients with HIV increases, too. The review of past researches suggests that this relationship has also been confirmed in studies by Penley & Tomaka [38], Haren & Mitchell [35], and Ironson *et al.* [34]. People who are open to experience are very curious and willing to discover; they value the experiences they have gained and show persistence in achieving their goals; they are not traditionalist; they are diligent and try to discover the relationships between things which appear to be unconnected; they are curious both about the inner and outer world and they have a life of experiences; they are willing to accept new ideas and unconventional values and experience positive and negative emotions more and deeper than inflexible individuals [39, 40]. So, in the case of people with AIDS who scored high in openness to experience, it can be concluded that these patients enjoy the ability to confront and resist the irrational beliefs when experiencing negative emotions and also tend to maintain their social status. These factors can increase the general health of these patients and consequently increase their psychological adjustment.

The findings of this study also showed that there is a positive relationship between agreeableness and psychological adjustment scores. This means that as agreeableness increases, the psychological adjustment in patients

with HIV increases and vice versa. The review of past researches suggests that this relationship has also been confirmed in studies by Penley & Tomaka [38], Hayes and Josef [41] and Ironson et al. [34]. Some features of agreeable people will explain these findings. These people are generous, kind, and emotional. They help others and believe that others are mutually helpful [39]. So, this feature in people with HIV can develop positive emotional experiences in their adjustment to work and social situations. According to DeNeve & Cooper [42], this trait brought psychological health and adjustment to disease among different people with chronic diseases in all models related to psychological adjustment. In this regard, Zuckerman [43] believes that the low score in the agreeableness leads to the formation of impulsive sensation seeking in people. Consequently, lack of impulse control cause vulnerability to negative emotional experiences such as suffering a chronic illness and substance abuse. These factors, in turn, can significantly reduce individuals' psychological adjustment to negative experiences.

According to the results, there is a positive relationship between conscientiousness and psychological adjustment. This means that as conscientiousness increases, the psychological adjustment in patients with HIV increases and vice versa. The review of past researches suggests that this relationship has also been confirmed in studies by McCrae and John [40], and Ironson et al. [34]. According to studies, the appropriate observation of the situation and the correct cognitive evaluation of the ability in coping with problems and implementing the responsibilities precisely indicate high mental health and psychological adjustment. Patients with high conscientiousness scores have valuable traits in addition to those mentioned. These people have a high resistance to problems and sufferings and they are interested in purposeful and independent behaviors. They are also hard-working and self-disciplined (Moon, 2001). In addition, conscientiousness has a positive correlation with the perceived coping ability, perceived responsibility of controlling the problems, sympathy, joy and hope and, it has a negative correlation with stress and then, the perceived ability [38]. All the mentioned items in people with AIDS who gain high scores in the conscientiousness can lead to higher levels of psychological adjustment to AIDS.

The findings showed that social support has a positive significant correlation with psychological adjustment. The results of the regression analysis indicated that social support predicts positively the psychological adjustment in people with HIV. The findings of the present study showed that there is a significant positive correlation between social support and psychological adjustment. This means that as social support increases, the psychological adjustment in patients with AIDS will rise and vice versa. The review of past researches suggests that this relationship has also been confirmed in studies by Tiffany et al. (2014), and Rao et al. [45]. Also, Ironson et al. [34] regarding the social support and development of the immune system in HIV patients, showed that the suffering caused by the stress of HIV diagnosis, denial and low social support had a significant correlation with disease progression. By the same token, Lutendorf et al. [46], in their two-year follow-up study of the relationship between psychological-social factors and emotional and psychological comfort improvements in patients with AIDS, showed that achieving social support results in higher psychological adjustment and mental comfort in these patients at the time of initial diagnosis of AIDS.

The results showed that there is a significant positive relationship between problem-focused coping strategies and psychological adjustment. This means that as the use of problem-focused coping strategies is increased in patients with AIDS, their psychological adjustment increases, too. The review of past researches suggests that this relationship has also been confirmed in studies by Martinez, et al. [47] and Hansen et al. [48]. To explain these findings, it can be said that problem-focused coping includes activities such as finding more information about problems and making a list of essential tasks to cope with the problem and it refers to the orientation towards the task [49]. So, when people with AIDS have a proper understanding of their disease, they try to resolve the situation through cognitive and behavioral efforts. In this way, they can enhance their psychological adjustment and well-being. In this regard, Fife et al. [50] found that resilient individuals with high psychological adjustment are more likely to use problem-focused coping strategies. Then, the use of these coping styles reduces the risk of disease acquisition and increases the tendency of people to get health services when developing chronic diseases such as cancer and AIDS.

The results showed that there is a significant negative relationship between emotion-focused coping strategies and psychological adjustment. This means that as the use of emotion-focused coping strategies is increased in patients with AIDS, their psychological adjustment decreases. The review of past researches suggests that this relationship has also been confirmed in studies by Martinez, et al. [47] and Hansen et al. [48]. It can be said that according to Lazarus and Folkman [19], emotion-focused coping is oriented towards managing the emotional pain and it deals with the emotional factors related to the situation, rather than the situation itself. People who use this coping style seek to control the consequences of negative emotions in the stressful world instead of focusing on the problem and solving it. These people, affected by this style, escape the problems rather than confronting them. Emotion-focused strategies are effective on reducing stress in the short term; but in the long term, they have negative effects [51]. So, according to studies by Dyer et al. [52] ineffective emotion-focused coping in AIDS patients will be accompanied by consequences such as depression, anxiety and aggression which can have devastating impacts on patients' psychological adjustment. The results showed that there is a significant negative relationship between avoidance coping strategies and psychological adjustment. This means that as the use of avoidance coping strategies is increased in patients with AIDS, their psychological adjustment decreases. The review of past researches suggests that this relationship has also been confirmed in studies by Martinez, et al. [47] and Hansen et al. [48]. Also, in line with the research by Felton, Ronson & Hinrichsen (1984, quoted by Farzadi et.al. 2008) [53] it was found that there is a positive relationship between the use of avoidant coping strategies and depression and low psychological comfort.

In addition, in explaining the findings, it can be stated that AIDS patients who use avoidance coping strategies have very negative perception of their disease and look at it with a very negative view along with their irrational beliefs. So, they try to protect themselves from being surrounded by stress through using avoidance coping style and escaping from stressful situations. This type of coping may also put individuals at risk for psychological distress and as a result, they will not make any behavioral and cognitive attempts to resolve the situation. This is due to the inconsistency of this coping strategy with states based on positive emotion and high levels of confidence in dealing with problems related to the disease [36, 37, 54]. Finally, regarding the coping strategies of HIV patients, the findings showed that there is a positive significant relationship between problem-focused coping strategies and psychological adjustment. The results of regression analysis showed that problem-focused coping strategies predict positively the psychological adjustment in HIV patients. The results also showed there is a negative significant relationship between emotion-focused coping strategies and psychological adjustment. But the regression analysis showed that emotion-focused coping strategies cannot predict psychological adjustment in people with AIDS. Finally, the results showed that there is a negative significant relationship between avoidance coping strategies and psychological adjustment. The regression analysis showed that avoidance coping strategies cannot predict psychological adjustment in people with AIDS.

REFERENCES

- 1) Sanderson, C.A. Health Psychology, translated by a group of translators under the supervision of Jomehri, F., 2013, Karaj: Sarafraz.
- 2) World Health Organization. World health statistics 2013.
- 3) Berglund, G., Petersson, L. M., Eriksson, K. C., Wallenius, I., Roshanai, A., Nordin, K. M., ... & Häggman, M. "Between Men": a psychosocial rehabilitation programme for men with prostate cancer. *Acta*
- 4) Solano, J. P., Gomes, B., & Higginson, I. J. A comparison of symptom prevalence in far advanced cancer, AIDS, heart disease, chronic obstructive pulmonary disease and renal disease. *Journal of pain and symptom management*, 2006. 31(1).
- 5) Temoshok, L. R., Wald, R. L., Synowski, S., & Garzino-Demo, A. Coping as a multisystem construct associated with pathways mediating HIV-relevant immune function and disease progression. *Psychosomatic Medicine*, 2008a. 70(5).
- 6) Temoshok, L. R., Waldstein, S. R., Wald, R. L., Garzino-Demo, A., Synowski, S. J., Sun, L., & Wiley, J. A. Type C coping, alexithymia, and heart rate reactivity are associated independently and differentially with specific immune mechanisms linked to HIV progression. *Brain, behavior, and immunity*, 2008b. 22(5).
- 7) Ano, G. G., & Vasconcelles, E. B. (2005). Religious coping and psychological adjustment to stress: A meta-analysis. *Journal of clinical psychology*, 2005. 61(4).
- 8) Vanable, P. A., Carey, M. P., Blair, D. C., and Littlewood, R. A. Impact of HIV-related stigma on health behaviors and psychological adjustment among HIV-positive men and women. *AIDS and Behavior*, 2006. 10(5).
- 9) de Ridder, D., Geenen, R., Kuijer, R., & van Middendorp, H. Psychological adjustment to chronic disease. *The Lancet*, 2008. 372(9634).
- 10) Park, C. L., Edmondson, D., Fenster, J. R., & Blank, T. O. Meaning making and psychological adjustment following cancer: the mediating roles of growth, life meaning, and restored just-world beliefs. *Journal of consulting and clinical psychology*, 2008. 76(5).
- 11) Sawyer, A., Ayers, S., & Field, A. P. Posttraumatic growth and adjustment among individuals with cancer or HIV/AIDS: A meta-analysis. *Clinical Psychology Review*, 2010. 30(4).
- 12) Goodstein, L. D., & Lanyon, R. I. (1999). Applications of personality assessment to the workplace: A review. *Journal of Business and Psychology*, 13 (3), 291–322.
- 13) Khosh Konesh, A., et.al. The role of basic needs and social support in social adjustment of students'. *Applied Psychology*, 2010. 13.
- 14) Schultz, D, Schultz, SE 1998 Theories of personality Brooks/Cole Publishing Pacific Grove
- 15) Lazarus, R. P., and Schultz, S. E. Theories of Personality: Translated by Seyed Mohammad, Y., 2010, Tehran: Virayesh.
- 16) Grassi, L., Righi, R., Sighinolfi, L., Makoui, S., & Ghinelli, F. Coping styles and psychosocial-related variables in HIV-infected patients. *Psychosomatics*, 1988. 39(4).
- 17) Sarafino, E. P. Health Psychology, translated by a group of translators under the supervision of Mirzaei, E., 2012, Tehran: Roshd
- 18) Friedlander, L. J., Reid, G. J., Shupak, N., & Cribbie, R. (2007). Social support, self-esteem and stress as predictors of adjustment to university among first- year undergraduates. *Journal of College Student Development*, 46(3), 223-236.
- 19) Lazarus, R. S., & Folkman. Coping and adaptation In W. D. Gentry (Ed.), *Hand book behavioral medicine*, 1984, New York: Guilford press.
- 20) Ross, M. W., Hunter, C. E., Condon, J., Collins, P., & Begley, K. The Mental Adjustment to HIV scale: measurement and dimensions of response to AIDS/HIV disease. *AIDS care*, 1994. 6(4).
- 21) Nazemi, M. A (2004). Study of role of personality traits, social support and coping strategies in psychological adjustment of AIDS patients. Master thesis, 2014, Islamic Azad University of Karaj.
- 22) Goldberg, L. R. The structure of phenotypic personality traits. *American psychologist*, 1993. 48(1).
- 23) Groth-Marnat, G. *Handbook of Psychological Assessment*. Translated by Pasha Sharifi, H. 2013, Tehran: Sokhan.
- 24) Costa, P. T., & McCrae, R. R. Four ways five factors are basic. *Personality and individual differences*, 1992. 13(6).
- 25) Costa, P. T., & McCrae, R. R. *Neo PI-R professional manual*, 1992.

- 26) Holden, R. R. (1998). Detecting fakers on a personnel test: Response latencies versus a standard validity scale. *Journal of Social Behavior and Personality*, 13, 387–398.
- 27) Garousi Farshi, M.T. Standardization of NEO personality test and analysis of characteristics and its factor structure among Iranian university students, doctoral thesis in psychology, 1988, Tarbiat Modarres University.
- 28) Zimet, G. D., Powell, S. S., Farley, G. K., Werkman, S., & Berkoff, K. A. (1990). Psychometric characteristics of the Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment*, 55, 610– 617.
- 29) Bagherian, R., Gilani, B., Bahrami, H., Besharat, M. A., & Saneei, S. (2007). Exploratory study of depression predictive variables after heart infarction. Unpublished doctoral dissertation, University of Tehran, Tehran.
- 30) Endler, N. S., & Parker, J. D. A. (1999). *Coping Inventory for Stressful Situations (CISS): Manual* (Second ed.). Toronto: Multi-Health Systems.
- 31) Calsbeek, H., Rijken, P. M., Bekkers, J. T.M., Kerssens, J. J., Dekker, J., & Van Berge Henegouwen, G. P. (2002). Social position of adolescents with chronic digestive disorders. *European Journal of Gastroenterology & Hepatology*, 14, 543–549.
- 32) Ghahvechi, F.; Mohammad Khani, Sh. (2012). The relationship of metacognitive beliefs and self-regulatory strategies with negative emotions in smoking among the college students, the *Journal of Zanjan University of Medical Science*, V. 20, No. 81, pp 93-102.
- 33) Löckenhoff, C. E., Ironson, G. H., O'Cleirigh, C., & Costa, P. T. Five-Factor Model Personality Traits, Spirituality/Religiousness, and Mental Health Among People Living With HIV. *Journal of personality*, 2009. 77(5).
- 34) Ironson, G. H., O'Cleirigh, C., Schneiderman, N., Weiss, A., & Costa Jr, P. T. Personality and HIV disease progression: role of NEO-PI-R openness, extraversion, and profiles of engagement. *Psychosomatic Medicine*, 2008. 70(2).
- 35) Haren, E. G., & Mitchell, C. W. Relationships between the Five-Factor Personality Model and coping styles. *Psychology and Education: An Interdisciplinary Journal*, 2003.
- 36) Watson, D., & Hubbard, B. (1996). Adaptational style and dispositional structure: Coping in the context of the Five-Factor model. *Journal of personality*, 1996. 64(4).
- 37) Watson, M., Greer, S., Young, J., Inayat, Q., Burgess, C., & Robertson, B. Development of a questionnaire measure of adjustment to cancer: the MAC scale. *Psychological medicine*, 1988. 18(01).
- 38) Penley, J. A., & Tomaka, J. Associations among the Big Five, emotional responses, and coping with acute stress. *Personality and individual differences*, 2002. 32(7).
- 39) McCrae, R. R., & Costa Jr, P. T. A five-factor theory of personality. *Handbook of personality: Theory and research*, 1999. 2.
- 40) McCrae, R. R., & John, O. P. An introduction to the five-factor model and its applications. *Journal of personality*, 1992. 60(2).
- 41) Hayes, N., & Joseph, S. Big 5 correlates of three measures of subjective well-being. *Personality and individual differences*, 2003. 34(4).
- 42) DeNeve, K. M., & Cooper, H. The happy personality: a meta-analysis of 137 personality traits and subjective well-being. *Psychological bulletin*, 1998. 124(2).
- 43) Zuckerman, M. An alternative five-factor model for personality. The developing structure of temperament and personality from infancy to adulthood, 1994.
- 44) Tiffany Lillie, Julie Pulerwitz, & Barbara Curbow, Kenyan in-School Youths' Level of Understanding of Abstinence, Being Faithful, and Consistent Condom Use Terms: Implications for HIV-Prevention Programs, 14 *J. HEALTH COMMUN* N. 276, 280–88 (2005).
- 45) Rao D, Chen W T, Pearson C R, Simoni J M, Fredriksen-Goldsen K, Nelson K, et al.. Social support mediates the relationship between HIV stigma and depression/quality of life among people living with HIV in Beijing, China. *International Journal of STD and AIDS*. 2012; 23: 481- 484.
- 46) Lutgendorf S, Antoni MH, Schneiderman N, Ironson G, Fletcher MA. Psychosocial interventions and quality of life changes across the HIV spectrum. In: Dimsdale JE, Baum A, editors. *Perspectives in behavioral medicine: Quality of life in behavioral medicine research*. Hillsdale, NJ: Erlbaum; 1995. pp. 205–239.
- 47) Martinez J. Bell D. Camacho R, et al. Adherence to antiviral drug regimens in HIV-infected adolescent patients engaged in care in a comprehensive adolescent and young adult clinic. *J Natl Med Assoc*. 2000;92:55–61
- 48) Hansen B, Harrison B, Fambro S et al (2013) The structure of coping among older adults living with HIV/AIDS and depressive symptoms. *J Health Psychol* 18(2):198–211
- 49) Fitzsimmons, E. E., and Bardone-Cone, A. M. Coping and social support as potential moderators of the relation between anxiety and eating disorder symptomatology. *Eating Disorders*, 2011. 12.
- 50) Fife, B. L., Scott, L. L., Fineberg, N. S., Zwickl, B. F. Promoting adaptive coping by persons with HIV disease: evaluation of patient/partner intervention, odel. *The Journal of the Association of Nurses in AIDS Care*, 2008. 19(1).
- 51) Bronfman MN, Leyva R, Negroni MJ, Rueda CM. Mobile populations and HIV/AIDS in Central America and Mexico: research for action. *AIDS*. 2002;16:S42–S49.
- 52) Dyer, T. P., Stein, J. A., Rice, E., and Rotheram-Borus, M. J. Predicting depression in mothers with and without HIV: the role of social support and family dynamics. *AIDS Beha*, 2012. 16(8).
- 53) Farzadi, H., et.al. An investigation of psycho-social aspects and styles of coping with the disease in two groups of patients with HIV. *Iran's Psychiatry and clinical psychology*, 1998. 14.
- 54) Karelkla, M., and Panayiotou, G. Coping and experiential avoidance: Unique or overlapping constructs? *Journal of Behavior Therapy and Experimental Psychiatry*, 2011. 43.