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Editoroal

Theoretical Study

Review Article(s)

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Cross-Cultural, Interdisciplinary Health Studies

Information for Authors

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International Journal of Body, Mind & Culture
Cross-Cultural, Interdisciplinary Health Studies

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International Journal of Body, Mind and Culture

A Note on Defamiliarization of Health; from Completeness to Wholeness

Farzad Goli[1]

[1] Professor, Faculty Instructor, Energy Medicine University, California, USA AND Danesh-e Tandorosti Institute, Isfahan, Iran

Corresponding Author: Farzad Goli; ***Professor, Faculty Instructor, Energy Medicine University, California, USA AND Danesh-e Tandorosti Institute, Isfahan, Iran***
Email: dr.fgoli@yahoo.com

Editorial

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The most famous definition of health is provided by the World Health Organization (1948): "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity". The global acceptance of such an idealistic and non-pragmatic description of health has always surprised me.

Through this window, you see a medical utopia, with healthy people in a timeless state of complete welfare. Nobody can meet such criteria, and therefore, health remains an idea beyond the real world of deficits and desire.

The second part of the definition emphasizes the criticism of the disease-oriented representation of health. However, this positive description is as vague as the negative determinants of health, such as the absence of disease, or the silence of organs.

It seems that something is profoundly wrong with the concept of health. Health is a phantom behind a painless body which is only revealed in our wishes for health when we are in face of an illness. It is present in its absence!

Assigning a noun for a complex and dynamic self-regulatory process such as health is completely inappropriate. Health can be an attribute of an organism that indicates integrity and balance. Health can also be a verb like "healthing"; the process of co-constructing and recreating the balance of a living system.

Life is a self-referential and self-dissipative system, as Lumann explains. Life is a sustainable-unstable system, and therefore, we cannot suppose a constant reference for the balance of an organism. While homeostasis reflects the stability of an organism, autopoiesis shows how a complex organism stabilizes itself in a complex environment and recreates balance by co-emerging new orders.

Health, as an attribute of an autopoietic system, can be mentioned as a complex tendency of life to balance between these two fundamental forces towards "sameness" and "otherness".

In this sense, health is neither a final state, nor is it the promised land of wandering drives of life. Health is the tendency to integrate information-energy flows within, and between bodies. The ever-existing difference between the expectations of sameness and perceptions of otherness forces organisms to make new meanings/ functions.

Health, from a systemic viewpoint, can be defined as an intelligent trend to the coherency of the meaning-making processes of an organism in its functional closure by structural openness.

For a complex living system like humans, the interwoven and transforming meaning-making systems appear in the forms of energetic, material, symbolic, and reflective signs. Signs shape our bodies and lifeworlds; from a methylation signal interpreted as gene inhibition by the DNA to an announcement on the media interpreted as a strike by a community. All the physical, mental, and social functions are indeed the interpretations of these vast varieties of signs.

Now, you can imagine that all the physical and symbolic functions are integrated to reconstruct the balance between the needs and resources of the organism. Having an inner world is the result of symbolic and reflective signs.

Accordingly, our body has, at least, two worlds of "I", as subject or reflective qualia, and "It", as a natural or social object. A systemic definition of health should not only cover both worlds of the human condition but also, integrate all the energy-matter signs and symbol-reflection signs in a multiversal body.

We need a dynamic and physical-phenomenological definition of health that explores our salutogenetic efforts on the spectrum of higher health. Salutogenesis is a much more proper concept for exploring health processing.

Salutogenesis explores the I-It interactions of the body, which make life comprehensible, manageable, and meaningful. These factors, as Antonovsky explains, determine the sense of coherence, and how we narrate and behave in the world. All of the parameters are related to the integrity of internal and external meaning-making processes. The functional misinterpretations and the structural blockages bring about incoherence and dissatisfaction. Misinterpretations actually lead to the fragmentation of a whole body.

Salutogenesis is an orientation towards wholeness. It implicates the facilitation of healing servomechanisms by feeling and acting as a whole. Despite the pathological approach, salutogenesis focuses on top-down organization. Wholeness has the same etymological root as health and healing.

If we re-establish health based on wholeness, instead of completeness, a new horizon of care and cure will appear. From this viewpoint, an end-stage patient who feels love and dignity deeply can be evaluated in a higher health state in comparison with a young athlete feeling fixated on rage and regret. Health can be regarded as a modality of existence, not the soundness of all parts.

Health and illness can be redefined relying on the more functional and higher-order aspects of human life. A person with disabilities is not necessarily a disabled person, since they can be functionally integrated, due to recreating a novel balance between expectations and perceptions. Now, their narrative includes all the difficult events and rising limitations, and they accept all of them as their own life. It means that their network of physical and symbolic interpretations is synergetic.

A healthy body is a consistent intra-inter-transpersonal meaning-making system. It feels like a whole body beyond all defects and works with its totality. Wholeness can be enhanced by bodily awareness and functional tensegrity as well as a coherent

narrative, and synergetic relationships.

If we want to establish a systemic model of health, first we need to change our essentialistic and timeless assumptions of the biobehavioral model. In summary, we need such a change in our mindset, as follows:

1- Life is an autopoietic system that is recreating its co-emerging balance.

2- The human body is a multilingual sign system, and its balance depends on the coherence of energetic-material and symbolic-reflective meaning-making processes.

3- Health is not a state of balance but an active tendency to reintegrate energy-information flows.

4- Salutogenesis reflects how health can be enhanced by being and doing as a whole.

The literature on defining health is incredibly poor. It seems that medical scientists were under the assumption that medical technology and technics can progressively and properly promote health without any integrative health model. This note is a brief reflection on a systemic view of health and doubting that when we talk about health, we really know what we are even talking about.

Conflict of Interests

Authors have no conflict of interests.

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Religious Perspectives on Euthanasia: A Comparative Analysis

Chintu Jain[1], Azimkhan B. Pathan[2]

[1] PhD, G.D Goenka University, Sohna Road, Gurgaon, Haryana, India
[2] Professor, Department of Law, School of Law, GD Goenka University, Sohna Road, Gurgaon, Haryana, India

Corresponding Author: Chintu Jain; ***Professor, PhD, G.D Goenka University, Sohna Road, Gurgaon, Haryana, India***
Email: priyajain1782@gmail.com

Theoretical Study

Abstract

Background: This article argues the various religious views on euthanasia. After that, a comparison will be done to see where euthanasia is permitted or not. The main aim of doing this paper is to see whether in the age of artificial intelligence still the religious beliefs are against euthanasia or there is any change.
Methods: The theoretical study was used in this paper in order to find out the say of the various religions on euthanasia.
Results: None of the religions permitted euthanasia. The judicial opinion that is reflected in various judgements of the Supreme Court of India allowing passive euthanasia was indeed against the religious beliefs of India. The article analysed various judgements of Supreme Court of India on the legalisation of euthanasia.
Conclusion: As euthanasia is allowed in Common Cause Case, even right to die with dignity is given without considering any religion. Therefore, still in India, there is no law because it is not acceptable by any religion. Thus, there is a need to bring changes as per the religious sentiments, because it is very difficult to bring it in practice as it is against the culture of the society.
Keywords: Euthanasia; Religious perspective; India; Right to die with dignity

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Introduction

Euthanasia has become a debatable issue not only locally but nationally as well due to the variety of factors that influence people's ethics in India. Only a handful of countries have given the right to the patient to choose how to die in cases of terminal illness. Euthanasia is a very complicated topic that entails many diverse ideals and religious beliefs. This is a situation that could happen to anyone, not necessarily to a family with an elderly person involved. At any age level, person can become a victim of such circumstances due to an accident, disease, illness, etc. (Goudappanavar, 2013). It becomes particularly controversial when there is a child involved or somebody who has lost the ability to make their own decisions regarding their lives or condition. In the era of modern facility and scientific technique advancement; now we should enlarge the scope of article 21 by including death with dignity in article 21 (Singh, 2002). Health care professionals consistently are faced with euthanasia issues. There are numerous factors that influence peoples' sentiments regarding euthanasia from both the standpoint of the medical profession and from a family's point of view. These factors incorporate religious beliefs along with degree of religiosity, age of the individual on death bed and age of the family members who are making the decisions, level of education which may impact their comprehension of what euthanasia is, past experience involving cases of painful dying of a terminally ill patient, and family environment (Singh, 1995). Euthanasia involves not only a decision by the family but also a decision by the doctor who is requested to perform it. The physician will have his/her own personal ideals and beliefs regarding euthanasia and the factors listed above would likewise be included in the physician's decision making. The proficiency of modern medical practice to prolong life through technological means has incited the question of what courses of action should be available to the physician and the family in instances of extreme physical or emotional suffering, especially if the patient is incapable of choice. Inactively doing nothing to prolong life or withdrawing life-support measures has led to criminal allegations being brought up against physicians; on the other hand, the families of comatose and terminal patients have initiated legal action against the medical establishment to make them stop the use of extraordinary life support for the survival (Bakhshi, 2002)..

Definition: "*Euthanasia*" literally means mercy killing. The term "euthanasia" has been derived from Greek ancient words: 'eu' which means 'good', and 'thanatos' which is a Greek word that means 'death'; thus, it is regarded as the effortless termination of life of an unbearably suffering patient by the physician upon the patient report. Euthanasia is an act or exercise where a person suffering from any life-threatening disease resorts to, in order to end his/her sufferings or to relieve him/her of the pain or the sickness by the means of an injection or with the aid of suspension of the medical treatment. It is characterized by putting an end to a life by a deliberate act or omission on part of a person who has the feeling that the life is not worth living anymore (Shukla, 2002). It is otherwise called *'mercy killing'*, which is an act where the person who has no odds of survival as he/she is enduring a difficult time chooses to put an end to his/her life in a painless way (Singh, 2002). In this manner, it may very well be said that euthanasia is the purposeful and deliberate ending of one's life by an act of infusion of some medicine or inability to provide simple medical care with the purpose of discharging the individual from a difficult life.

Methods

The theoretical study was used in this paper in order to find out the say of the various religions on euthanasia.

Classification of euthanasia

Euthanasia is usually undertaken as an individual seeks relief and requests it, but yet there can be cases called euthanasia wherein any individual cannot make such a request. Generally, euthanasia can be categorized into three types on the basis of consent under the following heads (Singh, 2002) voluntary euthanasia, non-voluntary euthanasia, involuntary euthanasia.

Voluntary euthanasia: It means killing at the request of a person killed which is to be distinguished from '*non-voluntary euthanasia*', where the person killed is not capable of either making or refusing to make such a request. In cases concerning voluntary euthanasia, the request must come from a person who is either in intolerable pain or who is suffering from an illness which is established as being terminal death Bakhshi, 2012. In either case, it must not result from any pressure from family members or those who have the patients in their care. Both active and passive euthanasia can be characterized as forms of voluntary euthanasia.

Non-voluntary euthanasia: Non-voluntary euthanasia is conducted when the consent is not available. It involves the death of a person who cannot express any views on the matter and who must use some sort of proxy requests. It may happen in case of patients who have not addressed in their wills or given advanced indications about their desire of dying. It differs from involuntary euthanasia, when euthanasia is performed against the will of the patient (Griffithes, Weyers & Adams, 2008).

Involuntary euthanasia: Involuntary euthanasia is completely a different concept, wherein the patient is not in a condition to explicitly request for assistance in dying or to permanently relieve him from the intolerable pain. It includes ending the patient's life in the absence of either a personal or proxy invitation to do so. The motive in both voluntary and involuntary euthanasia is the same - the release from suffering, but what differs is the request to die or the decision to terminate the life. This is applicable for the patients who are in a persistent vegetative state (PVS), the state in which the patient becomes a complete vegetable, loses all his physical and mental capacities, but is biologically alive Bakhshi, 2012. In such a state, there is no hope of recovery or even probably the individual may never recover his consciousness.

Religious views on euthanasia

Hinduism: There are two Hindu methodologies on euthanasia. It is a double-edged sword. By helping to end a painful life, a person is doing a good deed and thus fulfilling their moral obligations. On the other hand, interfering with life and death of a third person is inhuman, which is a bad deed. However, the same contention suggests that keeping a person artificially alive on a life-support system would also be an appalling thing to do. Hinduism does not advocate actions promoting death of a person. According to Hinduism, euthanasia is not an act of sin, but the myths and issues attached with the life Most Hindus would state that a specialist ought not to acknowledge a patient's solicitation for killing since this will make the spirit and body is isolated at an unnatural time. The outcome will harm the karma of both specialist and patient. In any case, a few Hindus express that by assisting with completion a difficult life, an individual is playing out a decent deed thus satisfying their ethical commitments. Govardana and Kulluka, while composing editorials on Manu, say that a man may attempt the mahaparasthana (extraordinary takeoff) on an excursion which finishes in death when he is hopelessly unhealthy or meets with an incredible disaster, and that, it is not against Vedic standards which preclude self-destruction (Pawankaur, 2014). There are two Hindu perspectives on willful

extermination: by assisting with completion of an excruciating life, an individual is playing out a decent deed, thus satisfying their ethical commitments. By assisting with completion of an actual existence, even one loaded up with anguish, an individual is upsetting the planning of the pattern of death and resurrection. This is a terrible activity, and those engaged with the killing will assume the rest of the karma of the patient. A similar contention recommends that keeping an individual misleadingly alive on a life-supporting tool would likewise be a criminal activity. In any case, the utilization of an actual existence bolster machine as a feature of an impermanent endeavor at recuperating would not be an awful thing (Kasliwal, 2002). The perfect demise is a cognizant passing, and this implies that palliative medications will be an issue on the off chance that they diminish mental readiness.

Islam: Muslims are against euthanasia. They accept that all human life is holy since it is given by Allah, and that Allah picks to what extent every individual will live. People ought not to meddle in this. Life is consecrated, and the act of euthanasia in Islam considered as slaughtering, and it can only be taken by Allah. In the event that anybody executes an individual - except if it be for homicide or spreading fiendishness in the land - it would be as though he slaughtered the entire people. Suicide and willful extermination are unequivocally taboo: "Demolish not you. Without a doubt Allah is ever tolerant to you". They believe that how long each person lives is decided by Allah because human life is given by Allah and it is considered sacred (Qadri, 2000). These divine powers must not be interfered with by human beings. The precious and sacred life should not be terminated by human beings by their own willingness and it is a strict obligation on their part to follow this. Euthanasia and suicide are explicitly forbidden: "As per the preaching, if you restrain from committing such a disgraceful act, Allah will be merciful and forgiving". Islamic teachings say: Allah will choose to end life when, how and where, as according to it, life is precious and sacred. It is not right to interfere in god work, and in any religion, the process of euthanasia is not approved (Sarabjet, 2008).

Christianity: Catholic teaching denounces euthanasia as a "crime against life" and a "crime against God". The teaching of the Catholic Church on euthanasia rests on several core virtues of Catholic ethics, including the sanctity of human life, the dignity of individual, concomitant human rights, due proportionality in casuistic remedies, the unavoidability of death, and the significance of charity. Christians are for the most part against killing. The contentions are generally founded on the contention that life is a blessing from God and that individuals are made in God's picture. Birth and passing are a piece of the existence forms which God has made; thus, we should regard them. In this manner, no individual has the power to end the life of any guiltless individual, regardless of whether that individual is suffering (Dharanishree & Kumar 2017).

Buddhism: There are mixed views among Buddhists on the issue of euthanasia; most are critical of the concept. Compassion is a respected virtue of Buddhist teachings. It is used by some Buddhists as a justification for euthanasia because the individual suffering is relieved of pain. However, it is still unethical "to embark on any course of action whose aim is to destroy human life, irrespective of the quality of the individual's intention". In Theravada Buddhism, a lay person daily recites the simple formula: "I recognize the precept to abstain from destroying living being" (Saikia, 2010). Thus, it is reasonable to presume that this opposition to euthanasia also applies to physician-assisted death and other forms of assisted suicide.

Sikhism: Sikhs get their morals to a great extent from the lessons of their sacred

writing, Guru Granth Sahib, and the Sikh Code of Conduct (The Rehat Maryada). The Sikh Gurus dismissed self-destruction (and by expansion, killing) as an obstruction in God's arrangement. Enduring, they stated, was a piece of the activity of karma, and individuals ought acknowledge it without objection and act in order to make the best of the circumstance that karma has given them. Each individual has a right to live and appreciate the products of life till his last breath (Pamelpreet, 2010). Yet, now and again, an individual is not allowed to take his life by utilization of unnatural methods. To take one's life in an unnatural manner is an indication of variation from the norm. At the point when an individual finishes his life by his own demonstration, we call it "self-destruction". To end life of an individual by others on the solicitation of the expired is classified "willful extermination" or "kindness slaughtering" (Pamelpreet, 2010).

Jainism: Mahavira Varadhmana explicitly allows a shravak (follower of Jainism) full consent to put an end to his or her life if the shravak feels that such a stage would lead to moksha. Salvation can be achieved through self-sacrifice. There is a ritual that considers voluntary death as legal under Jain religion, and that is called Santhara. The word Santhara means 'a way of life' and it includes 'a way of dying' as well. In Jainism, the human body is taken as a provisional residence of the soul which takes rebirth in another human being's body. It is a ritual of faith for millions, even though it may seem strange. Many Indians go on fasting to death in a ritual called Santhara every year. This religion preaches the path of harmlessness and renunciation which a human being should follow if one wants to achieve moksha. Moksha means the liberation of the soul from the cycle of birth, death, and rebirth. Such liberation of the soul which can be achieved through Santhara or Smadhi, i.e., fasting till death, is what the followers of Jainism believe in (Jain, 2004).

Comparative analysis

After discussing the various religious perspectives on euthanasia in the previous section, it can be concluded that no religion supports the practice of ending oneself life without any reason and it is not permissible in any religion. Every religion teaches that life is a gift from God that should only be taken by God. As a result, everyone's birth and death times are predetermined by God, and humans are not permitted to tamper with any of the Creator's natural processes. If someone interferes with God's natural processes, their soul will not go to a nice place after they die and will instead be plagued. In Hindu, it is believed that life is a sacred thing, which can be ended by God only. In Islam, the same perspective can be seen as Allah is the only creator of men's life. The same view has been taken in Sikhism. However, in Jainism, Santhara is allowed only when there is no chance of survival. Therefore, it can be concluded that none of the religions allowed euthanasia even in the age of medical advancement.

Judicial view on euthanasia

The new dimension in Indian history was taken by the Judiciary in Aruna Shanbaug case where it was held that euthanasia could be legalized, but the laws would have to be very stringent. Every case will have to be carefully monitored taking into consideration the point of views of the patient, the relatives, and the doctors. But whether Indian society is mature enough to face this, as it is a matter of life and death, is yet to be seen. And in Common Cause Case, right to die with dignity is allowed with certain guidelines. For detached willful extermination in India, assent by patient, life partner, and youngsters is adequate though whenever agreed by close relative, companion, as well as specialist, it requires endorsement from High Court to parliament sanctions laws (Mishra, 2020).

Conclusion

In a country like India which is the land of different religions and cultures, every law of the land is governed by the religious belief of the people, and only that law is accepted by the people of India. After doing comparison, it is found that euthanasia is not allowed in any religion. In every culture, there is a belief that life is a pure thing. It is a gift of God and can only be taken by God. Any interference in the natural process will lead to destruction. According to the Aruna Ramchandra Shanbaug case judgement, Indian conditions are suitable for passive euthanasia in certain special circumstances, such as those in the case of brain-dead patients or patient on a PVS. In Common Cause Case, the judgement is against the religious sentiment of the people. As euthanasia is allowed, even right to die with dignity is given without considering any religion. Therefore, still in India, there is no law because it is very difficult to bring it in practice as it is against the culture of the society.

Conflict of Interests

Authors have no conflict of interests.

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Oral and maxillofacial Stress-Related Disorders during and after the COVID-19 Pandemic: A Review of the Research

Elaheh Ghasemzadeh-Hoseini[1], Elham Keykha[2], Abdollah Omidi[3], Mahdieh-Sadat Moosavi[4]

[1] Department of Oral and Maxillofacial Medicine, School of Dentistry, Kashan University of Medical Sciences, Isfahan, Iran
[2] Research Center for Prevention of Oral and Dental Diseases, Baqiyatallah University of Medical Sciences, Tehran, Iran
[3] Department of Clinical Psychology, School of Medicine, Kashan University of Medical Sciences, Kashan, Iran
[4] Dental Research Center, Dentistry Research Institute AND Department of Oral Medicine, School of Dentistry, Tehran University of Medical Sciences, Tehran, Iran

Corresponding Author: Mahdieh-Sadat Moosavi***; Dental Research Center, Dentistry Research Institute AND Department of Oral Medicine, School of Dentistry, Tehran University of Medical Sciences, Tehran, Iran***
Email: ms-moosavi@sina.tums.ac.ir

Review Article

Abstract

Background: Stress and anxiety are psychosocial factors that can have potential effects on oral health. In addition to concerns about physical health, the COVID-19 pandemic has led to psychological disorders (including stress) in the general population. Moreover, life has not returned to normal in most parts of the world. Therefore, physicians and specialists should pay special attention to the psychological effects of COVID-19 on the onset and exacerbation of oral diseases.

Methods: A search was performed (last update in June 2021) in the Medline, Scopus, Embase, and Web of Science databases. The related keywords were bruxism, morsicatio, myofascial pain dysfunction syndrome (MPDS), temporomandibular (TMD) disorder, burning mouth syndrome (BMS), xerostomia, recurrent aphthous stomatitis (RAS), lip herpes, and oral lichen planus. Of the 510 papers found, about 206 were related to the subject, which were further analyzed. All study types, except case reports and case series, were included in the review.

Results: The current article reviewed stress-related disorders with clinical manifestations related to the oral cavity and maxillofacial disorders that have been significantly increasing during the COVID-19 pandemic. These disorders are bruxism, morsicatio, MPDS, TMD disorders, BMS, xerostomia, RAS, recurrent lip herpes, and oral lichen planus. The clinical manifestation and management of each disorder are presented in this article.

Conclusion: It can be concluded that various causes and conditions play a role in the pathology, disease course, prognosis, treatment, and recurrence rate of oral diseases., In addition to examining the psychological background of treatment in the diagnosis and treatment stages, a variety of psychotherapy methods can be used to increase the effectiveness of medical treatments. The stress caused by COVID-19 in psychologically and

medically susceptible people can intensify the pathology of these diseases in all its dimensions, and therefore, special attention should be paid to this aspect in the care and treatment of patients.

Keywords: Stomatognathic diseases; Pandemics; Psychological stress

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Introduction

Psychological disorders can affect both body and mind. These disorders have physical symptoms that are caused by mental or emotional factors. Stress, anxiety, and depression are the most common psychological disorders (Dhimole, Bhasin, Pandya, Dwivedi, & Nagarajappa, 2016). It has been shown that all diseases are caused by the interaction between biological, psychological, and social factors (Yang, Liu, Shi, & Zhang, 2018). The oral cavity is an organ that significantly impacted by psychological factors.. Some diseases that affect the oral mucosa may be the direct or indirect manifestation of emotions. Stress and anxiety are psychosocial factors that can have potential effects on oral health (Yang et al., 2018, Tripathi, Seth, Awasthi, Bhattacharya, Bajpai, Thahriani, 2018). Stress is defined as a physical, emotional, or mental response to events that cause mental or physical tension. Many researches have illustrated the role of stress in various diseases such as high blood pressure, stomach ulcers, and etc. Similar research has illustrated psychological disorders to be one of the initiating or exacerbating factors of oral lesions (Kandagal, Shenai, Chatra, Ronad, & Kumar, 2012, Tripathi et al., 2018, Malathi, Babu, Masthan, & Mukherjee, 2019). The COVID-19 pandemic, in addition to concerns about physical health, has led to psychological disorders (including stress) in the general population. Moreover, as life has not returned to normal in most parts of the world, physicians and specialists should pay special attention to the psychological effects of the disease on the onset and exacerbation of oral diseases, and correctly manage these patients through collaboration with different clinical specialists, such as dentists, oral specialists, and psychologists. In this text, we will review stress-related disorders with clinical manifestations related to the oral cavity and maxillofacial disorders that have significantly increased during the Covid-19 pandemic.

Methods

To find the studies associated with stress-related disorders in the oral cavity, a search was performed (last update in June 2021) in the Medline, Scopus, Embase, and Web of Science databases. The related keywords were bruxism, morsicatio, myofascial pain dysfunction syndrome (MPDS), temporomandibular (TMD) disorder, burning mouth syndrome (BMS), xerostomia, recurrent aphthous stomatitis (RAS), lip herpes, and oral lichen planus. Of the 510 papers found, about 206 were related to the subject, which were further analyzed. All types of study, except case reports and case series, were included in the analysis. The article selection process is illustrated in figure 1.

Bruxism: Bruxism is excessive dental grinding, which can occur during sleep or wakefulness. The main cause of bruxism is still unknown. Neurological disorders, drug use, genetics (Garrett & Hawley, 2018), stressful situations (Smardz, Martynowicz, Wojakowska, Michalek-Zrabkowska, Mazur, & Wieckiewicz, 2019), and generalized anxiety and emotional suppression (Przystanska et al., 2019) can cause bruxism in people with emotional inhibition or involvement in intra-psychological and interpersonal conflicts. Bruxism can be associated with discomfort and hypertrophy of the jaw muscles, gingivitis, headache (sometimes mistaken for migraine and sinusitis), temporomandibular joint (TMJ) pain (Aguilera, Brown, & Perico, 2017), movement problems, jaw lock, and reduced salivary flow, especially when waking up (Murali, Rangarajan, & Mounissamy, 2015). Central dopamine is thought to act through developing oral parafunctional habits or stereotypic behaviors to relieve emotional stress and reduce the effects of stress and anxiety (Gomez, Ortega, Horrillo, & Meana, 2010).

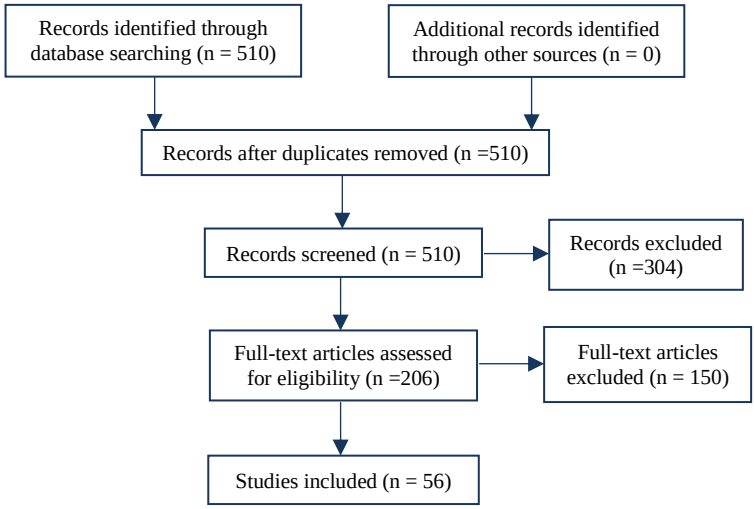

Figure 1. Article selection diagram

Accordingly, it seems evident that with the increase in stress levels in the present era, bruxism is increasing.

Morsicatio: Morsicatio is a chronic and usually harmless lesion that a person unknowingly inflicts, causing cheek bite keratosis with a clinical view of whiteness, erythema, erosion, and a painless or painful ulcer on the mucous membranes of the lips and tongue (Muller, 2019; Min & Park, 2009; Alzahem, 2017). Factors such as parasomnia, brain damage, emotional stress, and anxiety play a role in its etiology. Habitual chewing such as disorders of onychophagia, trichotillomania, dental erosion, and skin peeling are considered repetitive body-focused behaviors (BFRB) and can have harmful consequences such as pain, ulcers, infection in the affected sites, feeling of shame, and a psychosocial disorder. Although the cause of BFRB is unclear, studies suggest that reduced impulse control and difficult emotion regulation may play a role in these behaviors (Mathew, Davine, Snorrason, Houghton, Woods, & Lee, 2020).

Like other disorders discussed in this review article, onychophagia will increase as stress increases in society.

Myofascial pain dysfunction syndrome: MPDS is a chronic disorder of the stomatognathic system and the most common temporomandibular joint disorder, which includes acute and chronic muscular pain, jaw movement irregularity, and muscle spasm (Chitnis, Mistry, Puppala, & Swarup, 2020). It is characterized by limited mandibular function and activation of starting points (palpable and overly irritating nodes) in the vicinity of stretched bands of skeletal muscle fibers (MTrPs) (Kurt, Guner-Onur, Bilmenoglu, Memisoglu, & Cilingir, 2020) and may be associated with paresthesia (Lalchhuanawma & Sanghi, 2019).

The main cause of facial muscle pain is unknown. The related risk factors include occlusal interference, bruxism, systemic factors (hypothyroidism, vitamin D deficiency, and iron deficiency) (Urits et al., 2020; Galasso et al., 2020), trauma (Urits et al., 2020), ergonomic factors, structural factors (spondylosis, osteoarthritis, and scoliosis) (Urits et al., 2020; Galasso et al., 2020), and sleep deprivation (Galasso et al., 2020). Inflammatory mediators caused by muscle damage (leukotriene, etc.) and

neurogenic inflammation with central sensitization increase the sensitivity of the damaged muscles and formation of TrP, respectively (Lalchhuanawma & Sanghi, 2019; Urits et al., 2020; Tantanatip & Chang, 2022). Patients with such complaints usually report stressful events (such as cancer) as the cause of the onset, exacerbation, or persistence of pain. During stress, various parts of the central and peripheral nervous system are activated and, according to the theory of perceptual disturbance, increased sympathetic activity and epinephrine release in sympathetic terminals may directly sensitize the pain receptor or lead to abnormal perception and somatosensory enhancement. Stress and sleep disorder can play a role in the development of MPDS (Tantanatip & Chang, 2022). Currently, with the COVID-19 pandemic and the increase in stress and anxiety, the prevalence of this disorder has increased significantly.

Temporomandibular disorders: This disorder includes a set of conditions that cause TMJ dysfunction and chronic recurrent pain in the associated muscles and supporting structures of the joint (Kmeid, Nacouzi, Hallit, & Rohayem, 2020; Theroux, Stomski, Cope, Mortimer-Jones, & Maurice, 2019).

The exact cause of TMD remains unclear (Ahuja, Ranjan, Passi, & Jaiswal, 2018). The factors contributing to TMD include systemic problems, eating habits, psychological factors such as stress and anxiety, especially in occupations such as the police force and nursing, or PTSD (Oliveira, Almeida, Lelis, Tavares, & Fernandes Neto, 2015; Abu-Raisi et al., 2019), sleep quality (Oliveira et al., 2015), parafunctional habits such as bruxism (Abu-Raisi et al., 2019), chronic headaches (Kmeid et al., 2020), and neuromuscular problems (Theroux et al., 2019).

Since the molecules that mediate the stress response are similar to the molecules involved in pain regulation, stress can directly or indirectly affect pain-related biological processes (Gameiro, da Silva, Nouer, & Ferraz de Arruda Veiga, 2006). Common symptoms include a feeling of pain in the ear, neck, jaw, and facial muscles, toothache, headache (tension or migraine) (Kmeid et al., 2020), sensitivity to masticatory muscles, and jaw problems (click or cryptos, locking and deviation) (Nazeri et al., 2018).

Pandemic stress can occur in the form of oral parafunctions in the form of bruxism and tooth grinding. Finally, each of these parafunctional activities may increase muscle activity and intensity, which is an important factor in the onset of symptoms related to TMD. The prevalence of this disorder has also increased in the current stressful conditions caused by the COVID-19 pandemic.

Burning Mouth Syndrome: BMS is an intraoral burning or dysaesthesia that occurs more than 2 hours a day for 3 months. It often occurs in the 2 anterior thirds of the tongue, and in rare cases, in the buccal mucosa and floor of the mouth, with no evidence of clinical lesions. The burning sensation is almost always bilateral and symmetrical (Lopez-Jornet, Felipe, Pardo-Marin, Ceron, Pons-Fuster, & Tvarijonaviciute, 2020).

Etiopathogenically, this syndrome has been classified as neuropathic (Coculescu, Manole, Coculescu, & Purcarea, 2015). Mechanical, thermal, and chemical stimuli can activate nociceptors in BMS. Its mechanisms of pain include reduced density of epithelial nerve fibers and a degree of axonal degradation as a type of trigeminal sensory neuropathy, low levels of dopamine in the nigrostriatal pathway (similar to patients with anxiety or stress), changes in the transmission of harmful stimuli in the orofacial region, and interference and changes in the mode of transmission and modulation of pain information (Coculescu et al., 2015).

According to studies on stress, anxiety, and depression, personality traits such as reduced openness and cancer phobia, and pain-related catastrophizing are related to BMS (Matsuoka et al., 2010). With the onset of psychological stress due to the COVID-19 pandemic, therapies based on these factors have become increasingly important. During the COVID-19 pandemic, with the increase in the psychological burden on people and anxiety-related disorders and stress, we are witnessing an increase in the number of patients referring to dental clinics with BMS. In addition to the relationship of this oral manifestation with stress caused by the COVID-19 pandemic, the increase in oral manifestation in society could be related to BMS as a symptom of COVID-19 in this group of patients. The suggested mechanism of the symptom in patients with COVID-19 is the effect of this virus on the nerves. For example, the taste system change hypothesis assumes that taste stimuli affect the trigeminal inhibitory system. Therefore, hypogeusia/ageusia due to peripheral nerve degeneration in patients with COVID-19 can lead to BMS. For the cerebral cortex, this leads to a central inhibition of trigeminal pain, which leads to defective processing of information transmitted by a modified perception of pain sensitivity (increase) in the oral region (Coculescu et al., 2015). However, nerve damage due to pro-inflammatory cytokines and other mediators of the immune system is seen in some cases of COVID-19 (Aksan, Nelson, & Swedish, 2020).

Xerostomia: Lack of adequate Salivation leads to xerostomia. However, in some patients with xerostomia, saliva levels are not reduced (Min & Park, 2009). Many factors are associated with xerostomia (Greenberg, Schlosser, & Mirowski, 2017), such as some drugs, systemic diseases such as diabetes, or autoimmune diseases such as Sjogren's syndrome (Bhatia, Goyal, & Kapur, 2013), and psychological conditions such as stress (Muller, 2019), anxiety (Kang, Lee, Ro, & Lee, 2012), depression (Baig, Abid, Fatima, & Ahsan, 2018), and bulimia nervosa (Kang et al., 2012). Some viral infections such as HIV (Muller, 2019) HTLV-1, hepatitis C (Muller, 2019), and COVID-19 (Min & Park, 2009), lifestyle factors such as alcohol and smoking (Alzahem, 2017, Bhatia et al., 2013, Almutairi, Albesher, Aljohani, Alsinanni, Turkistani, & Salam, 2021), dehydration (Fatima, Abid, Baig, & Ahsan, 2019), mouth breathing (Kurapati, Pradusha, Sajjan, AV, & Nair, 2020), and upper respiratory tract infections (Millsop, Wang, & Fazel, 2017) can also cause xerostomia. A variety of emotions can reduce or enhance salivary flow. Anxiety and fear can directly affect salivary secretion through the amygdala, hypothalamus, and brainstem pathways (Gholami, Hosseini, Razzaghi, & Salah, 2017). According to the hypothesis of biogenic amines in depressed people, the salivary flow rate may be reduced as a result of the stimulation of anticholinergic mechanisms (Gholami et al., 2017). Furthermore, drugs prescribed for the treatment of psychological diseases also have an indirect effect on this condition (Ianunzio, Peres, Haag, & Peres, 2019). Psychological disorders can play an important role in the incidence of xerostomia, and due to its nature, its numerous side effects; hence, it is possible to prevent xerostomia by recognizing, controlling, and treating these psychological disorders.

Recurrent aphthous stomatitis: RAS is a common disorder characterized by small, recurrent ulcers confined to the oral mucosa with no symptoms of other systemic diseases (Preeti, Magesh, Rajkumar, & Karthik, 2011). Aphthous ulcers are more common in the non-keratinized mucosa of the lips and floor of the mouth, and can be painful to the extent that they interfere with eating and make oral hygiene difficult for the patient (Dhopte, Naidu, Singh-Makkad, Nagi, Bagde, & Jain, 2018). Despite extensive studies, its exact etiology remains unknown. The main known factors in the

development of RAS are genetic factors, stress, and hematological and nutritional defects (Bilodeau & Lalla, 2019). Stress changes the regulation of both the sympathetic and parasympathetic branches of the nervous system, resulting in changes in the hypothalamic-pituitary-adrenal (HPA) axis and hormones, and changes in immune monitoring (Chiappelli & Cajulis, 2004). Psychological stress induces immunoregulatory activity through increasing the number of leukocytes at sites of inflammation, a feature often seen in the pathogenesis of RAS (Scully, Gorsky, & Lozada-Nur, 2003). Increased levels of salivary cortisol or reactive oxygen species (a possible determinant of stress levels of an individual) in saliva following stress may lead to the onset of lesions. Moreover, stress may simply provoke self-induced trauma, and thus, initiate RAS episodes (Karthikeyan & Aswath, 2016). Increased stress changes salivary peroxidase levels, which causes imbalance in this enzyme, thus leading to mucosal damage (Kiran & Reginald, 2015). Prolonged stress leads to a continuous increase in cortisol levels, which by changing the local immune response in the oral mucosa, leads to dysregulation of various homeostatic mechanisms in the body (Vandana, Kavitha, & Sivapathasundharam, 2019). During the COVID-19 pandemic, stress, anxiety, and the subsequent, depression have become a common Struggle.

Recurrent lip herpes: The human herpesvirus (HHV) family is a group of DNA viruses that can survive latently after initial infection. The initial infection is often subclinical and manifests as gingivostomatitis. The virus can be transmitted to sensory nerve axons and remain latent in the trigeminal nerve ganglion for a long time, or it can be transmitted outside the nerve cell, such as epithelium, causing recurrence of lesions in the lips. Stimulants such as sun, trauma, emotional or menstrual stress, fever, and suppression of the immune system cause its reactivation (Ballyram, Wood, Khammissa, Lemmer, & Feller, 2016).

Psychological stress can reactivate latent herpes viruses by significantly modulating the central nervous system (CNS) and immune system (Yan et al., 2020; Chida & Mao; 2009; Khalil, Ibrahim, al Shayeb, Kuduruthullah, & Hassan, 2020). Psychological stress in humans increases corticotropin (CRF) and ACTH releasing level as a result of the stimulation of the hypothalamus and pituitary gland, respectively, and subsequently, stimulates adrenal glands to secrete epinephrine and cortisol, which modulate immune interactions (Uchakin et al., 2011). The receptors for these two major stress hormones are selectively expressed by different types of HSV-infected neurons, including sensory and autonomic neurons (Gold, Dastmalchi, & Levine, 1997). Thus, epinephrine and cortisol may impair the ability of viruses to multiply in certain nerve cell types which may affect the severity of the disease and the ability to reactivate to cause recurrent lesions (Chida & Mao, 2009; Uchakin et al., 2011).

Lichen planus: Oral lichen planus is a chronic immunological disease mediated by T cells and common in the oral cavity. It is characterized by reticular lines or white plaques. The disease mainly occurs in adulthood (50-55 years of age) and manifests more in women (Agustina, Soegyanto, Pradono, Sasanti, & Permana, 2018). Hitherto, several related factors have been suggested for this disease, including genetic background, infectious factors, certain systemic diseases, and psychosocial factors such as anxiety, stress, and depression (Vassandacoumara & Daniel, 2017). In many cases, periods of emotional instability resulting from stressful life events are associated with recurrence, exacerbation, or even onset of the disease (Cankovic, Bokor-Bratic, & Novovic, 2015). Due to the increase in stress and anxiety during the COVID-19

pandemic and the relationship between this disease and psychological conditions, and increase in the number of patients with this disease is not a misplaced prediction.

Conclusion

According to previous researches and clinical results, various causes and conditions play a role in the pathology, disease course, prognosis, treatment, and recurrence rate of oral diseases. Factors such as genetic background, underlying diseases, lifestyle and habits, and behavioral and psychological factors and diseases are among the most important factors related to this category of diseases. Of the psychological factors, we can mention personality variables, behavioral habits, mental states, and disorders such as stress, obsession, anxiety, depression, impulse control disorder, and psychodynamic causes that play an important role in the pathology, disease course, and prognosis of these diseases in such a way that these diseases can be classified as somatic symptom disorders and related disorders. In other words, in addition to examining the psychological background of treatment in the diagnosis and treatment stages, a variety of psychotherapy methods can be used to increase the effectiveness of medical treatments. The problems we are facing today, especially stress caused by COVID-19 in psychologically and medically susceptible people can intensify the pathology of these diseases in all its dimensions; therefore, special attention should be paid to this aspect in the care and treatment of patients.

Conflict of Interests

Authors have no conflict of interests.

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Systematic Review of Family Factors Associated with Substance Abuse in Adolescents: A Comparative study between Iran and Developed Countries

Ali Shariat[1], Masoumeh Amini[2], Elham Mohebati[3]

[1] Assistant Professor of Psychiatry, Behavioral Sciences Research Center AND Department of Psychiatry, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
[2] Department of Psychology, Malard Branch, Islamic Azad University, Malard, Iran
[3] Assistant Professor of Psychiatry, Department of Psychiatry, School of Medicine AND Behavioral Sciences Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

Corresponding Author: Elham Mohebati***; Assistant Professor of Psychiatry, Department of Psychiatry, School of Medicine AND Behavioral Sciences Research Center, Isfahan University of Medical Sciences, Isfahan, Iran***
Email: elhammohabati.1983@med.mui.ac.ir

Review Article

Abstract

The present study was a systematic review of family factors related to substance abuse in adolescents. The inclusion criteria for the studies in this review included: (1) being a qualitative research, (2) adolescents (10 to 19 years old) were adolescents, and (4) the results being directly related to studies on family factors related to substance abuse in adolescents. The main family factors related to substance abuse in teenagers include high-risk family factors, childhood abuse, parents' and nurses' addiction, parental supervision, and parenting methods. The main social factors include high-risk social factors, peer groups, the influence of media and technology. The high-risk individual factors were attention deficit/hyperactivity disorder (ADHD), depression, anxiety disorders, sensationalism and impulsivity, and self-esteem. In developed countries, the related family factors included the presence of addicts in the family, family differences and lack of affection in the emotional relationships of the family, lack of restraint and suitable supervision by parents and the use of inappropriate educational methods, divorce and separation of parents. These factors were found to have a significant effect on drug addiction in the comparison of two groups of affected and non-affected young people. In Iran, family factors effective on drug use included a history of abuse in childhood, addiction of parents or one of the family members, marital conflicts of parents, low socio-economic status, emotional atmosphere of the family, educational methods of parents, and perception of teenagers towards the acceptance of drug use by parents. Family factors were one of the most important factors involved in substance abuse; this highlights the prominent role of the child-parent relationship, parents' interpersonal relationships, parenting methods, and relationships with siblings in this regard. Psychological problems such as ADHD, depression, anxiety disorders, sensation seeking and impulsivity, and low self-esteem are among the individual factors that are related to substance abuse in adolescents, and some adolescents try to reduce and alleviate the symptoms of these disorders through substance use.

Keywords: Family; Systematic; Adolescent; Substance abuse

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Introduction

The biological, psycho-social phenomenon of drug use and abuse among young people is one of the most critical issues in the present-day progress of countries (Peter and Alicia, 2010; Thomas, 2008; Faggiano, Vigna-Taglianti, Versino, Zambon, Borraccino, & Lemma, 2008). In Iran, although there are no official statistics on drug consumption, clinical observations in counseling centers and addiction treatment and rehabilitation clinics show that addiction to new psychoactive substances in young people has a relatively high prevalence (Jazayeri and Dehghani, 2004). For example, in research conducted in collaboration with the Addiction Research Center of the University of Welfare and Rehabilitation, the average age of addicts in the country was reported to be 32 years, which has increased slightly compared to previous years. In addition, this research shows that most of the addicts (41.4%) are in the age group of 20 to 29 years, the starting age of addiction is 21-22 years of age, and the starting age of injecting drugs is 26 years of age (Mohajerin, 2007).

In recent years, drug addiction as a global problem has imposed a great time and monetary burden on health, social, and even political officials of countries (Beers, 2004). The difficulties caused by addiction have a destructive effect on all aspects of individual, family, and even social life and waste enormous social resources in the material and spiritual realm. This situation is much more sensitive in developing countries like Iran, which require more productive manpower and more use of existing facilities and resources to achieve national goals. The Office of National Plans of the Ministry of Culture and Islamic Guidance reported addiction to be the third most important social harm in the population over 15 years of age in 2013 (Mohajirin, 2007).

Therefore, paying attention to the etiology and causes of youth's tendency to use drugs in different demographic and ethnic groups is very important. Thus far, many researchers in the field of addiction have only paid attention to epidemiology in different youth populations, and although there are studies on etiology, they have not considered family factors in general (Feil, Sheppard, Fitzgerald, Yucel, Lubman, & Bradshaw, 2010). Various studies have reported various reasons for the tendency of young people toward drugs. It seems that addiction in young people is related to a set of individual, family, social, cultural, and economic factors (Molavi & Rasoulzadeh, 2004). Among these factors, family factors seem to be very important, because by identifying these factors in the context of family life or problems related to parental and family factors, such as how parents deal with their children and adolescents, it is possible to provide therapeutic and educational solutions (Molavi & Rasoulzadeh, 2004).

Moreover, the family is one of the most important social forces that determine the socialization of children. Through these relationships, adolescents and young people learn to respect social norms or ignore them (Brooke, 2001). The type of family structure in terms of two parents or single parents, the type of family interactions, communication, educational methods, and parenting methods of parents are the most important factors in the psychosocial development of children (Gallarin and Alonso-Arbiol, 2012). Research has shown that some family-related components, especially parental inhibition and support, are related to the possibility of substance abuse in youth and adolescents (Carroll, 2007). A rapid assessment of drug abuse in Iran in 2003 showed that obtaining pleasure, curiosity, relief from psychological problems, availability of drugs, and relief from physical pain were the most common reasons for drug abuse. The study by Naranjahi et al. (2004). showed that the cause of drug use is curiosity, fun, and entertainment, addicted parents, psychological

pressures, family disorders, and heavy work and fatigue from work, pain, unemployment, lack of awareness of the effects of addiction, and premature ejaculation. (Narenjiha et al., 2004). In some researches in other countries, the signs of depression have been reported to be economic poverty, low self-esteem, lack of social support (Tucker, D'Amico, Wenzel, Golinelli, Elliott, & Williamson, 2005, availability of drugs, conflict, and incompatibility between parents and drug use by them (Beyers, Toumbourou, Catalano, Arthur, & Hawkins, 2004). Depression has been reported to be among the risk factors for drug use in young people. Previous research has confirmed the importance of peers in the tendency of young people to abuse drugs; however, findings related to the influence of parental factors are contradictory. In some studies, family factors had a clear relationship with the possibility of substance abuse in young people, while, in some other studies, the coefficients related to family variables were very small or non-significant (Marshal & Chassin, 2000). Mentioning that the possibility of substance abuse is related to parental intimacy (Trucco, Colder, Bowker, & Wieczorek, 2011) and parental control (Dorius, Bahr, Hoffmann, & Harmon, 2004) can be very useful, but this point requires further investigation. Moreover, there have been few studies on other parental factors such as the family's economic well-being and its effect on children's addiction, the results of which were different in some factors (Feil, Sheppard, Fitzgerald, Yucel, Lubman, & Bradshaw, 2010). Therefore, the present research was conducted with the aim to examine the factors influencing the addiction of young people in Lorestan Province, Iran, in order to lay the foundations for future preventive and therapeutic planning in the field of addiction and narcotic drugs.

Adolescence is an important life stage characterized by impulsiveness, conflict with the family, and disobedience. These characteristics, along with the curiosity and the idea of "everything is possible" of a teenager, may lead him/her to seek new thrills, pleasures, and risky behaviors (Miller, Nigg, & Faraone, 2007). Substance abuse has been one of the most serious problems of young people in recent years, and due to the complexity of this problem, human societies face serious health risks in this regard (Sarrami, Ghorbani, & Taghavi, 2013). Substance abuse in young people and adolescents has negative physical, behavioral, and psychological consequences for them (Wenthur et al., 2013). Kirby, Van der Sluijs, and Inchley (2008) point to the coexistence of substance use and other mental health disorders, and report a strong relationship between substance use and suicide, antisocial behaviors, school dropouts, and academic underachievement. Many risk factors are associated with drug use and drug abuse in adolescents. The prevention of drug abuse in adolescents requires knowledge of these risk factors and alteration of the factors that can be changed (Chakravarthy, Shah, & Lotfipour, 2013). In this study, researches related to family, social, and individual factors involved in drug abuse and knowledge of these factors were reviewed.

Methods

A review was conducted using MEDLINE, CINAHL, the Scientific Information Database (SID), and Magiran. These databases were searched for studies on family factors related to adolescent substance abuse published between 2001 and 2022. A manual search of citations was performed in the reference lists of the relevant articles. The inclusion criteria for this review included the following: (1) being a qualitative research, (2) adolescents (10 to 19 years old) were adolescents, and (4) the results being directly related to studies on family factors related to substance

abuse in adolescents.

Family risk factors

Studies in Developed Countries: Misia (2009), and Peter and Alicia (2010) believe that the family plays a very important role in psychological problems and youth's tendency toward drugs. Tucker et al. (2005) and Beyers, et al. (2004) have also reported conflict and incompatibility between parents. In addition, family interactions, communication, educational methods, and parents' parenting method are considered to be the most important factors in the psychosocial development of children. Gallarin and Alonso-Arbiol (2012) emphasizes the impact of these factors on the psychosocial deviations of young people. In addition, the study by Carroll (2007) has shown that some components related to the family, especially parental restraint and support, are related to the possibility of substance abuse in youth and adolescents. In line with the theoretical explanation of these research findings, social disorganization theorists believe that factors such as reduced efficiency of social institutions such as the family, the weakening of kinship restrictions as informal forces of social control, the reduction of traditional social cohesion, which is the result of the rapid growth of industrialization, urbanization, and increasing migration to urban areas, increase crimes such as murder, robbery, sexual deviations, and addiction (Mueller, 2006; Peter and Alicia, 2010). It seems that family factors such as friendly communication between parents and adolescents, emotional support, and parents' monitoring of children's actions and behavior are among the protective factors that reduce the risk of drug use by adolescents (Pumariega, Rodriguez, & Kilgus, 2004).

The emphasis of researchers in the field of the causes of drug addiction is on the interaction of the individual and the family, and in a systemic approach to the problem, they have extended it to the whole family (Platter & Kelley, 2012; Hummel, Shelton, Heron, Moore, & van den Bree, 2013). They also emphasize the role of poor quality of relationships with parents as a high-risk factor for drug addiction. The family is usually considered to be the most important factor affecting the adolescent period, and family processes and relationships are always related to the psychological, social, and behavioral consequences for the adolescent. Dmitrieva, Chen, Greenberger, and Gil-Rivas (2004) have reported that these relationships are common in different ethnicities and nationalities. Family attachment bonds between parent and child, effective communication and talking about expectations and values, and monitoring the behavior of adolescents are important family preventive factors for drug use (Broning et al., 2012) Benjet, Borges, Medina-Mora, and Mendez (2013) reported that people who have endured more problems and hardships in the family during their childhood are more likely to use drugs and their use, and dysfunctional family functions, especially aggression, are correlated with addiction and alcohol use disorders (Fuller, Chermack, Cruise, Kirsch, Fitzgerald, & Zucker, 2003; Yan, Li, & Sui, 2014; Moss, Lynch, Hardie, & Baron, 2002; Comitter, 2013; Yen, Yen, Chen, Chen, & Ko, 2007). In this regard, in a longitudinal study, Squire McCornick, Normal, Yuka, and Gilman (2009) showed that family problems were related to the risk of adolescents' tendency to develop substance use disorders. Moreover, Luk, Farhat, Iannotti and Simons-Morton (2010) showed that the quality of the parental relationship is a protective factor against the initiation of substance use in adolescents. Therefore, family functioning is the most important aspect of the family environment, which has important effects on the physical, emotional, and social health of individuals (Walker & Shepherd, 2008).

Studies in Iran: However, parental illiteracy, lack of parental attention, and family wealth have no significant effect on addiction tendencies. These results are not consistent with that of the researches by Baghiani Moghadam et al., (2007), Farjad, (1996), and Sharg, Shakibi, Neisari, and Aliloo (2011). Moreover, the findings of the research by Narenjiha et al. (2004) showed that the causes of drug use are compliments and suggestions by friends, curiosity, fun and entertainment, addicted parents, mental and emotional pressures, family disorders, and work and fatigue from work, reduction of pain, unemployment, lack of awareness of the side effects of addiction, premature ejaculation, availability of drugs, and failure in love. Molavi and Rasoulzadeh (2004) investigated the factors affecting the tendency of young people to abuse drugs, and found that divorce and family disputes were the most important family factors that had the greatest effect on the tendency of young people to abuse drugs. Among all the contributing factors in substance abuse behaviors, parents and family play the most important roles. A review of previous researches confirms that factors such as the history of abuse in childhood, addiction of parents or a family member, marital conflicts of parents, low socio-economic status, emotional atmosphere of the family, parenting methods, and adolescent's perception of the acceptance of drug use by parents can affect drug use.

Childhood abuse

Studies in Developed Countries: Many studies have reported that childhood abuse or children's experiences of domestic violence can lead to health problems, including substance abuse, suicide attempts, and depression disorders (Anda et al., 2006; Putnam, 2003; Kendler, Bulik, Silberg, Hettema, Myers, & Prescott, 2000). Studies in the field of children have also associated childhood abuse, especially physical abuse and neglect, with an increase in the risk of drug use in adolescence; 29% of people who experienced misbehavior in childhood had substance abuse behaviors in adulthood (Wall & Kohl, 2007; Singh, Thornton, & Tonmyr, 2011). Numerous studies have examined the relationship between physical or sexual abuse and the use of nicotine, marijuana, alcohol, and other illicit substances (Tonmyr, Thornton, Draca, & Wekerle, 2010; Kilpatrick, Acierno, Saunders, Resnick, Best, & Schnurr, 2000; Dube, Felitti, Dong, Giles, & Anda, 2003).

Dube et al. (2003) point out that most of the people who abuse drugs come from families where there is abusive and exploitative behavior. In addition, emotional maltreatment can also influence adolescent substance use behavior, although its impact is not as strong as physical or sexual maltreatment (Morans et al., 2004; Hamburger, Leeb, & Swahn, 2008). Kilpatrick et al. (2000) consider drug use to be a coping strategy that is used in the face of traumatic childhood experiences and the pressures caused by it. Chen, Propp, deLara, and Corvo (2011), and Cheng and Lo (2010) have also emphasized the existence of a relationship between "being a victim of parental neglect" and a high probability of drug use.

Parenting methods

Studies in Developed Countries: Rao et al. (1999) believe that the parenting methods of Mena Seb have a tremendous impact on children's behavior. If there are attachment problems, which means that characteristics such as warmth, encouragement, support, and acceptance in parents are low, there is a possibility of turning to substance use behaviors in children (Dehaan & Boljevac, 2010; Mendes et al., 2004). Based on the assumptions of the theory of social control in the field of drug use, when teenagers have a close relationship with their parents, they try not to violate their values in order to maintain their satisfaction (Wright & Cullen, 2006).

Therefore, if parents are against drug use, their children are more likely to avoid drug use. Nevertheless, when a person does not have a close relationship with his/her parents, he/she does not feel obliged to respond to their demands, and thus, there is a greater possibility of drug use. Parents' perception of drug use is also an influencing factor in drug use. Wallis (2013) states that if a teenager guesses that his/her parents have a lenient view of drugs, he/she is more likely to engage in risky behaviors because his/her parents do not express their negative opinions about these behaviors. Grant, Huggins, Graham, Ernst, Whitney, and Wilson (2011) have shown that the possibility of drug abuse is related to parental intimacy, and low quality of relationships with parents is one of the risk factors for the inclination toward addiction. They do not express their negative opinions about these behaviors. (Hummel, et al, 2013).

Studies in Iran: The findings of the review indicate that there is a positive and significant relationship between the rejection parenting style and the tendency to use drugs, and there is a negative and significant relationship between the emotional warmth style and the tendency to use drugs (Soheili, Dehshiri, & Mousavi, 2015; Zeraat & Khazari Moghadam, 2016) reported that, compared to autocratic and negligent parents, parents who have an authoritarian and optimistic approach toward their children encourage self-restraint and self-care behaviors. Inappropriate parental relationships and family disputes are also factors that facilitate addiction (Rezaei, Islami, & Mehdipour Khorasani, 2014).

Depression

Studies in Developed Countries: Depression can be related to genetics and can also be the result of psychological pressure caused by problems such as parents' divorce, parents' addiction, depression of a family member, and a sense of sufficiency (Taylor, 2011). These stresses can lead to feelings of sadness and motivate some teenagers to start using drugs to get better. This type of self-medication is very common among teenagers who do not receive a clinical diagnosis of depression, but have some symptoms of depression (Taylor, 2011; Libby, Orton, Stover, & Riggs, 2005). The coexistence of depression and substance use disorders is very common among adolescents, and research has shown a relationship between the two (Libby et al., 2005; Taylor, 2011; Wu, Hoven, Okezie, Fuller, & Cohen, 2008).

Studies in Iran: Nasirzadeh, Sharifirad, Eslami, and Hassanzadeh (2013) introduced depression as one of the important psychological factors related to substance abuse. The findings of Akbari and Amoupour (2010) showed that there is a positive and significant relationship between high depression and a positive attitude toward addiction in high school teenagers. In addition, the relationship between depression and alcohol use is stronger in boys, but the relationship between depression and nicotine use is stronger in girls. Some studies have indicated that depression is related to the reward system in the brain that releases dopamine (Rao et al., 1999; Kapur & Mann, 1992; Brady & Sinha, 2005).

Anxiety Disorders

Studies in Developed Countries: Previous studies have shown that anxiety disorders have a positive relationship with substance use (Kandel et al., 1997; Brooke, Cohen, & Brooke, 1998; Sung, Erkanli, Angold, & Costello, 2004), a hypothesis that has been proposed about anxious people and smoking. Anxious people may be at greater risk of smoking because they experience factors such as peer pressure, facilitating social interactions, and imagining the sedative effects of smoking (Johnson, Cohen, Pine, Klein, Kasen, & Brook, 2000). In another study, it was shown that social anxiety is

related to smoking in boys, but this relationship was negative in girls; however, other anxiety disorders such as obsessive-compulsive disorder, fear of open places, and separation anxiety had a positive and significant relationship with smoking in girls. (Wu et al., 2010). In a meta-analysis of 31 studies, Kedzior & Laeber, 2014) concluded that anxiety is positively related to cannabis use. In addition, there is a relationship between anxiety and high alcohol consumption. Post-traumatic stress disorder (PTSD) is also associated with an increased likelihood of drug use, especially marijuana and hard drugs such as LSD, cocaine, heroin, and inhalant drugs (Kilpatrick et al., 2000). This increased risk may be the result of the fact that the injury or incident that leads to it causes a person to suffer high psychological stress, and the affected individual turns to substance use to cope with severe psychological stress (Kilpatrick et al. 2000; Whitesell, Bachand, Peel, & Brown, 2013).

Studies in Iran: Nasirzadeh et al. (2013), in a study on 18-29-year-olds, found that among psychological problems such as depression, anxiety, and stress, anxiety has the strongest relationship with drug use.

Excitement and impulsiveness

Studies in Developed Countries: Thrill-seeking is defined as the need for extreme excitement along with the willingness to take risks to acquire emotional experiences (Zuckerman, 1994). Goldstein and Volkow (2002) believe that the lack of response to naturally rewarding stimuli and the need for more stimulation can trigger drug-taking behaviors. Moreover, impulsivity is defined as the loss of inhibition in responding to rewarding stimuli (Stanford, Mathias, Dougherty, Lake, Anderson, & Patton, 2009). Drug addiction models indicate that a deficiency in the inhibitory control system increases the risk of drug use behaviors (Belin et al,, 2008). Features such as impulsivity and excitement-seeking are more common among people with chronic addiction, and increase the risk of substance abuse (Ersche, Turton, Pradhan, Bullmore, & Robbins, 2010; Belin, Mar, Dalley, Robbins, & Everitt, 2008).

Studies in Iran: Norbury and Husain (2015) have also pointed out the role of impulsive and novelty-seeking behaviors in the readiness to use drugs.

Self-esteem

Studies in Developed Countries: Self-esteem is a very effective construct, and there is a relationship between low self-esteem and behavioral and emotional disorders, antisocial behaviors, aggression or violence, criminal activities, suicidal thoughts, smoking, drug abuse, academic failure, and irresponsibility (Guillon, Crocq, & Bailey, 2007).

Studies in Iran: A lack of self-esteem can lead to many social problems such as crime and substance abuse (Alavi, 2011; Meshki and Ashtarian, 1970; Khajehdaluee, Zavar, Alidoust, & Pourandi, 2013). In their study, Khajehdaluee et al. (2013) showed that there is a significant relationship between self-esteem and smoking and use of other illegal substances. In the study by Nasiry, Nasiri, and Bakhshipour Roudsari, (2014), there was also a significant negative relationship between self-esteem and an inclination toward addiction.

Addiction of parents

Studies in Developed Countries: Parental addiction can also be a key factor in drug use and abuse by teenagers. Blanton, Gibbons, Gerrard, Conger, and Smith (1997) have stated that drug use by parents is one of the basic and major reasons for adolescent drug use behaviors. Children who live with addicted parents are at high risk for developing substance use tendencies at a young age, substance dependence, and substance abuse (Hoffmann & Cerbone, 2002). In addition, according to the

results of the researches by Leichtling, Gabriel, Lewis, and Vander Ley (2006) and Onigu-Otite and Belcher (2012), in families headed by drug-addict parents, a high rate of mental health problems, unemployment, domestic violence, lack of resources, and delinquency are experienced. As a result, the mental pressure caused by these problems can lead to feelings of helplessness and involvement in drug and alcohol consumption in teenagers. Furthermore, history of drug use in the family is a predictor of drug use at an age younger than 18 years (Osborne & Berger, 2008) and the use of drugs by siblings also increases the probability of using the same drugs in teenagers (Agrawal & Lynskey, 2008).

Parental supervision

Studies in Developed Countries: Substance abuse also affects the discipline of mothers and their parenting methods, because it disrupts their judgment and priorities; in all of these factors, the outcome negatively affects the stability of parental care and monitoring (Street, Whitlingum, Gibson, Cairns, & Ellis, 2008). All these factors may have negative consequences on the development and functioning of the child. In their study, Walsh, MacMillan and Jamieson (2003) showed that children with drug-addicted parents were twice as likely to be physically or sexually abused compared to children with non-addict parents. Evidence shows that in most cultures, families that strongly believe in moral, religious, or spiritual principles prevent or delay substance use behaviors in their children (Sussman, Skara, Rodriguez, & Pokhrel, 2006). In addition, parental monitoring also affects substance use behavior. When parental monitoring is high, adolescents feel more compelled to follow social norms because they believe that their parents care and guide them. However, when adolescents' perception of religious supervision over their actions is low, they tend to direct their behavior according to their preferences and desires (Vitaro, Brendgen, & Tremblay, 2000; Bahr, Hoffmann, & Yang, 2005).

Social risk factors

Studies in Developed Countries: Social factors, like family factors, are also influential in drug consumption behaviors. The influence of society and family is often simultaneous and this interaction predicts a complex system of high-risk factors in substance abuse behavior. Wallis (2013) believes that the importance of the influence of parents and peers is due to the fact that they shape the environment of a teenager and the teenager imitates the behaviors he/she learns in this environment. Blanton et al. (1997) consider peer group as one of the important factors of drug use in teenagers. The role of mass media as a social factor in drug consumption behaviors is very prominent.

Same age group

Studies in Developed Countries: Experiencing substances is rarely a solitary experience and is usually experienced with peer groups (Calafat, Kronegger, Juan, Duch, & Kosir, 2011. Having a network of friends who have risky behaviors increases the possibility of teenagers' participation in these groups. Participating in smoking, alcohol, or marijuana use behaviors may symbolize the expression of shared values and may foster a sense of belonging and intimacy in adolescents with identity problems (Heavyrunner-Rioux & Hollist, 2010). The findings of Arteaga, Chen, and Reynolds (2010) showed that the fear of social isolation and rejection by peers has a significant effect on adolescent drug use, especially when drug use is recognized as a norm in adolescent culture.

Dehaan and Boljevac (2010) believe that teenagers' perceptions of drug use and popularity are related to increased use. Trucco, Colder, Bowker, and Wieczorek

(2011) and Diego, Field, and Sanders (2003) showed in their research that peer pressure and perception of popularity are associated with increased risk of drug use, and are more likely to lead to drug use behaviors. bring (Trucco, Colder, Bowker, & Wieczorek, 2011). Simantov, Schoen, and Klein (2000) also believe that smoking in boys is considered to improve their social image, while in girls it is considered a soothing behavior to deal with stress. In addition, teenagers who tend to be leaders or like to be higher than others are more inclined toward smoking because they associate this behavior with maturity. However, those who want to be accepted by the group are more inclined toward the consumption of alcohol because it is perceived as a social activity in the group (Trucco et al., 2011). On the other hand, adolescents whose friends or peers are academically successful, or participate in healthy sports and recreational activities, are less likely to start using drugs at a young age (Haase & Pretschek, 2010). Paril et al. (2006) also showed that the peer group's opposition to cannabis use can be a protective factor in this regard.

The influence of media and technology

Studies in Developed Countries: The use of different media and computer games is very common in teenagers, and a teenager may spend long hours watching TV, movies, and series, and playing computer games. The results of researches show that the heavy use of media is related to high-risk behaviors such as obesity, early sexual activities, and alcohol and drug consumption at a young age (Laurson, Eisenmann, Welk, Wickel, Gentile, & Walsh, 2008; Hanewinkel & Sargent, 2009). In the researched by Wakefield, Flay, Nichter, and Giovino (2003), DiFranza et al. (2006), and Sargent, Wills, Stoolmiller, Gibson, and Gibbons (2006), seeing smoking behavior in the mass media was associated with the initiation of smoking in teenagers. Other studies have also pointed to the relationship between media use and marijuana and alcohol use (Gruber & Pope, 2002; Hall, 2006; Austin, Chen, & Grube, 2006; Dalton et al., 2006; Primack, Kraemer, Fine, & Dalton, 2009).

Individual risk factors

Studies in Developed Countries: Although many of the factors involved in substance abuse in adolescents may be attributed to external factors, some factors are individual and can play a prominent role in substance abuse disorders. Some researchers have pointed to the role of attention deficit/hyperactivity disorder (ADHD) and depression in this regard. In addition, people who suffer from anxiety disorders or mental health problems, high excitement and impulsivity, and low self-esteem are also at risk of substance abuse. Research shows that hyperactivity, conduct disorder, and impulsivity increase the risk of drug use (Kilgus & Pumariega, 2009; Herman-Stahl, Krebs, Kroutil, & Heller, 2006). The personality traits related to drug use in adolescents include low self-esteem, lack of assertiveness and boldness, difficulty in interpersonal communication, and weakness in decision-making skills (Pumariega, Rodriguez, & Kilgus, 2004). It is believed that many adolescents use drugs as self-medication to reduce symptoms of anxiety, embarrassment, and emotional problems caused by childhood trauma or sexual abuse (Kloep, Hendry, Ingebrigtsen, Glendinning, & Espnes, 2001).

Violation of attention and hyperactivity

Studies in Developed Countries: Several studies, including a meta-analysis of 13 studies, have indicated that ADHD increases the risk of substance use disorders during adolescence and adulthood (Charach, Yeung, Climans, & Lillie, 2011; Wagner, 2004). Furthermore, ADHD increases the risk of alcohol and nicotine use (Symmes et al., 2015). Another study showed that hyperactive teenagers smoke about 19% to

46%, but teenagers from the general population smoke about 10% to 24% (Fuemmeler, Kollins, & McClernon, 2007). In addition, Lambert (2005) also showed that hyperactive people are more likely to use psychoactive drugs in addition to smoking. Lee, Humphreys, Flory, Liu, and Glass (2011) suggest that children with ADHD are more likely to show dependence disorders and abuse substances such as nicotine, marijuana, alcohol, and cocaine in adulthood.

Conclusion

In this article, some important family, social, and individual factors that are involved in drug abuse behaviors were mentioned. Family factors are one of the most important factors involved in substance abuse; this highlights the prominent role of the child-parent relationship, parents' interpersonal relationships, parenting methods, and relationships with siblings. Psychological problems such as ADHD, depression, anxiety disorders, sensation seeking and impulsivity, and low self-esteem are among the individual factors that are related to substance abuse in adolescents, and some adolescents try to reduce and alleviate the symptoms of these disorders through substance abuse. Therefore, the related protocols and intervention programs should be comprehensive and emphasize the active participation of parents and the development of personal, social, and communication skills, a sense of competence, and self-regulation of adolescents.

Conflict of Interests

Authors have no conflict of interests.

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Studying the Mediating Role of Psychological Flexibility and Self-Compassion in the Relationship between Traumatic Memories of Shame and Severity of Depression and Anxiety Symptoms

Mohsen Mohajeri[1], Aniseh Alfooneh[1], Mehdi Imani[2]

[1] MA, Department of Clinical Psychology, Faculty of Educational Science and Psychology, Shiraz University, Iran
[2] MA, Department of Clinical Psychology, Faculty of Educational Science and Psychology, Shiraz University, Iran
[3] Associate Professor, Department of Clinical Psychology, Faculty of Educational Science and Psychology, Shiraz University, Iran

Corresponding Author: Mehdi Imani***; Associate Professor, Department of Clinical Psychology, Faculty of Educational Science and Psychology, Shiraz University, Iran***
Email: dr.mahdiimanipsy@gmail.com

Quantitative Study

Abstract

Background: The objective of the current study was to further explore the mediating role of psychological flexibility and self-compassion in the relationship between traumatic memories of shame and the severity of depression and anxiety symptoms. The psychological processes that may have an impact on this connection make it difficult to understand.

Methods: The research method was structural equation modeling. A sample of 296 university students from Tehran, Iran, was chosen through random cluster sampling for online research. The study data collection tools included the Early Life Experiences Scale (ELES), Impact of Event Scale-Revised (IES-R), Depression Anxiety Stress Scales (DASS), Cognitive Fusion Questionnaire (CFQ), Acceptance and Action Questionnaire-II (AAQ-II), Self Experiences Questionnaire (SEQ), and Self-Compassion Scale (SCS). Based on the partial least squares (PLS) approach, structural equation modeling, SPSS, and SmartPLS software were used to evaluate the generated data. A statistical investigation revealed a clear correlation between the intensity of depression and anxiety symptoms and painful recollections of shame.

Results: The results showed that traumatic memories of shame had a significantly favorable impact on anxiety ($P < 0.001$; $\beta = 0.30$) and depression ($P < 0.001$; $\beta = 0.33$), and a significantly negative impact on self-compassion ($P < 0.001$; $\beta = 0.31$) and psychological flexibility ($P < 0.001$; $\beta = 0.47$). Self-compassion significantly decreased sadness and anxiety ($P < 0.001$; $= 0.25$), and psychological flexibility significantly decreased sadness ($P < 0.001$; $=0.54$) and anxiety ($P < 0.001$; $= 0.37$).

Conclusion: These results suggest that the effects of experiential avoidance, cognitive fusion, and self-conceptualization, which together make up the overall construct of psychological resilience and are linked to the aggravation of depression and anxiety symptoms in people with traumatic shame memories, may be significantly reduced by self-compassion.

Keywords: Anxiety; Depression; Psychological flexibility; Traumatic memory; Shame; Self-compassion

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Introduction

The emotion of shame is a self-conscious emotion with a broad evolutionary history that is rooted in the social threat system and in which the self is viewed as a subject of negative evaluation, an expectation of rejection, or attack by others. Gilbert (2002) describes the emotion of shame as a self-conscious emotion (Gilbert, 2002; Gilbert & Miles, 2000). However, even though shame is a self-conscious feeling and an intrinsic capacity (Gilbert & Miles, 2000), several researchers have found a link between traumatic shame experiences and psychopathological symptoms (Averill, Diefenbach, Stanley, Breckenridge, & Lusby, 2002). Research suggests that early negative educational experiences with caregivers, such as shame with caregivers, can have a significant impact on our identity and feelings towards ourselves. Shame is associated with the perception that a person has personal characteristics or actions that are perceived as undesirable, worthless, defective, or incomplete (Gilbert & Miles, 2000).

The experience of being shamed, criticized, neglected, or undervalued by caregivers might result from this imbalance in the evolutionary systems of emotional regulation, which can have a substantial influence on the formation of the inner notion of oneself as weak, incomplete, and worthless. Due to their intense emotional nature and recurrence in autobiographical memory, these negative emotional memories can be placed at the center of a person's narrative about him/herself. They can be seen as an important component of a person's identity and life story, and serve as a focus for processing daily inferences in life. Finally, because of their impact on emotional and attentional functions, they may prolong stress-related conditions in daily life (Bluck & Habermas, 2000). Numerous studies have demonstrated the impact of these early experiences on how adults experience shame. These studies demonstrate that childhood experiences of abuse may have a traumatic component, and thus, may be a risk factor for the emergence of later psychopathologies, such as anxiety, depression, and stress (Weckerle, Ineichen, Huber, & Yang, 2009).

According to previous research, psychological flexibility is a variable that is linked with shame (Dozois & Rnic, 2015). Acceptance and commitment therapy (ACT) is based on the psychological flexibility model, and demonstrates that the capacity to adapt behavior flexibly in response to environmental opportunities results in actions based on personal values and is a necessary condition for psychological well-being (Hayes, Strosahl, & Wilson, 1999). According to the psychological flexibility model, the idea of the self as context also appears to be crucial in rigid responses to early feelings of shame and subsequent experiences of despair and anxiety (Dozois & Rnic, 2015).

Self-compassion appears to have a significant protective function in psychological well-being and to have a negative link with psychopathology symptoms. Self-compassion is an evolutionary-rooted self-regulatory mechanism that is triggered in times of psychological stress and threat (Terry & Leary, 2011). Self-blame and self-criticism are the antithesis of self-compassion and are a result of insecure attachment styles, threatening childhood traumas, and early shame memories (Swannell et al., 2012). One of the major effects of childhood trauma may be a lack of self-compassion, and it appears that this lack is what leads to the emergence of shameful sentiments. Children who endure trauma in their early years of life feel shame because they lack an internal framework for self-respect and self-compassion. It appears that self-compassion poses a threat to psychological survival, so the individual avoids it. As a result, he/she also avoids pleasant

experiences out of fear, which creates a vicious cycle that may make melancholy and anxiety worse (Swannell et al., 2012).

Methods

The method of research was structural equation modeling. The statistical population of the study included all students enrolled in universities in Tehran, Iran, during the 2021–22 academic year.. The sample size is equal to 5 times the sum of the number of routes, factor loadings, and mistakes. To boost the statistical power of the study, the researcher may use more samples. The study inclusion criteria included willingness and knowledge to agree to participate in the research, being a pupil, and not having physical disabilities or mental illnesses that require medicine. Some of the study exclusion criteria were Reluctance to continue taking part in the study, and failing to complete a questionnaire or failing to provide the requested demographic information. The approach used to select the study participants was a multi-stage cluster type. In this manner, several universities were initially chosen from among the universities in Tehran, and from the selected universities, several faculties were selected, and the participants were selected from among the students of these faculties. Finally, links to questionnaires were sent to the selected students to complete.

The study data collection tools included the Early Life Experiences Scale (ELES), Impact of Event Scale-Revised (IES-R), Depression Anxiety Stress Scales (DASS), Cognitive Fusion Questionnaire (CFQ), Acceptance and Action Questionnaire-II (AAQ-II), Self Experiences Questionnaire (SEQ), and Self-Compassion Scale (SCS).

Early Life Experiences Scale: The ELES) is a self-report tool created by Gilbert et al. (2003) to assess childhood recollection, threat, and perceived compliance. This scale includes 15 items, with the main focus on 6 items that recollect the feeling of being threatened and 9 items that recall the feeling of inferiority and acting submissively as children. The initial versions of the items, which were based on normal comments and experiences shared by patients in psychotherapy, were created in conjunction with clinical psychologists. Unofficial pilot research revealed that the participants had no issues in understanding any of the questions. The participants are asked to score the frequency and degree of truth of each assertion about their childhood on a 5-point Likert scale ranging from 1 (totally false) to 5 (absolutely true). Items 6 and 7 are reverse scored to reduce any response bias. This scale has strong internal consistency with a Cronbach's alpha of 0.84 for the entire scale (Gilbert & Irons, 2009).

Impact of Event Scale-Revised: The IES-R was created by Weiss and Marmar (1997). This scale is a self-report tool created to assess present psychological suffering for any life experience connected to recollections of shame with peers, coworkers, teachers, strangers, or others, as well as to assess shame with attachment faces. There are 22 items on this scale, and 7 items have been added (Zatzick et al, 1997). The IES-R consists of 3 subscales, which measure 3 crucial aspects of the primary traits of traumatic memories, including avoidance, hyperarousal, and disturbance in 3 dimensions aligned with the DSM criteria for post-traumatic stress disorder (PTSD). The items of the IES-R are scored on a 5-point Likert scale ranging from 0 to 4. In the main research, the Cronbach's alpha of the subscales of annoyance, avoidance, and hyperarousal was estimated to be 0.87-0.92(Zatzick et.al, 1997), 0.84-0.86, and 0.79-0.90, respectively.

Depression Anxiety Stress Scales: The DASS is a self-report questionnaire designed by

Lovibond and Lovibond (1995) to assess 3 aspects of the symptoms of psychopathology, namely stress, anxiety, and depression. The components of the DASS cover the subscales of depression, anxiety, and stress, and ask respondents to express their negative emotional symptoms on a 4-point scale ranging from 0 to 3. The points on each scale are added together to determine the final score. The more psychological symptoms, such as sadness, anxiety, and stress, a person experiences, the higher his/her score will be. The subscales in the original edition of the scale have a high level of internal dependability. The anxiety, stress, and depression subscales have a Cronbach's alpha of 0.84, 0.90, and 0.91, respectively (Lovibond & Lovibond, 1995).

Cognitive Fusion Questionnaire: The CFQ is intended to evaluate cognitive fusion. This questionnaire consists of 14 questions that are scored on a 7-point Likert scale ranging from 1 to 7. The total score of the CFQ ranges between 7 and 49. In a student population with a sample size of 1040 individuals, Gillanders et al. (2014) reported a Cronbach's alpha value of 0.93 and a test-retest reliability coefficient of 0.80 after 4 weeks. Higher scores on this scale are representative of more cognitive fusion. According to Gillanders et al. (2014), the CFQ is uni-factorial, and its item scores have strong internal consistency ranging from 0.88 to 0.93.

Acceptance and Action Questionnaire-II: The AAQ-II, which consists of 7 items, was created by Bond et al. (2011) to assess psychological flexibility and experiential avoidance. The items are scored on a 7-point Likert scale ranging from 1 (never true) to 7 (always true), and the total score is calculated by adding the individual scores. Higher scores show a greater avoidance of experiential learning. The internal consistency of the original version the AAQ-II is 0.84, and it has strong psychometric qualities (Bond et al., 2011). This scale has demonstrated strong psychometric qualities in previous investigations, including an internal consistency value of 0.84 (Hayes et al., 1999).

Self-Related Experiences Questionnaire: The Self-Related Experiences Scale (Yu, McCracken, & Norton, 2016) is a 15-item questionnaire and the items are scored on a 7-point Likert scale ranging from 0 (never true) to 6 (always true). This scale is meant to help you assess your abilities as an observer or context. The ability to recognize oneself as a distinct and independent whole that encompasses ideas, feelings, and bodily sensations manifests as the ability to see oneself and distinguish oneself from these experiences. Higher overall scores on this scale suggest higher degrees of both self-as-observer and self-as-context. This scale was reported to have a strong internal consistency with a Cronbach's alpha of 0.90 for the entire scale, 0.88 for itself as a distinction, and 0.87 for its subscale of self-as-observer in the study by Yu, McCracken, & Norton, 2016).

Self-Compassion Scale): The SCS was developed by Neff in 2003, and consists of 26 items and features 6 dichotomous components, including self-kindness versus self-judgment (reverse), human connection versus isolation, and mindfulness versus overidentification (reverse). The statements are answered on a 5-point Likert scale ranging from 1 (nearly never) to 5 (almost usually). The results demonstrated that the Cronbach's alpha coefficients of the subscales ranged from 0.68 to 0.77, the Cronbach's alpha coefficient of the whole scale was 0.90, its test-retest coefficients ranged from 0.56 to 0.71, and the correlation range between items was 0.54-0.78, indicating the scale's desirable reliability (Neff, 2003).

In the first stage, descriptive statistical indicators, such as the mean and standard deviation of the study variables, were analyzed to assess the research data. The approach of structural equation modeling based on partial least squares (PLS) was

employed with SmartPLS software (version 3; SmartPLS GmbH, Germany) in the second stage to investigate the conceptual models of the investigation. Additionally, the internal homogeneity of the variables was examined using Cronbach's alpha, and the correlation matrix between the study variables was examined using Pearson's correlation coefficient.

Results

The present study was conducted on 296 university students in Tehran who were 18-52 years of age with an average age of 25.88 ± 8.96 years during the academic year 2021–22. In terms of gender, 88.97% of participants were women and 11.1% were men. Moreover, 22.3% of the respondents had a diploma, 24.7% an associate degree, 25.7% a bachelor's degree, 10.1% a master's degree, and 17.2% a doctorate. Furthermore, 65.5% of the respondents were unmarried and 34.5% were married. The mean (standard deviation) of the research variables is presented in table 1.

As can be seen in table 2, there is a significant and positive relationship between the initial experiences of shame and the traumatic memory of shame, anxiety, and depression, but a significant and negative relationship between self-compassion and the psychological flexibility components. Self-compassion and psychological flexibility factors were negatively and significantly correlated with anxiety and sadness.

4-5- Fit of the conceptual model

The structural model of the study, which was conducted among university students in Tehran using PLS software, is depicted in figure 1.

Multiple non-collinearities were checked using the VIF index, and all values (1.964 to 4.241) were less than 5. Multiple collinearities were therefore not considered. Table 3 presents the findings of the direct and indirect impacts of the research model.

According to findings presented in table 3, traumatic memories of shame had a significantly favorable impact on anxiety ($P < 0.001$; $\beta = 0.30$) and depression ($P < 0.001$; $\beta = 0.33$), and a significantly negative impact on self-compassion ($P < 0.001$; $\beta = 0.31$) and psychological flexibility ($P < 0.001$; $\beta = 0.47$).

According to the findings, anxiety and sadness among students increase by 0.30 and 0.33 units, respectively, as do psychological flexibility and self-compassion, which decreased by 0.47 and 0.31 units, respectively, with the presence of more traumatic memories of shame. Additionally, the findings presented in table 3 demonstrate that self-compassion significantly reduces sadness and anxiety

Table 1. Descriptive indices of research variables in the studied sample (number: 296)

	Mean	SD	Minimum-maximum	Skewness	Kurtosis
Early experiences of shame	45.32	7.13	29-59	0.079	-0.437
traumatic memory of shame	62.83	9.88	36-79	-0.063	-0.052
Self-compassion	77.85	2.93	70-83	-0350	-0.218
Self-kindness	17.13	4.89	10-24	-0.206	-1.420
Self-judgment	14.24	3.81	7-24	0.715	0.140
Human commonalities	13.22	3.52	5-19	-0.126	-0.907
Depression	10.09	3.56	5-16	0.218	-1.300
Mindfulness	12.26	3.55	6-17	-0.161	-1.129
Extreme assimilation	10.56	3.41	5-16	0.279	-1.159
Cognitive fusion	196.18	21.55	163-232	+1.410	1.601
Experiential avoidance	26.57	8.83	12.41	-0.141	-1.371
Self-as-context	41.28	8.72	20.57	-0.486	-0.307
Anxiety	26.46	3.75	18-33	-0.320	-0.668
Depression	25.01	3.47	18-33	-0.054	-0.708

SD: Standard deviation

Table 2. Correlation matrix between research variables in university students in Tehran

	1	2	3	4	5	6	7
1. Early experiences of shame	1						
2. Traumatic memory of shame	0.319**	1					
3. Self-compassion	-0.554**	-0.679**	1				
4. Cognitive fusion	-0.396**	-0.578**	0.528**	1			
5. Experiential avoidance	-0.289**	-0.496**	0.390**	0.474**	1		
6. Self-as-context	-0.486**	-0.639**	0.444**	0.669**	0.286**	1	
7. Anxiety	0.329**	0.388**	-6.59**	-0.573**	-0.393**	-0.572**	1
8. Depression	0.375**	0.603**	-0.249**	0.676**	-0.585**	-0.669**	0.660**

(P < 0.001; = 0.25), and psychological flexibility significantly reduces sadness (P < 0.001; = 0.54) and anxiety (P < 0.001; = 0.37). As a result, the findings suggest that students' levels of anxiety and sadness can be reduced by fostering greater flexibility and self-compassion. The results of the direct and indirect effects of the research model are presented in table 4.

Discussion

According to our findings, people who have experienced the trauma of shame concerning others and have made this experience the focus of their lives are more likely to report depression and anxiety symptoms. However, this research also revealed that early traumatic events, including shame, might have a negative impact on psychological flexibility, specifically experiencing avoidance (Thompson & Goodman, 2010). This makes the intensity of the symptoms of anxiety and sadness more likely.

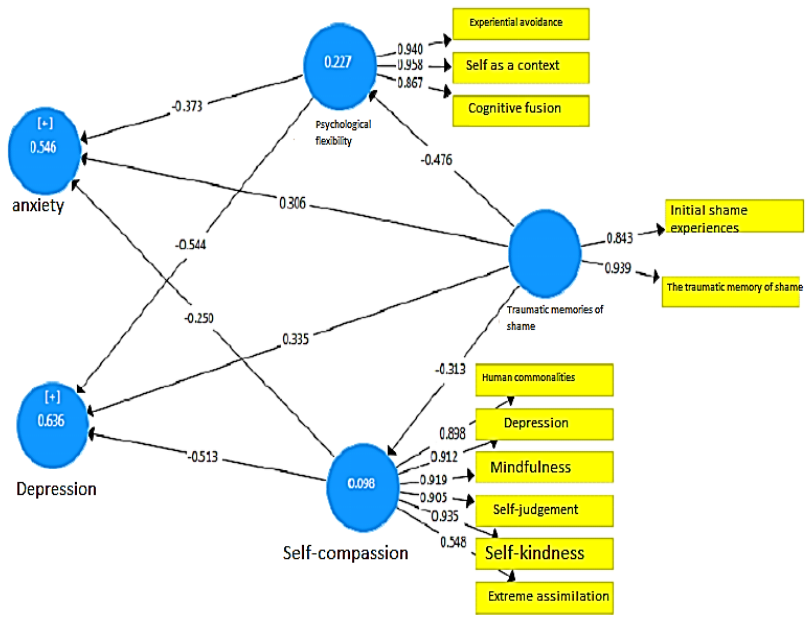

Figure 1. Structural model of the research (standard regression coefficients)

Table 3. The results of direct and indirect effects of the research model

Paths	β	t	CI 95%		Effect size (f^2)	P
			Lower bound	Upper bond		
Direct effects						
Traumatic memories of shame-→ self-compassion	-0.313	6.305	-0.406	-0.222	0.109	< 0.001
Traumatic memories of shame -→ psychological flexibility	-0.476	9.350	-0.584	-0.401	0.293	< 0.001
Traumatic memories of shame -→ anxiety	0.306	7.225	0.226	0.388	0.158	< 0.001
Traumatic memories of shame-→depression	0.335	2.690	0.275	0.409	0.176	< 0.001
Self-compassion -→ anxiety	-0.250	5.066	-0.344	-0.153	0.102	< 0.001
Self-compassion-→ depression	-0.513	10.792	-0.601	-0.383	0.187	< 0.001
Psychological flexibility -→ anxiety	-0.373	0.565	-0.454	-0.289	0.195	< 0.001
Psychological flexibility-→Depression	-0.544	11.311	-0.636	-0.402	0.465	< 0.001
Mediating effects						
Traumatic memories of shame---> self-compassion---> anxiety	0.078	3.291	0.031	0.103		< 0.001
Traumatic memories of shame-→psychological flexibility-→anxiety	0.178	6.841	0.130	0.234		< 0.001
Traumatic memories of shame ---> self-pity --->depression	0.160	6.533	0.119	0.206		< 0.001
Traumatic memories of shame-→psychological flexibility-→depression	0.258	8.604	0.192	0.303		< 0.001

CI: Confidence interval at the 95% level

This outcome is consistent with the findings of Masuda, Akihiko, and Tully (2012). This study's second hypothesis, which stated that self-compassion mediates the link between painful memories of shame and the intensity of anxiety and depressive symptoms, was also shown to be true.

Table 4. The results of the direct and indirect effects of the research model

Paths	β	t	CI 95%		Effect size (f^2)	P
			Lower bound	Upper bond		
Direct effects						
Traumatic memories of shame ---> psychological flexibility	-0.475	9.455	-0.547	-0.397	0.292	< 0.001
Traumatic memories of shame ---> anxiety	0.310	7.075	0.221	0.388	0.165	< 0.001
Traumatic memories of shame ---> depression	0.336	7.787	0.248	0.410	0.171	< 0.001
Psychological flexibility ---> anxiety	-0.358	7.877	-0.443	-0.265	0.177	< 0.001
Psychological flexibility---> depression	-0.539	10.611	-0.625	-0.475	0.466	< 0.001
Self-compassion ---> anxiety	-0.257	5.414	-0.184	-0.336	0.108	< 0.001
Self-compassion---> depression	-0.513	11.877	-0.613	-0.425	0.385	< 0.001
Mediating effects						
Traumatic memories of shame ---> psychological flexibility ---> anxiety	0.170	6.348	0.121	0.225	-	< 0.001
Traumatic memories of shame ---> psychological flexibility ---> depression	0.256	8.593	0.179	0.312	-	< 0.001
Moderating effect						
Self-compassion × traumatic memories of shame ---> depression	-0.078	2.180	-0.156	-0.022	-	0.030
Self-compassion × traumatic memories of shame ---> anxiety	-0.175	3.794	-0.243	-0.098	-	< 0.001

CI: Confidence interval at the 95% level

The present research investigated the effectiveness of self-compassion-based interventions on depression symptoms Self-compassion can improve interpersonal relationships and intimacy (Neff et al., 2007). This alone has the power to combat sadness and anxiety (Sollman and Gilbert, 2000). Communication improves as a result of having a sense of self-acceptance and self-kindness, as well as the capacity to view events as being a natural part of existence as a person. Additionally, self-compassion results in a better understanding of emotions, and consequently, a better ability to control them (Ross et al., 2019).

The findings of this study help to clarify the mechanism through which traumatic experiences of shame affect the intensity of anxiety and depression symptoms. Our study not only supports the findings of other studies in this area, but also adds fresh knowledge about the mechanism through which traumatic experiences of shame influence the severity of depression and anxiety symptoms. More specifically, the findings of this study imply that self-compassion and psychological adaptability may be significant mediators in the association between the intensity of depression and anxiety symptoms and the traumatic experiences of shame. Although it was not performed on a clinical population, this research can nonetheless be deemed clinically valuable. More specifically, ACT helps to lessen psychopathology, including anxiety and depression, by decreasing experiential avoidance, bolstering the position of acceptance, and increasing the desire to experience unpleasant events like traumatic memories of shame. Instead of adjusting the traumatic memories of shame, it is preferable to change how people view their shame memories because doing so fosters more acceptable ways of experiencing them, a connection to the present, and a commitment to actions that are consistent with one's values and life goals (Risert et al., 2016; Su et al., 2011; Bai et al., 2020, Zettel et al., 2009).

Students with anxiety issues may find success by thinking about therapies that emphasize self-compassion. Due to the heavy workload and amount of studying, anxiety issues are widespread among students, which affect both their emotional and behavioral abilities and self-related suffering (Armisto, 2016, Ferrari et al., 2019). Additionally, the potential of self-compassion to lessen the cognitive and emotional aspects of anxiety makes it a useful tactic for treating all anxiety disorders (Kanda and Tatar).

Conclusion

Although this study has increased our understanding of the connection between psychopathology and painful memories of shame, it is not without its limits. Because of the cross-sectional form of this study, it is challenging to establish the direction of the observed associations or to discuss causation. Additionally, because the sample of the present study was drawn from the general community, it is challenging to extrapolate its findings to clinical patients. Thus, it may be a good idea to focus future studies in this regard on individuals who have been given a diagnosis of depression or anxiety disorders. Finally, the instruments used in the current study were entirely self-report tools, which might skew the study findings. To gather more precise and trustworthy information, it is advised that approaches based on structured interviews with individuals be employed in future studies.

Conflict of Interests

Authors have no conflict of interests.

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Evaluation of Anxiety of Medical Personnel during the Coronavirus Outbreak in Tasikmalaya, Indonesia

Tetet Kartilah[1], Aan Komariah[2], Saurabh Singhal[3], Mohammad Javed Ansari[4], Muneam Hussein Ali[5], Supat Chupradit[6], Abduladheem Turki Jalil[7], Mazin A.A. Najm[8], A. Heri Iswanto[9]

[1] Lecturer of Nursing/Health Management, Poltekkes Kemenkes Tasikmalaya, Jawa Barat, Indonesia
[2] Educational Administration, Universitas Pendidikan Indonesia
[3] GLA University, Mathura, Uttar Pradesh(UP), India
[4] Department of Pharmaceutics, College of Pharmacy, Prince Sattam Bin Abdulaziz University, Al-kharj, Saudi Arabia
[5] Al-Nisour University College, Baghdad, Iraq
[6] Department of Occupational Therapy, School of Associated Medical Sciences, Chiang Mai University, Chiang Mai, Thailand
[7] College of Technical Engineering, The Islamic University, Najaf, Iraq
[8] Pharmaceutical Chemistry Department, College of Pharmacy, Al-Ayen University, Thi-Qar, Iraq
[9] Public Health Department, School of Health Science, University of Pembangunan Nasional Veteran Jakarta, Jakarta, Indonesia

Corresponding Author: Tetet Kartilah***; Lecturer of Nursing/Health Management, Poltekkes Kemenkes Tasikmalaya, Jawa Barat, Indonesia***
Email: tetetkartilah20@gmail.com

Quantitative Study

Abstract

Background: Coronaviruses are a large family of viruses that can cause respiratory infections. A factor that has recently caused a great deal of anxiety is anxiety associated with the coronavirus. The purpose of this study was to evaluate the level of anxiety among medical personnel exposed to the new coronavirus pandemic.

Methods: This descriptive, cross-sectional research was conducted on 210 medical personnel working in hospitals and health centers in Tasikmalaya, Indonesia. Medical personnel, who were exposed to or not exposed to this disease, were included in the study through census sampling in 2021. The data collection tools used include a demographic information questionnaire and the Corona disease anxiety scale (CDAS). Data analysis was performed using ANCOVA in Excel software.

Results: The mean score of anxiety of the medical personnel during the new coronavirus pandemic in Tasikmalaya was 30.02%. Furthermore, in the medical personnel, the mean score of mental symptoms (47.22%) was higher than physical symptoms (13.15%). The anxiety, and psychological, and physical symptoms scores for women was higher than for men personnel, and there was a significant difference between them ($P < 0.05$). The demographic variables of gender ($P = 0.001$), work experience ($P = 0.023$), and number of family members ($P = 0.004$) had a statistically significant relationship with anxiety ($P < 0.05$).

Conclusion: According to the results of the study, the level of anxiety among female personnel was higher than male personnel. As a result, holding training classes and stress management courses among all personnel, especially female personnel, should be considered.
Keywords: COVID-19; Medical staff; Anxiety

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Introduction

Coronavirus is an acute respiratory illness that was reported in Wuhan, China in late December 2019 and has now spread worldwide. The disease has symptoms such as cough, headache, muscle aches, and in rare cases digestive disorders (Joharifard, Nouri, Hazrati, & Fekryan-Arani, 2022). COVID-19 disease can sometimes cause serious lung damage and even result in death (Mazza et al., 2020). Research show a higher mortality rate following this disease in the elderly and people with underlying diseases such as diabetes, cancer, cardiovascular disease, immunodeficiency, etc. compared to healthy people (Mertens, Gerritsen, Duijndam, Salemink, & Engelhard, 2020). Although due to the novelty of this virus, the amount of information available about its pathogenicity as well as its methods of control and treatment is limited; thus, currently the best way to deal with it is to prevent the spread of the virus, which requires awareness and knowledge of the disease and its prevention and treatment methods (Shah, Mohammad, Qureshi, Abbas, & Aleem, 2021; Stankovska, Memedi, & Dimitrovski, 2020).

Given that the only way to control the disease is public health measures, severe quarantine measures were implemented around the world in a short period of time (Gamonal Limcaoco, Mateos, Fernandez, & Roncero, 2020). Quarantine can be applied voluntarily or compulsorily at the individual or community level, with voluntary and home-based quarantine usually preferred. Social distancing is also a form of quarantine performed to reduce interactions between people in a community and, on a large scale, to delay the epidemic in order to give the health care system the opportunity to become capable of accommodating large numbers of patients (Singh & Singh, 2020; Amsalem, Dixon, & Neria, 2021). This strict policy of quarantine will not be without psychological, social, and economic effects and will lead to social isolation, financial losses, discrimination, and so on (Khademian, Delavari, Koohjani, & Khademian, 2021). Moreover, limited human awareness of this disease, and the news and rumors related to it have caused and increased anxiety and fear, boredom, despair, etc. Therefore, psychological care to reduce stress is as necessary as attention to patients' health measures in dealing with this disease (Brailovskaia & Margraf, 2020). Numerous studies have reported that this epidemic can cause new psychiatric symptoms in people without mental illness and worsen the condition of people with mental illness, and increase the duration of quarantine by dramatically increasing these disorders with negative consequences. Studies have shown that medical personnel are no exception to this rule and that they are also affected by these psychological pressures (Özcan et al., 2021). This group may also be much more vulnerable than other people in the community and have higher rates of depression and anxiety (Kamal & Othman, 2020; Boyraz & Legros, 2020).

Mental health plays an important role in ensuring the dynamism and efficiency of any society and is one of the axes of health assessment. In fact, high mental health leads to happiness, vitality, and an increased sense of self-confidence in families, and poor metal health leads to anxiety, stress, and despair (Gritsenko et al., 2021). Given the pandemic status of the disease, which affects almost all important economic, political, and social aspects of the country, the discussion of the psychological effects of this disease on the mental health of individuals at different levels of society is very important. Therefore, in the current high-risk situation, it is necessary to identify people prone to psychological disorders at different levels of society in order to maintain the health of these people through appropriate psychological strategies (Spoorthy, Pratapa, & Mahant, 2020; AlAteeq, Aljhani, Althiyabi, & Majzoub, 2020). Fear and anxiety caused by a possible illness are destructive and can lead to mental disorders and stress

in people. Fear and stress are beneficial in the short term and allow the body to deal with stressors. Nevertheless, if this fear and stress and the body's response to increase cortisol levels and sympathetic stimulation persist, in the long run, it is destructive, and weakens the immune system and reduces the body's ability to fight (Scheidt, 2021). It is even associated with diseases such as coronary heart disease (CHD). Therefore, coping with stress makes society resistant to disease (Feihuan & Sollmann, 2020; Babadi, Bazmi, & Araban, 2021).

Many researchers have studied the psychological and physical effects of Covid-19. Qiu, Shen, Zhao, Wang, Xie, and Xu (2020) found that 53.8% of participants rated the psychological effects of the coronavirus outbreak as moderate or severe, 16.5% reported severe depressive symptoms, and 28.8% reported severe anxiety symptoms. Roy, Tripathy, Kar, Sharma, Verma, and Kaushal (2020) found that people with CHD have high health anxiety and anxiety levels. Li et al. (2020) found that as coronavirus levels increased, negative emotions such as anxiety, depression, and anger also increased, while positive emotions such as happiness decreased.

Contrary to the past, in which diseases were mostly related to the physical dimension of individuals, today, we are witnessing a high prevalence of mental disorders that threaten people's health more and more (Rokochinskiy et al., 2020). Most of the mental occupations of people are related to their job. People in any type of job are exposed to many risk factors called occupational hazards. Some of these harmful factors are related to the psychological dimension, and thus, threaten the mental health of people (Kooraki, Hosseiny, Myers, & Gholamrezanezhad, 2020). These factors include heavy workloads, long shifts, and so on. Anxiety is defined as a tangible emotional state characterized by feelings of tension, hallucinations, and increased activity of the autonomic nervous system. Some researchers believe that anxiety is the core of a variety of mental disorders such as post-traumatic stress disorder (PTSD) (Hasandoost, Mohammadi, Khademi, & Seddighi, 2021; Peyman & Olyani, 2020). Treatment personnel are directly related to the health of individuals in the community (Mohaddes Hakkak et al., 2021). In this regard, many studies have shown that the health of the people in a society depends on the health of its health system personnel (Sharma, Batra, & Nahar, 2020; Attarian, Feyzi, Jamali, & Firoozi, 2021). This issue arises from the fact that the health of the individual depends on the good performance of health personnel, and to be able to serve the people in the best way in their specialty, they must be highly satisfied with their job (Ghasemi, Ghofranipour, Shahbazi, & Aminshokravi, 2021; Li et al., 2020).

Despite the hospital personnel's constant exposure to harmful occupational factors, the sudden onset of a new coronavirus disease and its rapid spread may increase their anxiety (Herlambang, Wahyudiyono, Subiyantoro, Jumintono, Madu, & Hartati, 2021). Anxiety caused by this disease affects individuals in society. In the meantime, given that hospital personnel are at the forefront of the fight against the virus, it is necessary to pay attention to the health of these people, who are the guardians of the health of other sections of society. Given that few studies have been performed on COVID-19 disease, the need to investigate the psychological effects of this emerging phenomenon is felt, and the identification and presentation of an intervention for victims in the early stages is of particular importance. Therefore, the aim of this study was to evaluate stress and anxiety during the Covid-19 epidemic in treatment personnel.

Methods

A descriptive cross-sectional approach was used in this study. The study was conducted on a simple random sample of 210 of the 843 medical personnel working in

hospitals and health centers in Tasikmalaya, Indonesia, in 2021. Age of over 20 years, willingness to participate in the study, and working in hospitals and health centers in Tasikmalaya were the inclusion criteria. The exclusion criteria included lack of willingness to participate in the study and incomplete questionnaires. The participants were assured that their information and identities would not be disclosed for ethical reasons.

The information gathering tools used included a demographic information questionnaire and the Corona Disease Anxiety Scale (CDAS). The demographic questions were related to age, gender, marital status, academic degree, work experience, number of family members, and catching the coronavirus in previous months. The CDAS questionnaire was used to assess anxiety caused by the prevalence of coronavirus in Indonesia (Savas, Büyükerkmen, & Tunçdemir, 2021). The final version of this questionnaire has 18 items; items 1 to 9 measure psychological symptoms and items 10 to 18 measure physical symptoms. The items are scored on a 4-point Likert scale ranging from 0 to 3 (never = 0, sometimes = 1, most of the time = 2, and always = 3). Therefore, the total score of the questionnaire ranges between 0 and 54. Cronbach's alpha was used to determine the reliability of the first (α = 86.94%) and second factors (α = 84.37%) of this questionnaire, and the entire questionnaire (α = 89.41%). To assess the content validity of the questionnaire, it was presented to 4 experienced psychologists; 18 of the questionnaire's 25 items were approved.

To predict the anxiety of the studied personnel based on demographic variables at a significant level of $p < 0.05$, data analysis was performed using descriptive statistical tests (frequency, mean, percentage), inferential statistical tests (ANCOVA, variance), and multiple regression test in Excel software.

Results

The 210 participating personnel were mostly female, married, under 45 years of age, and had a bachelor's degree. About half of them had less than 10 years of work experience. Moreover, 64.28% of the participants were married and 20% had caught coronavirus. All demographic information are presented in table 1.

Table 1. The demographic characteristics of the personnel participating in the study

Variable		n (%)
Gender	Male	50 (76.19)
	Female	160 (23.81)
Age (years)	< 35	92 (43.8)
	35-45	88 (41.9)
	45-55	20 (9.5)
	> 55	10 (4.8)
Work experience (years)	< 10	105 (50)
	10-20	100 (47)
	> 20	5 (2.39)
Academic degree	Bachelor's	152 (72.38)
	Master's	38 (18.10)
	Doctorate	20 (9.52)
Marital status	Married	135 (64.28)
	Single	75 (35.72)
Number of family members	2	62 (29.52)
	3	65 (30.95)
	4	60 (28.57)
	5 and more	23 (10.96)
Caught coronavirus	Yes	42 (20)
	No	168 (80)

Table 2. Mean score of anxiety of hospital medical personnel during the new coronavirus pandemic

Item	Mean raw score	Mean score of 100
Anxiety	17.22	30.02
Mental symptoms	12.42	47.22
Physical symptoms	4.02	13.15

Table 2 presents the mean anxiety score of the medical personnel as a raw score based on the scale of the questionnaire and the converted score as a percentage. The mean score of anxiety of hospital medical personnel during the coronavirus pandemic was 30.02%. A lower score indicates less anxiety.

Moreover, mean score of mental symptoms (47.22%) was higher than physical symptoms (13.15%).

The results of statistical analyses in table 3 show that the scores of anxiety, and psychological and physical symptoms in women were significantly higher than men ($P < 0.05$); however, there was no significant relationship between other demographic characteristics and anxiety.

Multiple regression analysis showed that 18.1% of the variance of personnel anxiety is caused by demographic variables and the rest is caused by other variables. As the results presented in table 4 show, the model is meaningful. Beta coefficients showed that, among the demographic variables, the variables of gender, Work experience, and number of family members were related to anxiety ($P < 0.05$), and these variables predict the anxiety of the personnel under study.

Table 3. Mean and standard deviation of indicators in terms of demographic characteristics

Variable	Physical symptoms	P-value	Mental symptoms	P-value	Anxiety	P-value
	Mean ± SD		Mean ± SD		Mean ± SD	
Gender		0.008		0.001		0.002
Female	3.85 ± 4.35		13.82 ± 5.85		18.12 ± 9.55	
Male	2.15 ±2.29		9.11 ± 4.99		12.22 ± 6.98	
Age (years)		0.315		0.061		0.950
< 35	3.66 ±3.45		13.85 ± 5.67		18.22 ± 8.45	
35-45	2.85 ±4.42		10.85 ± 5.93		15.23 ± 8.89	
45-55	4.11 ±4.55		13.11 ± 6.03		14.72 ± 9.92	
> 55	4 -		10 -		10 -	
Work experience (years)		0.317		0.103		0.112
< 10	3.58 ±4.75		13.42 ± 6.35		17.35 ± 9.68	
10-20	2.75 ±4.25		12.44 ± 4.82		14.02 ± 7.65	
> 20	4.22 ±4.44		12.82 ± 5.85		18.22 ± 9.20	
Academic degree		0.712		0.158		0.389
Bachelor's	1.72 ±4.38		11.25 ± 7.25		14.25 ± 8.25	
Master's	3.8 ±4.52		11.45 ± 8.33		18.22 ± 8.88	
Doctorate	2.35 ±2.72		9.25 ± 6.82		10.56 ± 7.85	
Marital status		0.612		0.523		0.061
Married	3.12 ±3.32		12.22 ±5.59		16.22 ± 8.55	
Single	3.75 ±4.44		12.35 ±5.83		16.65 ± 9.02	
Number of family members		0.135		0.065		0.058
2	3.95 ±3.65		13.52 ± 6.02		17.46 ± 8.85	
3	4.35 ±5.02		13.13 ± 5.58		17.55 ± 9.95	
4	3.22 ±3.85		11.98 ± 5.66		15.35 ± 8.95	
≥ 5	2.2 ±3.91		10.75 ± 5.95		12.32 ± 9.03	
Caught coronavirus		0.935		0.832		0.889
Yes	3.62 ±3.95		12.35 ± 6.88		16.55 ± 8.95	
No	3.72 ±4.32		12.32 ± 5.58		16.02 ± 10.65	

SD: Standard deviation

Table 4. Predicting the anxiety of the studied personnel based on demographic variables

Independent variable	β	T	P-value	95% Confidence interval	
				Upper bound	Lower bound
Gender	-0.285	-4.251	0.001	-8.65	-3.22
Age	-0.211	-1.688	0.075	-5.95	0.42
Work experience	0.285	2.115	0.023	0.26	4.65
Academic degree	0.111	1.326	0.155	-0.39	2.73
Marital status	0.024	0.268	0.745	-2.63	3.47
Number of family members	-0.221	-2.765	0.004	-3.55	-0.73
Caught coronavirus	-0.023	-0.345	0.688	-3.85	2.64

The importance of each of the studied parameters in terms of percentage is shown in figure 1. As can be seen in the figure, the gender parameter had the highest impact and the marital status parameter had the lowest impact.

Discussion

This paper aimed to assess the anxiety level of medical personnel exposed to the new coronavirus pandemic. Fear and anxiety have become a pandemic that affects the behavior of people in society. Therefore, this study was conducted to investigate the level of anxiety of medical staff in the face of the pavilion of Covid-19 virus in hospitals and health centers in Tasikmalaya. The sessions held to increase awareness of the COVID-19 pandemic increased happiness by 62%. They also reduced negative emotions, which in turn reduced anxiety, depression, and anger by 28%, 23%, and 54%, respectively. Medical personnel, especially nurses and doctors, are in close contact with infected patients, and play an important role in controlling infection. The results of this study showed that the mean score of anxiety of hospital staff during the coronavirus pandemic Tasikmalaya was 30.02%. The results of the present study showed that the mean score of mental symptoms was higher than physical symptoms in medical personnel. Most of the impact has been on the female personnel. Moreover, according to the results of the study, the level of anxiety is related to gender, work experience, and the number of family members. The other factors examined in this paper did not play an effective role in causing anxiety.

The rapid spread of the coronavirus has created an emergency in global health.

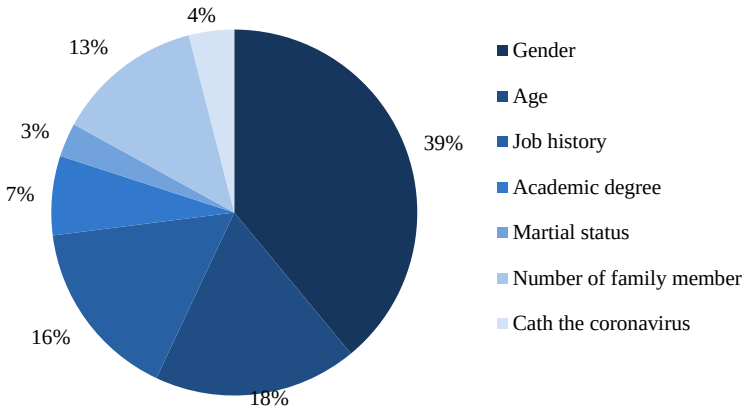

Figure 1. Percentage of importance of the studied parameters

This contagious disease raises concerns about public physical health and causes a number of psychological ailments. Thus, based on the results of the present study, it seems that caring for and maintaining the mental health of medical care personnel during an infectious disease is very important. The infection of medical personnel with the new coronavirus is a potential threat to the mental health of other members of the medical team and can cause them stress. In such cases, so it is necessary to provide medical care personnel with useful and practical training.

Despite the relatively low level of anxiety in medical personnel in the present study, more extensive studies are needed to monitor personnel protective behaviors in pandemics and their relationship with anxiety levels. However, continuous training and retraining about the unknown and new behaviors of the new coronavirus as well as its various symptoms, embedding and holding training sessions to repeat and promote safety tips and observe health protocols are among the measures that can reduce the anxiety caused by activities in medical settings through resolving common issues. The results of the present study showed that the medical personnel had appropriate and low levels of anxiety in the face of the new coronavirus that may have positive impact on their organizational function. Moreover, holding meetings to increase scientific awareness and reduce negative emotions in employees resulted in a reduction in negative emotions and increase in negative emotions.

Conclusion

When anxiety affects a larger population, it can lead to panic and depletion of resources. It can also lead to limitations in daily activities. Because of anxiety, people adopt different lifestyles and dietary modifications. These may have a negative effect on mental health. Therefore, dealing with mental health problems in epidemic conditions is very important.

Conflict of Interests

Authors have no conflict of interests.

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The Relationship between Burnout and Mental Health of Employees Working in Khorshid Educational and Therapeutic Complex, Isfahan, Iran

Somayeh Mokhtari[1], Marzieh Mostofi[2], Zeinab Mokhtari[3], Faranak Shafiei[4], Mastore Mostofi[5], Mohsen Bakhti[6], Soroush Bakhti[7]

[1] MSc in Nursing, Human Resources Management, Isfahan University of Medical Sciences, Isfahan, Iran
[2] MSC in Human Resource Management, Responsible for Quality Improvement and Accreditation, Khorshid Educational, Treatment, and Research Complex, Isfahan University of Medical Sciences, Isfahan, Iran
3 Assistant Professor, Nutrition and Food Security Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
[4] MSC, Educational Supervisor, Khorshid Educational, Treatment, and Research Complex, Isfahan University of Medical Sciences, Isfahan, Iran
[5] Nursing Manager, Amin Hospital, Isfahan University of Medical Sciences, Isfahan, Iran
[6] Behavioral Sciences Research Center, Department of Psychiatry, School of Medicine AND Gastroenterology| and Hepatology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
[7] Isfahan University of Medical Sciences, Isfahan, Iran

Corresponding Author: Mohsen Bakhti; ***Behavioral Sciences Research Center, Department of Psychiatry, School of Medicine AND Gastroenterology| and Hepatology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran***
Email: dr.bakhti@gmail.com

Quantitative Study

Abstract

Background: Promotion of workplace mental health is one of the most important aspects of human resource improvement and development, and in recent decades, organizations' attention to healthy physical and intellectual forces in economic, educational, service, and industrial institutions has had an undeniable role in increasing productivity. This study was conducted with the aim to investigate the relationship between burnout and mental health at Khorshid Educational and Research Complex, Iran.

Methods: This study was applied in terms of purpose and descriptive correlational in terms of the data collection method. The study population included all employees working in Khorshid Hospital in 2020 who had at least a diploma and 3 years of work experience. From among them, 255 individuals were selected as the sample. The participants were selected through convenience sampling and non-contingent methods. The participants were selected from among the staff who met the inclusion criteria through an easy sampling method. The required information in this study was collected using the Maslach Burnout Inventory (MBI), Goldberg's General Health Questionnaire (GHQ), and the Revised NEO Personality Inventory (NEO PI-R). Data were analyzed using independent t-test and chi-square test in SPSS software.

Results: There was a significant relationship between personality and neuroticism with burnout (P < 0.001). There was a significant relationship between burnout and overall mental health and decreased mental health (P<0.001). There was no significant relationship between "poor social performance" with burnout; "physicalization", "anxiety and insomnia", and "degree of depression had a significant relationship with burnout (P < 0.001).

Conclusion: According to the results of this study, there was a relationship between burnout, and mental health and personality traits in the educational and therapeutic complex. Employees with higher burnout and neuroticism personality traits showed reduced mental health.

Keywords: Burnout; Mental health; Employees

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Introduction

Promotion of workplace mental health is one of the most important aspects of human resource improvement and development, and, in recent decades, organizations' attention to physically and intellectually healthy forces in economic, educational, service, and industrial institutions has had an undeniable role in increasing productivity (Melvin, 2015). Burnout syndrome is a psychological syndrome that is most often seen in occupations where a person spends many hours in close contact with other people (Forouzanfar et al., 2013). The conventional definition of burnout is a negative psychological experience characterized by mental and physical exhaustion and is due to long-term mental work (Forouzanfar et al., 2013). The concept of burnout consists of the 3 dimensions of emotional exhaustion, pessimism, and personal incompetence. Emotional fatigue is defined as pressure linked to stress, anxiety, physical fatigue, and insomnia. Pessimism is a negative and callous response to persons who are usually recipients of service from the individual and refers to a person's negative perception of his clients.

Personal incompetence is a diminished sense of competence in performing personal tasks and is a negative self-assessment concerning work (Chou, Li, & Hu, 2014). Therefore, it is of particular importance in jobs related to human services. Reduced personal adequacy is a reduction in feelings of competence and the adequacy of successful performance. This aspect also represents a person's negative self-assessment of the work (Huang, Pu, Huang, & Chou, 2019). Maslach believes that burnout can lead to a decrease in the quality of services, is an effective factor in giving up a job, absenteeism, and low morale, and is associated with disorders such as insomnia, physical fatigue, alcohol and drugs use, and family and marital problems (Salimi, Azad Marzaabadi, & Abedi, 2013). Some researchers believe that high expectations in workplaces cause job pressures and eventually cause long-term burnout. In contrast, several other researchers believe that external factors such as low income can pave the way for burnout. Therefore, burnout at work can be acknowledged as a public health problem (Yavari, Shamsaei, & Yazdanbakhsh, 2014) that can affect the mental health of the individual. Individual and genetic factors such as age, sex, occupation, social class, and lifestyle, quality of service delivery, and environmental factors have been mentioned as effective factors in this regard (Huri, Bagis, Eren, Umaroglu, & Orhan, 2016).

In recent years, the signs, causes, and effects of burnout have attracted the attention of psychologists. The increase in environmental demands and demands, and the reduction of the individual's abilities to respond to them exacerbate psychological pressures and burnout; moreover, in modern societies, job, stress, and burnout are among the most important issues in health care occupations (Maslach, Schaufeli, & Leiter, 2001). Accordingly, burnout can cause disorders such as body fatigue, insomnia, and family and interpersonal problems. Burnout is a physical and mental syndrome that leads to negative behavior and attitude towards self, work, and clients. Absence from work, low morals, and job dissatisfaction are its other complications (Cho, Rutherford, & Park, 2013).

The U.S. Department of Intelligence has stated that health care jobs are associated with the highest rates of occupational injuries, including burnout (Toubaei & Sahraeian, 2007). Treatment environments are always affected by a wide range of stressors such as exposure to severe diseases, death of patients, high workload, and role ambiguity, which cause many psychological stresses and have undesirable effects on the nurse-patient relationship (Vahey, Aiken, Sloane, Clarke, & Vargas,

2004). The staff of educational and medical complexes is among those directly and closely connected with all segments of society and their problems. This close relationship doubles their critical responsibility for people's health and lives (Hatami, Razavi, Ardabili, Sayed Nawazi, Parizadeh, 2007). According to Piko (2006), the highest burnout was related to health care workers and the lowest was related to employees of public offices, organizations, universities, and research institutes.

Since human beings have different dimensions and these differences are manifested in people's abilities, talents, interests, and thus, in their personalities, recognizing the personality characteristics of employees and guiding them toward the appropriate career and life path. Personality is composed of special intellectual, emotional, and behavioral patterns that distinguish each person from other people. It can be acknowledged that personality has an inner origin and remains almost stable throughout life (Oreyzi, Nouri, Zare, & Amiri, 2013). Moreover, personality has a great impact on job performance. Normal personality is the chief predictive factor for a person's performance in the workplace and the strongest force for leadership and success. When people realize their true personality and identity, they try to improve it and their performance improves, they treat each other better, and the benefits of work increase. It helps create an environment where everyone wins. Personality not only has a positive effect on individual relationships and social interaction, but also has a positive effect on physical and mental health; those who are sick, but work on their skills and develop them during treatment are cured from many diseases, including the deadliest, and reduce mortality (Gill, Flaschner, & Shachar, 2006).

Moreover, preventing burnout requires regular efforts by the organization to give employees more opportunities to influence their work and collaborate on the effectiveness of the whole organization. In this way, every organization, with optimal and effective efficiency, seeks ways to empower employees to a degree that they can apply their intelligence, which is done by participating and participating more employees in the decision-making process (World Health Organization, 2012).

Considering that at least one-third of people's life is spent in the workplace and many relationships are formed during working hours, investigating and identifying the factors affecting the occurrence of job pressures is of great significance. Burnout in health care workers reduces efficiency and causes psychosomatic injuries and dissatisfaction with services; therefore, recognizing its mechanism of action and the severity of its destructive effects in service sectors will be effective in promoting mental health and the quality of services provided. Furthermore, as the prevalence of communicable diseases during the epidemic affects people's mental health, especially in developing countries that are faced with a shortage of human resources and sanitary equipment, and thus, the necessity of investigating employees' burnout and its impact on their mental health is felt. Accordingly, the present study was conducted with the aim to investigate the relationship between burnout and mental health among employees of Khorshid Educational and Research Complex, Iran.

Methods

The present study was an applied research in terms of purpose and a descriptive correlation research in terms of the data collection method. The study population included all employees working in Khorshid Hospital in 2020 who had at least a diploma and 3 years of work experience; from among them, 255 individuals were selected as the sample. Based on the study inclusion criteria, an effect size of 0.25, alpha of 0.05, and power of 0.80, it was determined that the minimum number

of samples to achieve the desired power was 250. The participants were selected through convenience sampling methods. From among the staff working in the hospital, the participants were selected through an easy sampling method based on the inclusion criteria. The required information in this study was collected using the Maslach Burnout Inventory (MBI), Goldberg's General Health Questionnaire (GHQ), and the Revised NEO Personality Inventory (NEO PI-R). At the beginning of the study, the general information of all participants was recorded in the data collection sheet and all subjects completed the MBI, GHQ, and NEO PI-R. The inclusion criteria included informed consent of participation in the research, employment in Khorshid Research Complex, and a work experience of 3 years. The exclusion criteria included incomplete questionnaires were considered by the lack of cooperating in the research process. Ethical considerations of the research included ensuring the confidentiality of the information obtained from the employees, and explaining the research objectives and the right of participants to withdraw from the research.

The instruments used in this study include the MBI, GHQ, and NEO PI-R.

Maslach Burnout Inventory: The MBI (1993) is composed of 22 separate items and measures the 3 aspects of emotional exhaustion, pessimism, and personal adequacy. The first 9 questions are related to emotional exhaustion, the next 5 questions are related to pessimism, and the final 8 questions are related to personal adequacy. The questions are scored based on a 7-point Likert scale ranging from 0 to 6. Based on the obtained scores, the subjects were classified into the 3 categories of mild, medium, and severe. The MBI was validated using Cronbach's alpha method (α = 71). (Maslach & Jackson, 1986). In the present study, the reliability of this questionnaire was assessed using Cronbach's alpha method (α = 0.77).

General Health Questionnaire: The GHQ was constructed by Goldberg (1972). This multiple and self-administered tool is designed to investigate mental health and mental disorders in the community. The questionnaire consists of 4 subscales, each of which has 7 questions and measures 4 categories of non-psychotic disorders including somatization, anxiety and sleep disturbances, social dysfunction, and depression (Goldberg & Hillier, 1979). Several studies have been conducted on the reliability of the GHQ. Goldberg and Hillier (1979) reported the validity of the GHQ to be 0.95 among 83 people. Cheung and Spears (1994) assessed and approved the internal stability of the GHQ using Cronbach's alpha method in a statistical population of 72 students (Cheung & Spears, 1994). The reliability of this questionnaire in the present study was determined using Cronbach's alpha method (α = 0.85).

Revised NEO Personality Inventory: The NEO PI-R is a self-assessment questionnaire based on personality characteristics. It is based on a famous character model presented by Costa and McCrae (1989-1992) called the Five Factor Model (FFM). It evaluates the 5 dimensions of the FFM: A- neuroticism (N): tendency to experience negative emotions and mental sadness in response to stressors; B- extraversion (E): degree of sociality, positive excitability, and overall activities, curiosity, judgment, and conservatism, D- agreeableness (A): altruism and empathy and tendency for cooperation; and - conscience :(C) the first level of self-control in planning and organization. The long-form of this questionnaire contains 240 items (8 items for each of the 20 aspects or 48 materials for each of the 5 domains). The 240 items are scored based on a 5-point Likert scale (I completely disagree = 5; I disagree = 4; I have no opinion = 3; I agree = 2; I fully agree = 1 graded) (McCrae & Costa, 1989; Ahmadi, 2017). The alpha coefficients reported by them were within the range of 0.74-0.98, with an average of 0.81. Bakkeret et al. (2006) reported a coefficient of 0.85 for psychopathy,

0.72 for extroversion, 0.68 for agreeableness, and 0.79 for conscientiousness Moreover, Bakkeret al., (2006), they reported test-retest validity, with a time interval of 6 months, of 0.53, 0.6, 0.76, and 0.74, respectively, for range, success, openness (experientialism), and extraversion. The reliability of this questionnaire in the present study was obtained using Cronbach's alpha method (α = 0.79).

In the present study, the statistical analysis of data was performed in SPSS software (version 22; IBM Corp., Armonk, NY, USA). All qualitative variables are presented as absolute and relative frequencies, and quantitative variables as mean and standard deviation. In this study, based on the Kolmogorov-Smirnov test, the distribution of all quantitative variables was normal, and if their distribution was not normal, it was normalized through logarithmic conversion or reverse conversion. Therefore, to investigate the similar distribution of confounding variables between the two groups at the beginning of the study, independent t-test and chi-square test were used for continuous quantitative variables.

Results

From among the 255 personnel working in the selected hospitals of Isfahan University of Medical Sciences, Iran, 196 people participated in this study, and their data were analyzed. The distribution of subjects based on age range showed that most of the subjects (48.7%) had an age range of 31-40 years; in addition, 84% were women and 75% were married. Furthermore, 72.3% had a bachelor's degree and the majority had a work experience of 11-15 years. Moreover, 84.1% of the employees were working in medical wards.

The personality traits of the study participants is shown in table 1. In terms of the mental health status, the results showed that in the dimensions of somatization, 50% of the subjects had moderate mental health and 43.6% of the subjects had severe psychosomatic disorder, and their status regarding the dimensions of anxiety, insomnia, and poor social functioning was reported to be moderate. In terms of depression, 10.4% of the subjects were depressed and the mental health status of the subjects was estimated to be moderate (Table 2).

The results of the survey showed that in the dimensions of emotional exhaustion, the amount of misery and reduction in personal adequacy of employees were at a moderate level. In general, the level of burnout in employees was reported to be moderate and severe, and they had experienced burnout (Table 3).

Table 1. Personality Traits of the Study Participants

Feature studied	Range	n (%)	Valid percent
Neuroticism	No anxiety	19 (9.7)	9.9
	Moderate anxiety	171 (87.2)	89.1
	Anxious	2 (1)	1
Extroversion	Introvert	0 (0)	0
	Neither introvert nor extrovert	183 (93.4)	95.3
	Extrovert	(4.6)	4.7
Openness	High	0 (0)	0
	Moderate	190 (96.9)	100
	Low	0 (0)	0
Agreeableness	High	2 (1)	0
	Moderate	191 (97.4)	99.0
	Low	0 (0)	0
Conscientiousness	High	5 (2.6)	2.6
	Moderate	186 (94.9)	97.4
	Low	0 (0)	0

Table 2. Mental health characteristics of the study participants

Feature studied	Range	n (%)	Valid percent
Physicalization	Healthy	12 (6.1)	6.2
	Moderate health	98 (50.0)	50.3
	Severe psychosomatic disorder	85 (43.4)	43.6
Anxiety and Insomnia	High	81 (41.3)	42.0
	Moderate	89 (45.4)	46.1
	Low	23 (11.7)	11.9
Poor social performance	High	75 (38.3)	38.3
	Moderate	116 (59.2)	59.2
	Low	5 (2.6)	2.6
Depression	No Depression	98 (50.0)	50.8
	Moderate	75 (38.3)	38.9
	Depressed	20 (10.2)	10.4
Mental Health	Healthy	0 (0)	0
	Mild	14 (7.1)	7.3
	Moderate	130 (66.3)	68.1
	Severe	47 (24.0)	24.6

In this study, the mean and standard deviation of burnout scores showed a significant increase only in the neurotic dimension of the anxiety domain ($P < 0.001$) (Table 4). Moreover, the burnout score in the extrovert dimension showed a significant increase ($P = 0.053$). Other personality traits did not show a significant relationship with burnout (Table 4).

The relationship between burnout rate and mental health dimensions is presented in table 5. Based on the findings presented in this table, there was a significant increase in burnout scores in severe psychosomatic disorder ($P < 0.001$).

Discussion

In recent years, there has been much interest in studying burnout among researchers, focusing on the negative effects of burnout on the labor forces. Burnout is considered a mental health problem in the field of work. Research has shown that people who suffer from burnout have lower productivity, efficiency, and cooperation which directly affect their organization's performance. This study was conducted with the aim to investigate the relationship between burnout and mental health at Khorshid Educational and Research Complex. The results of this study showed that in terms of personality traits, 87.2% of the employees reported moderate anxiety neuroticism.

Table 3. Burnout among the study participants

Feature studied	Range	n (%)	Valid percent
Emotional fatigue	Mild	0 (0)	0
	Moderate	130 (66.3)	67.0
	Severe	64 (32.7)	33.0
Pessimism	Mild	33 (16.8)	16.9
	Moderate	135 (68.9)	69.2
	Severe	27 (13.8)	13.8
Feeling personal adequacy	Mild	1 (5.0)	5.0
	Moderate	148 (75.5)	76.7
	Severe	44 (22.4)	22.8
Job burnout	Mild	0 (0)	0
	Moderate	153 (78.1)	80.1
	Severe	38 (19.4)	19.9

Table 4. The relationship between the mean and standard deviation of burnout and personality traits

Feature studied	Range	Mean ± SD	P-value
Neuroticism	No anxiety	70.22 ± 11.84	0.001
	Moderate anxiety	79.69 ± 12.64	
	Anxious	106.05 ± 5.65	
Extroversion	Introvert	0	0.053
	Neither introvert, nor extrovert	78.66 ± 12.50	
	Extrovert	87.87 ± 19.56	
Openness	High	0	0.323
	Moderate	79.24 ± 12.92	
	Low	0	
Agreeableness	High	99.00 ± 36.76	0.069
	Moderate	78.89 ± 12.54	
	Low	0	
Conscientiousness	High	82.20 ± 15.27	0.598
	Moderate	79.11 ± 12.91	
	Low	0	

SD: Standard deviation

Our results in general were similar to those of previous studies including Bakker et al. (2006), Buhler and Land (2003), Kim, Shin, and Swanger (2009), Morgan and de Bruin (2010), Zellars, Perrew, and Hochwarter (2000), and Vine and Morgan (2020), who had examined the relationship between the 5 personality factors and burnout.

In this study, there was no significant relationship between neuroticism and burnout in other dimensions. Due to symptoms such as anxiety, uncertainty, insecurity, and nervousness in working and non-working conditions of people with high levels of neuroticism, it can be expected that these people have higher levels of burnout. Therefore, what can be understood from the findings of this study and past results is that high levels of neuroticism can increase burnout in employees, which can also lead to many personal and organizational problems. Therefore, considering that people's personality is formed based on the two factors of environment and genetics. Neuroticism is an attribute that causes many emotional problems such as depression and anxiety, which itself causes a great deal of intellectual rumination and cognitive errors in the individual, all of which play a great role in accelerating the process of burnout (Buhler & Land, 2003).

Table 5. The relationship between the mean and standard deviation of burnout and mental health

Feature studied	Range	Mean ± SD	P-value
Physicalization	Healthy	69.90 ± 13.03	0.001
	Moderate health	75.22 ± 9.63	
	Severe psychosomatic disorder	84.85 ± 13.97	
Anxiety and Insomnia	High	86.25 ± 8.90	0.001
	Moderate	75.95 ± 8.90	
	Low	67.13 ± 7.85	
Poor social performance	High	77.42 ± 12.52	0.290
	Moderate	80.20 ± 13.12	
	Low	79.20 ± 13.40	
Depression	No Depression	74.21 ± 10.60	0.001
	Moderate	82.64 ± 12.28	
	Depressed	90.31 ± 15.42	
Mental Health	Healthy	0	0.001
	Mild	67.15 ± 9.83	
	Moderate	77.43 ± 11.14	
	Severe	87.93 ± 13.94	

SD: Standard deviation

It can be said that extroverts have more experience with positive emotions than introverts, which can make them hopeful about their work performance. Therefore, it is expected that employees with extrovert personalities experience lower rates of burnout and higher success rates in their work. Extroverts are social people, and in addition to being friends with others and wanting to participate in gatherings and parties, they are decisive or talkative. These people love excitement and mobility, and hope for success in the future. This leads to lower levels of emotional exhaustion. Extroverts experience more positive emotions and these positive emotions have a positive impact on their assessment of the future and a certain sense of efficiency. In this context, in the study by Dianati, Shafiepour, Zare Zeidi, and Matani (2017), there was a significant negative relationship between extroversion dimensions and job analysis, and a positive relationship between the openness dimension and job dissociation, but significant relationships were not identified in other communication dimensions.

The findings of the above-mentioned studies and the results of the present study confirm the hypothesis that the personality characteristics of the medical staff can predict their job burnout; thus, it can be concluded that the dimensions of variety, job stresses, and burnout formation process in nurses act in a continuous and interrelated chain. Therefore, it is expected that by strengthening personality strengths, in this regard, it is necessary to provide more social and psychological support to medical staff and to teach them strategies to cope with stress and job pressures.

In the present study, there was a significant relationship between burnout and overall mental health, and employees with decreased mental health experienced a higher level of burnout. Among the 4 domains of mental health, there was no significant relationship between "poor social performance" and burnout, but "physicalization", "anxiety and insomnia", and "degree of depression had a significant relationship with burnout ". In another study (Saberi, Sadr, Ghadyani, Yazdi, Bahari, & Shahmoradi, 2008), the scores of "rate of social dysfunction" and "anxiety and sleep disorders" were higher than the two domains of "physical symptoms" and depression and suicidal tendencies", indicating that employees had more problems in the first two areas of mental health. Today, the fact that everyone in any place and situation feels some degree of stress in their workplace is undeniable. Burnout is one of the results of various stresses that appear as physical symptoms (headache and stomach ulcer), psychological symptoms (depression and anger), and behavioral symptoms (absence at work). Burnout reduces the adaptability of a person in the face of stressors and this leads to behavioral and physical symptoms that endanger people's health.

Conclusion

According to the results there was the relationship between burnout, and mental health and personality traits in the educational and therapeutic complex. Employees with higher burnout and neuroticism personality traits showed reduced mental health.

Limitations: The present study had limitations. It is suggested that there is a possibility of resistance or intentional showing of high stress and burnout for various reasons by the subjects. The lack of separation of job stresses in terms of employment of subjects in different parts of the hospital, and the lack of generalizability results to the general community because of the small sample size of the research were other limitations of the research. Moreover, studying the economic and welfare status of the subjects and the possibility of the imprecise response of the subjects due to the high number of questions in the desired tools should be considered.

Conflict of Interests

Authors have no conflict of interests.

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Pattern and Demographic Determinants of Romantic Jealousy among Adults in Nigeria

Joy Osagiator Ariyo[1], Akinnawo Ebenezer Olutope[1], Allen Adebimpe Abimbola[2], Bawo James[3]

[1] Redeemers University, Ede, Osun State, Nigeria
[2] Adekunle Ajasin University, Akungba-Akoko, Ondo State, Nigeria
[3] Department of Clinical Services, Federal Neuropsychiatric Hospital, Benin City, Nigeria

Corresponding Author: Bawo James; *Department of Clinical Services, Federal Neuropsychiatric Hospital, Benin City, Nigeria*
Email: bawojames@yahoo.com

Quantitative Study

Abstract

Background: Jealousy in a romantic relationship contributes to other factors that could either sustain or destroy that relationship. There has been an increasing trend in the rate of broken relationships, marriage, and courtships, which is contrary to historical and cultural antecedents in a multicultural environment like Nigeria. This study was conducted with the aim to assess the patterns and demographic determinants of romantic jealousy among adults

Methods: This cross-sectional study was performed on a purposefully selected sample of 229 people aged between 24 and 63 years living in Delta State, Nigeria. The participants responded to the Multidimensional (Romantic) Jealousy Scale (MJS) short form in February 2022. Descriptive statistics were used to summarize the sociodemographic variables and inferential statistics (t-test for independent samples, and one-way ANOVA) were used to determine bivariate and multivariate associations.

Results: Gender differences were observed in the prevalence of the various forms of romantic jealousy. The prevalence of cognitive romantic jealousy in men was 81.7% while it was 76.8% in women [$t(227) = -2.14$; $P < 0.05$)]. The prevalence emotional jealousy among men and women was, respectively, 79.8% and 82.4% [$t(227) = -0.10$, $P > 0.05$. Moreover, the prevalence of behavioural jealousy among men and women was, respectively, 87.5% and 88% [$t(227) = -2.94$, $P < 0.01$].

Conclusion: This study demonstrated a high prevalence of romantic jealousy among adults in Delta state, Nigeria, with significant gender variation in the cognitive and behavioural domains. Further studies and a larger sample are required to assess the impact of personality and culture on romantic jealousy.

Keywords: Romantic jealousy; Relationships; Marriage

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Introduction

Jealousy in romantic relationships contributes to other factors that could either sustain or destroy it. Recent evidence shows an increasing trend in the rate of broken relationships, marriage and courtships, (Paul, 2019) which is contrary to the historical and cultural antecedents in a multicultural environment like Nigeria. There is compelling evidence of abusive relationships (Chiweta-Oduah, Arinze-Umobi, & Chukwu, 2020; Omoniyi, 2023) which have led to frequent sensitization with the intent to curb domestic violence (Omidoyin, 2018). Since jealousy has been associated with aggression and violence, there are strong indications that romantic jealousy could be associated with the experience of aggressive behaviours towards romantic rivals and may contribute to intimate partner violence. In addition, a heightened level of romantic jealousy has drastic consequences for the couple involved and the rivals, even to the point of death (Attridge, 2013; Martínez-León & Peña, 2017). It is therefore becoming a concern for public health and societal wellbeing.

Romantic jealousy has been wildly researched (Kara & Deniz, 2021; Pichon, Treves-Kagan, Stern, Kyegombe, Stockl, & Buller, 2020; Uzun, 2019). Although it is justified by its strength in harmonizing relationships through a conscious increase in care and concern, its excess remains a problem that could be pathological. This necessitates continuous research on related factors that could be strong determinants. The factors considered in the present study include gender, family type, and occupation. Jealousy generally refers to the thoughts or feelings of insecurity, fear, and concern over a relative lack of possession. It can consist of one or more emotions such as anger, resentment, inadequacy, helplessness, or disgust. Jealousy is a typical experience in human relationships, and it has been observed in infants as young as 5 months (Draghi-Lorenz, 2000; Hart & Carrington, 2002; Hart, Carrington, Tronick, & Carroll, 2004). Some researchers claim that jealousy is seen in all cultures and is a universal trait (Buss, 2000; Buss, 2001). However, others claim that jealousy is a culture-specific emotion (Salovey, 1991).

Romantic jealousy is defined as a set of thoughts, feelings, and actions that threaten the existence or quality of a relationship, and are generated by the perception of a potential romantic attraction between the partner and a real or imaginary rival (Salovey, 1991; White, 1981). Romantic relationships are a significant part of human lives. Healthy relationships increase our life satisfaction and psychological well-being, supporting us against the dangerous effects of stress (Kawamichi et al., 2016; Kiecolt-Glaser & Wilson, 2017; Love & Holder, 2016). healthy relationship have a variety of positive outcomes such as companionship, passion, and intimacy (Gable & Impett, 2012). Unfortunately, romantic relationships can also be a source of great sorrow and suffering. Jealousy, rejection, abandonment, and conflict in a relationship may result in psychological distress and emotional pain. In fact, problems in romantic relationships may lead to the emergence of or exacerbation of existing psychopathological symptoms such as depression, anxiety, and substance abuse (Gable & Impett, 2012).

Although jealousy is a normal emotion and can be an important component of healthy relationships, when it is abnormal in terms of intensity, persistence, and lack of insight, it may become pathological (Marazziti et al., 2003), especially when the symptoms are not noticed on time and it has not received appropriate attention by way of treatment. Jealousy is composed of the 3 components of thoughts (cognitive), feelings (emotional), and coping. White (1981) theorizes that the cognitive component of jealousy occurs when the person becomes aware of a threat to a valued romantic relationship. Negative emotions follow the realization of such a threat, and finally,

the individual engages in coping strategies designed to deal with the threats, thereby reducing the negative emotional components (White, 1981).

Over the years, the perpetuation of violence in relationships has been ascribed more to males than females (Karakurt, Koc, Cetinsaya, Ayluctarhan, & Bolen, 2019; McCarthy, Mehta, & Haberland, 2018). Documentations on domestic violence among women show that 10%-35% experience abuse at some point in their lives of their life. Studies have revealed that about 35% of women experience violence from their intimate partners. Although, there have been equivocal findings on sex differences in romantic jealousy since the dimension of jealousy displayed by men differs from women (Uthman, Lawoko, & Moradi, 2009).

Numerous studies have been conducted on experiences of violence by women; however, recent occurrences in Nigeria have shown that men also experience intimate partner violence, which could be because of a perceived real or presumed threat to their relationship (romantic jealousy). There are numerous cases of women killing their husbands for infidelity (Guardian, 2015; Punch, 2023), and in one report a woman killed her husband because he had knowledge of her infidelity (Vanguardngr, 2023). The identified cases of abuse could be ascribed to morbid romantic jealousy, which was not managed early enough. This study was conducted with the aim to assess the patterns and demographic determinants of romantic jealousy among adults.

Methods

Participants: This cross-sectional study was conducted on a purposefully selected sample of 229 people aged between 24 and 63 years (mean ± SD: 36.99 ± 7.447) and living in Delta State, Nigeria. From among all the local government areas (LGAs) in Delta State, 2 local government areas were randomly selected. A list of institutions with a staff size larger than 50 was obtained from the revenue department of both LGAs. From this list, 3 institutions were randomly selected, Guinness Nigeria PLC, Central Hospital, and Brightfield International School. At each institution, after obtaining permission from their management, personnel who volunteered being in a relationship at the time of the study were invited to participate in the study. We used a prevalence rate of 50% at 90% power, and estimated a sample size of 200 individuals as the minimum sample size for this study.

The inclusion criteria included being in a relationship at the time of the study, and providing an informed consent. We excluded those who had previously been married, but are now widowed.

Instruments

Sociodemographic characteristics form: This form included 4 items that collected data on gender (female/male), age (years), occupation, and family type.

Multidimensional (Romantic) Jealousy Scale: The Multidimensional Jealousy Scale (MJS) short-form, designed by Pfeiffer and Wong (1989), is a 17-item scale with
3 subscales. The MJS evaluates the cognitive, emotional, and behavioural components of jealousy. The cognitive subscale includes 5 items which measure to which extent the individual has concerns and doubts regarding the partner's fidelity. For the cognitive subscale, participants indicated how often certain thoughts about their partner occurred, with responses ranging from 1 (never) to 7 (all the time). A sample item is, *'I suspect that my partner may be attracted to someone else'*. The emotional subscale has 6 items and measures the strength of emotional jealousy in situations that cause the experience of jealousy, for

example, *'My partner hugs and kisses someone of the opposite sex'*. These items were scored on a scale ranging from 1 (very pleased) to 7 (very upset). The behavioural subscale measures the frequency of actions and activities that are expressions of jealousy, such as *looking through a partner's pockets, and questioning others about a partner's movement*. The participant reports how often he or she is involved in these types of actions on a scale ranging from 1 (never) to 7 (all the time). The authors of the scale have report a good reliability for the overall scale and all its subscales; they reported a Cronbach's alpha of 0.92, 0.85, and 0.89, respectively, for the cognitive, emotional, and behavioural subscales (Pfeiffer & Wong, 1989). In the present study, a Cronbach's alpha of 0.83, 0.91, and 0.78 was obtained for the cognitive, emotional, and behavioural subscales, respectively.

Procedure: For sampling, 2 local government areas in Delta State, Nigeria, were randomly selected. The staff of Central Hospital, Guinness Nigeria Breweries, and Brightfield International School was approached after the management of these institutions had been informed about the nature and purpose of the study, and permission to interview the staff was sought and granted. Paper questionnaires were distributed among the personnel of these institutions who signed a written informed consent form. No identifying information was obtained on the questionnaire, and a sealed bag was available at each institution in which participants could drop their completed questionnaires. A total of 265 participants were approached, from among them 235 agreed to participate in the study. Moreover, 6 questionnaires which were incomplete were discarded.

Data analysis: Data were electronically entered into a spreadsheet. SPSS software (version 22; IBM Corp., Armonk, NY, USA) was used to analyse the data. Descriptive statistics were used to summarize the sociodemographic variables, and inferential statistics (t-test for independent samples, and one-way ANOVA) were used to assess the hypotheses. The level of significance was set at $P < 0.05$.

Ethical Approval: As our investigation was performed on human subjects, the ethical principles of research on human subjects were observed in this study in compliance with the Declaration of Helsinki. Moreover, the research purpose and methodology were subjected to scrutiny by the Internal Research Ethics Committee of Redeemer's University, Ede, Osun State, and were given due approval. Furthermore, the ethical guidelines and approval of the Central Hospital, Guinness Nigeria Breweries, and Brightfield International School were duly obtained before the commencement of the study. Ethical code does not apply to this scale of research [see National Code of Health Research Ethics; National Health Research Ethics Committee of Nigeria (NHREC); section B, item A; http://www.nhrec.net/nhrec/NCHRE_10.pdf].

The confidentiality of the study participants' information was maintained throughout the study by preserving their anonymity and asking them to provide honest answers. Participation in this survey was voluntary, and no incentive was offered to participants. Informed consent was obtained from each participant before participation.

Results

Socio-demographic characteristics of participants: Slightly over half (54.6%) of the participants were women, while the remainder (45.4%) were men. A majority (91.3%) were Christians, while 3.1% (n = 7) were Muslims and 5.7% (n = 13) were affiliated to a traditional religion. As regards the highest educational attainment, 24% had either National Certificate of Education (NCE) or National Diploma (ND), 64.2% had either a first degree or Higher National Diploma (HND), and 11.8% had a master's degree (Table 1).

Table 1. Frequency distribution showing respondents' sociodemographic characteristics

Factors	Options	n (%)
Sex	Male	104 (45.4)
	Female	125 (54.6)
	Total	229 (100)
Religion	Christianity	209 (91.3)
	Islam	7 (3.1)
	Traditional	13 (5.7)
	Total	229 (100)
Educational qualification	NCE/ND	55 (24.0)
	First degree/HND	147 (64.2)
	Master's Degree	27 (11.8)
	Total	229 (100)
Occupation	Health workers	108 (47.2)
	Brewery workers	60 (26.2)
	Teachers	61 (26.6)
	Total	229 (100)
Marriage type	Monogamy	146 (63.8)
	Polygamy	83 (36.2)
	Total	229 (100)
Family home status	Monogamous home	122 (53.3)
	Polygamous home	107 (46.7)
	Total	229 (100)

NCE: National Certificate of Education; ND: National Diploma; HND: Higher National Diploma

The occupational distribution of the sampled participants was 47.2% health workers, 26.2% brewery workers, and 26.6% teachers. A majority (63.8%) were from monogamous, while 36.2% had polygamous. In terms of their family home status, 53.3% were raised in monogamous homes, while 46.7% were from polygamous homes (Table 1).

Pattern of romantic jealousy: The severity of romantic jealousy is presented in table 2. Gender differences were observed in the results across the various forms of romantic jealousy. For cognitive jealousy, about 1 in 10 participants reported severe cognitive jealousy. The rate in women (15.2%) was slightly higher compared to men (12.5%). In the emotional jealousy domain, nearly 2 in 10 participants reported severe emotional jealousy, and there was a female preponderance as regards the severe form (20.8% vs. 15.4%). The prevalence of severe behavioural jealousy was nearly 2 in 10, with women more likely to report the severe form (19.2% vs. 16.3%).

Determinants of romantic jealousy: The gender of participants was compared across the domains of romantic jealousy. In the cognitive domain, women were significantly more likely to hold jealous cognitions [$t(227) = -2.14$; $P < 0.05$] (Table 3).

Table 2. Prevalence of Romantic Jealousy among women and men

Romantic Jealousy	Sex	N	Prevalence			
			None	Mild	Moderate	Severe
			n (%)	n (%)	n (%)	n (%)
Cognitive jealousy	Male	104	19 (18.3)	30 (28.8)	42 (40.4)	13 (12.5)
	Female	125	29 (23.2)	14 (11.2)	63 (50.4)	19 (15.2)
	Total	229	49 (21.4)	40 (17.5)	113 (49.3)	27 (11.8)
Emotional jealousy	Male	104	21 (20.2)	25 (24.0)	42 (40.4)	16 (15.4)
	Female	125	22 (17.6)	35 (28.0)	42 (33.6)	26 (20.8)
	Total	229	43 (18.8)	60 (26.2)	84 (36.7)	42 (18.3)
Behavioural jealousy	Male	104	13 (12.5)	45 (43.3)	29 (27.9)	17 (16.3)
	Female	125	15 (12.0)	62 (49.6)	24 (19.2)	24 (19.2)
	Total	229	34 (14.8)	101 (44.1)	53 (23.1)	41 (17.9)

Table 3. Independent t-test results regarding the influence of gender on romantic jealousy

Romantic Jealousy	Gender	N	Mean ± SD	df	t	P-value
Cognitive jealousy	Male	104	14.13 ±7.06	227	-2.14	< 0.05
	Female	125	16.21 ± 7.49			
Emotional jealousy	Male	104	23.23 ± 10.10	227	-0.10	> 0.05
	Female	125	23.36 ± 9.88			
Behavioural jealousy	Male	104	14.30 ± 6.15	227	-2.94	< 0.01
	Female	125	17.08 ± 7.84			

SD: Standard deviation; df: Degree of freedom

A similar pattern was noted in the behavioural domain [t (227) = -2.94; P < 0.01]. There was no significant gender difference on the emotional jealousy domain [t (227) = -0.10; P > 0.05] (Table 3).

The domains of romantic jealousy were compared across occupational groups. In the cognitive jealousy domain, teachers had the highest average scores of jealousy (Mean ± SD = 18.15 ± 5.37), followed by brewery workers (Mean ± SD = 17.23 ± 7.71) and health workers, who had the lowest mean. On post hoc analysis, teachers showed significantly higher scores (F = 16.11; P < 0.01)

Health workers had the highest average score on the emotional jealousy domain (Mean ± SD = 25.63 ± 9.58), followed by brewery workers (Mean ± SD = 23.15 ± 11.25) and teachers (Mean ± SD = 19.33 ± 7.93), respectively. The post hoc comparison showed that health workers were significantly more likely to express emotional jealousy compared to the other occupational groups (F = 8.32; P < 0.01). Moreover, teachers were significantly more likely to express behavioural jealousy compared to brewery and healthcare workers (F = 3.23; P < 0.05) (Table 4).

Family type had no significant influence on cognitive jealousy [t (227) = -1.80; P > 0.05]. This indicates that individuals in monogamous homes (Mean ± SD = 14.61 ± 7.38) do not differ significantly from those in polygamous homes (Mean ± SD = 16.42 ± 7.20) when compared in terms of the cognitive form of jealousy. It was also observed that family type had no significant influence on emotional jealousy [t (227) = 0.68; P > 0.05]. This means that individuals in monogamous homes (Mean ± SD = 23.64 ± 9.21) and those in polygamous homes (Mean ± SD = 22.71± 11.19) do not differ significantly in terms of emotional jealousy. Lastly, family type indicated no significant difference in behavioural jealousy [t (227) = -1.64; P > 0.05]. This means that individuals in monogamous homes (Mean ± SD = 15.23 ± 6.62) do not differ significantly from those in polygamous homes (Mean ± SD = 16.86 ± 8.15) in terms of behavioural jealousy (Table 5 and 6).

Table 4. The comparison of occupation of participants and domains of romantic jealousy

Romantic Jealousy	Occupation	N	Mean ± SD	F	P-value
Cognitive jealousy	Health workers	108	12.55 ± 7.20	16.11	< 0.01
	Brewery workers	60	17.23 ± 7.71		
	Teachers	61	18.15 ± 5.37		
	Total	229	15.27 ± 7.35		
Emotional jealousy	Health workers	108	25.63 ± 9.58	8.32	< 0.01
	Brewery workers	60	23.15 ± 11.25		
	Teachers	61	19.33 ± 7.93		
	Total	229	23.30 ± 9.96		
Behavioural jealousy	Health workers	108	14.40 ± 6.27	4.39	< 0.05
	Brewery workers	60	16.53 ± 8.24		
	Teachers	61	17.62 ± 7.40	3.23*	
	Total	229	15.82 ± 7.24		

SD: Standard deviation

Table 5. Summary of independent t-test results regarding the influence of family type on romantic jealousy

Romantic Jealousy	Family type	N	Mean ± SD	df	t	P-value
Cognitive jealousy	Monogamy	146	14.61 ± 7.38	227	-1.80	> 0.05
	Polygamy	83	16.42 ± 7.20			
Emotional jealousy	Monogamy	146	23.64 ± 9.21	227	0.68	> 0.05
	Polygamy	83	22.71 ± 11.19			
Behavioural jealousy	Monogamy	146	15.23 ± 6.62	227	-1.64	> 0.05
	Polygamy	83	16.86 ± 8.15			

SD: Standard deviation; df: Degree of freedom

The findings on the influence of family home status on romantic jealousy revealed that an individual's family home status had no significant influence on cognitive jealousy [t(227) = -0.32; P > 0.05]. This means that individuals in monogamous marriage settings homes (Mean ± SD = 15.12 ± 7.48) do not differ significantly from those that came from polygamous homes (Mean ± SD = 15.43 ± 7.23) in terms of cognitive form of jealousy. Similarly, family home status had no significant influence on emotional jealousy [t (227) = -0.93; P > 0.05]. This means that individuals from non-polygamous homes (Mean ± SD = 22.73 ± 10.19) and those from polygamous homes (Mean ± SD = 23.95 ± 9.69) do not differ significantly in terms of emotional jealousy. Furthermore, family home status had no significant influence on behavioural jealousy [t (227) = -0.10; P > 0.05]. This means that individuals from non-polygamous homes (Mean ± SD = 15.77 ± 7.36) do not differ significantly from those that came from polygamous homes (Mean ± SD = 15.87 ± 7.14) in terms of behavioural jealousy.

Discussion

This study was conducted with the aim to identify the patterns and sociodemographic correlates of romantic jealousy and found that a minority of participants reported the severe forms of romantic jealousy across all domains. When compared across gender groups, no significant differences were seen in the cognitive and emotional sub-domains, which was not consistent with what we hypothesized. However, it must be noted that female participants were significantly more likely to report the severest forms of behavioural romantic jealousy. When contrasted across occupational groups, health workers scored significantly higher on the cognitive sub-domain, while brewery workers were significantly more likely to report the emotional sub-domain. Family type and family home status had no significant influences on the pattern of romantic jealousy.

Romantic jealousy is a human construct seen across cultures (Buss, 2001). It can have both protective and deleterious impacts on mental health and family life (Attridge, 2013). According to the findings of this study, we observed gender differences in the prevalence, severity, and pattern of romantic jealousy.

Table 6. Summary of independent t-test results regarding the influence of family home type on romantic jealousy

Romantic Jealousy	Family home status	N	Mean ± SD	df	t	P-value
Cognitive Jealousy	Monogamous home	122	15.12 ± 7.48	227	-0.32	> 0.05
	Polygamous home	107	15.43 ±7.23			
Emotional Jealousy	Not polygamous home	122	22.73 ± 10.19	227	-0.93	> 0.05
	Polygamous home	107	23.95 ± 9.69			
Behavioural Jealousy	Not polygamous home	122	15.77 ± 7.36	227	-0.10	> 0.05
	Polygamous home	107	15.87 ± 7.14			

SD: Standard deviation; df: Degree of freedom

This finding is not in line with that of some earlier studies, which either found no gender difference in the cognitive domain (Corzine, 2013) or reported that women were more likely to report the cognitive subtype of romantic jealousy (Guclo, Şenormancı, Şenormancı, & Köktürk, 2017). The cultural environment in this study setting was largely conservative. Therefore, men were more likely to have jealous thoughts and less likely to be expressive, which is consistent with the male partner role within this culture. It may be difficult to tease out the influence of religion on culture in this cohort, but with polygamy or multiple partnerships not being frowned at, men are more likely to engage in multiple partnerships and expect women not to do so because of the cultural taboos associated with it.

Female participants were significantly more likely to report emotional jealousy (women: 82.4% vs. men: 79.8%). This pattern was also noted among participants in a study in Turkey (Guclo et al., 2017). The variability in emotional expression may be linked to hormonal differences, learned responses, and the role of culture and religion. Zheng et al. (2021) demonstrated an increase in the intensity of romantic jealousy after men received pre-specified doses of the hormone oxytocin. This hormone is differentially in higher concentrations in women compared to men, and it is now theorised that it plays a significant role in jealous behaviour that may have protective or deleterious effects on the 'safety' of relationships. Furthermore, in societies where polygamy is endorsed, women may demonstrate higher levels of emotional romantic jealousy (Kyegombe, Stern, & Buller, 2022).

Gender has been reported to be a better predictor of emotional jealousy compared to culture. Though we did not adjust for cultural differences in our study as reported in an earlier study in Hawaii that culture only significantly moderated the behavioural aspects of romantic jealousy, previous history of infidelity, and issues relating to time commitment and social media use (Zandbergen & Brown, 2015). Gender differences in the expression of romantic jealousy may also have evolutionary underpinnings. According to social cognitive and evolutionary psychology theories, men are more likely to report romantic jealousy due to sexual rather than emotional infidelity. A recent study also noted that men are more likely to be distressed by actual acts of infidelity when compared to 'emotional intimacy' (Ward & Voracek, 2004).

Expectedly, women were slightly more likely to report the behavioural jealousy sub-domain compared to men (88% vs. 87.5%). The similarity in prevalence was unexpected and may be explained by the severity of romantic jealousy, wherein irrespective of gender, partners are likely to behave in a consistent manner when they perceive a threat to their relationships. It remains to be seen if there is an actual variation between what people say they would do, and what they actually do when threatened. This study could not answer this question.

In comparing romantic jealousy across occupational groups, teachers had the highest average scores of jealousy, followed by brewery workers, while health workers had the lowest scores. The role of personality type, knowledge about jealousy and relationships, as well as level of education may have confounded these findings. We did not however assess for these factors in the present study. Health workers had the highest average score on the emotional jealousy domain, followed by brewery workers and teachers, respectively. Teachers were significantly more likely to express behavioural jealousy compared to brewery and healthcare workers. There was no significant difference in romantic jealousy among participants from polygamous and monogamous homes.

The findings from this study should be interpreted with the following limitations in mind. First, this was a moderate sample and the selection method used was convenience sampling, and therefore, selection bias may have influenced participant selection. We only recruited participants from two local government areas in the state; therefore, findings may not be generalizable to all Nigerian adults.

Conclusion

This study demonstrated a high prevalence of romantic jealousy among adults in Delta State, Nigeria. Romantic jealousy can be triggered by the action or inaction of the partner, and maintained by cognitive biases and the psychological benefits that it initially bestows on the relationship. In the long run, however, it poses dangerous risks to the patient, the partner, and the imagined rival, to the extent that involuntary hospitalization is sometimes required. Treatment recommendations include couple therapy, antipsychotic medication, and interventions that enhance self-esteem.

Conflict of Interests

Authors have no conflict of interests.

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A Comparative Study of Family Structure (Cohesion and Flexibility) and Functioning in People with and without Drug Abuse

Shahryar Pirzadeh[1], Kamdin Parsakia[2]

[1] PhD in Psychosomatic Medicine, Psychosomatic Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
[2] Research Assistant, Department of Counseling and Psychology, Iran-mehr the Institute for Social Study and Research, Tehran, Iran

Corresponding Author: Kamdin Parsakia***; Research Assistant, Department of Counseling and Psychology, Iran-mehr the Institute for Social Study and Research, Tehran, Iran***
Email: kamdinparsakia@iranmehr.ac.ir

Quantitative Study

Abstract

Background: Drugs are one of the main health problems in any country and are responsible for the spread of some infectious diseases. The aim of this study was to compare family structure (cohesion and flexibility) and functioning among people with and without drug abuse.
Methods: This causal-comparative study was performed on 100 people with drug abuse (using Morgan table) purposefully selected from 15 regions of Isfahan, Iran. In order to sample the population of healthy individuals, 100 persons without a history of substance abuse were selected as an available sample from among the companions of individuals with substance abuse and were matched with the substance abuse community in terms of their age. The data gathering tools used included a demographic characteristics form, and the Family Assessment Device (FAD) and Family Adaptability and Cohesion Evaluation Scale (FACES-III).
Results: The results showed that people with drug abuse have lower family cohesion, flexibility, and functioning compared to healthy individuals ($P < 0.001$).
Conclusion: It can be concluded that family functioning differed between the two study groups, so it can be stated that family functioning plays a role in youth's inclination toward drugs.
Keywords: Cohesion; Flexibility; Family functioning; Drug abuse

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Introduction

Drugs are one of the main health problems in any country and are responsible for the spread of some infectious diseases (Saberi Zafarghandi, 2011). Iran has always had a high prevalence of drug use and addiction due to its neighboring countries that are among the hubs of drug production in the world (Vazirian, 2003). Drug addiction is defined as a patient's dependence on the use of one or more types of narcotics that cause drug-seeking behaviors (Asghari, Ghasemi Jobaneh, Ghary, 2015). The World Health Organization (WHO) (2015) defines addiction as a chronic state of eventuality that disrupts the individual and society due to the continuous use of drugs and stimulants (natural or abnormal). The distinguishing characteristics of addiction include a strong and uncontrollable desire to obtain drugs at any cost, the increase in its consumption at random, and the intense psychological and sometimes physical reliance on the use of those substances (World Health Organization, 2015).

Various researches have reported peer pressure, disruption of the socialization process, weakness of official and informal control and supervision, addiction of other family members, seeking relief from social pressures, the world view of drug users toward drugs and life, weakness in assertiveness and decision-making, curiosity and lack of knowledge of the side effects of substance abuse (AghaBakhshi, Sedighi, Eskandari, 2009), low self-esteem (Wheeler, 2010), weakness in self-control (Salehi Fadardi, Azad, & Nemati, 2010), and positive attitudes toward drugs (O'Connor, Fite, Nowlin, & Colder, 2007) as effective factors in drug use. Therefore, the causes of a dramatic increase in drug use can be sought in a person's relationships with their family (Allahverdipour, Farhadinasab, Bashirian, 2008; Doherty & Baird, 1983; ZadehMohammadi & Malek Khosravi, 2006).

Studying family members can be effective in a comprehensive study of the causes of addiction because many studies have cited family as one of the most important factors in the prevention of drug use in its members or their inclination toward drugs (Piko & Kovacs, 2010). Severe family conflict and poor bonding are associated with a wide range of destructive behaviors in adolescents, including substance abuse (Ghamari, 2011). Data from clinical interviews show that superficial and cold relationships exist in the primary families of these addicts, and this has increased the likelihood of their inclination toward drugs. Moreover, incorrect parental supervision method (Yahyazadeh, 2009) and their control variables (McKoid & Armech, 2001) also play an important role in its members' tendency toward substance abuse.

Family role strategies are related to various variables such as characteristics that exist in a multiplayer relationship, such as family cohesion or flexibility of that relationship. Reduction in family cohesion and increase in interpersonal conflicts can lead to a decrease in family flexibility that is associated with problems in interactions and family cohesion, which is actually emotional bonding between family members and the feeling of intimacy through feelings of belonging and acceptance in the family system (Ebrahimbabaie, Habibi, Ghanbari, & Ghodrati, 2017). These facts illustrate the importance of parents' role in preventing drug use, and emphasize the fact that prevention should start at home (Mohammad Khani, 2012).

Considering the important role of the family in controlling, reducing, or intensifying drug abuse in its members and with the aim of reducing social

harms, this study was conducted to investigate how family functioning and structure differ between drug users and healthy individuals. Thus, we tried to answer the questions: Can we take steps to reduce the tendency toward drugs through family functioning and structure? Is drug use picked up in the community or not?

Methods

This causal-comparative study was conducted on 100 people with drug abuse (using the Morgan table) purposefully selected from 15 regions of Isfahan, Iran. In order to sample the population of healthy individuals, 100 persons without a history of substance abuse were selected as an available sample from among the companions of people with substance abuse and were matched with the drug abuse group in terms of age. After receiving the necessary permissions and the letter of the ethics committee and presenting the letter to the addiction treatment centers, the researcher referred to these centers. In this study, in order to compare the two drug abuse and non-drug abuse populations in terms of variables such as family structure (cohesion and adaptability) and family functioning, 100 people from each community were selected through cluster random sampling method (for those with drug abuse) and random available method (for healthy individuals). The obtained data were analyzed in SPSS software (version 22; IBM Corp., Armonk, NY, USA). The study inclusion criteria included a history of at least 1 year of drug use for participants in the drug abuse group, no addiction to any drugs (natural or industrial) nor alcohol for the participants of the non-drug abuse group, and physical, intellectual, and mental health for people in both groups and the willingness to participate in this study.

The study tools included a demographic characteristics form, and the Family Assessment Device (FAD) and Family Adaptability and Cohesion Evaluation Scale (FACES-III).

Family Assessment Device: The FAD is a 62-item questionnaire developed to measure family functioning based on the McMaster model proposed by Epstein et al. (1923). Based on the McMaster Model of Family Functioning (MMFF), the FAD measures the structural, organizational, and transactional characteristics of families. The FAD consists of 6 subscales that assess the 6 dimensions of the MMFF (affective involvement, affective responsiveness, behavioral control, communication, problem solving, and roles) and a 7th scale that measures general family functioning. The measure is comprised of 60 statements about a family and the respondents (typically, all family members aged 12+) are asked to rate how well each statement describes their own family. The FAD is scored by adding the responses (1-4) for each scale and dividing it by the number of items in each scale (6-12). Higher scores indicate worse levels of family functioning. This model determines the structural, occupational, and interactive characteristics of the family. These dimensions are problem-solving, communication, roles, emotional companionship, emotional communication, and behavior control (Sanaei, 1998). The items are scored on 4-point scale ranging from 1 to 4 with the responses of I completely agree, agree, disagree, and completely disagree, respectively. According to the original form, each family member who is older than 12 years of age can fill out the FAD. If 40% of the items of a subscale are not completed, the score of the subscale will not be calculated (ZadehMohammadi & Malek Khosravi, 2006). The Cronbach's alpha of the

problem-solving, communication, emotional fusion, roles, emotional accountability, control, and overall family functioning subscales have been reported to be 0.72, 0.70, 0.73, 0.71, 0.73, 0.66, and 0.82, respectively, (ZadehMohammadi & Malek Khosravi, 2006).

Family Adaptability and Cohesion Evaluation Scale (FACES-III): The FACES-III was constructed by Olson et al. (1985) and consists of 40 items and the 2 subscales of cohesion (including 20 questions) and conformity (including 20 questions). The items are scored on a 5-point Likert scale ranging from 1 to 5 (never, rarely, sometimes, often, and always, respectively). The higher the cohesion score, the more intertwined the family is said to be, and the higher the compliance score, the more chaos there is in the family (Olson, Portner, & Lavee, 1985). In a study conducted by Mazaheri, Habibi, and Ashori (2014), the validity of family appraisal and continuity were evaluated and approve using Cronbach's alpha (the Cronbach's α for continuity was 0.74 and for adaptability was 0.75). The FACES-III has relatively good internal consistency with an alpha of 0.68 for the whole instrument, 0.77 for the cohesion subscale, and 0.62 for the adaptation subscale. The correlation coefficient of the family cohesion and adaptability subscale was, respectively, 0.83 and 0.80, which indicates very good stability. Its internal consistency was obtained using Cronbach's alpha (0.689 for cohesion and 0.636 for adaptability).

Ethical considerations: The research authorization was obtained from the Ethics Committee of Isfahan University of Medical Sciences, Iran. The research introduction letter was sent from the Research Deputy of Isfahan University of Medical Sciences to the selected addiction treatment centers. Before conducting the research and distributing the questionnaires, a comprehensive and concise explanation of the research objectives was provided, and this promise was made to the participants in the project that if possible, the results of the research would be sent to them. The participation of all participants in the research was completely voluntary and with complete informed consent. Participants were assured of the confidentiality of the obtained information. In the questionnaires, no characteristics or information regarding the identity of the subjects were obtained. Ethical principles in the use of scientific resources were observed in the writing of this article**.**

Results

Of the 200 participants in this study, 100 were evaluated in the substance abuse group and 100 in the healthy subjects group using the research tools. The mean ± standard deviation (SD) of age in the drug abuse and non-drug abuse groups were 38.50 ± 6.909 and 36.76 ± 5.19 years, respectively. There was no significant difference between the two groups in terms of mean age ($t = -0.37$; $P < 0.05$).

The mean and standard deviation of the research variables scores in the study groups are shown in table 1.

Evaluation of data properties showed that the statistical assumption of similarity of variance-covariance matrices for the family adaptability and cohesion and family functioning components (Box's $M = 94.52$; $P < 0.001$) was not established, and therefore, Pillai's index was used to significantly evaluate the multivariate effect. Pillai's index showed that the effect of group on the linear composition of the dependent variables was significant ($F = 19.19$; $P = 0.0001$; partial $\eta = 0.97$). In other words, there was a significant difference between the non-substance abuse

Table 1. Mean and standard deviation of the research variables scores in the study groups

Variables		Substance abuse		Non-substance abuse	
		Mean	SD	Mean	SD
Family conformity and solidarity Family Functioning	Cohesion	67.53	22.35	49.50	14.54
	Compliance	52.33	15.59	45.51	12.12
	Problem Solving	17.25	4.67	13.15	3.53
	Relationship	19.00	5.31	13.90	2.30
	Roles	18.60	4.16	13.65	2.39
	Emotional response	19.35	5.43	13.85	2.56
	Emotional sexual relationship	18.50	4.21	13.90	2.14
	Behavior Control	18.65	4.01	14.05	3.99
	Overall family performance	38.92	9.46	27.54	7.41

and substance abuse groups in at least one of the components of family adaptability, cohesion, and functioning.

Univariate ANOVA statistics were performed separately on each dependent variable to determine the significant source of the multivariate effect. Table 2 shows that group has a significant effect on family adaptability, cohesion, and functioning ($P < 0.001$).

Discussion

According to Olson, the level of common knowledge among healthy family members was higher, and weakening family relationships cause changes in families and harm them (Olson & Killorin, 1983). In addition, healthier families are more willing to talk and comment, which leads to the mutual understanding of parents and children, which in turn leads to the development of different psychological dimensions and maintains the mental health of children. Koerner and Fitzpatrick (1997) also found that families with more connections are less conflicted, and thus, they better express themselves and have a better understanding of each other.

Kourosh Nia and Latifian (2007) believe that emotional problems such as depression are more common in families that are not allowed to express their existence and have a dialogue. Greenwald (1990) also stated that family behavioral interactions affect children's behavioral quality.

Strengthening the relationship between children and parents is associated with a low probability of drug use, and the quality of parent-child relationships in healthy adolescents is better than in adolescents with addiction. All of these results indicate the importance of communication among family members. In addition, there was a significant difference between the two groups, and the families of the drug-dependent group participants had more inappropriate performance in this area (Greenwald, 1990).

Table 2. Results of the analysis of variance of family adaptability, cohesion, and functioning scores in the study groups

Variable	SS	df	MS	F	P-value	Eta
Cohesion	31550.72	1	31550.72	2139.86	0.001	0.91
Compliance	159895.12	1	159895.12	1803.76	0.001	0.90
Problem Solving	26450	1	26450	531.17	0.001	0.72
Relationship	15488	1	15488	480.54	0.001	0.70
Roles	1300.50	1	1300.50	759.58	0.001	0.79
Emotional response	1225.12	1	1225.12	742.38	0.001	0.78
Emotional sexual relationship	1512.50	1	1512.50	672.22	0.001	0.77
Behavior Control	1058	1	1058	764.54	0.001	0.79

SS; Sum of squres; df: Degree of freedom; MS: Mean of squqres

In this regard, parents can receive education on correct communication in the family through ways such as group training through various mass media. Studies have shown that healthy families have higher emotional cohesion, and low family bonding and commitment put adolescents at risk. According to the results of this study, it can be concluded that the improvement of the quality of family functions through family education programs can be expected to prevent risky behaviors such as drug use in children (Yahav, 2002).

In relation to the role of family, various studies confirmed the importance of the family functional role in guiding children (Klinge & Piggott, 1986; Gantman, 1978), and the role of parents in drug and alcohol consumption by children (Heydarnia & Charkhian, 2007). A study among Armenians in Tehran showed that lack of sufficient family support was the most important cause of addiction relapse (Farhoudian, Sadrosadat, Mohammadi, Manokian, Jafari, & Sadeghi, 2008). Karahmadi, Tabaiean, and Aghda (2007) also showed that children of families with an interactive model of acceptance and control had fewer symptoms of attention deficit and hyperactivity.

Regarding the area of problem-solving, previous studies have reported results similar to that of this study. For instance, Refahi (2008) reported that problem-solving skills training reduces suicidal thoughts and negative self-concept in adolescents with a history of suicide. A research on the effect of family-centered problem-solving training on the self-esteem of drug-dependent clients showed that using this training method can be effective in improving and completing the treatment process of addiction withdrawal as a non-pharmacology method (Habibi, Saleh Moghadami, Talaei, Ebrahimzadeh, & Moneghi Karimi, 2012). In relation to emotional companionship, Raeis Dana (2003) reported the mutual emotional relationship between parents and children to be strong in the Iranian culture and effective in preventing the spread of addiction among young people, which is in keeping with the results of this study and shows the importance of the preventive role of this emotional relationship in children.

In several studies, the preventive role of behavior control in addiction in children has been noted and is consistent with the results of this study. Considering that family functioning differed between the two groups studied in the present study, it can be concluded that family functioning plays a role in youth's tendency to industrial drugs. Although the prevalence of dependency in single individuals was more than married and separated individuals, this difference was not significant in the two groups. Evidently, it should be noted that the time of onset of use in the dependent group was not questioned and married dependents might have started their consumption before marriage, so it is necessary that this question be asked in future studies (Mazloomy, Ahmodabad, & Mirzaei, 2013). In this regard, & Wu (2009) also showed that alcohol consumption in single individuals is higher than in married individuals. In this study, the level of education of the dependent group participants was lower, which has also been reported in other studies (Bagheri, Nabavi, Moltafet, & Naghipour, 2010).

Furthermore, the parents of the dependent group had a lower education level, which is consistent with the results of the study by Fathi and Mehrabizadeh. The number of drug-dependent fathers was higher in the dependent group, which has also been observed in other studies. The number of drug-dependent brothers and unstable family pillars (including the death of one or both parents, as well as their divorce) was higher in the dependent group. Selnow (1987) also showed that the rate of drug use in children with a parent with drug addiction was higher (especially the father). In addition, the prevalence of drug use was higher in friends of the dependent group, which is consistent with the findings of Kim, Kwak, and Yun, (2010).

Conclusion

Family functioning differed between the two study groups, so it can be stated that family functioning plays a role in youth's inclination toward drugs.

Conflict of Interests

Authors have no conflict of interests.

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The Relationship between Emotional Intelligence and Academic Achievement among the Students of Trisakti University, Indonesia

Ismail Suardi Wekke[1], A. Heri Iswanto[2], Azher M. Abed[3], Muneam Hussein Ali[4], Ansuman Samal[5], Habib Abdullah Talib[6], Zahidul Islam[7], Yasser Fakri Mustafa[8], Hamzah H. Kzar[9], Narmin Beheshtizadeh[10]

[1] Assistant Professor, Graduate Program Institut Agama Islam Negeri Sorong, Sorong, Indonesia
[2] Department of Public Health, School of Health Science, University of Pembangunan Nasional Veteran Jakarta, Jakarta, Indonesia
[3] Department of Air Conditioning and Refrigeration, Al-Mustaqbal University College, Babylon, Iraq
[4] Al-Nisour University College, Baghdad, Iraq
[5] Associate Professor, Department of Tourism and Management Studies, Siksha 'O' Anusandhan Deemed to be University, Bhubaneswar, Odisha, India
[6] College of Physical Education and Sport Science, Al-Ayen University, Thi-Qar, Iraq
[7] Assistant Professor, Ahmad Ibrahim Kulliyyah of Laws International Islamic University Malaysia, Kuala Lumpur, Malaysia
[8] Department of Pharmaceutical Chemistry, College of Pharmacy, University of Mosul, Iraq
[9] Department of Chemistry, College of Veterinary Medicine, Al-Qasim Green University, Al-Qasim, Iraq
[10] Department of Social Sciences, School of Social and Economic Sciences, Al-Zahra University, Tehran, Iran

Corresponding Author: A. Heri Iswanto***; Department of Public Health, School of Health Science, University of Pembangunan Nasional Veteran Jakarta, Jakarta, Indonesia***
Email: h.iswanto@upnvj.ac.id

Quantitative Study

Abstract

Background: Recognizing and strengthening emotional intelligence is useful in all members of society, especially students. By recognizing emotional intelligence and applying it, students can achieve more success in their career. The aim of this study was to investigate the relationship between emotional intelligence and academic achievement among students.

Methods: A correlational study was performed on 100 students studying in clinical psychology at the School of Medicine, Trisakti University, Jakarta, Indonesia, in 2021. Bar-On test was used to evaluate the student's emotional intelligence. Pearson correlation coefficient and independent t-test were used to analyze the research data with SPSS software.

Results: There was a significant difference between the age variable with emotional intelligence ($P < 0.05$) and emotional intelligence with academic achievement ($P < 0.01$). In addition, the components of problem solving ($r = 0.310$, $P = 0.002$), stress tolerance ($r = 0.291$, $P = 0.002$), reality testing ($r = 0.280$, $P = 0.004$), interpersonal relationships ($r = 0.217$, $P = 0.03$), and optimism ($r = 0.326$, $P = 0.005$) had a significant relationship with the variable of age and the components of emotional Intelligence ($r = 0.271$, $P = 0.005$), independence of action ($r = 0.187$, $P = 0.024$), self-awareness ($r = 0.283$,

P = 0.031), responsibility (r = 0.757, P = 0.042), and sympathy (r = 0.953, P = 0.034) with the academic achievement.

Conclusion: In order to achieve high levels of academic achievement, students must be able to control emotions and affects in many ways; however, students cannot achieve their academic potential without reaching the components that make up emotional intelligence.

Keywords: Emotional intelligence; Academic achievement; Clinical psychology

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Introduction

Intelligence is one of the significant aspects in people's adaptation to the environment and also as one of the factors of individual differences. Some experts consider intelligence as a single nature and some consider it to have different components (Enns, Eldridge, Montgomery, & Gonzalez, 2018). Emotional intelligence is a set of interconnected cognitive and emotional abilities (Culha & Acaroglu, 2019). Today, unlike in the past, by changing the theoretical views on the components of intelligence, it cannot be considered a successful predictor of academic achievement (Treat, Hueston, Fritz, Prunuske, & Hanke, 2021). At best, intelligence is about 20 percent involved in predicting success in life. Academic success is related to many variables, including intelligence, motivation, teacher criticism, cultural background, and other variables; therefore, we have to cope with a difficult task, namely the classification of these variables (Ubago-Jimenez, Cepero-Gonzalez, Martinez-Martinez, & Chacon-Borrego, 2021; Weis et al., 2021).

Emotional intelligence helps a person to become aware of the emotion that facilitates thoughts by understanding, evaluating, and accurately expressing emotions (Dumciene & Sipaviciene, 2021); also, by making a balance between your thoughts and emotions, make wise decisions and be able to manage emotions in yourself and others. The concept of social intelligence was first used in 1940. Then, in 1993, Mayer and Salovey used the word emotional intelligence for this concept (Dooley, East, & Nagle, 2019).

High emotional intelligence can paint a good picture of a person's success and progress, but it cannot be used as a measure of success (Mounce & Culhane, 2021). People with higher emotional intelligence have better social skills and more stable relationships and are better at dealing with problems (Abe, Niwa, Fujisaki, & Suzuki, 2018). Education can strengthen people's ability to regulate and express emotions. It should be noted that it is not a single type of intelligence that guarantees success in life, but there is a wide range of intelligence that leads to success in various fields (Brewer & Cadman, 2000; Christianson, Fogg, & Kremer, 2021). If a person is an excellent graduate, it indicates that he/she has obtained good grades during his/her studies in limited subjects, but it cannot indicate his/her success in life. Education in the first years of life plays a key and vital role in this regard; however, throughout life, there is a possibility of training and upgrading these abilities in a more limited way (Tariq, Tariq, Atta, Rehman, & Ali, 2020). Success in education is related to emotional and social skills of emotional intelligence such as having the necessary motivation, the ability to wait, obey orders, and control impulses, the skill of asking others for help and expressing emotional and educational needs (Buckley et al., 2020; Mintle, Greer, & Russo, 2019). Various factors have been implicated in academic achievement, including individual motivation, parental literacy level, environmental and family circumstances, adjustment, and intelligence (Cleary, Visentin, West, Lopez, & Kornhaber, 2018; Roman-Calderon, Aguilar-Barrientos, EstebanEscalante, Arias, & Barbosa, 2021).

Research shows that emotional intelligence is effective in various aspects of life, including education, occupation, social environment, and mental health (Vandenberg, 2019). Therefore, conducting such research, in justifying educational officials in order to pay attention to emotional intelligence as an important component to improve student performance seemed necessary. Notably, due to the future close relationship between psychology students, patients, and clients, the significance of emotional intelligence is felt strongly. The current study investigated the relationship between emotional intelligence and academic achievement among students at the Trisakti University, Jakarta, Indonesia.

Methods

The present study was a correlational study in which the relationship between variables was examined. In this study, the relationship between emotional intelligence and academic achievement, age, and gender has been investigated. The statistical population of the study was all clinical psychology students studying in clinical psychology at the School of Medicine, Trisakti University in 2021. Taking into account the power of 80% and 95% confidence, the sample size was determined based on the following formula equal to 100 people (50 men and 50 women).

$$N = \frac{Z^2 pq}{d^2} \quad (1)$$

In this study, to measure emotional intelligence, the Bar-On Emotional Quotient Inventory (EQ-i) (Bar-On, 1997) has been used. This inventory has 90 questions. In addition to the overall score, this test also measures 15 components of emotional intelligence. Since the options are set on a five-point Likert scale, the score range is from 5 to 1 (strongly agree: 5, strongly disagree: 1) and in some questions with negative content from 1 to 5 (strongly agree: 1, strongly disagree: 5). The total score of each scale is equal to the sum of the scores of each of the questions on that scale and the total score of the test is equal to the sum of the scores of 15 scales. Gilar-Corbi et al. (2021) obtained reliability and validity of 0.83 and 0.92 for the Bar-On EQ-i, respectively. In the current study, the reliability of the test was calculated to be 0.86 by the even-odd method and 0.90 by Cronbach's alpha. Students' grade point average (GPA) was also used as an indicator of academic achievement.

To begin the research, the university sent a letter of introduction and explained its need for this study to the college's dean and vice-chancellor. The researchers then described the study to students, and their written consent was obtained. In addition, to comply with ethical considerations, students were assured that the information obtained from the research would be used anonymously and in strict confidence. To keep people's privacy safe and protect it, the results should be reported as a group and given to psychologists and other experts for educational purposes. Inclusion criteria included studying in clinical psychology, consent to participate in research, absence of mental disorders, and absence of psychoactive drug use. The exclusion criterion was failure to submit a written consent form and a questionnaire.

The information required for the research was obtained by conducting questionnaires in groups on the samples. Out of 115 distributed questionnaires, 100 completed questionnaires were analyzed by SPSS software (version 21, IBM Corporation, Armonk, NY, USA). In the present study, mean and standard deviation (SD) were used to describe the data. Pearson correlation coefficient and independent t-test were used to analyze the research questions.

Results

As mentioned, the statistical population of the study was students of clinical psychology at the School of Medicine, Trisakti University. Students' demographic information is given in table 1.

To examine the question of whether there was a significant difference between male and female students in the studied variables, an independent t-test was used, the results of which are shown in table 2.

As can be seen in table 2, there was a significant difference in the level of $P < 0.05$ between male and female students in only two variables of feeling of happiness and independence of action.

Table 1. Mean and standard deviation (SD) of research variables in all male and female students (n = 100)

Variables	Mean ± SD
Age (year)	22.31 ± 3.36
Academic achievement	17.20 ± 1.98
Emotional intelligence	315.12 ± 3.02
Problem solving	23.50 ± 4.02
Happiness	22.52 ± 3.75
Independence of action	20.92 ± 3.22
Stress tolerance	19.10 ± 3.11
Self-actualization	22.77 ± 3.54
Self-awareness	20.89 ± 2.89
Reality testing	20.06 ± 3.22
Interpersonal relationships	22.56 ± 3.35
Optimism	23.64 ± 3.91
Self-esteem	18.04 ± 2.78
Impulse control	19.26 ± 3.34
Flexibility	23.11 ± 4.09
Responsibility	23.27 ± 2.96
Age (year)	22.31 ± 3.36

SD: Standard deviation

Men had higher scores in feeling of happiness and independence of action.

Table 2. Comparison of mean scores of academic achievement, age, emotional intelligence and its components in two groups of male and female students based on independent t-test

Variables	Gender	N	Mean ± SD	t	df	P-value
Age (year)	Women	50	20.75 ± 3.56	-2.64	100	0.29
	Men	50	23.87 ± 3.32			
Academic achievement	Women	50	17.55 ± 2.07	2.46	100	0.16
	Men	50	16.85 ± 1.92			
Emotional intelligence	Women	50	305.34 ± 2.86	-1.28	100	0.22
	Men	50	324.90 ± 3.12			
Problem solving	Women	50	21.89 ± 3.92	-1.09	100	0.35
	Men	50	25.11 ± 4.21			
Happiness	Women	50	21.88 ± 3.66	-2.15	100	0.04*
	Men	50	23.16 ± 3.90			
Independence of action	Women	50	18.88 ± 2.96	-2.02	100	0.03*
	Men	50	22.92 ± 3.45			
Stress tolerance	Women	50	18.85 ± 3.23	-1.69	100	0.12
	Men	50	19.35 ± 3.08			
Self-actualization	Women	50	22.51 ± 3.34	-1.72	100	0.07
	Men	50	23.03 ± 3.12			
Self-awareness	Women	50	20.94 ± 3.01	-0.58	100	0.52
	Men	50	20.83 ± 2.87			
Reality testing	Women	50	19.06 ± 3.64	-0.48	100	0.66
	Men	50	21.06 ± 2.98			
Interpersonal relationships	Women	50	20.96 ± 3.14	0.81	100	0.42
	Men	50	24.16 ± 3.61			
Optimism	Women	50	24.44 ± 3.89	0.31	100	0.79
	Men	50	22.84 ± 4.12			
Self-esteem	Women	50	17.21 ± 2.58	-2.16	100	0.43
	Men	50	18.87 ± 3.02			
Impulse control	Women	50	19.16 ± 3.18	-1.25	100	0.32
	Men	50	19.36 ± 3.49			
Flexibility	Women	50	22.82 ± 3.65	-0.93	100	0.42
	Men	50	23.71 ± 4.35			
Responsibility	Women	50	25.16 ± 2.86	1.23	100	0.21
	Men	50	22.96 ± 3.20			
Sympathy	Women	50	18.22 ± 3.14	1.46	100	0.15
	Men	50	17.02 ± 3.25			

*P < 0.05

df: Degree of freedom; SD: Standard deviation

Pearson correlation coefficient test was used to examine the question of whether there was a relationship between two variables of academic achievement and age with emotional intelligence and its components in all students. The information obtained from this test is given in table 3.

As can be seen in the table above, there was a significant difference between the age variable with emotional intelligence at level of $P < 0.05$ and emotional intelligence with academic achievement at level of $P < 0.01$. In addition, the variables of problem solving, stress tolerance, reality testing, interpersonal relationships, and optimism had a significant relationship with the variable of age and the components of independence of action, self-awareness, sympathy with the academic achievement.

Discussion

The current study aimed to examine the impact of emotional intelligence and academic achievement among students. Regarding the gender difference in emotional intelligence, the results of the present study show that although there is a significant difference between male and female students in the sub-scales (feeling of happiness and independence of action) of emotional intelligence, in the overall score of emotional intelligence, there is no significant difference. In other words, men and women use almost the same amount of emotional intelligence in the face of everyday problems. However, there is no significant difference in the overall score of emotional intelligence. In fact, the level of emotional intelligence between girls and boys is not much different. Several studies have been conducted in conjunction with the current study. Cherniss (2000) believes that students should be taught how to manage and control their emotions in the educational system and be good role models for reinforcing this behavior by caring for them. In a study to examine the role of emotional education in academic achievement, Márquez et al. (2006) concluded that emotional and social skills training was very important in the education system and could have positive long-term effects on academic achievement.

Petrides et al. (2007) indicated that although women scored higher than men in terms of social skills, there was no difference in the overall score of emotional intelligence.

Table 3. Pearson correlation coefficient test between academic achievement and age variables with emotional intelligence and its components in all male and female students

Variables	Age		Academic achievement	
	R	P-value	R	P-value
Emotional intelligence	0.380	0.030**	0.271	0.005*
Problem solving	0.310	0.002*	0.475	0.270
Happiness	0.060	0.520	0.158	0.630
Independence of action	0.180	0.115	0.187	0.024**
Stress tolerance	0.291	0.002*	0.595	0.160
Self-actualization	0.320	0.580	0.357	0.101
Self-awareness	0.220	0.900	0.283	0.031**
Reality testing	0.280	0.004*	0.383	0.430
Interpersonal relationships	0.217	0.030**	0.076	0.560
Optimism	0.326	0.005*	0.506	0.120
Self-esteem	0.140	0.800	0.568	0.290
Impulse control	0.210	0.120	0.788	0.370
Flexibility	0.180	0.150	0.666	0.180
Responsibility	0.006	0.240	0.757	0.042**
Sympathy	0.120	0.123	0.953	0.034**

*P < 0.01; **P < 0.05

These results are contrary to the findings of the present study regarding the difference between men and women in the subtests of emotional intelligence, although they are consistent in the field of general emotional intelligence. This may be due to the greater dependence of girls and the greater independence of boys in society, while girls are more likely to seek supportive resources (Kanesan & Fauzan, 2019). In terms of the relationship between emotional intelligence and academic achievement, the results show that emotional intelligence has a significant positive correlation with students' academic success. This means that with increasing emotional intelligence, students' academic success increases (Sanchez-Alvarez, Berrios Martos, & Extremera, 2020). Regarding the relationship between emotional intelligence and age, the results show that there is a significant positive correlation between emotional intelligence and age. In fact, increasing age leads to improved emotional intelligence (Kotsou, Mikolajczak, Heeren, Gregoire, & Leys, 2019).

Training in emotional and social skills can help people succeed in the long and short run. Students can be helped to cope better with academic pressures and have fewer emotional problems by including the concept of emotional intelligence in the university curriculum. Teaching social and emotional skills in addition to the curriculum provides students with a wide range of other abilities that can improve academic achievement and have long-term effects on future job and social performance (Mattingly & Kraiger, 2019). In the last two decades, the industrialized countries have paid much attention to emotional intelligence, conducted much research on the subject, and begun teaching emotional and social skills in their educational and work environments, demonstrating the importance. There is a problem. It appears that teaching emotional intelligence alongside other students' courses is critical (Prentice, Dominique Lopes, & Wang, 2020). Specialists should raise awareness of the importance of emotional intelligence in the educational system and provide the necessary knowledge on how to incorporate emotional intelligence skills directly and indirectly into the university curriculum and teach students (MacCann, Jiang, Brown, Double, Bucich, & Minbashian, 2020).

The current study has limitations, including that it was conducted only on university students in a field of study and was not compared to international standards. It is suggested that other emotional intelligence scales and questionnaires be used in future studies. The efficacy of the therapeutic intervention, as well as the follow-up phase are also recommended. It is also suggested that students from other fields of study be studied and compared to the current study's findings.

Conclusion

In the current study, a descriptive design was used to analyze the statistical population of the study, students of clinical psychology at the School of Medicine, Trisakti University in 2020. Simple random sampling was used to select 100 clinical psychology students for evaluation. Information was gathered using the Bar-On EQ-i. As an indicator of academic achievement, the mean scores of students were used. Pearson's correlation coefficient and independent t-test were used to analyze the data. The results of this study showed that in order to achieve high levels of academic achievement, students must be able to control emotions and affects in many ways; however, students cannot achieve their academic potential without reaching the components that make up emotional intelligence. The higher a person's emotional intelligence, the higher their academic motivation and the better their academic achievement. As a result, it is necessary to strengthen students' emotional intelligence

in the scientific environment and society with the right interventions.

Conflict of Interests

Authors have no conflict of interests.

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Comparing the Effectiveness of Acceptance and Commitment Therapy and Hope Therapy on Pain Anxiety and Self-Acceptance in Patients with Leukemia

Frdoos Hameed Abow[1], Thabia Abdul Razak[2], Roua Abulkassim[3], Miaad Adnan[4], Ali Firas Aziz Rahi[5], Ali Mawlood Fadhil[6]

[1] Department of Dentistry, Al-Hadba University Colleg, Mosul, Iraq
[2] Department of Medical Laboratory Techniques, College of Medical Technology, Al-Farahidi University, Iraq
[3] Al-Manara College For Medical Sciences, Misan, Iraq
[4] Department of Anesthesia Techniques, Al-Mustaqbal University College, Babylon, Iraq
[5] Department of Medical Laboratories Technology, AL-Nisour University College, Baghdad, Iraq
[6] Al-Esraa University College, Baghdad, Iraq

Corresponding Author: Frdoos Hameed Abow***; Department of Dentistry, Al-Hadba University Colleg, Mosul, Iraq***
Email: frdoos.ha@hcu.edu.iq

Quantitative Study

Abstract

Background: Leukemia is one of the most prevalent types of cancer that can also result in severe psychological damage. The current study aimed to investigate the effectiveness of acceptance and commitment therapy (ACT) and hope therapy on pain anxiety and self-acceptance in patients with leukemia.

Methods: The current study was a semi-experimental research with a pre-test and post-test design and the control group. The statistical population of the current study, which included 167 individuals, comprised all of the patients with leukemia who were sent to the Princess Noorah Oncology Center in Jeddah, Saudi Arabia, in the year 2020. Twenty individuals were divided into three groups using simple random sampling: the ACT group, the hope therapy group, and the control group. The Pain Anxiety Symptoms Scale (PASS) developed by McCracken et al. to assess anxiety related specifically to pain was used throughout this study. We also used the Chamberlain and Haaga Unconditional Self-Acceptance Questionnaire (USAQ) to measure unconditional self-acceptance levels. Using the SPSS software, a multivariate analysis of covariance (MANCOVA) was used to analyze the data.

Results: The mean ± standard deviation (SD) of pain anxiety in the ACT group decreased from 78.49 ± 6.83 in the pre-test to 53.67 ± 5.41 in the post-test ($P < 0.001$). In the hope therapy group, it decreased from 79.18 ± 6.32 in the pre-test to 66.46 ± 5.89 in the post-test ($P < 0.001$). The mean ± SD of self-acceptance in the ACT group increased from 62.39 ± 6.14 in the pre-test to 93.57 ± 7.64 in the post-test ($P < 0.001$); in the hope therapy group, it increased from 63.21 ± 6.32 in the pre-test to 89.72 ± 7.53 in the post-test ($P < 0001$), but the mean ± SD of both variables in the pre-test and post-test of the control group showed no significant difference. In addition, the Bonferroni post-hoc test revealed that the ACT approach had a stronger impact than the hope therapy ($P < 0.01$).

Conclusion: According to the findings of this study, patients with leukemia who participated in either ACT or hope therapy experienced a significant improvement in their ability to accept themselves and experience less anxiety and discomfort as a result of their treatment. However, the effects of ACT were greater than those of hope therapy.
Keywords: Acceptance and commitment therapy; Hope; Leukemia; Anxiety

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Introduction

Cancer is still one of the most serious and, in many cases, incurable diseases, threatening the lives of many and posing a significant risk to a large proportion of the human population despite significant advances in medical science and the growth of human knowledge in the control and treatment of various diseases (Sepanta, Shirzad, & Bamdad, 2019). Cancer affects a person's mental health in various ways, including altering the person's mental image of his or her own body, which increases mental tension and challenges the individual's mental health (Mun et al., 2019). Cancer generally causes a decrease in psychological well-being, pain anxiety, threats to self-image and self-esteem, loss of freedom, physical discomfort, denial, anger, depression, uncertainty, and loneliness (Marinovic & Hunter, 2022).

There are four subscales of anxiety about pain: cognitive anxiety symptoms related to pain, avoiding and escaping pain, fearful evaluation of pain, and physiological anxiety symptoms related to pain (Saghaei & Mostafazadeh, 2019). A fear of irrational or morbid pain is no longer able to adapt to a person's needs, but it can also cause mental health issues by interfering with cognitive and behavioral functioning (Corman et al., 2021). The desire to avoid the source of pain grows stronger as maladaptive cognitive and behavioral strategies are maintained. The feeling a person has about himself or herself, his or her abilities, and the current state in which he or she finds himself/herself is known as self-acceptance. Regarding the most basic definition, self-acceptance means accepting one's positive and negative aspects of one's existence equally (Abraham, Wei, Desai, Chen, & Seminario-Vidal, 2022).

Psychotherapy is a non-pharmacological treatment used in psychology to help people cope with chronic illness. In order to examine the variables of pain anxiety and self-acceptance, two psychotherapy approaches were used and compared in this study. Behavioral therapy based on awareness is known as acceptance and commitment therapy (ACT). In this method, instead of challenging people's thoughts, they are taught to accept them uncritically, and the goal is to teach people how to identify their core values and take action on those values. Acceptance and commitment is the cognitive approach that resembles choice theory and reality therapy (Li, Wong, Jin, Chen, Chong, & Bai, 2021). The foundation of acceptance and commitment strategies and techniques is the understanding that a worthwhile life is accompanied by suffering, following a path of values necessitates dedication, and words cannot replace lived experience. This method eliminates the reactive elements of behavior (Zhao et al., 2021). Relational frame theory (RFT), a branch of cognitive science that focuses on human language, is the foundation of ACT. RFT contends that people may not be able to successfully deal with psychological distress using their rational problem-solving abilities. Based on this premise, ACT therapy was created with the intention of educating patients that, despite the fact that psychological suffering is common, there are ways to learn how to live better, more fulfilling lives by changing the way we perceive suffering (Faryabi, Rafieipour, Haji-Alizadeh, & Khodavardian, 2021).

Snyder Hope Therapy is the only psychological treatment that views hope as the primary treatment objective. Snyder (2000), the originator of the theory of hope and the treatment based on it, has defined hope as a structure comprising the ability to design pathways to desired goals and the agency required to use these pathways. Cancer and optimism are related in two ways (Yu & Liu, 2021). First, optimistic individuals are more focused on the problem and more proactive in their efforts to solve it. They are more likely to conduct cancer screenings. Second, optimists exhibit

less distress and greater adaptability when confronted with a cancer diagnosis and treatment. Conversely, those with greater hope demonstrate excellent resistance to long and painful treatments during treatment. Promoting hope, one factor that gives meaning to life, assists individuals in adjusting to cancer, decreasing their psychological distress, and enhancing their quality of life and general health (Lu, Lu, Shao, Wang, Xu, & Zhang, 2022).

Considering psychological issues and their impact on the onset or exacerbation of symptoms of psychosomatic diseases, such as cancer, it is crucial to provide suitable living conditions for these patients. Patients, officials, specialists, patients' families, and other interested parties can obtain helpful information from the findings of this study, allowing them to make the most significant possible effort for patients' well-being. The current study aimed to investigate the effectiveness of ACT and hope therapy on pain anxiety and self-acceptance in patients with leukemia.

Methods

The current study was a semi-experimental research with a pre-test and post-test design and the control group. The statistical population of the current study, which included 167 individuals, comprised all of the patients with leukemia who were sent to the Princess Noorah Oncology Center in Jeddah, Saudi Arabia, in the year 2020. After confirming the admission criteria, diagnosis, and screening criteria (pain anxiety score above 50 and self-acceptance below 50), purposeful sampling was used to include 20 individuals in three groups: the ACT group, the hope therapy group, and the control group. Then, two experimental interventions, ACT and hope therapy, were administered to the two experimental groups. The inclusion criteria of this study included having leukemia based on the medical record, previous tests, and the attending physician's approval, being literate, not having other dangerous underlying diseases, not using psychiatric drugs, and providing informed consent. Exclusion criteria included a history of taking psychiatric drugs and receiving psychological treatments in the previous year, the absence of more than two sessions in the meetings, and an increase in the severity of symptoms and patient dysfunction. Patients were assigned randomly to the three groups mentioned above. In order to comply with ethical considerations, the research objectives and general parameters were stated first. Patients were then reassured that their identities would remain confidential and they could withdraw from the study anytime.

The Pain Anxiety Symptoms Scale (PASS) (McCracken, Zayfert, & Gross, 1992) is a self-report instrument designed to measure pain-related anxiety and fear responses. It is the primary scale of 40 questions for measuring pain anxiety symptoms. The range of scores for the short form is 0 to 100, and subjects must respond to the questions using a scale ranging from 0 (never) to 5 (always). The overall score is generally related to multiple aspects of patient functioning. The short form of the PASS includes the subscales of avoidance, fearful appraisal, and physiological response. Cronbach's alpha indicates that the validity of this questionnaire ranges between 0.69 and 0.81, and the internal consistency coefficient ranges between 0.73 and 0.89 for this questionnaire (Park, Jang, Oh, & Lee, 2020). In the present study, the validity and reliability of this questionnaire were determined to be 0.81 and 0.87, respectively.

The Unconditional Self-Acceptance Questionnaire (USAQ) (Chamberlain & Haaga, 2001) consists of twenty statements and is intended for individuals aged 14 and older. This questionnaire's score range is between 0 and 100, and subjects must respond to its questions on a scale ranging from 0 (never) to 5 (always). Using

Cronbach's alpha method, the internal consistency of the questionnaire was determined to be 0.72 (Su, Wang, Li, Yu, & Zhang, 2019). In the current study, the validity and reliability of this questionnaire were obtained 0.83 and 0.86, respectively.

All three groups were given a pre-test before receiving eight weekly 90-minute sessions of ACT or hope therapy for two experimental groups. The control group received no intervention, and all three groups were given a post-test after the study. After completing the post-test and research, the control group members arbitrarily selected one of the treatment methods and underwent the intervention. The descriptions of ACT and hope therapy sessions are provided in tables 1 and 2, respectively.

To analyze the data associated with the research hypotheses, descriptive statistics [mean and standard deviation (SD)] and inferential statistics derived from multivariate analysis of covariance (MANCOVA) using the SPSS software (version 21, IBM Corporation, Armonk, NY, USA) were employed.

Results

The mean ± SD of age of the participants in the ACT group was 47.52 ± 6.84 years, 49.36 ± 7.18 years for the hope therapy group, and 46.63 ± 6.51 years for the control group, with a range of 30 to 60 years. Table 3 displays the scores relating to pain anxiety and self-acceptance variables for all three groups during the pre-test and post-test phases.

Table 3 demonstrates that the post-test mean ± SD of pain anxiety and self-acceptance was significantly lower than the pre-test mean ± SD for the ACT and hope therapy treatment groups ($P < 0.001$). Besides, there was no difference between the pre-test and post-test results of the control group.

Box's M and Levene's tests were conducted to satisfy their prerequisites before utilizing the parametric test of MANCOVA. Based on the Box's M test, none of the variables were statistically significant. The homogeneity condition was satisfied. The equality of covariance between groups was established based on Wilks' lambda test and its non-significance for all variables.

The use of covariance analysis tests was therefore permitted. The results of MANCOVA are presented in table 4.

Table 1. Summary of therapy sessions based on acceptance and commitment

Session	Description of session
1	Clients and therapists get acquainted, a warning that the treatment may cause emotional distress, a commitment to complete treatment sessions by ethical principles, a statement of research objectives, and pre-test administration.
2	Identifying the harmful effects of trying to control anxiety, negative emotions, and unpleasant thoughts and highlighting the paradoxical nature of this endeavor.
3	Recognizing control as the problem, to establish non-defensive communication with previously avoided emotions. Introducing acceptance as an alternative to control through the metaphor of a lie detector.
4	Reviewing acceptance as a preferred and alternative behavior to control the practice of breaking and instructing the limitations of language and its role in suffering while introducing meanings.
5	Using mindfulness techniques to contact the present moment, assisting clients in living with their inner experiences in the present through the practice of being aware of and releasing inner experiences, and recognizing the significance of being present.
6	Accepting yourself and understanding yourself as the context within which inner experiences occur.
7	Defining the concept of attributes in life and elucidating meanings using a list of values in various aspects of life, such as intimate relationships, family relationships, friendships, career, educational growth and progress, and leisure activities, acknowledging problematic inner experiences.
8	Using re-exercises and metaphors to summarize past sessions and therapy, conducting the post-test, and reviewing the concepts covered during the sessions.

Table 2. Summary of hope therapy sessions

Session	Description of session
1	Introducing and determining rules, introducing the structure of meetings, determining goals and types, the significance of the need for goals in various aspects of life, the methods for achieving goals, the motivation required to pursue goals, and the implementation of the pre-test.
2	The significance and role of stress coping strategies on anxiety in the case of cancer, a description of the components of the hope theory of goals, agents, and pathways, a description of the relationship between thought and feeling, expressions of ways to increase hopeful thinking through goal setting, and explanations of continuity of progress and the need to reevaluate goals.
3	Practically expressing strategies for goal setting, setting objective goals considering the endpoint as a desire-based approach, dividing significant goals into sub-goals, using positive thinking and repeating positive words, and incorporating positive thinking and positive words.
4	Teaching strategies for creativity by strengthening pathfinder thought through gradual planning and strategies to strengthen the will through fantasy techniques, mental imagery, role modeling, and positive self-talk, understanding how to deal with obstacles, challenges, and crises, identifying pleasant thoughts to change ineffective beliefs and attitudes, and training to deal with crises through the imaginative creation of alternative routes.
5	Examining the causes of negative self-reflection actions and articulating the methods for altering negative self-reflection, compiling a list of current events and interpreting their significance, and expressing the two primary areas of physical and mental motivation.
6	Expressing the power of the path to achieving goals and providing strategies for enhancing the power of the path (having multiple paths and listing them, and visualizing the success of the paths), strategies for generating and sustaining hope.
7	Expressing another method for increasing mental will (goal reevaluation), and finally expressing two strategies for increasing physical will.
8	Expressing the possibility of relapse and slips, methods of overcoming slips, applying optimistic thinking in daily life, particularly in critical situations of cancer treatment, providing an opportunity for members to talk more about the experience of grouping, summarizing, open presentation, and post-test performance.

The results from table 4 showed that the F-values calculated in the group variable, pain anxiety, and self-acceptance were at a significant level ($P < 0.01$) and this means that at least one of the treatments on pain anxiety and self-acceptance on patients with leukemia has been effective. Therefore, a test called Bonferroni post-hoc test was done, and the results are shown in table 5.

As shown in table 5, the ACT approach had a stronger impact than the hope therapy, despite the fact that both treatments had a positive impact on pain anxiety and sense of self-acceptance in patients with leukemia.

Discussion

The current study aimed to investigate the effectiveness of ACT and hope therapy on pain anxiety and self-acceptance in patients with leukemia.

Table 3. Mean and standard deviation (SD) values for all three groups during the pre-test and post-test phases

Variable	Group	Pre-test (mean ± SD)	Post-test (mean ± SD)	P-value
Pain anxiety	Acceptance and commitment	78.49 ± 6.83	53.67 ± 5.41	< 0.001
	Hope therapy	79.18 ± 6.32	66.46 ± 5.89	< 0.001
	Control	78.82 ± 7.13	79.38 ± 7.34	0.730
Self-acceptance	Acceptance and commitment	62.39 ± 6.14	93.57 ± 7.64	< 0.001
	Hope therapy	63.21 ± 6.32	89.72 ± 7.53	< 0.001
	Control	61.59 ± 5.74	62.46 ± 6.18	0.640

SD: Standard deviation

Table 4. Results of multivariate analysis of covariance (MANCOVA)

Variable	Source of changes	Sum of squares	df	Mean squares	F-value	P-value	Eta squared
Pain anxiety	Group	5491.638	1	5491.638	54.746	< 0.001	0.473
	Error	1167.542	12	97.295			
Self-acceptance	Group	7964.613	1	7964.613	72.528	< 0.001	0.761
	Error	1362.401	12	113.533			

df: Degree of freedom

The results showed that both treatments positively impacted pain anxiety and self-acceptance in patients with leukemia. Besides, there was no significant difference between ACT methods and hope therapy outcomes. While both methods had a significant advantage over the control group, neither was superior. Several other studies have produced findings that are consistent (Haase, 2020; Suzuki, Ishikawa, & Okada, 2021; Wayant et al., 2021) and inconsistent (Hi & Uzar-Ozcetin, 2020; Jang et al., 2022) with the results of this study.

The study's results are consistent with the findings of Hann and McCracken (2014) and Arch et al. (2012) research on the effectiveness of ACT for individuals with chronic pain disorders and anxiety disorders. To explain these findings, it can be stated that pain tolerance is strongly associated with greater participation in daily activities. Additionally, it has been observed that acceptance is strongly associated with cognitive pain control. Therefore, the researchers concluded that accepting pain was the best way to distinguish between painful and non-painful aspects of life. Multiple studies support the significance of pain acceptance in the daily functioning of individuals with chronic pain. In clinical samples, it has been observed that the acceptance of pain is related to the experience of pain, whereas psychological problems and physical disabilities are much less significant, and psychological well-being is more prominent.

ACT is an acceptance-based intervention that is very effective for people who experience unwanted psychological events like pain. Acceptance-based interventions cause people to be less sensitive to chronic pain. ACT is one of the subsets of the acceptance-based approach to reducing pain in patients with chronic pain. Acceptance appears to be the essential process involved in the therapeutic achievements of reducing the effect of painful experiences on emotional functions and predicting future individual functions. Turner et al. (2015) demonstrated that the four-hour experience of this treatment significantly reduced the pain experienced in these patients compared to other standard medical treatments.

It can also be stated that the amount of daily activities performed by patients with chronic pain is directly related to their mental health. Recent research has found that accepting pain with a higher quality of life in patients with back pain is linked to reducing the effect of pain periods on function of patients with cancer and maintaining adaptive function in patients with multiple pains.

Table 5. Bonferroni post-hoc test for comparing the groups

Variable	Paired comparison	Mean difference	Standard error	P-value
Pain anxiety	Acceptance and commitment/hope therapy	0.46	0.78	0.344
	Control/hope therapy	-6.27	0.78	0.001
	Control/acceptance and commitment	-8.09	0.93	0.001
Self-acceptance	Acceptance and commitment/hope therapy	-0.76	0.89	0.288
	Control/hope therapy	-6.38	0.81	0.001
	Control/acceptance and commitment	-9.12	0.96	0.001

Laboratory studies also show that acceptance-based strategies are highly effective in dealing with laboratory-induced pain. Clinical studies show that acceptance-based strategies are essential in reducing pain symptoms and improving the quality of life in the presence of pain. Psychological flexibility is the main theoretical structure in acceptance based on behavioral treatments such as ACT (Rumlerová, Friso, Torres Romero, Kavenska, & Politi, 2022).

The results of the present study indicated that hope therapy training increased life expectancy in patients with cancer. This result is consistent with Herth (2000) research findings. In his study, Herth administered hope therapy to patients with cancer and demonstrated that this intervention increased their life expectancy and quality of life. In addition, Snyder (1999) stated that hope therapy interventions enhanced the quality of life for patients with chronic illnesses. According to these researchers, increasing hope improves self-care, quality of life, and overall health in this population of patients. According to Snyder et al. (2006), hope and the meaning of life are interconnected, and he considers hope as one of the meaning's components. In addition, behavioral strategies assist the patient in actively pursuing the established goals, which can effectively extend life expectancy.

It is possible to explain these findings by saying that hope enables a person to overcome stressful situations and make constant efforts to achieve his or her goals. As a result, those who have more hope put forth more effort to achieve more goals, achieve their goals with more confidence, and compare them to more challenging goals, whereas those who have less hope do the opposite. A person's ability to see beyond his/her current situation, disorder, and pain is enhanced when he/she has a sense of hope. Among the many benefits of boosting one's faith in the future, it is possible to point to an increased sense of purpose in one's life, increased capacity for work-related energy, a continued capacity for joy and contentment in one's daily activities, as well as an increased capacity for personal growth and development. On the other hand, patients with cancer are living longer thanks to advances in diagnostics and treatment (Anderson, 2020).

This study has limitations that must be considered when extrapolating its results. The current study examined patients with leukemia in a treatment center; therefore, caution should be exercised when extrapolating the results to other individuals in cities and regions. Due to a lack of time and access to clients, no follow-up studies were conducted, which was another limitation of this study. It is suggested that research be conducted to compare the efficacy of ACT and hope therapy on other types of cancer. It is recommended to conduct a follow-up test after the treatment period to evaluate the long-term effects of this treatment method, stabilize the final sessions' training, and conduct reminder sessions after the treatment period to prevent the treatment effect from diminishing.

Conclusion

According to the findings of this study, patients with leukemia who participated in either ACT or hope therapy experienced a significant improvement in their ability to accept themselves and experience less anxiety and discomfort as a result of their treatment. However, the effects of ACT were greater than those of hope therapy.

Conflict of Interests

Authors have no conflict of interests.

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None.

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The Effectiveness of Mindfulness-Based Stress Reduction on Stress, Anxiety, and Depression of Patients with Breast Cancer

Waleed Khaled Younis Albahadly[1], Ali H. Mohammed[2], Ahmed Abdulateef Sabti[3], Ahmed Al-Hili[4], Miaad Adnan[5], Sabri Kareem Sabri[6]

[1] University of Al-Ameed, College of Pharmacy, Iraq
[2] Al-Manara College for Medical Sciences, Maysan, Iraq
[3] Al-Nisour University College, Baghdad, Iraq
[4] Department of Medical Laboratory Techniques, College of Medical Technology, Al-Farahidi University, Iraq
[5] Department of Anesthesia Techniques, Al-Mustaqbal University College, Babylon, Iraq
[6] Al-Esraa University College, Baghdad, Iraq

Corresponding Author: Waleed Khaled Younis Albahadly***; University of Al-Ameed, College of Pharmacy, Iraq***
Email: wk764486@gmail.com

Quantitative Study

Abstract

Background: The mental health of patients with cancer can be affected by the disease, treatment stages, and their own personal experiences of acute suffering. This study aims to investigate the effectiveness of mindfulness-based stress reduction (MBSR) on stress, anxiety, and depression in patients with breast cancer.

Methods: This study was a quasi-experimental research with a pretest-posttest and follow-up design with a control group. The statistical population of the present study was women with breast cancer in the chemotherapy phase who were referred to Yarmouk Teaching Hospital, Baghdad, Iraq, from May to October 2020. Among 214 women, 40 were chosen using the available method and devided into experimental and control groups (20 women in each group). The Depression, Anxiety, and Stress Scale-21 Items (DASS-21) pre-test was performed for both groups. SPSS software was utilized for statistical analysis. Throughout this study, descriptive statistical indices [mean and standard deviation (SD)] and inferential indices [repeated measures analysis of variance (ANOVA)] were used.

Results: There was a considerable difference between the scores of stress, depression, and anxiety of the two groups in the field of the efficacy of mindfulness training on stress, anxiety, and stress in women with breast cancer. The levels of depression ($F = 26.235$, $P < 0.001$), anxiety ($F = 22.374$, $P < 0.001$), and stress ($F = 23.416$, $P < 0.001$) were significantly reduced under the influence of this treatment ($P < 0.001$). Besides, the mindfulness method had a good lasting effect, and the effects of this treatment were stable in the follow-up period of ten days and one month.

Conclusion: The MBSR effectively reduces stress, depression, and anxiety in women with breast cancer. Therefore, it could be considered that mindfulness as a psychological intervention can help patients facing breast cancer.

Keywords: Breast neoplasms; Mindfulness; Anxiety; Depression; Psychosocial intervention

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Introduction

Cancer is among the most common illnesses that has affected numerous individuals worldwide. It is an illness that begins at one point in the body, and if diagnosed late, it can impact the whole body (Zugazagoitia, Guedes, Ponce, Ferrer, Molina-Pinelo, & Paz-Ares, 2016). Cancer causes some of the body cells to separate non-stop and spread to surrounding parts. Normally, the body cells grow and divide to form the new cells that the body needs. When cells age or are damaged, they die and are replaced by new cells. When cancer occurs, the process breaks down, and old and damaged cells survive while they must die (Berghmans et al., 2020; Fonnes et al., 2021). Today, breast cancer is among the most critical health concerns in women, because it is the most common cancer and is the second-highest reason for cancer death behind lung cancer (Muller et al., 2022; Sharma, Dave, Sanadya, Sharma, & Sharma, 2010). Results of breast cancer vary depending on the sort of cancer, its clinical stage, and age (Burstein et al., 2019). Survival rates in Britain and the United States (US) are between 80% and 90%, respectively, and are lower in developed countries (Noguchi, Marinovich, Wylie, Lund, & Houssami, 2022).

Although a cancer diagnosis is no longer the equivalent of imminent death, many studies have shown that such a diagnosis causes profound emotional problems such as stress, anxiety, and depression in the patient and his/her family. Meanwhile, patients with breast cancer often experience severe psychological helplessness when becoming aware of cancer and throughout treatment. Findings have shown that psychological helplessness and trauma to these patients in the mental health field correlate with the severity of side effects of chemotherapy and radiation therapy. In some studies, the depression prevalence in women with breast cancer is estimated to be twice that of the general female population. The agreed prevalence of depression in these patients is 13% for severe depression and up to 33% for mild depression (Fann et al., 2008; Foster & Niedzwiedz, 2021; Ng, Mohamed, Kaur, Sulaiman, Zainal, & Taib, 2017). Common results of breast cancer include anger, depression, anxiety, loneliness, resentment, and the like. The risk of mental health disorders in patients with cancer is estimated at 30% to 40%. Most patients experience shock and stress in response to an initial diagnosis and do not believe it. Overcoming this condition over the patient is likely to lead to an acute psychological crisis (Civilotti, Botto, Maran, Leonardis, Bianciotto, & Stanizzo, 2021; Puigpinos-Riera et al., 2018). Cognitive feedback from helplessness, frustration, and mental perception about a person's mental health level can negatively impact the quality of life. Various studies have shown that mental health indicators can reduce the quality of patient cooperation with medical staff by reducing their self-esteem, hope, and quality of life, and cause extreme failure in following the therapist's instructions, as well as mental health disorders. Weakening of the immune system reduces the effectiveness of therapeutic measures and jeopardizes the amount and quality of recovery (Burstein et al., 2019; Zugazagoitia et al., 2016).

Breast cancer is the most common, deadly, and emotionally and psychologically most effective cancer among women. Most women with breast cancer experience a period of stress. Meanwhile, some patients experience more severe mental health problems that lead to decreased quality of life, dysfunction, anxiety, depression, and a general decline in mental health (Sharma et al., 2010; Yu et al., 2022). Several researchers studying patients with cancer between 18 and 65 years old found that anxiety was the most critical factor in mental health affecting their quality of life

(Distefano et al., 2008). In the study by Kissane et al. (2003), on women dealing with breast cancer at the Institute of Psychology of University Of Melbourne, Australia, the prevalence of major depression was 10%, minor depression was 27%, and anxiety disorders was 9%. Extensive studies have also shown high levels of mental health disorders in patients facing breast cancer; for instance, several studies showed that about 40% of patients with breast cancer had major depression (Alacacioglu et al., 2014; Bower et al., 2015).

It can be considered that breast cancer can cause some personal injuries in women. These personal injuries also affect family, work, and social issues. Strategies that can help women with breast cancer to reduce depression and frustration should be considered. Strategies such as reality therapy, neurofeedback, and logotherapy can be considered. However, one of the approaches that play an essential role in raising the psychological power of individuals is teachings and interventions based on mindfulness.

Mindfulness means paying special, purposeful, present-day attention without prejudice or judgment. In this method, the individual becomes acquainted with the mind style at each point and learns cognition skills in more valuable ways. There are two main ways for the mind: one to do and the other to be (Nissen et al., 2020). This type of cognitive therapy includes various meditations, stretching yoga, introductory training on depression, body review exercises, and several cognitive therapy exercises that show the relationship between mood, thoughts, feelings, and bodily sensations. These exercises somehow make it possible to pay attention to physical and peripheral situations in the present moment and reduce depressing automatic processing. The primary mechanism of this treatment is self-control and self-attention, because frequent focusing on the neutral stimulus creates a suitable attention environment (Garcia-Martinez, Zhang, Nakata, Chan, & Morey, (2021; Hecht et al., 2021).

Many studies, especially in recent years, have analyzed the results of mindfulness in clinical settings that show the positive effects of this intervention on stress, anxiety, and depression. Janssen et al. (2018) showed that mindfulness training was practical for depression, anxiety, and job stress. According to MacKenzie and Kocovski (2016), teaching mindfulness as psychotherapy through possible mechanisms of change leads to increased concentration and reduced negative repetitive thoughts, thereby reducing depression. Branstrom et al. (2012) also reported that mindfulness was valuable in increasing psychological health and reducing stress in patients with cancer. Barnhofer et al. (2009) also concluded that mindfulness training effectively treated chronic depression in sufferers.

According to the above, mindfulness skills training has been utilized to decrease psychological issues and develop the mental health of different communities. Nevertheless, it is essential to note that these skills need to be explored to be used for women with breast cancer. Therefore, the present study examined the effectiveness of mindfulness-based stress reduction (MBSR) on stress, anxiety, and depression in patients with breast cancer.

Methods

This study was a quasi-experimental research with a pretest-posttest and follow-up design with a control group. The sample population of this study was women with breast cancer in the chemotherapy phase who were referred to Yarmouk Teaching Hospital, Baghdad, Iraq, from May to October 2020. The documents of women with

breast cancer at this hospital were investigated. Those who were suitable for this study were contacted, and the research goals were explained to them. After these steps, 214 women agreed to participate in this study. These women came to the study office and read and answered the Depression, Anxiety, and Stress Scale (DASS) questionnaire. After this stage, 40 women were chosen using a simple random sampling technique and were separated into experimental and control groups (20 women in each group). The sample size was selected based on the minimum sample size in pilot studies (Queen, Quinn, Keough, 2002). Inclusion criteria were: 1- presence of breast cancer record, 2- being in the stages of chemotherapy, 3- no liver, lung, kidney, and heart diseases, 4- age range of 35 to 65 years, and 5- willingness to partake in the study. Exclusion criteria were: 1- existence of extreme psychological issues, 2- history of any treatment in other ways like neurofeedback, reality therapy, and logotherapy, 3- liver, lung, kidney, and heart diseases, and 4- the unwillingness to continue the collaboration. In order to comply with the ethical guidelines, the participants were assured that their details would remain confidential. Moreover, they could leave the study at any time that they wanted.

At first, the 21-item DASS (DASS-21) pre-test was performed for both groups. The experimental group experienced eight 2-hour weekly mindfulness sessions. At the end of the intervention, posttest, ten-day follow-up, and one-month follow-up were performed by research questionnaires. The educational package of the present study has been prepared based on the Baer et al. (2006) edition of mindfulness protocol and is as follows:

Session 1: Introducing the members and setting goals, doing mindfulness exercises, practicing awareness of every moment, practicing physical examination, and breathing three times a day

Session 2: Focusing more on the body and control of daily events, dealing with mental barriers, and recording daily reports of pleasant experiences

Session 3: Practicing breathing and walking with the presence of mind, preparing a list of unpleasant events, and identifying and recording unpleasant experiences

Session 4: Learning to breathe and meditate for three minutes and stay in the present

Session 5: Accepting and emphasizing the concentration of thoughts, feelings, and bodily sensations, reacting to them, and repeating the previous steps

Session 6: Creating awareness of breathing and body, practicing moods and thoughts, practicing alternate views and thoughts, and emphasizing the effect of breathing on the body Session 7: Providing the best way to care for and understand personal relationships and making a list of enjoyable activities

Session 8: Regular mindfulness practice, physical examination, total review, and increased concentration to improve performance and repeat the previous steps.

The instrument used in this study was DASS-21. This questionnaire has 21 questions designed to measure stress, anxiety, and depression. The creators of this scale were Lovibond and Lovibond (1995), who released the final version in 1995. It is based on a 4-point Likert scale. Each question is scored from one (applies to me completely) to four (does not apply to me at all). This scale includes three subscales of anxiety, depression, and stress, each with seven parts or questions. The depression subscale measures sadness, scarcity of self-confidence, despair, worthlessness, absence of energy, ability, and enjoyment of life. The anxiety subscale contains terms assessing physiological arousal, fear, and anxiety in different situations. The stress subscale contains difficulty reaching peace, nervous tension, crankiness, and turmoil.

The scoring in this questionnaire for the depression subscale is: 0-9: normal, 10-12: mild, 13-20: moderate, 21-27: severe, and ≥ 28: very severe. The scoring in this questionnaire for anxiety subscales is: 0-7: normal, 8-9: mild, 10-14: moderate, 15-19: severe, and ≥ 20: very severe. The scoring in this questionnaire for stress subscales is: 0-14: normal, 15-18: mild, 19-25: moderate, 26-33: severe, and ≥ 34: very severe (Lovibond & Lovibond, 1995). Osman et al. (2012) examined the factor scale, which again showed the existence of three factors: depression, anxiety, and stress. The study's results demonstrated that three factors measured 68% of the whole variance of the scale. The study's eigenvalues of stress, depression, and anxiety were 9.07, 2.89, and 1.23, respectively, and the alpha coefficient for these three factors was 0.97, 0.92, and 0.95, respectively.

SPSS software (version 16, SPSS Inc., Chicago, IL, USA) was operated for statistical analysis, and descriptive statistical indicators [mean and standard deviation (SD)] and inferential indicators [repeated measures analysis of variance (ANOVA)] were used.

Results

This study was conducted on 40 women with breast cancer undergoing chemotherapy. The average age and SD of the experimental group was 48.72 ± 5.80, and for the control group was 51.46 ± 6.10. The duration of chemotherapy in the experimental group was 9.3 ± 4.7 months, and for the control group, it was 8.7 ± 3.5 months. Statistics related to pretest and posttest depression, anxiety, and stress scores are illustrated in table 1. The average of depression, anxiety, and stress in the posttest and follow-up stages in the experimental group improved more than in the control group.

By performing the Kolmogorov-Smirnov test, the normality of the distribution was determined and showed that the distribution was normally based on Z-values and significance level. A parametric test can be used for analysis. In addition, to check the slope of the regression coefficients, the calculations obtained from F at a notable level of more than 0.05 showed that the slope of the regression coefficients was established. In this way, it became possible to use repeated measures ANOVA. Moreover, the calculations performed in Levene's test showed that the condition of homogeneity of variances was not significant ($P > 0.05$).

Table 2 displays the results of the analysis of within-subject and between-subject effects on depression, anxiety, and stress scores. According to the results of this table, there was a considerable difference in the average depression, anxiety, and stress scores in the experimental and control groups ($P < 0.001$). The results demonstrated that 64.2% of the difference in depression, 58.3% in anxiety, and 67.4% in stress scores were due to mindfulness training.

Table 1. Mean and standard deviation (SD) of depression, anxiety, and stress

Group	Depression		Anxiety		Stress	
	Experimental	Control	Experimental	Control	Experimental	Control
Pretest	19.57 ± 3.12	21.03 ± 1.86	19.21 ± 3.84	21.84 ± 2.04	19.42 ± 4.25	21.87 ± 1.78
Posttest	14.48 ± 1.96	21.74 ± 2.01	15.60 ± 3.14	19.68 ± 1.87	15.62 ± 3.89	21.45 ± 1.80
Follow-up (10 days)	14.20 ± 2.41	21.31 ± 2.38	15.37 ± 2.34	21.78 ± 1.88	14.61 ± 2.48	22.08 ± 2.11
Follow-up (1 month)	14.65 ± 3.49	19.42 ± 2.65	15.63 ± 3.12	19.84 ± 19.50	15.08 ± 3.17	22.21 ± 2.34

Data are presented as mean ± standard deviation (SD)

Table 2. The results of the analysis of within-subject and between-subject effects on depression, anxiety, and stress scores

Effects	Sources	SS	df	MS	F	P-value	Effect size	Statistical power
Depression								
Between-subjects	Pretest	6.274	1	6.274	0.642	0.486	0.039	0.213
	Group	835.697	1	835.697	26.235	0.001	0.728	1
	Error	439.824	27	17.638	-	-	-	-
Within-subjects	Time effects	13.568	2	6.874	3.425	0.148	0.041	0.435
	Time effects × pretest	9.537	2	4.271	1.740	0.457	0.034	0.317
	Time effects × group	36.749	6	5.973	2.984	0.038	0.147	0.781
Anxiety								
Between-subjects	Pretest	63.783	1	63.783	5.934	0.034	0.093	0.811
	Group	764.572	1	764.572	22.374	0.001	0.617	1
	Error	574.394	27	22.015	-	-	-	-
Within-subjects	Time effects	13.568	2	21.143	7.782	0.001	0.186	0.904
	Time effects × pretest	37.724	2	18.349	6.442	0.037	0.152	0.911
	Time effects × group	79.527	6	14.521	4.875	0.001	0.192	0.991
Stress		28.427	1	28.427	3.868	0.184	0.052	0.439
Between-subjects	Pretest	901.336	1	901.3367	23.416	0.001	0.714	1
	Group	5919.371	27	216.371	-	-	-	-
	Error	35.428	2	18.637	4.932	0.048	0.093	0.886
Within-subjects	Time effects	29.932	2	16.357	4.691	0.079	0.086	0.824
	Time effects × pretest	23.617	6	4.081	1.627	0.023	0.148	0.946
	Time effects × group	28.427	1	28.427	3.868	0.184	0.052	0.439

SS: Sum of squares; df: Degree of freedom; MS: Mean squares

The interaction between the pretest and the effect of time on the variable of depression scores was not significant ($P > 0.05$), which shows that the effect of the pretest was not significant on the posttest and follow-up stages. However, the interaction of the pretest and the effect of time on the two variables of anxiety and stress was significant, which indicates the effect of the pretest on the posttest and follow-up phases.

The interaction effect of time and group membership in anxiety, stress, and depression variables was significant ($P < 0.001$). In other words, the difference between the scores of stress, anxiety, and depression in the three stages of the posttest, ten-day, and one-month follow-up in the entire research sample and the difference in the scores of these variables in the three stages of the research in the two groups were significant. These results showed that the process of changing scores in the posttest, ten-day, and one-month follow-up stages was different in the two groups.

Table 3 illustrates the results of evaluating the parameters separately for depression, anxiety, and stress scores in the posttest, ten-day, and one-month follow-up stages.

The results showed a significant difference between the control group with mindfulness training scores in depression, anxiety, and stress scores in the posttest, ten days, and one-month follow-up stages ($P <0.001$). In general, the results indicated the efficacy of mindfulness training on stress, anxiety, and depression of women facing breast cancer in the chemotherapy stage.

Table 3. The result of evaluating the depression, anxiety, and stress scores

Variable	Stage	B	SDE	t	P-value	VF	Statistical power
Depression	Posttest	-4.235	0.634	-5.124	0.001	0.412	1
	Follow-up (10 days)	-4.081	0.637	-4.927	0.001	0.335	0.998
	Follow-up (1 month)	-2.314	0.742	-3.248	0.001	0.249	0.959
Anxiety	Posttest	-4.631	0.842	-5.032	0.001	0.374	1
	Follow-up (10 days)	-4.596	0.914	-4.971	0.001	0.368	1
	Follow-up (1 month)	-1.937	0.768	-2.465	0.034	0.093	0.791
Stress	Posttest	-4.329	0.809	-4.271	0.001	0.4.01	1
	Follow-up (10 days)	-3.982	0.807	-4.427	0.001	0.397	0.996
	Follow-up (1 month)	-4.105	0.81	-4.300	0.001	0.276	0.989

SDE: Standard deviation of error; VF: volume fraction

Discussion

This research aimed to analyze the effectiveness of MBSR on stress, anxiety, and depression of patients with breast cancer. Results indicated that there was a considerable difference between the scores of stress, anxiety, and depression of the experimental and the control groups in the field of the efficacy of mindfulness training on stress, anxiety, and depression in women facing breast cancer and the levels of depression, anxiety and stress were significantly reduced under the influence of this treatment. These results agree with the results of the researches on the effectiveness of mindfulness in reducing depression, anxiety, and stress. In this regard, the results of a study have shown that mindfulness training in patients with asthma reduced anxiety and depression (Pbert et al., 2012). Mindfulness training is helpful in reducing depression and anxiety and enhancing the quality of life of patients with multiple sclerosis (MS) (Grossman et al., 2010). Janssen et al. (2018) also emphasized the favorable consequences of mindfulness training on anxiety, depression, and occupational stress. MacKenzie and Kocovski (2016) showed that mindfulness training as psychotherapy through the possible mechanisms of change led to a growth in concentration and a decline in repetitive negative thoughts, resulting in a decrease in depression. In other studies, it was remarked that mindfulness training was practical for patients with chronic pain suffering from anxiety and depression. This group can profit from mindfulness in their therapy plans (Rod, 2015; Rosenzweig, Greeson, Reibel, Green, Jasser, & Beasley, 2010).

It can be noted that when women with breast cancer feel depressed, they have negative thoughts and look at everything from a negative perspective. Mindfulness training enhances non-judgmental attention to something specific in the present. In other words, this training course helps these people increase their awareness of negative thoughts and change their focus on something that makes them feel better at the moment. Mindfulness training teaches the patients that they could assess whether these thoughts are chronically negative and explain how these thoughts lead to negative feelings by paying attention to the content of thoughts whenever they notice feelings of hopelessness, sadness, or depression. When this is done repeatedly, this process gradually rewires the brain to think more positive thoughts automatically (Burstein et al., 2019; Garcia et al., 2021).

In mindfulness training, using the technique of changing the thought channel, patients were helped to recognize things that were relaxing and pleasant for them. Whenever they became aware of their anxiety, they focused on the identified things. In general, in mindfulness training, a person becomes aware of the way of thinking at

every moment and learns the skills of identifying more valuable ways (Bower et al., 2015; Rosenzweig et al., 2010).

Cancer is one of the most dangerous diseases that can affect everyone's life and drive issues and emotions of desperation and depression. Therefore, the strategies that can improve the mental health of these patients had better be considered to find the most suitable treatment strategies. It is strongly suggested that other techniques such as neurofeedback, reality therapy, and cognitive-behavioral therapy are considered in other researches. Researchers could also consider treating depression and stress in youngsters who deal with cancer or consider people living with other cancers in future research. In addition, considering the family's primary part in supporting and helping patients with cancer, it is recommended that in future research in this field, practical methods to reduce the anxiety and care pressure of family members of these patients should be considered.

Conclusion

The results revealed that mindfulness helped reduce stress, anxiety, and depression in women suffering from breast cancer. Therefore, this method can be supposed to be a psychological intervention that can enhance the quality of life and decrease the morale problems of patients suffering from chronic diseases such as cancer. Hence, considering the effectiveness of mindfulness on depression, anxiety, and stress in patients with cancer, it is recommended that counselors, psychiatrists, and psychologists pay more attention to it in this field.

Conflict of Interests

Authors have no conflict of interests.

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Assessment of Awareness of High-Risk Sexual Activities in Male Students of a Medical University

Yasmin Heydarzadeh-Sohi[1], Maryam Mohseny[2], Hossein Zahir-Mirdamadi[1], Mobina Esmaili[1], Farima Khalafi[1], Aida Imani[1], Zahra Timani[1]

[1] Student Research Committee, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
[2] Department of Community Medicine, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran

Corresponding Author: Maryam Mohseny; *Department of Community Medicine, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran*
Email: mohseny.maryam0@gmail.com

Quantitative Study

Abstract

Background: High-risk sexual activities are a major social concern. Thus, the present study was conducted with the aim to assess the awareness of male medical students regarding high-risk sexual behaviors.

Methods: This cross-sectional study was performed on 86 male students who had been studying at Shahid Beheshti University in 2018-19. We used a researcher-made checklist. The demographic information of students and their knowledge of sexually transmitted diseases (STDs), STD treatments and prevention methods, and human papillomavirus (HPV) were assessed. They were also asked about their Gardasil and Hepatitis B vaccination stage. The collected data were analyzed in SPSS software.

Results: We found that 58.1% of students were sexually active. Moreover, 37.25% of them reported receiving sex education from their parents or at schools. Although 93% of students knew at least one contraceptive device, 20.9% of them had experienced high-risk sexual relationships, which is significantly high. However, none of the students had acquired an STD. In addition, 89.0% and 75.0% of students had knowledge of STDs and their prevention methods, respectively. 68.19% of students had knowledge about HPV. Students were well informed about vaccines against STDs; however, only 18.6% of them were vaccinated.

Conclusion: Overall, students were well informed. A considerable number of them had experienced high-risk sexual activities. It seems that our high rates are due to the fact that we only assessed medical students. We recommend that authorities in the education system reconsider their attitude toward this issue and include sex education in the medical education curriculum in orderto prevent these infections.

Keywords: Sexually transmitted diseases; High-Risk sex; Human papilloma virus; Prevention; Human immunodeficiency virus; medical students

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Introduction

Young people have a significant role in their society. Thus, every nation needs to be concerned about its young generation's social problems (Afshari, Barzegari, & Esmali, 2017; Altaf et al., 2009). One of these significant social concerns is high-risk activities among the youth (Cook et al., 2010). These activities may lead to physical, psychological, and social problems (Zadeh Mohammadi, AhmadAbadi, Peanahi, & Heydari, 2011; Barikani, 2008). People may be led to high-risk behaviors by their emotion regulation strategies for the suppression of low life satisfaction, anxiety, and low self-esteem. Moreover, hormonal imbalance may also impact people's behaviors (Grunbaum et al., 2002; Khademalhosseini, Ahmadi, & Khademalhosseini, 2015). The prevalence of these behaviors is considerably high in young people (Jakic, Jaric-Klinovski, Leko, & Jakic, 2004; Hallfors, Waller, Ford, Halpern, Brodish, & Iritani, 2004; Altaf et al., 2009). In addition, high-risk activities may be the result of physical, psychological, and social problems and do not threaten the individual alone, but impact the whole society (Atadokht, Ranjbar, Gholami, & Nazari, 2013). Such behaviors include drug and alcohol abuse (Madu & Matla, 2003; Kodjo, Auinger, & Ryan, 2004), careless driving, suicide attempts, smoking, and high-risk sexual activities (Stueve & O'Donnell, 2005).

Several studies have shown that multiple factors lead to high-risk activities in young people especially university students. For instance, students who live independently in a house are more susceptible to high-risk activities than those who live in a dorm or with their parents (Atadokht et al., 2013, Bagheri Nesami, Sabourian Jouybari, Mirani, & Alizadeh, 2015). Moreover, Maziak found that young men have a greater desire to perform high-risk activities than young women such as: smoking (Maziak, 2002). Races and ethnicities are also correlated with high-risk behaviors (Agardh, Cantor-Graae & Ostergren, 2012). For example, some studies have illustrated that young Iranian Kurds smoke a great deal. In contrast, Iranian Turks avoid smoking (Mohammadpoorasl, Abbasi, Allahverdipour, & Modaresi, 2014; Abbasi-Ghahramanloo, Fotouhi, Zeraati, & Rahimi-Movaghar, 2015).

A relationship between field of study at university and desire for high-risk activities has also been reported. For instance, biotechnology students had greater inclination toward high-risk behavior; however, psychology students had little inclination toward such behaviors (Mohammadpoorasl et al., 2014). In addition, some studies assessed the role of media, such as movies, internet, social media, and phone applications, in raising awareness about high-risk sexual activities (Dehghani, Erfanian, Khadivzadeh, & Shakeri, 2019; Odeigah, Rasaki, Ajibola, Hafsat, Sule, & Musah, 2019).

As previously mentioned, high-risk sexual activity is a high-risk behavior. The impact of sexual education on teenagers has been evaluated in various studies. For example, Santelli et al. (2018) report that training if students learn sexual refusal skills at school they will be protected from future sexual assault (Santelli et al., 2018).

The sexual awareness needs of high school students have been evaluated in some previous studies. Smith, Realini, Buzi, and Martinez (2011) found that students needed more information about sexually transmitted diseases (STDs) and preventive ways.

Thus, it is necessary to raise young people's awareness about the social, psychological, and medical impacts of these activities and preventive ways for STD and HPV (Bagheri Nesami et al., 2015; Jackson, Henriksen, & Foshee, 1998).

Moreover, health care providers have to raise awareness about high-risk sexual activities; therefore, it is necessary that medical students, as future health care providers, receive training in this regard.

On account of these facts, the purpose of this survey was to assess knowledge of high-risk sexual activities among male students studying at the School of Medicine of Shahid Beheshti University in Tehran.

Methods

This cross-sectional study was performed on 96 male students who had studied at Shahid Beheshti University in 2018-19. This research was approved by the ethics committee of Shahid Beheshti University with the code number IR. SBMU. REC. 1397. 343. Cochran's formula was used to calculate sample size. By considering that only 50% of students had enough knowledge about high-risk sexual activity and STDs and d: 0.1 and Z: 1.96, the sample size was estimated to be 96 people. These students were surveyed to assess their awareness and attitude regarding high-risk sexual activities and STDs. Only male medical students who had been studying at Shahid Beheshti University were included in the study.

A researcher-made checklist containing 23 items was used in the present study. This checklist was the result of gathering and summarizing standard categories. The validity of the checklist was approved by an expert committee. The checklist includes items on demographic characteristics, and knowledge on the 3 categories of STDs, STD prevention ways, and human papillomavirus (HPV). Moreover, the checklist includes questions on Gardasil and Hepatitis B vaccination stage. Most of the questions were yes or no types. Moreover, during the checklists' assessment, 10 checklists were excluded due to incomplete answers.

Data analysis was performed using descriptive statistical methods (frequency) in SPSS software (version 26; IBM Corp., Armonk, NY, USA).

Results

In this study, we evaluated 96 male students of Shahid Beheshti University. A researcher-made checklist with 23 questions was prepared.

The demographic characteristics items were related to marital status, living situation, students' previous sex education, and their previous sexual experience. Among the students, 12 (14%) were married and 74 (86%) were single. Moreover, 48 (55.8%) of the students lived with their families, 16 (18.6%) lived in a dorm, 2 (2.3%) students had roommates, and 20 (23.2%) students lived independently in a rented house. In addition, 32 (37.2 %) students stated that they had received sex education from their parents or at schools in their teenage years.

They were also asked about their past experiences. We found that 50 (58.1%) students had experienced sexual relationships; 18 (20.9%) of them had experienced high-risk sexual activity. None of them had acquired an STD. Subsequently, their information about STDs were also assessed (Table1).

We also evaluated students' information about STD prevention methods (Table 2).

Table 1. Information about sexually transmitted diseases (n: 86; response rate: 89%)

Item	Answer	n(%)
People may have STDs without any signs or symptoms	Agree	84(97.67)
	Disagree	2(2.33)
STDs are only transmitted through intercourse	Agree	4(4.65)
	Disagree	82(95.34)
Different types of STDs may increase the risk of HIV transmission	Agree	62(72.09)
	Disagree	24(27.90)
STD lesions of the face and throat will not be transmitted to the genitalia	Agree	6(6.97)
	Disagree	80(93.03)

STDs: Sexually transmitted diseases; HIV: Human immunodeficiency virus

Table 2. Information about prevention methods of sexually-transmitted disease (n: 86; response rate: 84%)

Item	Answer	n(%)
Know at least one contraceptive devices	Yes	80(93.03)
	No	6(6.97)
Ask for immediate preventive actions and diagnostic tests after intercourse	Yes	76(88.3)
	No	10(11.7)
Inform their partners when they get an STD	Yes	76(88.3)
	No	10(11.7
Using contraceptive drugs immediately after intercourse may prevent STDs	Agree	58(67.44)
	Disagree	28(32.56)

STDs: Sexually transmitted diseases

In addition, we assessed students' knowledge about HPV (Table 3).

The total frequency of these 3 categories (information about STD, information about preventive methods of STDs, and students' knowledge about HPV) was 80.33%.

Among the students, 70 (81.4%) stated that they were completely vaccinated against hepatitis B. Moreover, although 72 (83.7%) students had known about the preventive effect of the Gardasil vaccine, only 16 (18.6%) of them were vaccinated against HPV.

Finally, we discovered that 44 (51.2 %) students needed more information about STDs and how to prevent them.

Discussion

High-risk sexual activity is a high-risk behavior. In developed countries, education systems (Bagheri Nesami et al., 2015; Jackson et al., 1998) instruct young people and raise awareness about the social, psychological, and medical impacts of these activities.

Sexual activity is a type of high-risk behavior. The health care system in every society is responsible for informing people about high-risk sexual activities and preventive ways for STD and HPV. To reach this goal, health care systems have to instruct health care providers, such as medical students.

Due to these facts, in the present study, we assessed 86 male students of Shahid Beheshti University. Less than half of the students reported receiving sex education from their parents or at schools. We also found that more than half of the students were sexually active. We evaluated their knowledge about STDs and how to prevent them. We discovered that although most of the students knew of at least one contraceptive device, a considerable number of them had experienced high-risk sexual relationships. However, none of the students had gotten an STD. Then, we evaluated their knowledge of STDs, how to prevent STDs, and HPV. We found in our evaluation that that 80.33% of the students had knowledge about these areas, which means students were well informed about STDs and their preventive measures.

Several studies have shown that multiple factors lead to high-risk activities in young people especially university students.

Table 3. Students' knowledge about human papillomavirus (n: 86; response rate: 68%)

Item	Answer	n(%)
People with HPV infection can transmit the disease to others	Agree	22(25.58)
	Disagree	64(74.52)
Using a condom completely prevents HPV infections in both genders	Agree	8(9.30)
	Disagree	78(90.70)
Treatments like cryotherapy can prevent HPV transmission to infected individual's sexual partners	Agree	6(11.7)
	Disagree	80(88.3)

HPV: Human papilloma virus

For example, students' ethnicity and race, their gender, their living status, and their fields of study may affect their attitude toward high-risk behaviors. Although the impacts of these factors are considerable, we did not include them in our study.

In a study performed in Dezful University of Medical Sciences**,** it was reported that 78.1% of students had great awareness about human immunodeficiency virus (HIV) (Maghami, Aghababaeian, Saadati, Daiham, Sadeghi Moghaddam, & Mashalchi, 2012). In addition, 45.2% of them had a positive attitude toward STD prevention methods. Most of their participants were female students, and the comparison showed that female students were more informed about HIV than male students. This finding was confirmed by the findings of Alipour, Eskandari, and Mokhah (2016)). In contrast, we only assessed male students in our study. Based on previous studies, it seems that female students have more information about high-risk sexual activities in comparison to male students. However, confirming this idea requires further assessment of the matter.

Smith et al. (2011) evaluated 1130 ninth grade female and male students in 4 high schools in northwestern cities of the United States of America. They assessed students' needs and preferences. They reported that most of the students wanted to know about STDs and their prevention methods. Moreover, they reported that students needed information about sex and sexuality, for example, the appropriate age for beginning their sexual activity. They also found that the majority of students did not know about contraceptive methods. Finally, they concluded that it was necessary to consider young people's needs in the educational curriculum and raise their awareness about sexual activities and STD prevention methods. There were some differences between our study and they study by Smith et al., for instance, we only assessed male medical students of at least 18 years of age, but they assessed ninth grade female and male students of 15 years of age (Smith et al., 2011).

Sanei Moghaddam, Khosravi, Abiz, Marashi, Nahr, and Sarhadi (2011) assessed the knowledge of 951 students of Islamic Azad University of Zahedan, Iran, regarding HIV. Both male and female students were evaluated in this study. Furthermore, these students were from different faculties. They found that 50.2% of students were well informed about HIV, 44% had average information, and 5.8% were less-informed. They also reported that 56.9% of their students had neutral attitude toward HIV. As they included both male and female students in their study, there may be some differences between their results and our findings.

In the study by Gokengin et al. (2003) in Turkey, 36.9% of students had experienced sexual relationships and their information about STDs was average. In the present study, the students were well informed about STDs. This difference may be due to the fact that we only assessed medical students. In addition, the number of students who had experienced high-risk sexual activities in Turkey was much higher than the number in the present study in Iran. This difference may be the result of cultural differences. Grad et al. (2018) evaluated 3872 university students aged 18-25 years from different parts of Romania. They assessed the respondents in the 3 categories of previous sexual experiences, knowledge on STDs, and their attitude and knowledge regarding STD prevention methods. They discovered that 94% of students had experienced sexual relationships. Furthermore, they found that the students had relatively limited knowledge about STDs. They also found that although most of the students were well informed about STDs, their prevention ways, and contraception devices, one fourth of them had experienced unprotected sex. There are some differences between our results and their findings, for example,

the number of sexually active students in their study was significantly higher than that in our study. This may be due to the cultural differences of the study settings. In addition, their students had limited information about STDs. In contrast, since we only assessed medical students, we found that our students were well informed about STDs.

Huang, Bova, Fennie, Rogers, and Williams (2005) evaluated 1326 students aged between 17 and 28 years. They found that 14% of Chinese students were sexually active and 40% of them had never used a condom for prevention; . On the other hand, in our study, we found that half of our students were sexually active. These differences may be due to the difference in the study populations of the studies; they only included teenage students in their study. What more, they assessed students with different fields of study. In contrast, we only evaluated medical students in our study.

Mirnejad, Kiani, Jeddi, and Alaedini (2009) assessed 425 students of different faculties of Iran University of Medical Sciences, Iran. They found that in general students were well informed about HIV and how it is transmitted. Medical students had more information in this regard in comparison to students of other fields. Moreover, they noted that students mostly take information from social media. Furthermore, they reported that 75% of their students had a positive attitude toward preventive methods. They concluded that it was necessary to include educational programs about HIV in both the medical curriculum and social media to raise students' awareness. There were some differences between this study and our study, for instance, they only assessed students' information about HIV, but assessed both male and female students from different faculties. However, we only assessed male students of the medical faculty. Moreover, we did not evaluate the impacts of social media in our study.

Odeigah et al. (2019) assessed sexual awareness in 438 students of 10-24 years of age in Nigeria. In contrast to our study, they reported that their students had poor information about high-risk sexual behaviors. In addition, they evaluated the impacts of religion, ethnicity, and family sizes in their study. They also mentioned the causes of high-risk sexual behaviors, for example, money, gifts, and services (Odeigah et al., 2019). Although, these factors are important, we did not assess them.

Cooper, Zellner-Lawrence, Mubasher, Banerjee, and Hernandez (2018) assessed 190 male students of 18-27 years of age. The investigation was performed to assess students' knowledge of HPV, their sexual behaviors, and their point of view on HPV vaccination. They reported that 73.2% of students had previously experienced sexual relationships. They also found that 79.5% of students had information about HPV; however, only 29% of students had received the Gardasil vaccine. In addition, 86 students that they had been recommended to receive this vaccine by a health-care provider, though this matter was averagely important. This finding was in line with the present study findings. Our students were also well informed about HPV and HPV vaccination, but only a few of them had received the Gardasil vaccine.

In the study by Santelli et al. (2018), 1661 students of 18-29 years of age were evaluated. They found that 1590 students had received formal sexual education on topics such as sexual refusal, contraceptive methods, and sexually transmitted infection (STI) and HIV prevention before the age of 18. Although they assessed various types of sexual education in their study, only education on sexual refusal was significantly related to prevention of sexual assault. We also assessed the impact of sexual education. However, there are some differences between our study and study

by Santelli et al. (2018). For example, only male medical students were evaluated in our study, but they assessed both male and female students of various fields of study. Furthermore, in the study by Santelli et al. (2018), the impact of formal sexual education was evaluated in greater detail than in our study. This difference is due to the fact that there is no official sexual education program in the educational curriculum for teenage students in Iran.

Limitations: The only limitation that we faced during the study was that some students were ashamed to answer our questions.

Conclusion

To conclude, we discovered that students were well informed about STDs and their prevention methods. It seems that since we only assessed medical students, they had more knowledge about STDs in comparison to students in other studies. In addition, we found that although most of the students had knowledge of contraceptive devices and protection methods, a considerable number of them had experienced high-risk sexual relationships. Despite the fact that most of the students knew about the preventive impacts of the Gardasil vaccine, a large number of them had not been vaccinated. This may be on account of the fact that most of the students believed that the Gardasil vaccine was only useful for women.

Suggestions: We recommend that the authorities in the education system reconsider their attitude toward this issue and include sex education in the medical education curriculum to raise students' awareness of high-risk sexual activities and how to prevent such activities. This may increase students' knowledge as future health care providers and they will pass on this knowledge to others. As a result, the knowledge of the whole society about high-risk sexual activities will be improved.

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Conflict of Interests

Authors have no conflict of interests.

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