



## Designing a Community-Based Model of Adjustment Methods for Positive Prevention Based on Perceived Deterioration and Adherence Treatment Mediated by Coping Strategies in HIV-Positive Patients

Mehri Amiri<sup>1</sup>, Peyman Hassani-Abharian<sup>2</sup>, Mohammad Reza Seyrafi<sup>3</sup>

<sup>1</sup> Department of Health Psychology, Kish International Branch, Islamic Azad University, Kish Island, Iran

<sup>2</sup> Assistant Professor, Department of Rehabilitation, Institute for Cognitive Sciences, Tehran, Iran

<sup>3</sup> Assistant Professor, Department of Health Psychology, Karaj Branch, Islamic Azad University, Karaj, Iran

*Corresponding Author:* Peyman Hassani-Abharian; *Assistant Professor, Department of Rehabilitation, Institute for Cognitive Sciences, Tehran, Iran*

*Email:* [abharian@ircss.org](mailto:abharian@ircss.org)

### Quantitative Study

#### Abstract

**Background:** HIV is one of humanity's greatest challenges and major health risk factors. Therefore, this study aimed to design a community-based model of adjustment methods for positive prevention based on perceived deterioration and treatment adherence mediated by coping strategies in HIV-positive patients.

**Methods:** The present study was a correlation study with a structural equation modeling design. The statistical population included all HIV-infected patients in Tehran, Iran, of which 250 people were selected as a sample from the patients referred to positive clubs under the supervision of the Welfare Organization. The Ways of Coping Questionnaire (WCQ), Psychosocial Adjustment to Illness Scale (PAIS), and Brief Illness Perception Questionnaire (IPQ) were used to collect data. The proposed model was evaluated using structural equation modeling method, and bootstrap method (AMOS software) was used to test indirect relationships.

**Results:** The proposed model after the correction has an acceptable fit with the data. All direct paths are statistically significant. Moreover, all indirect pathways (relationship of adjustment methods for positive prevention, perceived deterioration, and treatment adherence through coping strategies) were significant ( $P < 0.001$ ).

**Conclusion:** Perceived deterioration and adherence treatment have a direct effect on psychosocial adjustment in HIV-positive patients. Coping strategies also have a direct effect on psychosocial adjustment in HIV-positive patients.

**Keywords:** HIV; Adaptation; Treatment Adherence; Compliance

**Citation:** Amiri M, Hassani-Abharian P, Seyrafi MR. **Designing a Community-Based Model of Adjustment Methods for Positive Prevention Based on Perceived Deterioration and Adherence Treatment Mediated by Coping Strategies in HIV-Positive Patients.** *Int J Body Mind Culture* 2021; 8(3): 203-13.

Received: 01 Feb. 2021

Accepted: 07 Jun. 2021

This is an open-access article distributed under the terms of the [Creative Commons Attribution-NonCommercial 4.0 Unported License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

## **Introduction**

HIV is considered one of humanity's greatest challenges and major health risk factors (Rodger, Cambiano, Bruun, Vernazza, Collins, 2016). Although not long has passed since the first patient was infected with HIV, the world faces an epidemic for which there is still no definitive cure. According to figures released by the World Health Organization (WHO) and the Joint United Nations Program on HIV/AIDS, of the 35.3 million HIV-infected patients worldwide, about 6 million live in Asia (Muller, Barday, Mendelson & Kahn, 2015). According to official statistics released by the Ministry of Health in 2017, the average total number of infected people in 2017 was estimated at 59,531 (HIV Control Monitoring Report, 2017). The average estimated number of infected men and women was, respectively, 43,964 and 15,568. Estimates indicate an increasing number of people living with HIV in the total population by 2018, and then, a slowdown in its growth rate. The estimated number of new HIV-infected cases in Iran in 2017 was 4,661 people per year (3,450 men and 1,211 women). This estimate indicates that if the level of service coverage remains at the current level, the number of new cases will decrease every year until 2022 in men and stabilize in women.

The most important factors in the deterioration of HIV-infected patients and their transmission are unprotected sex with the opposite sex or multiple sexual partners, and injecting drug use with shared syringes. HIV is a social phenomenon that affects all aspects of a person's life. The first people to become infected with HIV in the United States were young gay men. Therefore, most countries believe that HIV is mainly transmitted through sexual intercourse, mostly related to groups that engage in unusual sexual activity. HIV infection is socially unacceptable in most countries, and HIV-infected women are often referred to as prostitutes. This makes HIV-infected people socially different and threatening to the general public. Affected patients are often excluded from society and presented as worthless and branded individuals (Viera, Geo, Gypsy, Boaso, Gritid, et al., 2016). Therefore, individuals who test positive for HIV, after the diagnosis and awareness of their disease, they experience anxiety, fear, and ambiguity.

Furthermore, they suffer psychological shock due to fear of notoriety. Patients may initially deny their illness. They may also try to ignore it or experience reactions such as anger, aggression, and grief over coping with reality, and feelings of hopelessness, depression, and anxiety. What is certain is that this condition leads to a hesitation in timely referral and follow-up of the patient's treatment programs and sometimes leads to deprivation of access to treatment. Lack of physician visitations is associated with adverse and dangerous consequences for oneself, others, and the community (Patterson, Cisco, Samji, Zhang, Roboud, et al., 2015). In this regard, Smeltzer et al. (2008) believe that dealing with the disease is an important factor in the prevention of the spread of the disease, the success of treatment plans and provision of welfare, and improvement of patients' quality of life (QOL).

Acquired immunodeficiency syndrome (AIDS) changes the course of a person's life and leads to decreased self-esteem, hopelessness, depression, increased feelings of vulnerability, physical symptoms, and disturbing thoughts in patients. These problems and frequent visits to the doctor, the high cost of treatment, and side effects of drugs affect patients' QOL. HIV-infected patients are at high risk of depression, hopelessness, and anxiety. Therefore, these disorders are considered a risk factor for HIV transmission (Cieslak, 2008). Moreover, HIV-positive patients with psychiatric problems have poor treatment outcomes. They are less likely to use antiretroviral drugs (Heppner & Lee, 2002). It seems that high spirits, hope, and positivity is one of the most important issues in

dealing with this disease (Atai, Atai, and Babapour, 2014). Otherwise, sufferers gradually become depressed and lose their mental well-being over time (Magiorkinis et al., 2016).

Adjustment to illness is the process of maintaining a positive attitude towards oneself and the world despite having physical problems. Poor adjustment to illness reduces the rate of recovery (Halford & Brun, 2009). Psychosocial adjustment is one of the most important chronic disease variables because it is directly related to self-care behaviors (Michael, 1996). Adjustment can be defined as the response to a change in a stimulus that allows the organism to adapt appropriately to that change (Sharp and Koran, 2006). Findings of previous studies show that patients who show good adjustment to their disease become less anxious or depressed and require less medical attention, and thus, have lower treatment costs. Today, with the increasing development of health psychology, psychologists can play a more active role in preventing and treating this disorder.

The HIV-infected patient is in a difficult and painful condition. The heavy burden of the disease has caused him/her many problems. Therefore, his/her perception and acceptance of the disease can be one of the most important components affecting how he/she copes with the disease, accepts the disease, and seeks health services. It is necessary to conduct qualitative research to explain the factors that prevent the acceptance of the disease in patients for the following reasons. These reasons include the increase in the number of HIV-infected people in Iran and the need for the patient to accept the disease, as a key factor to facilitate his participation in treatment decisions and prevent the disease from worsening, and the need for timely patient entry into the treatment, as an immediate priority of the health system. Streubert et al. (2011) believe that examining the dimensions of a concept, making social changes in a particular field, examining life experiences, and fully understanding these experiences are some of the issues that qualitative research methods can address. Considering the importance of recognizing the barriers to accepting the disease as influential factors on entering the field of treatment, on the one hand, and the lack of clear barriers in the Iranian health system and culture, on the other hand, this study was conducted with the aim to develop an intervention model of community-based adjustment methods based on perceived deterioration and treatment adherence mediated by coping strategies in HIV-positive patients.

## Methods

The present study was a correlational study with a structural equation modeling design. The statistical population of the study included all HIV-infected people referred to positive clubs under the supervision of the Iranian Welfare Organization in 2019. In modeling research, 10 to 15 people are needed for each obvious variable. Based on the available variables, 250 people were selected through stratified random sampling method. The inclusion criteria include HIV-positive test result, referral to positive clubs to receive services in 2019, age of 18-50 years, the passage of 1 year since the diagnosis, lack of diagnosis of any other chronic physical illnesses, lack of diagnosis of serious mental disorders in the patient before the HIV diagnosis. The exclusion criteria included discontinuation of treatment and non-referral to positive clubs.

*Ways of Coping Questionnaire:* The Ways of Coping Questionnaire (WCQ) was prepared by Lazarus and Folkman in 1988. Its revised form consists of 66 items and 8 scales. Each scale consists of several items. The reliability of these scales was calculated using Cronbach's alpha; the reliability of the confronting, distancing, self-controlling, seeking social support, accepting responsibility, escape-avoidance, planful problem-solving, and positive re-appraisal scales were 0.70, 0.66, 0.74, 0.76,

0.66, 0.72, 0.68, and (0.79), respectively. The WCQ has been translated, implemented, and validated in Iran by Aghajani (1995) and Abdi (2001).

*Psychosocial Adjustment to Illness Scale:* The Psychosocial Adjustment to Illness Scale (PAIS) was developed by Derogatis and Derogatis (1990) and has 46 items. The items are scored on a 4-point Likert scale. The PAIS consists of the 7 subscales of health care orientation, home environment, sex, family relationships, social environment, and psychological distress. The validity and reliability of this scale have been reported as optimal. In the main study, the reliability (calculated using Cronbach's alpha) of each of the subscales mentioned was reported to be 0.47, 0.76, 0.77, 0.83, 0.62, 0.80, and 0.85, respectively. This scale's construct validity (calculated using CFA and Varimax rotation) indicated that these 7 components together explain 0.63. Each of the subscales 18%, 10%, 9%, 8%, 7%, 7%, 5% of the total variance of the scale, respectively. Overall, the study of the psychometric properties of the PAIS concerning the disease has indicated that this scale has satisfactory reliability and validity indicators. Furthermore, Bzargani (2009) reported good validity and reliability for this scale in Iran.

*Brief Illness Perception Questionnaire:* The Brief Illness Perception Questionnaire (Brief IPQ) is a 9-item questionnaire designed to assess the emotional and cognitive visualization of the disease. It measures outcomes, duration, self-control, nature control, treatment, anxiety, cognition, and emotional responses. The scores of the first 8 questions range from 1 to 10. Question 9 is an open-ended question and asks the 3 main causes of HIV. The Cronbach's alpha of this questionnaire was 0.80, and the test-retest correlation coefficient with a 6-week interval for the different items of the Brief IPQ was 0.43-0.75.

The present study's ethical considerations were as follows: 1) All individuals received information about the research in writing and participated in the research if they wished; 2) The participants were reassured that all information would remain confidential and would be used for research purposes only; 3) For privacy reasons, the names and surnames of the participants were not registered; 4) To ensure the work process, all questionnaires were administered by the researcher himself.

*Descriptive statistics:* Frequency tables and graphs, central indices, and scatter indices such as mean and SD were used. Inferential statistics in SPSS software (version 25; IBM Corp., Armonk, NY, USA), structural equations in AMOS (version 22; IBM Corp., Armonk, NY, USA), and Pearson correlation were used to analyze the data.

## **Results**

The mean age of the respondents was  $37.9 \pm 5.48$  years, with a minimum age of 28 years, and a maximum age of 54 years. The participants' highest and lowest education level was high school degree with 77 students (30.8%), and academic education with 16 students (6.4%). The marital status with the highest and lowest prevalence among the participants was divorced with 89 people (35.6%), and single with 28 people (11.2%).

The results of the Kolmogorov-Smirnov test indicate that the data are at a normal level. The Kolmogorov-Smirnov test showed that the data have a normal distribution, and parametric methods can be used for the inferential analysis of data. To examine the conceptual model presented in the research, the initial model was analyzed according to the prediction of psychosocial adjustment in direct and indirect paths by the variables of perceived deterioration, treatment adherence, and coping strategies. Table 1 shows Descriptive statistics of research variables.

**Table 1.** Descriptive statistics of research variables

Variable		Mean $\pm$ SD	Min	Max
Coping strategies	Confronting coping	12.51 $\pm$ 1.84	3	18
	Distancing	10.22 $\pm$ 1.53	3	16
	Self-controlling	14.98 $\pm$ 4.01	5	21
	Seeking social support	11.82 $\pm$ 3.49	4	18
	Accepting responsibility	7.56 $\pm$ 1.01	2	12
	Escape-avoidance	16.44 $\pm$ 3.18	6	22
	Planful problem-solving	11.21 $\pm$ 2.71	3	17
	Positive re-appraisal	12.44 $\pm$ 3.52	3	21
Perceptions of the illness	Perceptions of the consequences	5.10 $\pm$ 2.60	0	10
	Duration of the illness	5.90 $\pm$ 2.30	0	10
	Personal control	6.50 $\pm$ 1.40	0	10
	Therapeutic control	7.30 $\pm$ 1.20	0	10
	Identification of symptoms	6.10 $\pm$ 1.20	0	10
	Concerns over the illness	4.90 $\pm$ 2.30	0	10
	Understanding the illness	6.80 $\pm$ 1.30	0	10
Psychosocial Adjustment to Illness	Healthcare orientation	15.14 $\pm$ 3.81	0	21
	Home atmosphere	13.56 $\pm$ 4.10	0	18
	Sexual relationships	14.80 $\pm$ 3.71	0	19
	Breadth of the family relationships	16.80 $\pm$ 2.67	0	20
	Social environment	13.56 $\pm$ 2.42	0	21
	Psychological helplessness	17.88 $\pm$ 4.42	0	24
Adherence to therapeutic regimen		2.94 $\pm$ 1.87	0	8

SD: Standard deviation

According to the results presented in table 2, the statistics obtained from the comparative, absolute, and parsimonious indices show that the model obtained after the correction has an acceptable fit. The model is correct in the path of errors and variances obtained. Table 3 shows the values obtained from weighted regression statistics to determine the effect values (B) according to the level of significance obtained from the critical ratio, which indicates the significant effect values of the subscales on the overall variable and the exogenous variables (perceived deterioration, treatment adherence, and coping strategies) are the final endogenous variable (psychosocial adjustment).

Table 3 shows the normed and non-normed values of the exogenous research variables' prediction paths on the endogenous variable with each other concerning the value of t obtained in the model. All values obtained were significant, indicating a meaningful prediction.

**Table 2.** Fitting indices obtained from data analysis and variables after three correction steps

Index	The goodness of fit indices	Optimum values	Value
Absolute	Chi-square goodness of fit test	Nil	978.922
	The goodness of fit index	$\geq 0.90$	0.992
Comparative	Adjusted goodness of fit index (AGFI)	$\geq 0.90$	0.988
	Normed Fit Index (NFI)	$\geq 0.90$	0.959
	Comparative Fit Index (CFI)	$\geq 0.90$	0.957
	Tucker-Lewis Index (TLI)	$\geq 0.90$	0.961
	Relative Fit Index (RFI)	$\geq 0.90$	0.947
Parsimonious	Parsimony Normed Fit Index (PNFI)	$\geq 0.5$	0.521
	Root Mean Square Error of Approximation (RMSEA)	$\geq 0.08$	0.042
	$\chi^2/df$	$\geq 0.3$	2.854
	Degrees of Freedom (df)	$\leq 0.0$	343
	P-value	$\geq 0.05$	0.000

**Table 3.** Weighted regression statistics and critical ratios of research variables

Exogenous variable	Direction	Endogenous variable	B	$\beta$	t-statistic	P-value
Perceived deterioration	←	psychosocial adjustment	0.449	0.346	4.108	0.000
Treatment adherence	←	psychosocial adjustment	0.622	0.513	6.557	0.001
Coping strategies	←	psychosocial adjustment	0.379	0.287	4.124	0.002

### Discussion

This study aimed to design a community-based model of adjustment methods for positive prevention based on perceived deterioration and treatment adherence mediated by HIV-positive patients' coping strategies. Based on the findings, it can be seen that perceived deterioration has a direct effect on psychosocial adjustment in HIV-positive patients. Coping strategies also have a direct effect on psychosocial adjustment in HIV-positive patients. The results of this study were consistent with the findings of the studies by Mahmoudi et al. (2012), Daryazadeh et al. (2013), Rasouli et al. (2017), and Karimi et al. (2018).

The evidence shows that in a wide range of diseases, a person's opinion about the nature of the disease effectively determines healthy behaviors and QOL. People with chronic diseases form schemas or cognitions of the disease in their cognitive system. Endogenous and exogenous variables such as personality factors, social environment, and demographic factors play a role in their formation. These factors, along with the disease's threat, affect the patient's perception of the nature, causes, curability/controllability, and consequences of the disease (Kishin et al., 2017). Therefore, a person who has a positive schema of his disease can realistically and correctly understand the signs and symptoms of the disease and its other dimensions. Studies have shown that people with perceived deterioration use more coping strategies than people with perceived deterioration. In other words, a sense of efficiency and adequacy in controlling stressful situations causes the individual to consider the disease as controllable, and not overestimate its negative emotional effects. Moreover, personal control leads to the belief in the adequacy of internal and external resources to meet the disease's requirements. Adequacy of resources, in turn, creates a strong sense of self-worth and self-direction. Therefore, these people use effective coping strategies such as self-disclosure and information retrieval, and consequently, show less emotional disturbance symptoms.

Furthermore, if the disease consequences are not overestimated, the person will not show much attention to its consequences. Attention management, along with a sense of personal worth and competence, leads to coping strategies that aim to change position or increase personal possibilities. In general, positive perception of the disease, which is accompanied by the perception of control over the disease and the accompanying symptoms and emotions, leads to appropriate therapeutic measures. The resulting improvement leads to a more positive perception (Walter, Van't Spijker, Pasma, Hazes, & Luime, 2017). A person who has a positive perception of the disease is expected to have the necessary background to use coping strategies and have higher psychosocial adjustment.

In addition, since this study shows that perceived deterioration has a positive effect on psychosocial adjustment in HIV-infected people, it can be said that people who have perceived deterioration of their disease have less adjustment to their disease. People with chronic illness form schemas or cognitions of the disease in their cognitive system. Internal and external variables such as personality factors, social

environment, and demographic factors play a role in the formation of these cognitions. These factors, along with the threat of disease, affect the patient's perception of the nature, causes, curability/controllability, and consequences of the disease. Therefore, a person who has a positive schema of his disease can realistically and correctly understand and analyze the signs and symptoms of the disease and other disease dimensions. Studies have shown that people who have less perceived deterioration of their disease are more likely to use task-oriented coping strategies. In other words, the sense of efficiency and high adequacy in these people leads them to appropriate control (Komatsu & Kuribayashi, 2014).

Perceived deterioration of the disease is associated with poor perceived control. Support is based on Leventhal and Nerenz's Self-Regulatory Model of illness perceptions, which states that worry about the disease causes the patient to perceive the symptoms more severely, thus leading to a more skeptical assessment of their health. A significant number of patients have misconceptions about their HIV control, and this misconception harms their mental health. Moreover, belief in the nature and severe symptoms of the disease and a common sense of self-control also lead to emotional responses to the disease. Under the influence of these conditions, the threat (disease) is considered bold and negative emotional responses to threatening events intensify. The rumination related to the increased threat keeps them active in working memory. This interferes with disease management and effective disease management (Assari, Moazen, Caldwell & Zimmerman, 2017).

It can also be said that a problem-focused coping strategy describes the reactions in which the person accepts his role in creating and solving the problem through continuous effort to correct the existing situation. Therefore, it can be said that patients who use problem-focused coping strategies in dealing with the problem re-evaluate the problem. Because they believe they can manage the problem effectively and efficiently, they usually experience fewer psychological and interpersonal problems. Moreover, patients who use problem-focused coping strategies do not accept a negative attitude towards their bodies and diseases. This will prevent the disease from inadequate because they do not associate rejection by their family and others to their illness (Livneh & Martz, 2014). Therefore, they show a lower rate of depression and interpersonal problems and evaluate their psychosocial adjustment positively. This reduces the deterioration of the disease. This probably reinforces the feeling that they can support others, enjoy acceptance by others, and receive love, intimacy, and respect despite their illness. These characteristics can help them cope with their illness with less stress or to adjust to them constructively (Livneh & Martz, 2014).

It can also be said that emotion-focused coping can involve a new assessment of a situation that changes or corrects the meaning of tension. It may either be used in the form of escaping or getting away from the problem, which is tantamount to designing a sustainable life, which is tantamount to distancing oneself from all the realities of life if confronted directly. Based on this, it can be stated that patients who use emotion-focused coping strategy never deal with the stress caused by the problem logically and efficiently. Instead of solving the problem, they focus on the problem's negative emotions and experience high levels of stress, anxiety, and mental health problems. The use of an emotion-focused coping strategy is also a maladaptive application that increases their stress because they disregard the problem. Therefore, these patients experience major problems in their relationships and experience distress in life. This is because these people often engage their emotions and use the mechanism of crying. Because of their inability to control life events and difficulty

making decisions, they experience low self-esteem, diminished social support, and increased stress. These emotions can have many negative psychological effects on their relationships with others, leading to increased disease deterioration and reduced psychosocial adjustment (Assari, Moazen, Caldwell & Zimmerman, 2017).

This study's limitations included the elimination of several sample groups due to illiteracy, and heterogeneity of the sample group in terms of education level and socioeconomic status. Therefore, it is suggested that similar studies be performed on other patients to compare the results. Moreover, it is possible to homogenize the sample group in terms of education level and socioeconomic status to prevent disturbing factors. Furthermore, the relationship between the duration of the disease and patients' QOL will be significant.

## **Conclusion**

According to the results, perceived deterioration has a direct effect on psychosocial adjustment in HIV-infected individuals. Coping strategies and treatment adherence also have a direct effect on psychosocial adjustment in HIV-positive individuals. Therefore, the conceptual model is approved.

## **Conflict of Interests**

Authors have no conflict of interests.

## **Acknowledgments**

We hereby thank all HIV-positive patients who participated in this study and the Welfare Organization for their enthusiastic participation.

## **References**

- HIV Monitoring Report in the Islamic Republic of Iran on the Monitoring of the Declaration of Commitment adopted by the Special Session of the UN General Assembly on AIDS and HIV (December 21, 2017), Secretariat of the National HIV Working Group of the Ministry of Health and Medical Education March 2018
- Inquiry from the implementers of the project "Estimation of HIV cases in Iran, 2017, Center for Communicable Diseases Management and the HIV Yuan Office in Iran. March 2017 (unpublished).
- Haghdoost, A. A., Danesh, A., et al., 2014. Behavioral and serological care of HIV in injecting drug users in HIV, Kerman University of Medical Sciences, Kerman, Iran. Project report.
- Anderson, M. A., Burda, J. E., Ren, Y., Ao, Y., O'Shea, T. M., Kawaguchi, R. et al. (2016). Astrocyte scar formation aids central nervous system axon regeneration. *Nature*, 532(7598), 195-200. doi:nature17623 [pii];10.1038/nature17623 [doi]. Retrieved from PM:27027288
- Bekker, L. G., Alleyne, G., Baral, S., Cepeda, J., Daskalakis, D., Dowdy, D. et al. (2018). Advancing global health and strengthening the HIV response in the era of the Sustainable Development Goals: the International AIDS Society-Lancet Commission. *Lancet*, 392(10144), 312-358. doi:S0140-6736(18)31070-5 [pii];10.1016/S0140-6736(18)31070-5 [doi]. Retrieved from PM:30032975
- Bowen, J. R., Zimmerman, M. G., & Suthar, M. S. (2018). Taking the defensive: Immune control of Zika virus infection. *Virus.Res*, 254, 21-26. doi:S0168-1702(17)30658-5 [pii];10.1016/j.virusres.2017.08.018 [doi]. Retrieved from PM:28867493



- Brunello, G., Fort, M., Schneeweis, N., & Winter-Ebmer, R. (2016). The Causal Effect of Education on Health: What is the Role of Health Behaviors? *Health Econ.*, 25(3), 314-336. doi:10.1002/hec.3141 [doi]. Retrieved from PM:25581162
- Bufacchi, R. J., & Iannetti, G. D. (2016). Gravitational cues modulate the shape of defensive peripersonal space. *Curr Biol.*, 26(21), R1133-R1134. doi:S0960-9822(16)31074-0 [pii];10.1016/j.cub.2016.09.025 [doi]. Retrieved from PM:27825445
- Calvetti, P. +. c., Marques Giovelli, G. R., Chitt+ Gauer, G. J., & de Moraes, J. F. D. (2014). Psychosocial factors associated with adherence to treatment and quality of life in people living with HIV/AIDS in Brazil. *Jornal Brasileiro de Psiquiatria*, 63(1), 8-15.
- Castanheira, M. F., Conceicao, L. S. E. C., Millot, S., Rey, S., Bégout, M. L., Damsgard, B., et al. (2017). Coping styles in farmed fish: consequences for aquaculture. *Rev Aquac.*, 9(1), 23-41. doi:https://doi.org/10.1111/raq.12100.
- Chen, Y. L., Chen, S. H., & Gau, S. S. (2015). ADHD and autistic traits, family function, parenting style, and social adjustment for Internet addiction among children and adolescents in Taiwan: a longitudinal study. *Res Dev Disabil*, 39, 20-31. doi:S0891-4222(14)00530-7 [pii];10.1016/j.ridd.2014.12.025 [doi]. Retrieved from PM:25617844
- Cooley, E., Brown-Iannuzzi, J. L., Lei, R. F., Philbrook, L. E., Cipolli III, W., & McKee, S. E. (2021). Investigating the health consequences for White Americans who believe White Americans are wealthy. *Soc Psychol Personal Sci*, 12(3), 371-382.
- Deng, H., Xiao, X., & Wang, Z. (2016). Periaqueductal Gray Neuronal Activities Underlie Different Aspects of Defensive Behaviors. *J Neurosci*, 36(29), 7580-7588. doi:36/29/7580 [pii];10.1523/JNEUROSCI.4425-15.2016 [doi]. Retrieved from PM:27445137
- Ernsting, C., Dombrowski, S. U., Oedekoven, M., JL, O. S., Kanzler, M., Kuhlmeiy, A. et al. (2017). Using Smartphones and Health Apps to Change and Manage Health Behaviors: A Population-Based Survey. *J Med Internet.Res*, 19(4), e101. doi:v19i4e101 [pii];10.2196/jmir.6838 [doi]. Retrieved from PM:28381394
- Estes, J. D., Kityo, C., Ssali, F., Swainson, L., Makamdop, K. N., Del Prete, G. Q. et al. (2017). Defining total-body AIDS-virus burden with implications for curative strategies. *Nat.Med.*, 23(11), 1271-1276. doi:nm.4411 [pii];10.1038/nm.4411 [doi]. Retrieved from PM:28967921
- Foley, J. E., & Weinraub, M. (2017). Sleep, Affect, and Social Competence from Preschool to Preadolescence: Distinct Pathways to Emotional and Social Adjustment for Boys and for Girls. *Front.Psychol*, 8 , 711. doi:10.3389/fpsyg.2017.00711 [doi]. Retrieved from PM:28588517
- Frank, R. G., & Pollack, H. A. (2017). Addressing the Fentanyl Threat to Public Health. *N Engl.J Med*, 376(7), 605-607. doi:10.1056/NEJMp1615145 [doi]. Retrieved from PM:28199808
- Goel, R., & Tyagi, N. (2016). Potential Contribution of Antioxidant Mechanism in the Defensive Effect of Lycopene Against Partial Sciatic Nerve Ligation Induced Behavioral, Biochemical and Histopathological Modification in Wistar Rats. *Drug Res (Stuttg.)*, 66(12), 633-638. doi:10.1055/s-0042-112364 [doi]. Retrieved from PM:27504866
- Ramirez, M. T., & Hernandez, R. L. (2007). Factor structure of the Perceived Stress Scale (PSS) in a sample from Mexico. *Span.J Psychol*, 10(1), 199-206. doi:10.1017/s1138741600006466 [doi]. Retrieved from PM:17549893
- Gordon, N., & Lin, T. (2016). The Kaiser Permanente Northern California Adult Member Health Survey. *Perm.J*, 20(4), 15-225. doi:15-225 [pii];10.7812/TPP/15-225 [doi]. Retrieved from PM:27548806
- Graham, S. (2018). Race/Ethnicity and Social Adjustment of Adolescents: How (Not if) School Diversity Matters. *Educ Psychol*, 53(2), 64-77.
- Gupta, B. B., & Badve, O. P. (2017). Taxonomy of DoS and DDoS attacks and desirable defense mechanism in a Cloud computing environment. *Neural.Comput.Appl*, 28(12), 3655-3682.

- Gupta, S., & Gupta, B. B. (2016). XSS-immune: A Google chrome extension-based XSS defensive framework for contemporary platforms of web applications. *Security and Communication Networks*, 9(17), 3966-3986.
- Happell, B., & Ewart, S. B. (2016). 'Please believe me, my life depends on it': physical health concerns of people diagnosed with mental illness. *Aust Nurs Midwifery J*, 23(11), 47. Retrieved from PM:27530033
- Huang, L., Yuan, T., Tan, M., Xi, Y., Hu, Y., Tao, Q. et al. (2017). A retinoraphe projection regulates serotonergic activity and looming-evoked defensive behaviour. *Nat. Commun*, 8, 14908. doi:ncomms14908 [pii];10.1038/ncomms14908 [doi]. Retrieved from PM:28361990
- Joshi, R. (2018). A Review on Colletotrichum spp. Virulence mechanism against host plant defensive factors. *Journal of Medicinal Plants Studies*, 6, 64-67.
- Keskin, G. S., Guler, S., Gokce, C. B., Gunes, N., Yon, M. I., & Yoldas, T. K. (2017). Validation of the Revised Illness Perception Questionnaire in Turkish epilepsy patients and the effects of earthquake experience on perception of disease. *Neuropsychiatr. Dis Treat.*, 13, 551-556. doi:10.2147/NDT.S126706 [doi];ndt-13-551 [pii]. Retrieved from PM:28260901
- Levecque, K., Anseel, F., De Beuckelaer, A., Van der Heyden, J., & Gisle, L. (2017). Work organization and mental health problems in PhD students. *Res. Policy*, 46(4), 868-879.
- Li, L., Feng, X., Zhou, Z., Zhang, H., Shi, Q., Lei, Z. et al. (2018). Stress Accelerates Defensive Responses to Looming in Mice and Involves a Locus Coeruleus-Superior Colliculus Projection. *Curr Biol.*, 28(6), 859-871. doi:S0960-9822(18)30159-3 [pii];10.1016/j.cub.2018.02.005 [doi]. Retrieved from PM:29502952
- Li, L., Huang, T., Tian, C., Xiao, Y., Kou, S., Zhou, X. et al. (2016). The defensive effect of phellodendrine against AAPH-induced oxidative stress through regulating the AKT/NF-kappaB pathway in zebrafish embryos. *Life.Sci*, 157, 97-106. doi:S0024-3205(16)30313-7 [pii];10.1016/j.lfs.2016.05.032 [doi]. Retrieved from PM:27234894
- Mahmoud, S. K., Alfonse, M., Roushdy, M. I., & Salem, A. M. (2017 Dec 5-7). A comparative analysis of Cross Site Scripting (XSS) detecting and defensive techniques. Proceedings of the 2017 8<sup>th</sup> International Conference on Intelligent Computing and Information Systems (ICICIS); Cairo, Egypt.
- Makanjuola, T., Taddese, H. B., & Booth, A. (2014). Factors associated with adherence to treatment with isoniazid for the prevention of tuberculosis amongst people living with HIV/AIDS: a systematic review of qualitative data. *PLoS.One.*, 9(2), e87166. doi:10.1371/journal.pone.0087166 [doi];PONE-D-13-37256 [pii]. Retrieved from PM:24498298
- Mohr, D. C., Weingardt, K. R., Reddy, M., & Schueller, S. M. (2017). Three Problems With Current Digital Mental Health Research and Three Things We Can Do About Them. *Psychiatr.Serv.*, 68(5), 427-429. doi:10.1176/appi.ps.201600541 [doi]. Retrieved from PM:28412890
- Nouvian, M., Reinhard, J., & Giurfa, M. (2016). The defensive response of the honeybee *Apis mellifera*. *J Exp Biol.*, 219(Pt 22), 3505-3517. doi:219/22/3505 [pii];10.1242/jeb.143016 [doi]. Retrieved from PM:27852760
- Pakenham, K. I., Dadds, M. R., & Terry, D. J. (1996). Adaptive demands along the HIV disease continuum. *Soc Sci Med*, 42(2), 245-256. doi:0277953695000992 [pii];10.1016/0277-9536(95)00099-2 [doi]. Retrieved from PM:8928033
- Pakenham, K. I., Dadds, M. R., & Terry, D. J. (1994). Relationships between adjustment to HIV and both social support and coping. *J Consult.Clin Psychol*, 62(6), 1194-1203. doi:10.1037//0022-006x.62.6.1194 [doi]. Retrieved from PM:7860817
- Paolinelli-Alfonso, M., Villalobos-Escobedo, J. M., Rolshausen, P., Herrera-Estrella, A., Galindo-Sanchez, C., Lopez-Hernandez, J. F. et al. (2016). Global transcriptional analysis suggests *Lasiodiplodia theobromae* pathogenicity factors involved in modulation of grapevine defensive response. *BMC Genomics.*, 17(1), 615. doi:10.1186/s12864-016-2952-3 [doi];10.1186/s12864-016-2952-3 [pii]. Retrieved from PM:27514986

- Rahat, E., & Ilhan, T. (2016). Coping Styles, Social Support, Relational SelfConstrual, and Resilience in Predicting students' Adjustment to University Life. *Educ.Sci.Theory Pract.*, 16(1), 187-208.
- Sacktor, N., Skolasky, R. L., Seaberg, E., Munro, C., Becker, J. T., Martin, E. et al. (2016). Prevalence of HIV-associated neurocognitive disorders in the Multicenter AIDS Cohort Study. *Neurology*, 86(4), 334-340. doi:WNL.0000000000002277 [pii];10.1212/WNL.0000000000002277 [doi]. Retrieved from PM:26718568
- Sarabia-Cobo, C. M., Suarez, S. G., Menendez Crispin, E. J., Sarabia Cobo, A. B., Perez, V., de, L. P. et al. (2017). Emotional intelligence and coping styles: An intervention in geriatric nurses. *Appl Nurs Res*, 35, 94-98. doi:S0897-1897(16)30101-X [pii];10.1016/j.apnr.2017.03.001 [doi]. Retrieved from PM:28532736
- Shaib, F., Khan, S. N., Ali, I., Thakur, M., Saed, M. G., Dai, J. et al. (2016). The Defensive Role of Cumulus Cells Against Reactive Oxygen Species Insult in Metaphase II Mouse Oocytes. *Reprod.Sci.*, 23(4), 498-507. doi:1933719115607993 [pii];10.1177/1933719115607993 [doi]. Retrieved from PM:26468254
- Stacey, D., Legare, F., Lewis, K., Barry, M. J., Bennett, C. L., Eden, K. B. et al. (2017). Decision aids for people facing health treatment or screening decisions. *Cochrane.Database.Syst Rev*, 4, CD001431. doi:10.1002/14651858.CD001431.pub5 [doi]. Retrieved from PM:28402085
- Tran, B. X., Hwang, J., Nguyen, L. H., Nguyen, A. T., Latkin, N. R., Tran, N. K. et al. (2016). Impact of Socioeconomic Inequality on Access, Adherence, and Outcomes of Antiretroviral Treatment Services for People Living with HIV/AIDS in Vietnam. *PLoS.One.*, 11(12), e0168687. doi:10.1371/journal.pone.0168687 [doi];PONE-D-16-34513 [pii]. Retrieved from PM:28005937
- Tran, B. X., Nguyen, L. T., Do, C. D., Nguyen, Q. L., & Maher, R. M. (2014). Associations between alcohol use disorders and adherence to antiretroviral treatment and quality of life amongst people living with HIV/AIDS. *BMC Public Health*, 14, 27. doi:1471-2458-14-27 [pii];10.1186/1471-2458-14-27 [doi]. Retrieved from PM:24411007
- Tuf, I., -ímielov+í, L., & +ápo+í, J. (2016). Conglobation as a defensive behaviour of pill millipedes (Diplopoda: Glomerida). *Acta Soc.Zool.Bohem.*, 80, 39-44.
- Turan, B., Hatcher, A. M., Weiser, S. D., Johnson, M. O., Rice, W. S., & Turan, J. M. (2017). Framing Mechanisms Linking HIV-Related Stigma, Adherence to Treatment, and Health Outcomes. *Am.J Public Health*, 107(6), 863-869. doi:10.2105/AJPH.2017.303744 [doi]. Retrieved from PM:28426316
- Vorburger, C., & Perlman, S. J. (2018). The role of defensive symbionts in host-parasite coevolution. *Biol.Rev Camb.Philos.Soc.*, 93(4), 1747-1764. doi:10.1111/brv.12417 [doi]. Retrieved from PM:29663622
- Walter, M. J., Van't Spijker, A., Pasma, A., Hazes, J. M., & Luime, J. J. (2017). Focus group interviews reveal reasons for differences in the perception of disease activity in rheumatoid arthritis. *Qual.Life.Res*, 26(2), 291-298. doi:10.1007/s11136-016-1369-4 [doi];10.1007/s11136-016-1369-4 [pii]. Retrieved from PM:27444780
- Zamani, S., Kihara, M., Gouya, M. M., Vazirian, M., Ono-Kihara, M., Razzaghi, E. M. et al. (2005). Prevalence of and factors associated with HIV-1 infection among drug users visiting treatment centers in Tehran, Iran. *AIDS.*, 19(7), 709-716. doi:00002030-200504290-00008 [pii];10.1097/01.aids.0000166094.24069.72 [doi]. Retrieved from PM:15821397