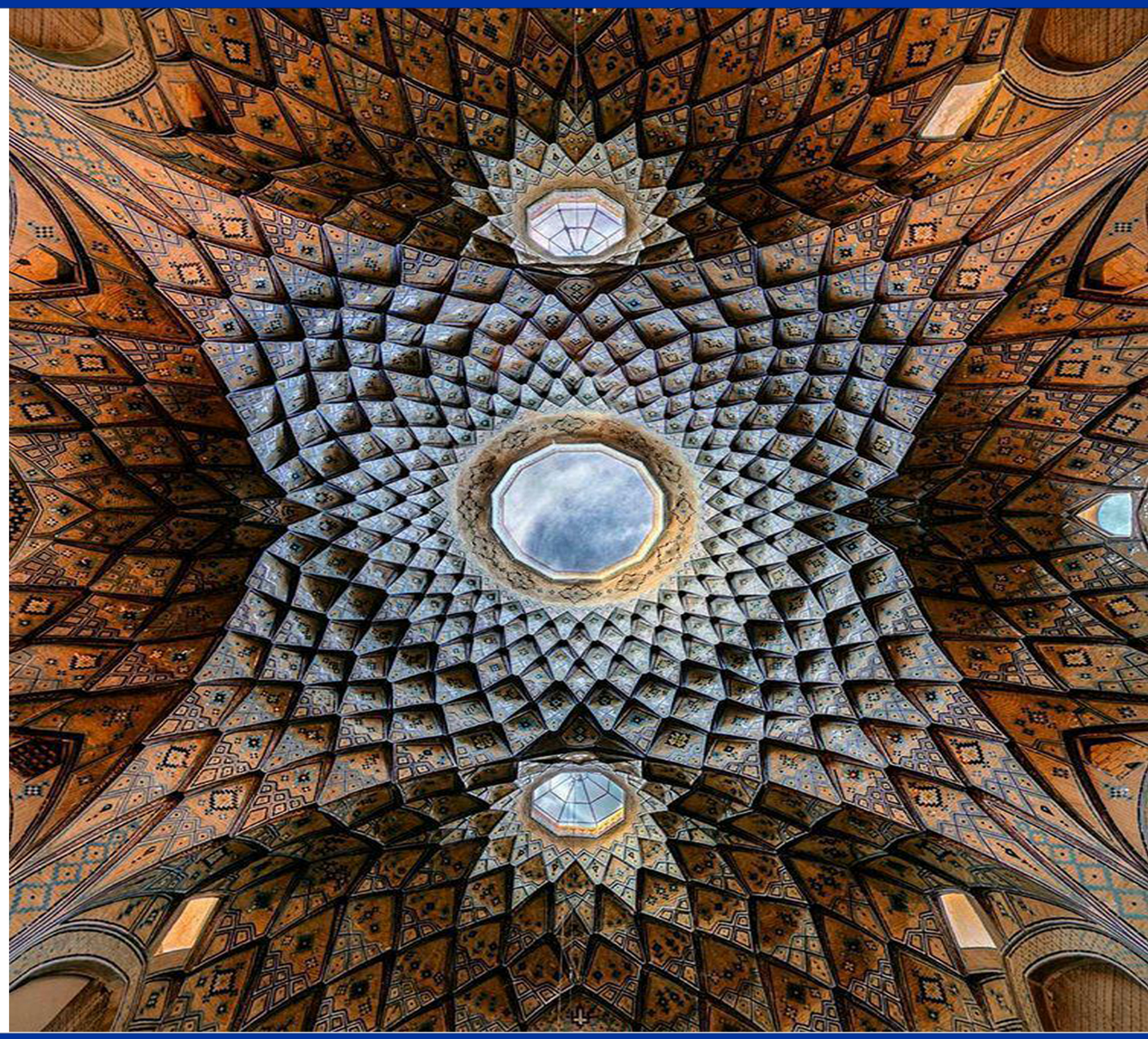
Cross-Cultural, Interdisciplinary Health Studies

International Journal of Body, Mind & Culture

eISSN: 2345-5802
http://ijbmc.org

Volume 4, Issue 1 2017



International Journal of Body, Mind & Culture

Volume 4, Issue 1, 2017

http://ijbmc.org

Publishing House

ALBERT-LUDWIGS-UNIVERSITÄT FREIBURG
DEPARTMENT OF PSYCHOSOMATIC MEDICINE

مرکز تحقیقات روان‌تنی
Psychosomatic Research Center

موسسه علمی فرهنگی تحقیقاتی دانش تندرستی
تاسیس: ۱۳۷۴
DANESH-E TANDORosTI INSTITUTE

International Journal of
Body, Mind & Culture

Cross-Cultural, Interdisciplinary Health Studies

Publisher

FaRa Publishing House
(Farzanegan Radandish)
Telfax: +98 31 3222 43 35, +98 31 3222 43 82
www.farapub.com
Email: farapublications@gmail.com

Owner

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Medicine in Transition

Hamidreza Roohafza[1]

[1] Assistant Professor, Cardiac Rehabilitation Research Center, Cardiovascular Research Institute AND Psychosomatic Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

Editorial

Citation: Roohafza H. **Medicine in Transition.** Int J Body Mind Culture 2017; 4(1): 1-2.

Received: 08 Feb. 2017
Accepted: 29 Mar. 2017

During paradigmatic transition periods, the topic of normal sciences and their assumptions is raised. Presently, we are in a paradigmatic crisis. On the one hand, the ever-rising development of medical technology empowers the biological paradigm. On the other hand, phenomenological and psychosomatic clinical researchers shed light on the psychocultural aspect of health. However, biomedical studies by their natural expansion include epigenetics and psychoneuroimmunology territories which function as a bridge between the symbolic and the matter-energy worlds. Now, we clearly know that cognitions, emotions, and relations can change our physiological and behavioral responses and vice versa.

In this issue, first we will read a number of contemplations on medical model and technology, and then, some studies in the domain of psychosomatic medicine are presented.

In the first article, Farzad Goli, in his very fascinating essay, describes how modern medicine has desouled man in order to make him measurable, controllable, knowable, and predictable through processes of objectification, normalization, and medicalization. The author believes that, although the mechanistic view of biomedicine has, to this date, provided us with the most exact set of knowledge to treat human beings, it is insufficient to explain suprapersonal levels such as culture, family, and etc. Today's medicine is unable to tolerate human beings' phenomenal world, since it can disturb all the equations in the mechanistic view of biomedicine through altering individuals' interpretations of themselves and their health, and their quality of life (QOL), and even through changing their body's cellular and molecular processes. The author suggests utilizing today's valid systemic models, such as biopsychosocial and biosemiotics models, and at least providing an outline for the actualization of a communicative model in medicine; a model which can be the host of a real human being with all his aspects. Goli emphasized the movement toward a life-oriented medicine which encourages individuals in the search for higher health.

In a very interesting study, Mehdi Moinzadeh explains Heidegger's view regarding essentialism in medical technology. He first puts forth the views regarding the instrumentality or non-instrumentality of technology which,

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respectively, comply with confirming an essence dependent on man's will, control, and volition for technology and an essence independent of man's control and will which influences the essence of man for technology. In this respect, Heidegger is an essentialist; that is, he believes in the existence of an independent essence for technology which is not dependent on man's will. The author has extracted Heidegger's ideas on technology and extended them to the realm of medical technology. He also deals with the views that Heidegger may be criticized for.

In a causal-comparative research, Arefeh Erfan et al. investigated the relationship between psychological symptoms and emotional schemas, comparing the emotional schemas of patients with irritable bowel syndrome (IBS) with that of a control group. They reported a statistically significant difference between the patients with IBS and control groups in terms of all schemas except emotional schemas of trying to be rational and being comprehensible. Moreover, the results indicated that some emotional schemas were related to psychological symptoms. Their investigation suggests that it is necessary to instruct individuals with IBS regarding emotional schemas since increased awareness of emotional schemas will result in the acceptance of undesirable emotions as a part of the complex human nature, and thus, less experience of anxiety, depression, and stress.

Omidi and Talighi, in a semi-experimental study, assessed the effectiveness of acceptance and commitment therapy (ACT) on couples' QOL, emotional regulation, marital satisfaction, general health, and mindfulness. The results of their study indicate that using ACT enhances couples' marital satisfaction and QOL. Considering the short duration of ACT for intervention compared to other methods, the authors suggest that ACT for couples is an effective method for dealing with marital problems.

Ying et al., in a cross-cultural study, compared climacteric symptoms, self-esteem, and QOL between women from two different cultures in China. They reported that, in their sample, the interaction between climacteric symptoms, psychosocial variables, and QOL revealed cultural differences. They reported that Mosuo women had milder psychological symptoms compared to Han women. Moreover, the former has been revealed to have higher self-esteem and QOL. Their findings indicate that although climacteric period is a universal phenomenon among women, its experience and meaning may vary across cultures. The authors suggest that cultural ideologies, norms, and meanings interact with biopsychological variables during the climacteric period.

As is evident in the above-mentioned introduction, you will read an extended scope of psychosomatics from philosophy to cross-cultural and clinical studies.

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Why Cannot Biomedicine Tolerate Man?*

Farzad Goli[1]

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

Abstract

Today, anyone who has travelled a little through history or reflected on social systems knows that although social systems are established and designed to satisfy our needs and demands, they have needs of their own which guarantee their life and may precede our needs. Hence, these systems, which were supposed to serve us indisputably like the genie, make us serve them in different ways. Medicine is one of such social systems which were undoubtedly established to satisfy our vital need to care and cure. To exist and develop, medicine needs to know and control personal and social conditions, and to actualize this need, it needs knowledge, money, and, perhaps prior to all of these, it needs to be trusted. To know man, he should be completely uncovered, observable, and dissected into his parts and the relationship between his parts should be explained in simple models. And to direct the condition toward maximum health, men should be converted into statistical entities and their individual differences, conditions, and narratives have to be ignored so that they become predictable and, consequently, controllable creatures. The story of relative, and almost necessary, conflict between man and medicine is as simple as it is explained. Before we go any further into the discussion, we should remember that a real man, with his whole phenomenological world and new-emergent and unique properties of autonomy and consciousness, may suddenly behave like a joker and disturb all the rules of medicine's play. It is natural that such subtleties cannot be tolerated by a materialistic model which is relying on knowledge of mechanistic organization of parts. The aim of this theoretical essay was to increase the readers' awareness of biomedical model restrictions and organized cruelties it imposes on man in practice and theory. The discussion of alternate models which we are turning to recently has been undertaken in other essays.

Keywords: Biomedicine, Social systems, Phenomenological world, Consciousness, Autonomy, Alternate models

Citation: Goli F. **Why Cannot Biomedicine Tolerate Man?** Int J Body Mind Culture 2017; 4(1): 3-16.

Received: 15 Mar. 2017
Accepted: 20 Jan. 2017

Introduction

Was it not enough simply to observe the dead as one observes the living and to apply to corpses the diacritical principle of medical observation: the only pathological fact is a comparative fact?
(Foucault, 2003, p. 134)

Fear of facing the self, along with the fear of death, can be identified as the most deep-seated fears of man in the onset of the era of self-awareness. This is the fear due to which no one, except Oedipus who was a devoted disciple in search for his own identity, could answer the enigma of the sphinx; the answer was man himself. In the dawn of awareness, this fear made man see his reflection in water as a mimicking creature or a twin in the water; thus, he could evade encountering the self. This autophobia transformed the history of human beings into the history of man's projection of his weaknesses and powers onto the under-worlds and upper-worlds. As

* *The Persian version of this article was published previously as a chapter of the book "An introduction to life-oriented medicine: Four essays on medical philosophy", Dehkadeh Salamat Publication, Isfahan, Iran, 2013.*

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Hafiz explains, his fate is roaming and continuous futility; "begging for his latent pearl from those lost in the beach of the sea" (Sonnet 143:2).

Sometimes, when man is exhausted of his wanderings in his projections, he becomes rebellious and tries to control and move the wheel of fortune according to his will. This is where magic, and then science, come to help man to dominate others (other human beings, nature, destiny, or even god). As the condition for self-knowledge and self-construction is having conversation with the other and even relative and transient transcendence of the structural self and impulsive desires, the effort to dominate others means escaping from encountering the self. By negating others or dominating them, man can make efforts to actualize his boundless desire for power and pleasure without hesitation; the desire to "have" more of something and the will for infinite regeneration of the desire to "be", which due to non-fulfillment transforms into anger and simply into the desire of "non-being" (Epstein, 1995).

Diverse domains of knowledge and modern techniques serve to extend these demands rather than to help interpret and guide man's desire to higher levels of awareness and being needs. It is worth noting that due to the diversity and incompatibility of demands, man who had once been reduced to his demands is once more reduced to just one of them and, instead of actualizing his own whole, tries to define all of his wishes – at least in every moment – in accordance with one demand. In other words, for the sake of that one desire, he hides or represses his other desires (Fuery, 1995; Maslow, 1943).

Although since ancient times, desire and fear have been known to be obstacles to man's transcendence (Campbell, 1991), they are actually our motives in life. They are disparate and non-attuned forces whose mere product is boundless futile fluctuation between "inclining to" and "escaping from" unless they are consciously and intelligently guided. But is man actually an inclining to–escaping from machine that no teleonomy and unity can be conceived of for?

If man is actually such a being, modern medicine as a system to defer his death and to extend his inclinations and escapes is the best way of treating him. If we identify the quantity and explicit function of life as the highest ideals of medicine, social functions, pleasures, visual aesthetics are its fundamental qualities which transform man into something pleasant and useful.

Before the discussion goes any further, two points have to be noted. First, our intention is not to confirm the ideal of life-escaping asceticism and blind opposition of desire, but is to accept all dimensions of human beings, including their longing for cravings, durability, transmutation, and, of course, not to identify man with these desires.

The second point is that when we talk about today's medicine and criticize it, we do not advocate shamanistic or traditional medicine, or returning to a previously promising time or even the belief in the existence of such a time. Although, if such a time had existed when man had been reflected from head to toe in the mirror of knowledge, that picture is not representative of today's man. Hence, the technophobic trend of returning to the past and nature is not the remedy either.

However, it should be acknowledged that in a time not long ago, there were sages who were concerned about human health and held their practice and thought exclusively on quantity, performance, and pleasure. Although they attempted to improve these components of man's life, they used them to serve the autonomous man in the path of his self-completion and consciousness evolution. For the same reason, it must be emphasized that today's medicine is missing meaning and wisdom and its instrumental and formal aspects have been dramatically developed.

Today, it is not sages, but economic agencies, drug dealers, and medical equipment

companies which determine the main strategy for this incomplete discourse of health. On the other hand, it seems that the identity of the medical guild has preceded its humanistic and professional mission (Callahan, 2009; Illich, 1976; Kennedy & Kennedy, 2010; Sharpe & Faden, 1998; Doyal, 1983).

The question that arises is: "what happens if man as a conscious lifeworld – and not as a desiring machine in its commonest sense – becomes the subject of medicine?

Does biomedicine tolerate such a subject? It can be predicted that if man is regarded as a subject that is not, like a machine, disintegrable to all of its parts and our knowledge of it is not generalizable to all other machines either, and, in addition to desire and reaction, it has the capacity to act (autonomous behavior), it undoubtedly disrupts simplistic knowledge of medicine.

Perhaps the use of the term "simplistic" for such an exact, widespread, complicated, and positivist knowledge as biomedicine seems unfair. Nevertheless, if we say that this knowledge, for the sake of research methodology and practice, de-faced and de-souled man to make him testable and knowable, you may agree with the use of this term.

It should be kept in mind that, in the present text, the intention is criticizing, not explaining why we have passed this rout in history and paid the cost of surpassing deductive generals to reach a more or less clear and inductive understanding. The current discussion aims at showing that these systematic disorders have appeared in the medical discourse, while, today, we have more comprehensive systemic perspectives in terms of philosophical, scientific, and clinical domains, and thus, we are not forced to follow the biomedical model anymore. Although we would not like to deprive ourselves of the possibilities this empirical approach has created for knowledge and medical technique, we are to use it more efficiently.

The story of bearing the burden of the conventional biomedical model is the story of the hermits who were passing across a dessert while pulling a boat along with great effort. A passer-by asked them: "What is the use of this boat in the wilderness that makes you carry it with so much difficulty?" They answered: "Because this boat has passed us across the river a few days ago!"

Of course, keeping our instruments and methods sometimes long after they inscribed their patterns on and played their roles in our life is not novel, neither in the domain of the psyche nor in the context of history. However, one day, a passer-by should come and inform us that keeping them, which were once efficient instruments and methods, is not necessary anymore.

Having presented these two reflections, I would like to explain what I mean by defacing and desouling of human beings in biomedicine. Then, I deal with three great catastrophes which occurred in medical methodology and engaged mankind as the subject of medicine to make him knowable, predictable, and controllable and to provide such honorable science as chemistry or physics with the purpose of promoting man's health:

First catastrophe: objectification

Second catastrophe: normalization

Third catastrophe: medicalization

Perhaps the three catastrophes can be summarized under the term medicalization of life. However, if we look more deeply and if we consider the definitions provided for the concept of medicalization, we will understand that this process specifies something medical and intra-systemic while the other two processes – objectification and normalization – are metamedical issues which determine the biomedical model and the worldview it raises.

Prior to explaining the occurrence of these three trends in biomedicine, I believe it is necessary to note two other points to clarify the discussion and prevent from invalid impressions.

First, in any critical and theoretical method I follow in this discussion, I have not regarded medicine as a single paradigm.

Because, currently, at least the three experimental (in basic sciences and laboratory sciences), rational (in clinical medicine), and phenomenological paradigms (in the field of health management and training, and psychosomatic medicine) coexist and work unequally in medical universities under the domination of the first two paradigms of biomedicine – which are the two wings of biomedicine (Wulff, Pederson, Rosenberg, 1990). Nursing departments and health groups are among some of the majors in the field of medicine which are based on the biopsychosocial view, but students and professionals in these fields soon find out they should be content with working in the margins of the biomedicine domain. Despite the great ideas and ideals which they read in their textbook, if they cannot tolerate to be marginal or are too ambitious to do important and effective works which are not considered socially worthy and prestigious, they have to quit their jobs and think of a more respectable profession!

Therefore, our criticism is not of all the current deep movements in today's medicine, but the mechanical model of biomedicine that, in spite of the abundance of scientific observations which questioned its validity and the more significant and effective theoretical models, still rules the field.

An abundance of literature has been written on the causes of this paradigmatic resistance, including economical, trade, cultural, scientific, and theoretical causes which show how dominating discourse restricts knowledge development and systemic approach in spite of its existing sufficient evidences. Therefore, our work aims to extend the field and shift the focus of attention in the range of valid research in medicine and select a theoretical model which includes most parts of our empirical knowledge, helps us make more efficient clinical decisions, and provides us the possibility of utilizing many therapeutic modalities which their effectiveness are proven, but the mechanical model of modern medicine does not allow their wide and effective use.

In respect to the last mentioned case in the previous paragraph, we can give psychosomatic medicine and health education as instances. The cost-effectiveness of these therapeutic modalities has been confirmed in many contexts and their priority to biological interventions has been proven in some domains. They have, in many cases, decreased the need for costly and highly invasive biological interventions. However, due to the aforementioned paradigmatic biases, and specifically economical ones, these modalities have had little contribution in research, advertising, and treatment (Straus, Trimble, 2001; Frisch, 2006; Gould et al., 1995; Ornish et al., 1990; Schuler et al., 1992; Varnauskas, 1998).

Another important point is that I do not intend to present an absolute philosophical criticism in this study, and I do not approve creating a liberating and idealistic anarchism by ruining medicine as a system of care and power. I am seeking a more humanistic, comprehensive, and moral model which can make health services more efficient. Many great philosophers and thinkers of the twentieth century, specifically in the years after the Second World War, criticized the discourse of medicine as a system which determines the destiny of individuals and society. By this, they aimed to prevent unwanted effects which are the by-product of the unconscious application of every other system.

From Ivan Illich to Joerge Canguilhem, Michel Foucault, and Jacques Derrida to Hans-Georg Gadamer, Niklas Luhmann, and Jürgen Habermas, each shed light on cultural, social, and even the long-term effects of the mechanical model of biomedicine on health from different aspects. Although these thinkers belong to different thinking traditions, all of them agree on the idea that modern medicine is insufficient in seeing, exploring, and analyzing the problems of human beings and its epistemological and

methodological restrictions do not allow listening to human experiences and providing effective practices to enhance the quality of life. Therefore, it has been converted into an instrument to impose power and control, restricting man's autonomy, and transform man into a measurable and expectable object.

In his book "The birth of clinic", Foucault (2003) explains an apparently deep and simplifying view of medicine in a biting criticism:

"But what now becomes of its visible body, that set of phenomena without secrets that makes it entirely legible for the clinicians' gaze" (p.159) and "What was fundamentally invisible is suddenly offered to the brightness of the gaze, in a movement of appearance so simple, so immediate that it seems to be the natural consequence of a more highly developed experience. It is as if for the first time for thousands of years, doctors, free at last of theories and chimeras, agreed to approach the object of their experience with the purity of an unprejudiced gaze." (p.195).

Years before Foucault, Kierkeggard, the great philosopher of the ninetieth century, correctly condemned modern medicine and indicated how a specific and real human being is interpreted as a statistical human being and his complicated world is reduced to material phenomena.

He explained that examinations and studies are conducted ruthlessly. The physician promises to provide a statistical list report as soon as possible to obtain the mean. Because when someone knows the mean, everything becomes evident. Therapeutic view makes man regard every phenomenon as merely materialistic and physical (Wulff et al., 1990).

Mishler, who analyzed clinical relationships in depth and in details based on Habermas's theory of communicative action, believes that giving voice to the medical system has suspended the opportunity of giving voice to the patient's lifeworld and suppressed psychosocial aspects which are very deterministic in the health of the individual and society. He explains that giving voice to medicine makes sense in a biomedical model. This model which is reflective of the scientific and instrumental structure of biological sciences eliminates the psychosocial context of the events which helps provide a complete understanding of the patients and their problems. This is while the effectiveness of medicine relies on such an understanding (Barry, Stevenson, Britten, Barber, & Bradley, 2001).

To convince worried minds and responsible views of this enlightening movement, perhaps it is worthy of note that although being aware of what is generally called medicalization of life and an intervention for modulating its effect is currently necessary, we should acknowledge the truth that medicine in its historical movement and, of course, mankind in his movement toward self-awareness have to inevitably pass this rout.

Now, let us mention three man-eluding and man-hurting techniques. We hope not to consider the current condition as a tragic and inescapable fate, and we believe that we are not talking about a historical deviation and an evil creation, but we are only representing a kind of restriction and methodological inertia.

A. Objectification

Observable human being, measurable human being: Since the time the great Francis Bacon (1606–1626), in the history-making program of "renovation of sciences", stated that medicine in the new era should not be based on invisible forces (powers) and qualities (humors), but on physics and chemistry, until today that medicine becomes valid through figures and images which illustrate human being's life and – in medical anthropological terms – patients are transformed into paper patients, we have come a long way. But it seems that we are still descendants of the enlightenment era (Helman, 2006; Helman, 2000; Goli, 2004).

Hellman, a well-known physician and anthropologist who wrote many influential books on medical anthropology, explains the process of reducing man to objectified data. He believes that when a physician learns more about the body, he listens less to what the patient expresses. "Paper patients", which are printed by diagnostic technologies, replace the human patients' stories to tell the patients. It often seems that technodoctors are slaves to this technology, not its masters.

To establish medicine on such sturdy bases, it was necessary to reduce man to body and body to its parts in order to first make whatever related to human beings observable, and secondly, make it reducible to its parts so that its amounts and changes would be measurable. It can be simply perceived that for medicine to have this exactness and validity, human beings (therapists and patients) had to pay costly expenses and it was necessary for man to become something completely observable and measurable. Therefore, all diverse dimensions of man's life (experiences, intentions, states, and his relationships) had to be analyzed as characteristics, epiphenomena, and states of this object. Otherwise, they had to be ignored or de-emphasized or were simply, with agnosticism or humor, recognized as being outside the realm of medicine (Stanford Encyclopedia of Philosophy, 2015).

Even an inanimate object has its own emergent particularity which explains its unique characteristics which cannot be predicted through knowledge of its parts – in the same way that no chemist can claim that unique properties of water can be predicted by completely knowing the properties of oxygen and hydrogen. However, to have exact and explicit knowledge, there was no way other than disregarding the reverence of man and even deprecating him as a mere object, and viewing him as completely knowable based on knowing the sum of his parts. Therefore, de-personalization of man and not honoring his new-emergence, even as an object, is necessary for his converting into an appropriate subject for biomedicine (Ahn, Tewari, Poon, & Phillips, 2006; van Regenmortel & Hull, 2002).

In this way, direct and anatomical microscopic observations and detailed study of inanimate bodies and, later, half dead and passive bodies became the foundations to understanding man. Even after development of physiological studies and direct and indirect observation of animate processes of human organism, structural boundaries which were specified by studying inanimate bodies lasted as the presupposition of such observations and physiological processes were regarded merely as the relationship between these presupposed parts. It is only in recent decades that we are witnessing the emergence of the physiological inclination which sometimes deals with explaining the functional correlation of processes, explaining and differentiating the stream of vital processes, and not presupposing conventional anatomical boundaries (Carlson, 2012; Sherwood, 2003).

Considering that man was regarded as an object of one thousands of parts which gathered together to live for a few days due to nature's blind will, there was no reason for him not be measurable and all his qualities and states not to be interpreted into figures since the last step was taken to transform man into something predictable and obedient and medicine could become an absolute science.

It is evident that when something observable exists, an observer should also exist and this is the very story of disintegrating human beings into two pieces of subject and object. The story, like normalization, started from medicine and extended to human sciences. Today, we are witnessing the extravagant form of development of these technologies and their multidimensional interventions in lifeworlds. Of course, this disintegration causes a state of bipolarity in subject and object. It appears that this bipolarity has extended from

medicine to other fields such as law and social studies. Due to this bipolarity, the physician completely goes into the frame of subject as the knower, the agent of change, and locus of knowledge, and the patient, voluntarily or inevitably, accepts playing the role of object and fits himself into the frame of what is to be known, the object of change, and the locus of disease. Perhaps a few moments later, they exit the scene of the clinic and each one plays the opposite role. This shift of roles is an obligatory fluctuation for today's human being. The division between the roles is so accepted that it is not generally doubted whether the physician can be in the position of being known and altered or whether the patient can be the locus of knowledge (Schweitzer & Schlippe, 1743).

These are the discussions that are analyzed in medical and research ethics. In addition, to revise them, modern clinical and research models are proposed and utilized based on humanistic and systemic attitudes.

B. normalization

Real human being is sick, no authentic human being exists: The roots of normalization go back to the ancient times before the emergence of biomedicine. Discourses in politics, religion, and medicine contributed to its rise. There is no doubt that human beings need to develop a set of norms proportionate to their nature and their life conditions. However, considering that we are neither talking about agnosticism nor ethical and social anarchism, by normalization we do not mean developing a set of norms. Of course, completely fictional common rules are more close to man's social nature than lawlessness and anomism.

What we call normalization is a mechanism of rejecting the human being and repressing reality; a method which by specifying a desirable situation or human being as normal, negates and labels all other conditions or human beings as abnormal. We can define "normal" or "abnormal" by illustrating and confining the concepts and, without personifying them, try to make normal states, behaviors, and situations more probable and facilitated. However, in normalization, we do not deal with a value spectrum and a process, but with two states of normal and abnormal. The tragic climax of normalization appears when we understand that what is known as the true, desirable, and normal condition is never reached; we come to this world and die as abnormal while we fear and suffer from abnormalities all our life and do not recognize ourselves as a "true human being" due to our abnormalities.

How has the reference for our perception of human beings become an improbable, if not impossible, imagination? This is a fundamental question which is less attended to when considering a being with a very wide and complicated genetic structure which makes him prone to many abnormalities, a being who lives in an environment replete of animate and inanimate substances with potential pathogens. It is not possible for all the food we eat, the air we breathe, and the relationships we grow in from infancy to adulthood to be very healthy. Many latent pathogenic factors, latent killing genes, and abnormal cells exist in the inner environment of the body and are waiting to become active when triggered by an outside factor or a transient stop in the function of the immune system and to create a comprehensive and even fetal disorder. There is never a time that we do not experience physical, psychological, or communicative disorders even in the slightest degrees. Therefore, we should always negate the real human being to prove the impossible human being. What a surprising deception! What a great destruction!

The modern myth of auspicious painless time without any illnesses has been accepted in public and health discourse. Nevertheless, this image has been criticized by medical anthropologists and sociologists in recent years. Foucault explains that:

"The years preceding and immediately following the Revolution saw the birth of two great myths with opposing themes and

polarities: the myth of a nationalized medical profession, organized like the clergy, and invested, at the level of man's bodily health, with powers similar to those exercised by the clergy over men's souls; and the myth of a total disappearance of disease in an untroubled, dispassionate society restored to its original state of health" (Foucault, 2003, pp. 31-32).

Foucault identifies this meta-narrative or the myth of a world without pain as the key for the formation of modern medicine discourse (Foucault, 2003; Shawver, 1998).

The fact is that these so-called dis-orders or diseases are actually an inseparable or even an evolutionary part of human order; that is, the real order of human condition not the presumed and abstract order of the utopian human being. Instead of accepting this condition and its systematic and realistic improvement and, more importantly, understanding the social and genetic evolutionary function of the disease, human beings, Don Quixotes-like, have engaged in a futile quarrel with these evil disorders. To present this quarrel as real and to free themselves of these abnormalities, human beings tried to project the abnormalities on demons or on those who manifested them, and sometimes rejected such people.

Hospitals, asylums, hospices, and poorhouses, which are usually utilized more than their necessary care services, were regarded as parts of mechanisms for such rejection. However, more fundamental practices such as eugenics or the elimination of those who suffer from hereditary defects and reproduction of those who are considered to have desirable and perfect traits were undertaken explicitly by Nazis in the previous century which led to great disasters (Buchanan, Brock, Daniels, & Wikler, 2001; Huxley, 1998).

One of the documents which indicates rejecting the physically, mentally, morally, and religiously abnormal to guarantee the health of the society is the Zoroastrian book "Vendidad" which commands to expel the humpbacked, lunatic, impious, and epileptic and those with mange, leprosy, and decayed teeth from God's cities or not to allow them to enter the cities since they believed such patients were diseased and stamped by Angra Mainyu (Satan). For a healthy man, it may seem a mere rejection of the patients, but for the one who is suffering and threatened by the disease and for whom the disease is an inseparable part of his life, it is rejection of human being and humane life (Vendidad, n.d, Fargard 2: 29).

Such mythical approach and this utopian intervention, which we know has existed in all cultures and eras, from the past until today, is still a presupposition of modern medicine's knowledge and action. In the current era, we still see that the most pervasive institution of health, the World Health Organization (WHO), defines health as: "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 1948).

Taking this definition into account, is there a healthy human being? Is achieving such a condition possible? Myths are convincing, are simply accepted, and seem justified, fixed, and scientific to a great extent.

Absence of disease as a negative definition is sufficiently ambiguous and its occurrence is impossible in the course of life. In addition, it does not give us any picture of the state of health. The advantage of the modern definition, however, is that it can illustrate individual's health state and emphasizes biopsychosocial dimensions of life. Nevertheless, complete health is an absolutely abstract definition without any explicit instances; it is like null in mathematics (complete health) which is itself indefinable, but the deviations from this value causes the amounts (diseases) (Schwartz, 2000; Foucault, 2003; Shawver, 1998).

It is only in the last few years that we have witnessed discussions about health continuum as an extension of absolute health until death – two unreachable limits in life; the continuum that everyone, at any level of

the organization, and any time stands on one point of. In addition, individual's effort, and also that of society, is not to achieve the ultimate presumed limit, but to emphasize the process of continuous promotion of higher health. The baseline for higher health is an absolutely real and specific limit; that is, the current condition of individual's health (Leddy, 2006; Kiser, Lefkovitz, & Kennedy, 2001).

As is evident, at least now, normalization with all its psychosocial side-effects and destructive effects on treatment and research, is not necessary or even needed since to ameliorate the condition of the society, there is no need to presuppose a utopia. History shows those who tried to create a paradise on earth, yielded nothing more than an arid hell. Nevertheless, those who improved the human conditions achieved it through accepting the present condition, relying on realistic goals, and emphasizing the process of development and evolution.

Self-contemplation: 1. Imagine a human being who has been illustrated by biomedicine.

2. Investigate your feelings about such a human being.

3. Let this human being live in your mind for some time:

- In your opinion, where does he go?
- What is his feeling about his life?

4. Would you like to be such a being?

Notice that you were such a being before, even for some time!

C. medicalization

A somnambulistic ogre or a reverse-working demon? The medicalized human being who was transformed into a peeled and trimmed subject for the science of medicine by the two mentioned processes, had the capacity to be converted into a completely medical product, and as you know, this occurred. The term medicalization which mainly goes back to the critical studies of two social philosophers, Ivan Illich and Michael Foucault, refers to the boundless medicalization process of all aspects of life; the process which includes senility, death, menstruation, baldness, ugliness, shortness, boredom, anxiety, and addiction in the frame of the reference of medicine. When society is convinced that all of these are diseases, it offers its commodities and services to patients suffering from such diseases. Most often, society makes them understand that they cannot live without being supported under this umbrella or, better to say, in the greenhouse of medicine; at least they are compelled to think they cannot have a good quality of life or cannot live a worthy life. Naturally, mass media guides people into this atmosphere through cultural and economic control. Actors, actresses, and models who have idealistic bodies, old people who seem as if they are young and perform youthful activities, and happy and blissful beings who are actually consumers of new drugs are some of the cultural and social control factors (Goli, 2004).

Illich thinks that medicine, like other social systems, is busy with counter productivity. Having shown many evidences, he explores how education actively produces foolishness, media produces alienation, and medicine actively generates illness (Illich, 1976).

He describes three levels of iatrogenesis or disorders caused by medicine; clinical, social, and cultural iatrogenesis.

Clinical iatrogenesis refers to pathologies caused by ineffective and venomous treatments and also direct side-effects of evidence-based medicine interventions. These are the most well-known side-effects, and not the most important of them. These undesirable medical interventions receive less criticism since they are representative of the limitation in our knowledge to this time.

Social iatrogenesis includes the social outcome of medicalization. This term refers to medical claims supporting great employers, insurance institutes, dominating social systems, and drug companies for economic benefits which transform non-patients into consumers of medical products.

Educational, research, and therapeutic emphasis on services which are less effective on health due to economic reasons, deemphasizing more important issues such as health behavior change, and ignoring the qualitative aspects of life are other instances of social iatrogenesis. As it is implied from the aforementioned discussions, a drug agency, by imposing hegemony over media and politicians, can hide and deemphasize those evidences which confirm its product is ineffective or dangerous, or pronounce the opposite claims as invalid. This represents only one axis of the social iatrogenesis. Ideological, political, and economical biases of any kind are included in this category. It is evident that when the greatest database for publication of medical articles, Elsevier, is also one of the greatest selling agencies of weapons, such biases in guiding knowledge become completely predictable (Smith, 2007).

In Illich's view, cultural iatrogenesis is the worst form of disorders caused by medicine since it does not help individuals reach psychological maturity and accept indispensable realities of pain, suffering, disease, and death by developing the culture of health. Instead, it helps them repress and deny such pervasive realities by fooling them and giving them latent or obvious promises to the moon, and induces them to resort to medicine all their life instead of accepting these inseparable transitions in life. There is no day when we do not hear news that medicine has won over disease and death. Every naïve individual, who hears the everyday successes of medicine, after a short time, will trust and count on it to the extent that he will believe that if only he lives long enough, someday, he will see a day medicine eliminates all diseases and consequently death on earth. We disregard the fact that biomedicine has often not succeeded in treating such common and pervasive diseases as cancers, hypertension, diabetes, and autoimmune disorders and has merely increased the duration of living with the disease.

These professional interventions with their developed and expensive technology have little role in increasing life expectancy, but mostly contribute to preventive factors such as water, food, and environmental hygiene, general health, and prenatal and postpartum care, which of course, are not proudly introduced as services of medicine by the media (World Health Organization, 2004; Santrock, 2007). Moreover, we do not address the qualitative aspects of our life; happiness and faith are severely decreasing and depression, with a big epidemic leap, has become one of the most important reasons of debility and death in the two last decades (National Institute of Mental Health, 2010).

Day by day, less powerful human beings are seen who, as adults and aware individuals, replete with zeal for life, and accept death with dignity deserving human respect while lying in their bed surrounded by their loved ones rather than in the hospital with costly and futile expenses, fear, and inferiority, an event which has become a social tradition (Gilbert, 2001).

Perhaps, some, like Illich, see medicine as a reverse-working demon whose systemic characteristics have caused them to act in the reverse direction of their aims, and others see it as a somnambulistic ogre who does not know where he is going and in his heedless movement, crushes human beings under his feet.

That medicine is humanistic and life-oriented which, in addition to enlightening and helping people understand the truth, aims at diminishing pains. Besides, such medicine, by promoting citizens' skills and abilities as much as possible and, when necessary, using interventions of health practitioners, helps individuals stick to their inclination toward higher health to be able to develop the fundamental qualities of their life; that is, happiness and awareness.

Can it be saved from the evil of medicine?
Say!
I take refuge to God of dawn
From evil of what he has created
Qoran, *Falagh*, 1:2

Is being secured from the evil of medicine possible?

The evidence I have brought from Falagh sura in Quran shows that even God's creation is not void of evil! But it is possible to distance oneself from the evil or at least not to actively attend to it. Considering God's confession, we can expect that a knowledge system which tries to be in harmony, practically and scientifically, with nature, and specifically with the nature of the human being, to be a mixture of venom and elixir.

As previously mentioned, our criticism of biomedicine is not that it is not, like heavenly gifts, moderate, without side-effects, and always invigorating; our criticism is that today, we, as health practitioners, and we, as citizens, need to contemplate the following issues:

a. Why do we continue our utilitarian or negligent and exclusively technological-based treatments, when research has confirmed that investing on education, housing, job opportunities and altering health behaviors are much more effective?

b. Why do we still resist confirming scientific evidences which imply that sociocultural factors are critically influential in health?

c. As the basis of medical practice, why do not we replace the idealistic human being with the real one?

d. Why do we sacrifice zeal for life for the sake of lifetime?

e. Why do we assume that every defect in our body is a defect in the whole of our being? Cannot this defect be regarded as an evolutionary source for the individual and our species?

f. Do this materialistic attitude and the current inferiority of human condition have nothing to do with the belief system of biomedicine?

g. Is it time to institutionalize a humanistic medicine; a model which does not reject all diverse levels of human organization for the same reason, considers the rules of each level and makes intentions, experiences, qualities, states, and, in general, lifeworlds more clear and achievable in the fields of medical knowledge and action?

Therefore, it is evident that our discussion is not about undesirable and inevitable side-effects, but the systematic theoretical, practical, and, in other words, more dramatic biases of active regeneration of evil while there exist many evidences - not to mention disorders caused by avidity - that most of these biases are revisable at macro-levels of programing, education, and policy.

Considering what has been said about today's medical human being, it can be implied that nothing has remained from man other than his shape, social function and, of course, his number of life years. If the human being believes this image of himself – which he has believed in to a great extent – it is natural that his God would be nothing more than money; money in the sense of the potential to reach loved objects which can complete this incomplete object and improve form, function, and permanence in a way.

Therefore, the dominance of economy on biomedicine is not merely tentative, but it is deeply rooted in this models' materialistic nature and is closely related with its knowledge and action structure. It should be acknowledged that physicians or institutions, which give priority to their own health and spirituality and those of their clients over economical and trade desires, have ventured on a very hard, spontaneous, and, even, revolutionary deed.

Therefore, each block formed in this crooked mold which views the human being as a disintegrated and absolutely materialistic being is crooked and, as Nizami Ganjavi (1141-1209) says, a *new block should be made in another new mold*. A mold which describes and includes interventions on human beings while they are embedded in thier dynamic and live relationships; a mold which, contrary to the mechanical framework of biomedicine, is called communicative network.

Today, for the illustration of a picture of an individual, there is no need to preserve him for

hours or even days in one state so that we can draw the details of his expression in only the one state which it is mostly representative of. Today, we can take pictures of man by powerful cameras in any state or videotape him. In the past, in Foucault's words, it was only death which provided a detailed study of the body and we were practically obliged to generalize our knowledge of the dead body to the live one. Nevertheless, I believe, in line with many experts of medical philosophy and ethics, that , today we can analyze the human being not as an organized and purposeful collection of parts, but as a multidimensional, intentional, and meaning-making communicative matrix which is a member of other larger macro-communicative matrices and is representative, motivating, and, sometimes, their producer. Signs stream through different physical, biological, psychological, social, and cultural levels and every human being is a unique combination of all these relationships and, of course, dynamic in time.

The identity of this being is not explained through the formal differences of the parts, but through its specific relational system. At first glance, this description may seem a little confusing. However, it becomes believable when we try to extend and clarify this definition and analyze the human being as a generative network of signs and illustrate the formation of particles, energies, meanings, feelings, thoughts, behaviors, and most importantly, intentional and conscious actions in this network and show how the matter-energy–information–consciousness stream can organize itself in a more suitable and more economical way.

It is evident that consciousness is the most bizarre and disparate element of biomedicine and, of course, the most important reason for this model's inability to tolerate the human being with all his dimensions. While tolerating the mind – as the phenomenal world – is almost impossible for biomedicine, including consciousness as a property which makes reflection, selection, and conscious action possible, collapses the deterministic and reactive order of biomedicine altogether. The feeling of being harmed by this systematic and pervasive bias culminates to the utmost when we understand that this factor can alter not only our interpretation of and our feelings towards ourselves and our health, quality of life, client–therapist relationship, and health and disease behaviors, but even physiological and pathological cellular and molecular processes (Kradin, 2008).

Therefore, if we want to specify a point of departure for this study, we should say that although biomedicine has provided the widest and most exact set of knowledge to this time, from the subpersonal organizing levels – atomistic, molecular, cellular, of tissues, and vital systems – is by no means sufficient to explain personal and suprepersonal levels such as family, culture, and ecosystem.

Briefly, for medical discourse to dispense with this ontological, epistemological, and methodological isolation, it requires systemic and wise connection with other realms of human knowledge oriented toward all dimensions of health (Turner, 1990; Ainsworth-Vaughn, 2001; Fleischman, 2005). In line with this, we try to utilize today's valid systemic models such as biopsychosocial and biosemiotics models and at least provide an outline for the actualization of a communicative model in medicine. A model which can be the host of a real human being with all his aspects and can investigate health from molecular communications to cross-cultural relationships even though, like any other theoretical or clinical system, it does not have the capacity to include a real human being.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

The author would like to thank Sepideh Motamedi for her contribution in translating and editing the text.

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

Frankenstein or Prometheus: An Investigation in Essentialism of Medical Technology*

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Theoretical study

Abstract

The concept that an essence independent of man's volition exists for technology, from the point of view of any thinker, has extensive effects on the whole system of his reflections on technology. Heidegger has been known to grant an independent essence for technology (essentialists). This highlights and complies with some other parts of his thoughts on technology. This belief even extends to the utmost of his philosophy of technology, where he finds the way of release from the Gestell of technology. The current paper tries to extend Heidegger's reasons and evidences on technology to medical technology. Then, it deals with possible criticisms of these reasons and evidences. Finding the foundations of Heidegger's ideas on technology in his first classical work – "Being and Time" – is the purpose of this article.

Keywords: Heidegger, Gestell, Philosophy of technology, Technological revealing, Technology of medicine

Citation: Moinzadeh M, Motamedi S. **Frankenstein or Prometheus: An Investigation in Essentialism of Medical Technology.** Int J Body Mind Culture 2017; 4(1): 17-35.

Received: 28 Jan. 2017
Accepted: 25 Mar. 2017

Introduction

The idea that an essence independent of man exists or non-exists for technology complies completely with knowing technology either as a mere neutral and non-oriented instrument or vice versa. Based on this, three perspectives can be distinguished:

1. The common and well-known idea is that technology is an instrument oriented to satisfy man's needs.

Some make use of this instrument for the good, while others use it for evil. In other words, modern technology is like a machine which man has devised for improving his life. If the machine is used for evil intentions, the users have to be rebuked not the technique. Technology is neither good nor bad in its essence, but neutral. It is evident that such an idea is the simplest view on the whatness of technology and its relation with human beings which requires no thought. Most advocates of this belief are scientists sunken in their professional knowledge, negligent users of technology, who are unfamiliar with views on technological instruments and those politicians who are enthralled by

** This is the revised version of article "Frankenstein or Prometheus: An investigation in essentialism of medical technology. Philosophy of Science [Falsafeh Elem] 2011, 1(1), 75-103", which was published in Persian.*

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advancement and development (if not seeking it for power and domination). Thus, this standpoint is the most well-known among all others. In this view, technology is not basically reflected on. It can be predicted that advocates of this view regard technology as lacking an essence independent of human volition.

2. The other view is that although technology is an instrument, it is out of man's control and has dominated man's will. This rebellious instrument has inevitably alienated man from his human essence (alienation). Marx believed that the instrument of production revolutionizes the relations among people and their relation to the universe, but if technology is supervised by the whole society and the things are planned, they no longer become the origin of exploitation and disorder and man will achieve freedom and be freed from alienation from himself. He stated that man, through technology, gives his own pattern to nature, thereby eliminating the distance between himself and nature and overcoming self-alienation. Regarding the five characteristics Jacques Ellul points out in his book "The Technological Society", he seems to be an advocate of this view. These five properties are automatism, self-augmentation, universalism, autonomy, and monism (holism).

Advocates of this view, on the one hand, state that technology is neutral and, on the other hand, talk about man's being in the grip of technology. Therefore, their standpoint is shaky and unsteady.

3. The third group knows technology not as a neutral instrument or even an instrument. They believe in an essence independent of man's volition and identify the relation of man with technology as subordinate to his relation with the essence of technology. In their view, the essence of technology is something other than technological instruments. For this group, the essence of technology is not technological. Heidegger and Borgmann are advocates of this view.

The current study deals with reasons and evidences that Heidegger states to confirm the existence of an independent essence for technology. Then, these reasons and evidences are assessed in respect to medical technology. Finally, the autonomous position of the author on technology is defined. Before going further into the discussion, it should be noted that, as the second group sometimes believes in the views of the first group and sometimes takes the stance of the third group, it was eliminated from the investigation so that the discussion could fit into the dual framework of instrument/essence. That is, negating the instrumentality of technology is the equivalent of confirming the existence of an essence for it and vice versa. By the essence of technology we mean its effectiveness on men's essence (their relationship and relation with the world and others). In other words, if we prove that technology has deeply influenced the essence of man, we confirm that it has true effects and inherently has an essence. Otherwise, we have confirmed the instrumentality of technology.

1. Reasons and evidences

1.1. If we regard technology as an instrument and we accept the prerequisites of technology to all its propositions, we must accept that technology is a way of revealing. This statement shows a kind of familiar Heideggerian reasoning whose formulation is reminiscent of ad absurdum. Since he uses seen and hidden as true and false (Heidegger, 2001, p. 55), and as seen and hidden belong to each other because they are of one thing, we can take the seen (instrument) in every dualism, like instrument/essence, and obtain the hidden (essence) provided that we stick to the nomous of the discussion to the end. This is the known tradition of Heidegger. For example, Heidegger, in the discussion of essential spatiality of Dasein, in "Being and Time", takes the natural attitude toward the place (which is not false, but is the seen) and, while it necessitates the reader to stick to the nomous and the rules for walking, carries him to the unseen (closeness and remoteness) (ibid,

p. 135). However, the most prominent instance of this Heideggerian reasoning can be found in his discussion on the locus of truth in which he takes the statement to reach the interpretation (Auslegung) (Ibid, pp. 217 & 255).

In "The Question Concerning Technology", Heidegger does not consider the instrumental definition of technology as incorrect; "modern technology too is a means to end" (Heidegger, 1977, p. 5). Nevertheless, in his view, "the merely correct is not yet the true" (Ibid, p. 6). Therefore, saying that technology is something instrumental does not provide an answer to the question of whatness of technology. If we were contemporaries of Heidegger and ask him: "what is instrumental itself?" (Ibid, p. 6), we would hear the answer: the truth of instrumental itself is founded on causality.

In the next step, Heidegger counts four ways of being responsible. "The four ways of being responsible bring something into appearance. They let it come forth into presenting … this principal characteristic of being responsible is this something on its way into arrival" (Ibid, p. 9). The domain of presence, is the same as the domain of alātheia. Accordingly, "the possibility of all productive manufacturing lies in revealing" (Ibid, p. 12). In an interpretation, technology is a way of revealing. As we gain knowledge in the light which reveals the world and man in a certain way, and this knowledge determines our relation to the world, we find that technology has an independent essence. If technology has an independent essence, it affects man's essence (man's relation with the world and human beings).

Heidegger's reason is always etymological signs. In this respect, no blaming can be oriented towards Heidegger. One who calls language the house of being in his "A Letter on Humanism" (Heidegger, 2000), definitely sees the words and their etymology and language as the locus in which truth takes place and not as the means to express a preexisting truth. Heidegger's reasoning is known to be determined by Greek language cognates – he recognizes Greece as the site of the rise of Western thinking. Greek words, specifically if their pre-Socratic meanings are considered, are Heidegger's justified evidence and the development of the meaning of the word is the sign of the history of revealing the being.

2.1. As revealing is not in our control, technology which is a way of revealing is not an instrument, the fundamental property of which is being in our control. As technology is not an instrument, it has an essence.

"The revealing that rules in modern technology is a challenging [Herausfordern]" (Heidegger, 1997, p.14). The result of such challenging is that "Everywhere everything is ordered to stand by, to be immediately at hand, indeed to stand there just so that it may be on call for a further ordering. Whatever is ordered about in this way has its own standing" (Ibid, p.17). Heidegger calls it standing reserve (Bestand) (Ibid, p.17). But who accomplishes this challenging setting-upon? Evidently, man; however, that unconcealment through which what we call the real is revealed as standing-reserve is not controlled by man. Human beings are involved with nature in the process of ordering, but that revealing, which ordering is actualized in its frame, is not controlled by man's volition. Human beings respond merely to that revealing which is claimed by. "We now name that challenging claim which gathers man thither to order the self-revealing as standing-reserve 'Ge-stell' [Enframing]" (Ibid, p.19). Gestell is something which calls man for revealing. In a sense, Gestell is destiny. The word Schicksal in German means fate in English and /taghdir/ in Farsi and its verb schicken means providing and destining.

Gestell is fate because it destines and sends man to revealing through being called for. Thus, there is no determinism in fate. However, men are summoned in the frame of a specific revealing, but if that frame is the ambiguous frame of determinism, the human body, which inherently restricts its

interactions, causes determinism.

All in all, revealing, as Gestell, is not controlled by whim and volition, and thus, is not a means in our hands. Technology which is a way of revealing is not in our control either; therefore, it is not a means in our hands, and if it is not a means, it has an essence, an essence independent of our will and volition.

3.1. The basis of technology is non-technological: In a part of his article "The Question Concerning Technology", Heidegger explained what he meant by saying something is technological. Considering his definition of technological reveals what he intends by non-technological. "Those things that are so familiar to us and are standard parts of an assembly, such as rods, pistons, and chassis, belong to the technological. The assembly itself, however, together with the aforementioned stockparts, falls within the sphere of technological activity." (Ibid, pp.20-21).

The emphasis he puts on the non-technological essence of what establishes the bases of technology is achieved by explaining what he means by technological, and consequently, non-technological. If the constitution of technology is not due to its instrumentality, inevitably a non-instrumental essence should be regarded for it; that is, what is not in control of man's will and volition. But what constitutes technology? An idea, attitude, or understanding (better to say, a non-understanding).

A hasty glance at one of Heidegger's first works shows this idea in an ambiguous way. In "Being and Time" (2001a), he introduces the world not as a set of objects but a set of references and signs (pp. 107, 112). One object invites us to self-manipulation of the self, operationally or theoretically, but a reference or sign calls for abandoning the self and moving toward the thing that reference refers to or that sign is representative of. Heidegger, in "Discourse on Thinking" (1966) (Glassenheit) – whose theme has even caused the appreciation of Andrew Feenberg, the critic of Heidegger, in his article "Philosophy of Technology at the Crossroads: Critique of Heidegger and Borgmann" (2014). Feenberg puts forth the concept of "leaving things on their own" which is exactly consistent with the view of the world as a set of signs.

In the beginning of "Being and Time" (2001), when he is interpreting the concept of phenomenology to explain his methodology in the essay, he introduces it by his unique etymologic method: "phenomenon signifies that which shows itself in itself." (p. 51). Things do not show themselves in the way they actually are when manipulated for a reason, but rather when observed and understood for the intention of watching (means /tamasha/ in Pesian, /tamasha/ is rooted in the Arabic word /mashi/ which means walking; /tamasha/ is watching with, watching which is tantamount to being with), they show themselves as they really are. In this sense, they invite the observer to pass across the self and to observe from a perspective which they are the signs for and inherently refer to.

By poiesis, in his article "The Question Concerning Technology", Heidegger intends the same observation accompanied by maintenance and care. He states: "The field that the peasant formerly cultivated and set in order [bestellte] appears differently than it did when to set in order still meant to take care of and to maintain … In the sowing of the grain it places the seed in the keeping of the forces of growth and watches over its increase" (Heidegger, 1997, pp. 14,15). That which constitutes technology is the concept of manipulation rather than idea of understanding and watching. Manipulation is equivalent to Gestell and understanding and watching equal to poiesis. Heidegger explicitly put revealing of Gestell in contrast to revealing of poeisis (bringing forth) (Ibid, p.14). That Heidegger did not discriminate between electricity and atom bombs, agricultural techniques and the Holocaust regarding their extent of being technological indicates that he knew their foundation as the

same and did not believe in instrument and instrumentality (Feenberg, 2014, p. 364).

4.1. Technology transforms our understanding of the "essence": Heidegger states that our current understanding of the essence is the sign of something continuous and persistent. In fact, we have comprehended the "universal" or the "general" as the essence. For instance, the essence of the tree is known to be something that can be conveyed to all kinds of trees such as oaks, spruces, and pines. What is continuous and persistent in all of these trees is their essence or the essence of the tree. Heidegger (like Borgmann) believes that technology fragments and disaggregates identities (Dreyfus and Spinosa, 2014). Therefore, the essence no longer includes continuity and persistency. The essence is fragmented into pieces by technology. This is a great danger, but is in accord with Hölderlin, "… where danger is, grows the saving power also" (as quoted in Heidegger, 1997, p.28). The diversity and multiplicity of the essence – if the things are actually things (Dinge) (gatherer) and gather the fourfold within themselves, and if dasein is actually lightening (Lichtung) and revealer of existence – reveals and uncovers diverse and multiple worlds.

It is evident that that which has the capacity to alter essence and, above that, the hundred-year aged concept of the essence, cannot be a mere neutral means. Therefore, technology is not a means, but has such an established and independent essence from us that it even has the ability to alter our deepest impressions.

5.1. Technology has existential priority to science: One significant theoretical error that makes the meaning of the instrumentality of technology ambiguous is the attitude that technology is the application of sciences, especially exact sciences. Evidently, functionality can include instrumentality. The pragmatic aspect of science is the instrumental aspect of technology through which science is allowed to manipulate the world and such manipulation becomes possible. Therefore, if it is confirmed that technology has priority to science, the pillars of the theory of instrumentality of technology become fragile.

Apparently, Heidegger accepts science's chronological priority (not historical priority; it will be explained that when Heidegger uses the term history, he intends the history of the existence, not the calendrical history, especially if it is specified by the word Geshichte). However, he rigorously believes in the existential priority of technology to science.

It is worth noting that although the emergence of modern technology is known to be later than that of modern science chronologically and there is no doubt in this, some evidences show that this historical segregation cannot be completely trusted. For instance, the modern science of mathematical physics has not been certainly developed in universities. Galileo is indisputably the father of physics mingled with the current mathematics and conducted his research among tools and instruments of sailing and shipbuilding (Davari Ardakani, 2007, p. 62). Even now, no research can be conceived to be conducted without making use of technological instruments which have been devised before that scientific research.

There is no doubt in the existential priority of technology to science. In "The Age of World Picture", Heidegger explains that in order to be the subject (object) of science, the world has to be first uncovered in a way that scientific research, which is mathematical, can be conducted on. Scientific research ideologically is not neutral and prior to its actualization, the world has to be represented in a certain manner (Heidegger, 1950a). He discusses the same subject in "The Question Concerning Technology":

"In enframing, that unconcealment comes to pass in conformity with which the work of modern technology reveals the real as standing-reserve [mathematics] … Modern science's way of representing pursues and

entraps nature as a calculable coherence of forces." (1997, p. 21).

It seems that technology is the ultimate of science. Even if this is true, Heidegger states that this does not negate the priority of technology to science, as Greek thinkers say: "That which is earlier with regard to the arising that holds sway becomes manifest to us men only later. That which is primally early shows itself only ultimately to men" (Ibid, p.22). Frist, thinking comes, and ultimately, action follows.

The priority of technology to science can be regarded as a proof or at least a sign for the existence of an independent essence for technology and against its instrumentality since, as was mentioned, the view that believes science to be prior to technology, actually considers technology as the application of science which means technology is instrumental. Inevitably, the opposite view that regards technology as prior to science negates that technology is a pragmatic science, and therefore, negates the instrumentality of technology, and consequently, accepts the existence of an independent essence other than its application by science for technology. To be non-pragmatic means to be non-instrumental or not to be an instrument in man's hand and control. The latter claim is senseless unless an essence independent of man's volition is presumed for technology.

6.1. That Heidegger avoids presenting local solutions – which include the acceptance of some parts of technology and rejection of some others – can be a sign that he identifies technology as an integrated whole which is the same as conceiving the existence of an essence for technology.

Heidegger obstinately avoided thinking of seemingly compromising and peaceful local solutions. He believed that reconciling technology to man's human identity through some technological practices is vain and the reason for not identifying the essence of technology. Conducting programs of reform is futile. As will be explained, Heidegger sees the remedy in passivity, in the Heideggerian sense of salvation (Glassenheit), instead of active reforms. Even in his last work – an interview with Spiegel in 1967 which he agreed to on the condition that it would be published after his death – he says: "only a god can save us". No one knows if by "God" he meant the personified God in Abrahamic religions and if Heidegger, by this, provided his last answer to those in search of a sentence from him to include him in one of the poles of atheism or faith, or something like Greek goddesses or gods (something sacred) presented in his article "The Thing" (with mortals and the earth and heaven). The evidences are sufficient to imply that expecting a God to manifest himself, which is very similar to expecting the appearance of Nietzsche's superman in "Thus Spoke Zarathustra", indicates that Heidegger is so disheartened by the usefulness of periodical and local solutions, social engineering of such theorists as Popper, that he resorts to heaven and its gifts.

Heidegger did not recognize technology as an integrated whole which calling a part of it causes all other parts to appear. He was definitely in accord with those who manipulate technology to restrict its harm and damage to the human being and the world. This accompaniment, which is simpler than expecting to be saved by God, never occurred since what Heidegger saw as the fundamental of technology was man's unconstrained desire for manipulation. How could another manipulation confine and limit the primary manipulation of technology? This is the same as the fight between kin and tribes for vengeance which no peace is conceived for. For Heidegger, technology had an integrated essence, independent of human beings' manipulations.

However, was the lack of acceptance of logical solutions the same as prescribing surrendering to technology? Never. Heidegger in his article "Glassenheit", or "Discourse on Thinking" (1966), identifies establishing a "free relation" with technology as the remedy for

technology. To understand this "free relation", we have to explain some other points from Heidegger's works which had been written before writing "Glassenheit".

First of all, it should be noted that for Heidegger, understanding and action are not separate. In "Time and Being", understanding is a kind of arising and disclosedness in action (Heidegger, 2001a, pp. 182, 193). Therefore, Heidegger uses the word "verstehen" rather than using the more usual word "begreifen" for understanding. The root of the infinitive "stehen' is "standing" in English and /estsdan/ in Persian, and thus, implies an understanding accompanied with rising and acting. This insight of Heidegger was culminated to its perfection with Gadamer who gave a new sense to Aristotle's practical wisdom (phronesis) and made use of it to remove differentiation between theory and praxis. Secondly, in his article "The Thing", Heidegger introduced a thing by saying: "when things thing they bring together earth and sky, divinities and mortals" (Dreyfus and Spinosa, 2014, p.354). Of course, this view was presented after he, in "The Origin of the Work of Art" (1950b), considered a work of art as the product of interaction and fight between sky and earth (battle in Heidegger's view is the culmination of interaction). In battle, one thing heightens the other to the extent of its respect and taking its essence serious. In battle, the other party or opponent is our rival; that is, we regard him to be at the same level as us. We refuse to battle with an opponent who we do not believe to be at our level because such fighting brings shame and disgrace to us.

Thirdly, as Dreyfus and Spinosa have correctly found, in Heidegger's view, technological instruments thing and continuously has the power of "gathering" the fourfold (Dreyfus and Spinosa, 2014, p.356).

Nevertheless, what is the relation of these three introductory sections with establishing "free relation"? As understanding is the same as action and projection (Heidegger, 2001, p.372), understanding technology is an action proportionate to it. Understanding the essence of technology – that is, understanding Gestell as a way of revealing which is destining – itself is in fact an action which influences the transformation of revealing and fate. If we understand how Gestell destines us to have a specific interaction with the world and human beings, this is an action for overcoming the Gestell of technology and this means establishing a free relationship with it. In respect to technological instruments, Heidegger believes that understanding that they, more than anything else, are things and can thing (that is, gather the fourfold) will cause us to take into consideration that they are constituted by something more supreme (the fourfold) as we let them enter our life (it seems that it is inevitable that we to do this) (Feenberg, 2014). This is the true releasing from the bonds of something and establishing a free relation with it. However, eliminating technological instruments from life, just like their negligent application, is in fact surrendering to technology and its Gestell. What we are to do is to understand, and, consequently, save power and grow "concealedly and quietly" and in its own time (Feenberg, 1977, p.28).

2. Conformity of Heidegger's ideas with medical technology

2.1. Prior to examining this, I should make clear that my intention by medical technology in this essay is both its hardware (medical and pharmacological instruments and devices) and software (specifically knowledge, scientific institutions, and the related institutes) aspects.

If one is still doubtful of the fact that the relation of technology with human beings is that of domination, a reflection on medical technology can eliminate this doubt. The domination of medical technology over human beings is the reflection of technological domination. Today, our lives, even before we come to this world and even

prior to zygote cell production (through parents' genetic examinations), are supervised by medical technology. Medical hardware such as sonography and intrauterine diagnosis methods (such as amniocentesis) controls the fetus' condition.

Medical knowledge also plays its software and logistical role in this supervision and control by providing health standards for the fetus. Medical technology, throughout its life, does not remove its "panoptic eye" (Foucault's term in his book "History of Insanity and the Birth of Clinic") from our life. Sometimes, we are not even abandoned and forgotten after our death; unless the cause of our death is diagnosed through autopsy, we are not allowed to rest in our grave.

If we consider technological medicine and follow its requirements questioningly step by step to its last requisites, we come to the conclusion that medical technology is a way of revealing. "Instruments of what" are "instruments of technological medicine?" Instruments are means to reach a goal. What goal are medical instruments supposed to reach? Undoubtedly, it is to maintain man's health. Is man's health something defined and specified? Evidentially it is, because all medical knowledge taught in universities all over the world try to define health standards.

But, have health standards been fixed during medical history? Did the physicians of ancient Egypt and Babylon, or Iranian sages of hundred years ago, or medicine men of three hundred years ago in the West have the same current interpretations and standards? Definitely not! Take the weight of a human being from the point of view of medicine as an instance. In the past, to be thin was a symptom of the lack of health and connotatively was used in proximity with the concept of death (in Persian the word /lagharmordani/ which means thin to death is used). However, today, obesity is connotes death. This can be merely regarded as an advancement in science that a Popperian interpretation in accordance with the consistent scientific theories can be presented. Nevertheless, sometimes, the differences between the past and present are to an extent that none can be recognized as the precursor or consequent of the other. For instance, today the concept of disease in Galenic or Avicennian medicine is altered so dramatically that it can barely be included in the same field. Trespassing cosmic scales differs greatly from deviation from normal standards (the ranges that more people are in). Today, to be in harmony with the world order which was interpreted as being healthy in ancient medicine has become completely incomprehensible.

It seems as if something other than our desires and volitions determines the goals of medical instruments; something that encourages determining the goals and we, astonished in its encouragement, have impressions. It sometimes unconceals or reveals itself in a way and we, as portrayers, draw this uncovered portion. Medical instrument, as Heidegger explained about all instruments, reveals in this way. We devise and make use of technological instruments of medicine and they exert actions on us, but that shiny light that opens up such a domain and a territory that allows the manifestation of health, disease, and medical instrument is absolutely out of our control.

2. 2. It was argued that medical technology is a way of revealing that, like any other revealing, is out of our control. Of course, instrument has become instrument through its being in man's control. Therefore, what which is not in man's control, like medical technology, is not an instrument and as it is not an instrument, it inevitably has an essence independent of man's control. That challenging which is the characteristic of Gestell or is the same as Gestell of the technology also exists in medical technology. For challenging to be established, first the locus of challenging has to be provided. The locus of challenging for medical technology is the human body. However, prior to this, medical technology has to interpret the human body in a way to become prone to

and receptive to this challenging forth.

Long before the emergence of technology and modern science, Descartes stated the human being's receptivity to be challenged forth in his Cartesian dualism. Heidegger explains: "Descartes distinguishes the 'ego cogito' [thinking I] from the 'res corporea' [physical thing]" (Heidegger, 2001a, p.123). In the next step, extension constitutes the physical thing. The physical body of the human being also becomes an extension in essence which, like any other extension which is commensurable, is the subject of physics and mathematics and of course prone to and receptive of all kinds of lengthening, shortening, and chunking, and to say it briefly in one word, manipulation and challenging forth.

Perhaps if phenomenologists, specifically Gabriel Marcel and Merleau Ponty, and even medicine philosophers, like Svenaus, did not put forth an alternative view, the greatness of the realm in which medical technology constitutes itself would be less evident. Marcel (1965) explains that, if we see the problem from this angle (Cartesian point of view), we will view our body merely as an object, as a mass, a mass of matter which may be from any other person. However, the physical body is not merely a piece of any other matter (this similarity makes the physical body open to interventions of technological medicine); it is a way that each of us is in the world. Our body is something which gives us a position and identity in the world and makes possible our interaction with the world. I and my physical body cannot be known as distinct entities, but I am inherently embodied.

Being a human being essentially means to be embodied. Marcel believes that the body is the container of one's first openness to the world. In phenomenological reflections, the body includes the lived body. The lived body is not just a thing in the world, but is a way through which the world exists for us.

Can Descartes alone change man's attitude and ultimately what Heidegger calls history of being? To answer this question, recourse to what Heidegger states about what Plato proposed regarding the concept of eidos – which Heidegger thinks is one of the main titles of the history of being – is useful; "The fact that the real has been showing itself in the light of ideas ever since the time of Plato, Plato did not bring about. The thinker only responded to what addressed itself to him" (Heidegger, 1977, p.18). We have mentioned that Gestell, in Heidegger's view, is calling or addressing and a way of revealing. Revealing is not in man's control. Considering the body to be challengeable by medical technology is not in man's control either. Therefore, how can medical technology be merely an instrument in man's control which has no independent essence?

3.2. Heidegger calls that non-technological which is the base of technology, an idea which considers the elements in the world as a permanent and stable resource rather than poiesis – that is, observation accompanied with care and maintenance. For instance, he states: "But meanwhile even the cultivation of the field has come under the grip of another kind of setting-in-order, which sets upon [stellt] nature. It sets upon it in the sense of challenging it. Agriculture is now the mechanized food industry" (Heidegger, 1977, p.15).

Medical technology has well understood the concept of "man's body as resource" and organized itself based on it. In medical technology's view, the main dignity of man is his being a servant standing in the doorway of the technological world. The wheel of the technological world is not moved without human resources. The software aspect of medical technology takes these main concepts, that is, health and disease, into consideration.

Software systems of medical technology (health systems) and their institutions (hospitals, research centers, ministries, and etcetera) are all agents for moving the wheels of the technological world. The health system completely takes into consideration this aspect of man as resource in any definition it

presents for health and consequently for disease. Who knows whether a "disabling disease" is the disease which prevents man from being a resource or a working force or not? The health system spends most of its energy for diseases which appear in the average age of man; that is, in ages with the maximum work yield. Losing natural functions is a criterion for diagnosing many psychological diseases (for instance in schizophrenia and depression).

If one uses drugs to forget man's homelessness and statelessness (technology makes everywhere identical so that all the places, and therefore, nowhere is the home of man), he is diseased since drugs do not give man the opportunity to give services to technology. However, if the same man works twenty hours a day to forget himself, he will be an instance of a willful and successful man. Are medical examinations which are conducted in the beginning of the employment – sometimes by using technological instruments – something more than assessing man's ability to move the wheels of the technological world; that is, the ability of being a resource?

Foucault's insights in this respect are very deep and the report he gives from the first general hospital in Paris, which was established in the 16th century by the order of France's monarch, is shocking (Foucault, 1973). Criminals, orphans, lunatics, the poor, and handicapped and incurable patients were all maintained there. What common characteristic would gather such a heterogeneous assembly in one place? To say it in one word, is it not being a resource and a working force? Physicians were definitely present along with agents of force. Then, something happened. It seemed that some intellectuals with the claim of philanthropy separated orphans. Nevertheless, as Dreyfus states, the reason was not philanthropy, but it was the economical revolutions which provided the abundance of job opportunities, and consequently orphans could serve the role of resources and job forces (Dreyfus & Rabinow, 1983).

If becoming a resource was equal to release from the hospital, can it be said that to be hospitalized (which is absolutely related to medical knowledge and that a patient to be hospitalized or not is seemingly something to be discussed scientifically) is related to the lack of man's ability to work? The basis of technology is something non-technological and this is not something other than considering man as resource and working force. This non-technological thing can be found in medical technology more agonizingly than in every other field.

4.2. Medical technology revolutionizes our understanding of the "essence" itself.

In "Being and Time," Heidegger states that if death is real death (not merely turning into a corpse and perishing), it, by confining our existence which is the farthest extent of the boundary, allows us to understand our existence as a whole not as a diverse set of experiences. Understanding our existence as a whole is equivalent to conceiving an essence for the self. By changing the meaning of death from the act of dying (which is phenomenological) to turning into a corpse (which is physiological), medical technology alters our view of essence. Primarily, death has not been a medical issue.

In his "The Canon of Medicine", Avicenna introduces medicine as knowing the science of body states which are affected by health and disease. Health and disease are two opposing sates. But what is the position of death in this relation? It seems as if death had partially been a subject to be investigated in other realms of knowledge such as religion, philosophy, and art. In the "Birth of Clinic", Foucault identifies the narrative that death is the subject of medicine – since it sometimes leads to death – as a modern narrative invented by medical technology (Foucault, 1963).

There is no doubt that physiological explanations of medicine which define death have taken the place of seeing it as religious punishments, art nostalgias, and rational judgments. This in turn has altered our

attitude toward our own essence (Heidegger acknowledged death as the basis to understanding essence). Today, our essence depends on gene sequencing. Genetic engineering is seeking to change our mood and temperament. As was mentioned before, in this great risk – that is, altering our relation with essence – the savior force is also latent. If it is possible to give one sense to diverse essences, the fluid essence which is still essence loosens many philosophical complexities.

Medical technology has existential priority to medicine. That is, prior to technological medicine coming into existence, the world has to be represented in a way that in the twilight of this unveiling, man is revealed as assessable, controllable, and receptive to discipline. This revealing (discovery, unconsealment) has already taken place and a human being with such characteristics has emerged. The transformation of the concept of "disease" is representative of this truth.

In today's medicine whose impudent technological interventions excite physicians and even patients, the concept of serious disease has intertwined with the concept of normal amounts (norms). The word "norm" explains technological medicine in the best way. Technological medicine or medical technology was established on the concept of disease (and defines health as the lack of disease), the concept of disease is also based on norms or normal amounts.

There is no truth in a "norm" except that most people are included in normal ranges. Breaking the norms does not mean concealing a truth among other truths, but behaving and speaking in a way that is different from others. Although breaking the norms is sometimes accompanied by negating the truth, this accompaniment is dispensable, that is, breaking the norms and negating the truth do not essentially co-occur with each other.

The concept of disease in modern medicine (which is fundamentally intertwined with medical technology) is just like the concept of breaking the norms in society. Perhaps hypertension is the most common disease in medicine. Generally, 140 and 90 mm/hg are considered to be normal maximum systolic blood pressure and maximum diastolic blood pressure, respectively. This is mentioned in all medical textbooks with subtle differences. If your blood pressure is lower than 140/90, you are in the range of normal rules and norms, that is, you are not diseased. However, if your blood pressure is higher than these figures, you are considered as diseased and should undergo medical interventions which are sometimes technological (for instance if your hypertension is due to a tumor in the adrenal gland, surgery and the removal of the gland is necessary).

But where have these normal figures come from? Perhaps most people do not know that blood pressure of 150/100 does not cause any decrease in oxygen delivered to the tissues. In other words, in providing oxygen for the tissues, which is the most and main function of the blood (blood has other functions like defending when faced with micro-organisms and automatic cessation of bleedings, but these are its subordinate functions), there is no difference if blood pressure is 150/100 or 120/80. Therefore, hypertension is not the sign of any true disorder in the functions of body organs. Moreover, people have different and diverse psychological structures. Based on psychiatric rules, people can be included either in A or B type groups in terms of their personalities. People who belong to group B are more introvert and when confronted with external events, their blood pressure may increase rather than them having such reactions as anger, grief, crying, laughing, or happiness. This means that if I am supposed to be I, my blood pressure should be more than 140/100. Lowering this figure with the force of medication, diets, and surgeries may change my personality structure.

Therefore, if hypertension is not the sign of any true disorder, why is it bad? And why is it regarded as a disease? The exact reason is

that in more than 80% of cases, hypertension does not cause any disturbing symptom for the individual. True symptoms such as headaches and burns can be completely ignored. However, it has statistically been proven that if hypertension is not treated, people are more prone to heart attacks, strokes, and kidney failure; in one word, they would live shorter lives.

If we take the above description into consideration, it appears that man and his body, like any other thing, should first become the subject of mathematics in the light of a kind of attitude toward the world and human beings, and then, an extensive and enduring science like medicine will become possible.

If the body becomes the subject of mathematics, it can be horribly manipulated because the simplest manipulations are the manipulation of numbers and figures. With respect to the above instance, we have normal figures for blood pressure, a normal figure for life span (shorter life span is the span which most people have more than that), and a statistical figure for investigating human beings' life span. Viewing the world as mathematics made the technological manipulation of human beings possible.

Hume said that causality in medicine is not the constant conjunctions of events. A large number of smoking cases do not lead to lung cancers and smoking cannot be identified as the cause of a large number of lung cancers. However, it can be said that smoking is the cause of lung cancer. Here, causality does not mean constant conjunction of events, but their statistical accompaniment with each other. In more than 90% of lung cancers, there is the history of smoking. This means that if some people smoke, a large number of such people develop lung cancer. The question is that "based on which permission, does medicine regard human beings as the same?" Man is always either this or that and never like this or that. Such an attitude only becomes possible thanks to the revealing of the Gestell, the revealing which regards all as the same; this as that and that as this. It is due to excess of seeing similarity and forgetting essential differences between human beings that normal numbers define our state of being. The Gestell of technology, like what happens in prisons, assigns numbers and figures to human beings.

It is true that the assumption of unity of nature is the assumption which makes science possible, but this assumption, firstly, makes nothing possible except the same technological science, and, secondly, perhaps conceiving such unity is possible for any other being, but it definitely cannot be conceived for human beings.

Such questions as "Is it possible to have a nomological human science in spite of the uniqueness of each person?" should be passionately discussed in medicine whose subject, like other human sciences, is the human being.

Is barometer (as one of the simplest medical technological instruments) merely a neutral meter for measuring blood pressure which existed before (existential perviousness)? Or does it exist because technology allowed the devising of such an instrument possible in terms of both its hardware and specified normal numbers for health and disease of human beings in terms of its software (medical knowledge prior to technological revealing)? Can this instrument determine and specify hypertension? Technological medical instruments provide more precise normal numbers and states day by day. Therefore, an increasing number of people are placed outside the limits of these numbers, figures, and states and the number of diseases and patients increases daily.

Perhaps the reason for narrowing down health limits and the consequent increase in the number of diseases and patients is the fact that, previously, some diseases were not diagnosed, and thus, some people regarded themselves as healthy, but were patients. Nevertheless, it is worth noting that the truth of the disease is the feeling of illness; disease is dis–ease which means lack of ease and

comfort. Today, individuals' feelings of illness or lack of illness is deemphasized in the concept of disease. Disease conceptualizes and specifies itself based on its own rules because in this field, like any other field of technology and science, the subject (human being), his demands, and feelings are completely eliminated. If technology of communication was previously connected to man's needs and problems, today, it takes its questions from the context of its advancement.

However, the theory of illness – that is, lack of a good feeling –is still one of the main discussed theories in the philosophy of medicine. As always, Heidegger has the deepest insights on the subject of disease. From 1959 to 1969, he held conferences in Medard Boss's house in Zollikon for physicians and psychiatrists. In these conferences, disease was regarded as the state in which one is not in tune with the world. The word used for being tuned was the German word stimmung which refers to tuning one musical instrument to the other. This Heidegger's view is like the view of Galenic's harmony of the healthy human being with the cosmic order. The truth of health is the feeling of being in harmony with the world even when one is close to dying – whatever the technological instruments indicate. Primarily, death has nothing to do with the feelings of health and disease. Death is in time and has no time. Death arrives and it has nothing to do with whether we regard ourselves as healthy or ill. Heidegger, in his conferences in Zollikon, introduced disease with the indicative term *not-being-at-home* (nicht-zuhause-sein) – which he had also previously employed in "Being and Time". It is technological medicine which is oriented towards death. As previously noted, Foucault was the pioneer in revealing the fictional narration of birth → disease → death.

Nonetheless, technological instruments of medicine and the absolute of medical technology are undoubtedly telling narratives of the diseases. They do not merely diagnose and treat diseases. Disease, in its modern meaning – which is oriented toward death and has nothing to do with illness, not being in harmony with and attuned to cosmic system, and etc. – is fostered in the bed of medical technology. How can such technology with these functions be a mere means? And as it is not a means, how can it have an essence independent of man's volition?

5.2. Heidegger's evasion from giving local and periodical solutions for the problem of technology is evidence that he believed technology to be an integrated and inseparable whole. Any local solution is formed by accepting some parts of something and eliminating the other parts so that it presupposes its being non-integrated and separable. If a thing is such that man inevitably has to accept or eliminate it as a whole, man is not allowed to manipulate it. In Heidegger's view, technology does not allow man to manipulate it to satisfy his intentions. This means that technology is not an instrument in man's hand and, as an integrated whole, needs man's absolute acceptance or elimination. Heidegger believed that all technological devices can be allowed to enter life without necessarily man's submission to technology. This is establishing a free relation with technology which includes being freed from and winning technology. Nevertheless, the lack of understanding of technology as a way of revealing characterized by Gestell and conceiving it as instrumental equals the absolute acceptance of technology and submission to it.

However, with respect to medicine, periodical and local solutions have been increasingly presented for a long time. These solutions are generally categorized under the term "complementary medicine" or "alternative medicine". Homeopathy, energy therapy, hypnosis, and acupuncture are a few among a long list. Most of such treatments have only had a few successes in treating problems, which modern medicine

itself has confessed to be ineffective in treating. None of these local solutions have a well-established metaphysics and their theoretical foundations are nothing more than messy views on the human body and soul, and the world. Worse than that, these solutions primarily do not treat diseases, but opportunistically point out their success in treating chronic diseases in the treatment of which modern medicine has weaknesses. In this way, any success, even very subtle, seems great when it is compared with modern medicine's failure to treat them. Nonetheless, these local solutions are not so effective.

The Heideggerian solution of establishing a free relation with technology, which is based on an integrated technology (and also medical technology) with an essence, also seems dominant here. The remedy is not to manipulate some parts of medicine, but to understand medical practice as a whole which has an essence. Some philosophers of medicine, most of them were physicians themselves, followed this view. Bracken, Brassington – whose article "On Heidegger, Medicine, and the Modernity of Modern Medical Technology" (2007) is well-known – Jacco Verburget, and some others are advocates of this view. Their efforts were to understand medical praxis which starts with referring the patient to the physician. The essence of medical praxis is the patient-physician relationship which is a human relationship. The patient divulges his/her problem to the physician like when he reveals his sins and tells his problems to "master of magus". Expressing pains and seeking to be healed are sacred practices which occur in authentic medicine. However, in such narratives, signs of regression to the mythical idea of disease as the sin and physician as the mediator of supernatural beings can be seen. Nonetheless, when it turns to Heidegger, we found the idea of returning to the day before (or, who knows, the leap to the day after).

Great efforts have been made in line with empathetic and confirmatory understanding of modern technological medicine in the way it is (and not manipulating it through chunking it by local solutions). The common concept of all of these efforts was to extract authentic concepts of medicine, through the transformation of which technology made medical technology a part of technological Gestell and in accordance with its challenging and ordering characteristics. In Zollikon seminars, Heidegger stated that medicine and medical technology are the closest science and technology to the Greek concept of Techne which indicates the artistic aspects of medicine (Heidegger, 2001b). Gadammer – like his predecessor, Heidegger – had reflections on medicine and technology in the form of conferences for physicians. These reflections which emphasized the hermeneutic aspect of medicine were gathered in "The Enigma of Health" (Gadamer, 1996). Fredrik Svenaeus (2000) followed Gadammer's way in understanding modern medicine and bringing its current concepts back to the authentic existential concepts. In his book "The Hermeneutics of Medicine and Phenomenology of Health" (Svenaeus, 2001), he defined medicine as the only science which is in total relationship with signs, and stated that basically medicine cannot be conceived without the concept of signs. That is, in medicine, the things the patient complains about (fever, headaches, and etcetera) are called signs and the things the physician finds in the patient (such as hypertension, absent bowel sounds, enlargement of the liver, and etcetera) are called symptoms. It is evident that the science and technology in which signs have the main role, has inevitably hermeneutic aspects.

Understanding medical technology as a whole – and not presenting local solutions – exemplifies best the Heideggerian concept of establishing a free relation with technology and indicates the fact that technology has an essence independent of man's volition and control.

3. Criticizing Heidegger's ideas on technology (and medical technology)

Criticisms of Heidegger's ideas can be divided into two categories. One is the criticisms which object to considering technology as a general essence and the other category includes criticisms against some parts of Heidegger's idea.

3.1. Criticisms to considering technology as a whole with an essence: The first criticism refers to Heidegger's idea on conceiving an essence for technology as a whole. This stance of Heidegger is not based on common philosophical reasoning expected from a philosopher, but rather on etymological reflections. However, Heidegger himself confesses this and in his article "The Question Concerning Technology", prior to presenting abundance of etymological reasoning, he makes clear his method of reasoning as: "All ways of thinking, more or less perceptibly, lead through language in a manner that is extraordinary." (Heidegger,1977, p.3).

Even some etymologists were doubtful of the accuracy of his reflections on lexicon. For instance, conflicts exist on Heidegger's reflections on the word alethea. Heidegger states that the Greeks employed this word for the meaning of "unconcealment, revealing, and etcetera" and it was translated into factum (or fact) after the establishment of Christian civilization in Rome and, since then, this word has been identified with the word "truth". However, as previously noted, Heidegger sees language as the house of being and conceives no existence for a pre-linguistic truth in which language and its lexicons are merely signs of such pre-thought truth. For him, the locus of thought is not man's mind, but his language. In line with this idea, it is evident that common known philosophical reasoning in which we find the truth are nothing more than linguistic entities which are products of a certain attitude toward language and employing it in a certain manner. Heidegger and Wittgenstein were born in the same year (1889) and they both wrote their philosophy in German. Although there is no evidence that they were informed of each other's ideas, their agreement on "language" is surprising.

The second criticism may be that, by considering technology as an integrated whole, the actual existing variety inside the whole is ignored. This criticism is similar to the criticism which states that "the West" does not have a true essence and whole and if a whole is conceived for it, it is conventional. That is, the West is not a soul or essence prior to its inhabitants, their behavior, and status, which can endow them with their identity and essence. Conversely, the west is nothing more than these behaviors and statuses, and sciences, customs, piety, and paganism emerged in the inhabitants of the west and the (conventional) unity of this system is the same as (conventional) the unity of the West (Soroush, 1995, p.244). Nevertheless, if we look insightfully, the diversity of the parts of the West can be seen along with the conventional unity.

There are thousands of statuses, conditions, descriptions, and states in the West. Attributing all these behaviors and status to one essence is futile (Ibid, p.250).

All of these can also be considered as true for the integrated "essence" of technology. First of all, the essence of technology – if such a thing exists – is made by something other than scientists and technologists. Secondly, scientists and technologists, even academicians, investors, and politicians are all in all human beings. Can the variety of human being's claims, intentions, desires, and states be diminished and identified as a single description of one integrated essence?

Of course, it seems that Heidegger's intention by considering technology as an essence, as he himself explicated, is not something like genus, type, and persistence – which includes no exception (Heidegger, 1977, pp.29-30). Did he divide essence into true and conventional to be questioned? Heidegger's belief that the essence of technology is a way of revealing is almost

close to Foucault's concept of "episteme" or every era's framework of wisdom and even Cohen's concept of "paradigm" with the difference that Heidegger's idea has a larger scope (for instance classical era, Foucault's modern era, Newton's paradigm, and Einstein's paradigm of modern physics are all included in Heidegger's Gestell).

An insight from Foucault can be helpful to make the discussion clear. Foucault states that every framework of wisdom includes guidelines for thinking. These principles of thinking direct most thinkers' thoughts (necessarily with no exception) and consequently those of the common people. Those who are not within its limits are driven to the margins. Such marginal individuals are housed in prisons, asylums, orphanages, and etcetera. If the deepest thinker does not think within the framework of wisdom of his own era – which has its own technical language, writing and reasoning styles, frames of conveying and publishing of thought, and etcetera – and does not organize his thoughts in this framework, he is not considered as wise.

Heidegger does not state that all diverse activities of human beings in the Gestell of technology include challenging, ordering, and control. Decades before thinking on technology, Heidegger introduced the "they" or "being one's self" (they convey the meaning Heidegger intended using "das man" which includes not having a personality independent of all other and independent of dominant orientation of common thought principles) as those who for them good and bad, glory and abjection, success and failure, and etcetera have one meaning and type. For instance, today, success in the university entrance exam is the cause of pride and failure in it leads to the family's shame.

Dreyfus and Spinosa have correctly found that "things could only be brought out in their ownness in a style different from the dominant cultural style … would inevitably be dispersed to the margins" (2014, p.359). This is also Heidegger's view. Furthermore, does not Heidegger know the way of freedom from Gestell of technology in art and specifically in poetry? Are art and poetry actualized by people other than those involved with Gestell?

Another criticism can be presented here. If the essence of modern technology shows itself in something like Gestell and if Gestell is a way of revealing and destining, are not human being's freedom and actions narrowed down?

Heidegger gave a response to this questions in the article "The Question Concerning Technology"; "… destining is never a fate that compels. For man becomes truly free only insofar as he belongs to the realm of destining and so becomes one who listens and hears [Hörender], and not one who is simply constrained to obey" [Höriger] (Heidegger, 1977, p.25). In fact, Heidegger presents the problem of freedom in a frame other than causal determinism. The presented criticism is reliable if Heidegger's attitude toward freedom is the same as that presented in the frame of causal determinism. Nonetheless, this is not the case and his understanding of freedom has differences in terms of essence with other understandings. As was noted, fate for Heidegger means destining to the realm of revealing. Freedom is also "… the realm of the destining that at any given time starts a revealing upon its way" (Ibid, p.25). In other words, freedom is possible in the realm of revealing which occurs from the part of being. If it is fate, does coming to this world with a specific genetic – which is given by the creator or anything else and in a specific environment which we did not select, and the fact that all our conducts are in a certain manner even if they are directed against this doomed genetic and environment, and establishing a relation with them and therefore in their frame – negate our freedom?

In respect to the problem of action, we also noted that understanding is the very action. Therefore, one who understands, acts.

3.2. Criticisms on some parts of Heidegger's idea: Modern technology is nothing more than

continuity of old instruments.

Of course, Heidegger does not explicitly explain that there is an unfillable gap between modern technology and old instruments. However, the instance he provides, comparing the extraction of coal and ore on the one hand (as modern technology) and the windmill on the other hand, correctly directs some such as Dreyfus and Spinosa to say that Heidegger does not recognize modern technology as the natural advancement of old instruments (2014, p.351) and believes in the existence of an essential difference between them. This essential difference is the consequence of an essential difference in the relation of human beings with being.

But what is that essential difference? Heidegger knows the difference in ordering, locking, and storing up the nature which modern technology allows, but old instruments did not treat nature as such. Can the same problem be followed by altering the relation of human beings with being? When, where, and how did human beings start establishing a different relationship with, as Heidegger says, being (since he believed that the starting point of human relation with being is in being's control not human being's)? And what is the exact distinction of this new relation of man with being or existence compared to the previous relation?

However, is Heidegger required to specify the exact time and explicit properties of transition from old instruments to modern technology or from the old relation of human beings with existence to the new relation? Which one of those individuals, who made distinctions among various periods of human life, can do such a thing? Evidently, they cannot be criticized in this respect since, in reality, no clear-cut boundary can be specified between two colors in the light spectrum or between two periods of time. When and where exactly did renaissance start? Who were the people who started it? How about romanticism? What about the industrial revolution or post-modernism? What exists now has taken place in periods and time spans and geographical limits by people who are not so well-known and through a subtle change in an element among other elements which constitute human life (from art to history, to science, from technique to religion, to …). This element establishes itself through time, and it is time that promises the rise of the new era and specifies its characteristics and constituents.

But did not people order, lock, and store up nature by the old instruments in the past? Were ancient human beings unfamiliar with storing up? Was it not Joseph who commanded people to store wheats yielded in seven years of abundance to be used in seven years of famine? Did not the ancient peasant eliminate the weeds among products to order them? Did the word "pruning" appear in the human language after the renaissance era? And the most important of them, did not Heidegger understand the simple fact that even some animals – which are a part of nature and no challenging forth, Gestell, and such things can be conceived for them – sometimes store up and order nature?

With which historical period (for instance, which centuries) that Gestell-like revealing coincides is not evident in Heidegger's works. Our misunderstanding of such concepts as causality and essence in his "The Question Concerning Technology" is rooted in Plato and Aristotle (Heidegger, 1977, p.3).

This shows that Heidegger's intent from the interpretation of human relation with being is not historical, cultural, social, economic, technological, or etcetera changes but changes in man's characteristics and attitudes. To highlight these characteristics and attitudes, Heidegger, employing the rule of specifying objects through their opposites, inevitably was made to highlight their opposite characteristics by attributing them to a specified period. What Heidegger intends by Gestell, is in fact the calculating, ego-centric, fearing, compromising reason which is disguised as the dominant meaning

of reason. Ratio means reason; it means proportion, especially numerical proportion, and calculation is one of its constituents.

To make us conceive a reason other than this reason, Heidegger tells a story from the ancient times, from the Greece prior to Socrates, Parmenides, and Heraclitus. In Heidegger's view, people of that era established a relationship with being different from that of ours. What we have received from the philosophers of the era of Greek mythology, the era before the rise of philosophy, is so little that no such great result can be extracted from it. Heidegger's narrative is fictional, but it seems to be a hope in the future, rather than a narration from the past. The future in which reason is not keen, but keenness is of Satan and love is of human beings. It does not clarify if the era of mythology is the era of thinkers prior to Socrates or will be an era in the future (Feenberg, 2014). Heidegger's history of being should be read from this perspective.

Technological instruments, more than anything else, are things. Hence, why should they not include the fourfold like any other thing? Feenberg asks the same question in his critical article about Heidegger and Borgmann (2014). He wondered if establishing a new relation with being (technological relation) is restricted merely to the human attitude or it can also be found in technological instruments.

In my view, this criticism of Heidegger is not fair. In his article "Building, Dwelling, Thinking", Heidegger not only recognizes a bridge as a "thing" which "… gathers to itself in its own way earth and sky, divinities and mortals" (1971, p.151), but also defines the modern bridge as that which makes possible the reaching of distant places in the quickest way. Everything gathers the fourfold in a certain manner and this characteristic has nothing to do with modernity or pre-modernity. If their gathering characteristic is understood, technological instruments like old instruments have the same characteristic; therefore, they are things – in the sense that Heidegger intended in the article "What Is a Thing".

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

We are immensely grateful to Farzad Goli, head of Danesh-e Tandorosti Institute, for his comments on the English translation of the manuscript, although any errors are our own and should not tarnish his reputation. The Persian version of this article was published previously in Philosophy of Science [Falsafeh Elem] 2011, 1(1), 75-103. We acknowledge Sepideh Motamedi for Language translation

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

Emotional Schemas of Patients with Irritable Bowel Syndrome and their Relationship to Psychological Symptoms

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Quantitative Study

Abstract

Background: Irritable bowel syndrome (IBS) is a prevalent functional gastrointestinal disorder (FGID). Most individuals with this disease have problems in expressing their feelings. Negative emotions and specific cognitive attitudes toward life can contribute to the development of depression and worsening of symptoms. This research aimed to compare the emotional schemas of patients with IBS with that of a control group and to investigate the relationship between psychological symptoms and emotional schemas.

Methods: The present causal-comparative research was performed on 98 patients with IBS referred to a gastroenterologist in Isfahan, Iran, in the winter of 2016. In addition, the 97 participants in the control group were selected from among caregivers and university staff through convenience sampling method. The data collection tools consisted of the ROME-III scale, structured clinical interview for DSM-IV (SCID-I), Persian version of the Emotional Schemas Questionnaire (ESS-P), and the 21-item Depression, Anxiety, and Stress Scales (DASS-21). The data were analyzed in SPSS software.

Results: The results showed that there was a statistically significant difference between the patients with IBS and control groups in terms of all schemas ($P \leq 0.05$), except emotional schemas of trying to be rational and being comprehensible ($P > 0.05$). Moreover, the results indicated that some emotional schemas were related to psychological symptoms ($P \leq 0.05$).

Conclusion: According to the findings, it seems that it is necessary to instruct individuals with IBS regarding emotional schemas. Increased awareness of emotional schemas will result in the acceptance of undesirable emotions as a part of the complex human nature, and thus, less experience of anxiety, depression, and stress.

Keywords: Irritable bowel syndrome, Emotional schemas, Stress, Depression, Anxiety

Citation: Erfan A, Noorbala A, Afshar H, Adibi P. **Emotional Schemas of Patients with Irritable Bowel Syndrome and their Relationship to Psychological Symptoms.** Int J Body Mind Culture 2017; 4(1): 36-45.

Received: 25 Oct. 2016
Accepted: 15 Dec. 2016

Introduction

Irritable bowel syndrome (IBS) is a prevalent, painful, and disabling functional gastrointestinal disorder (FGID) and its major feature is changes in bowel habits and abdominal pain (Lackner, Quigley, & Blanchard, 2004). In IBS, no known somatic disorder is found through clinical examination and diagnostic investigations

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(Phillips, Wright, & Kent, 2013). IBS does not lead to dangerous situations in most patients, but can increase patients' medical costs due to its side effects, such as chronic pain and fatigue, and is the cause of patients' absenteeism from work. Researchers have reported that the high prevalence of IBS can cause an increase in social costs (Phillips et al., 2013). The exact etiology of IBS is unknown (Burgell, Asthana, & Gibson, 2015). Clinical and experimental evidence has showed that IBS is a combination of an irritable bowel and irritable brain (Qin, Cheng, Tang, & Bian, 2014). Psychological factors have a deep impact on the beginning, duration, expression, and especially, severity of disease (Lackner et al., 2004). Many studies have investigated the role of psychological factors in IBS. The findings of previous researches indicate that the prevalence of stress, depression, and anxiety is very high in patients with IBS (Jarrett et al., 1998; Lydiard, 2001; Kabra & Nadkarni, 2013; Dibajnia, Moghadasin, & Keikhayfarzaneh, 2013; Welch, Stace, & Pomare, 1984).

Researchers have associated stress with IBS (Blanchard et al., 2008; Chang, 2011; Lee et al., 2015). Psychological tension is an important factor in the development of IBS. Today, stress or mental pressure is one of the most important psychological topics and concepts and has great importance in psychopathology and health psychology (Alipour & Noorbala, 2004). The findings of previous researches have suggested that scores of stress, dysfunctional attitudes, depression, and anxiety are higher in patients with IBS than healthy individuals (Pinto, Lele, Joglekar, Panwar, and Dhavale, 2000; Lackner , et al., 2005; van der Veek, van Rood, & Masclee, 2008; Kovacs & Kovacs, 2007). There is a significant relationship between the tendency to psychological explanation of physical symptoms and the severity of abdominal pain in patients with IBS (Bray, Nicol, Penman, & Ford, 2006). Depression is also related to IBS (Lackner et al., 2004; Lee et al., 2015). Emotion is a basic phenomenon of human functioning that, generally, has adaptive value which increases our effectiveness in the pursuit of goals (McKay, Wood, & Brntly, 2011). All human beings experience emotions such as sadness, anxiety, or anger, but they do not result in major depressive disorder (MDD), generalized anxiety disorder (GAD), and/or panic disorder in every individual. Leahy (2015) believes that the continuation of emotions and creation of psychological disorders is the result of emotions and strategies that are applied in order to cope with or regulate emotions. Leahy (2015) considered beliefs about one's emotions and that of others and how to regulate them as emotional schemas. Leahy's emotional schema theory is a social-cognitive model of emotion and emotion regulation. The emotional schema model indicates that individuals differ in terms of the evaluation of legitimacy and shame regarding emotion, interpretation of causes of emotion, need to control emotions, expectation about duration of emotion, and the rate of emotion risk schema. Emotional risk schema is the individuals' intellectual framework or attitude toward life that is demonstrated through individuals' various experiences over time (Leahy, 2015). The emotional schemas make an individual vulnerable to physical and mental diseases such as chronic fatigue syndrome (CFS), IBS, somatization disorder, eating disorder, social phobia, depression, and borderline personality disorder (BPD) (Rimes & Chalder, 2010).Research showed that negative emotional schemas are related to anxiety, depression, posttraumatic stress disorder (PTSD), metacognitive aspects of worry, alcohol abuse, marital discord, and personality disorder (Leahy, 2007; Tirch, Leahy, Silberstein, & Melwani, 2012; Bayazi, Gohari, Hojjat, & Behrad, 2014; Orue, Calvete, & Padilla, 2014). It is thought that the activation of negative schemas causes cognitive bias or tendency to information processing through negative ways (Kring, Johnson, Davison, & Neale, 2009). Drawing

the cognitive model of emotion in patients with IBS illustrates a natural tendency to negative thought (Lackner et al., 2005). Studies have shown differences between the emotional schemas of patients and healthy individuals (Batmaz, Ulusoy, Kocbiyik, & Turkcapar, 2014; Hosheyar, Mahvishirazi, 2015). The comparison of emotional schemas and coping strategies in patients with IBS and healthy individuals has indicated the existence of a significant difference between these groups in terms of confirmation seeking, feeling of guilt, lack of understanding, emotional naivety, lack of control, compromise, rumination, expression, and blame schemas (Moradi, Goudarzi, & Moradniani, 2015). The results of another study demonstrated that there are many differences in psychosocial variables between patients with IBS and healthy individuals (Phillips et al., 2013). According to the results of this research, alexithymia (inability in description and awareness of emotions) and defectiveness/shame schema are significant predictors of IBS and the severity of its symptoms. Gender, mental pressure variables, and entitlement schema are predictors of the severity of IBS symptoms (Phillips et al., 2013). Moreover, physical pain or diseases influence individuals' emotions (McKay et al., 2011). Because IBS accompanies a high rate of negative emotions, the recognition of emotional schemas in patients with IBS is important. Thus, the present study answered the following questions:

Is there a significant difference between emotional schemas of patients with IBS and that of healthy individuals?

Is there a significant difference between patients with IBS and healthy individuals in terms of anxiety, depression, and stress?

Is there a significant relationship between emotional schemas and anxiety, depression, and stress?

Methods

In the present causal-comparative research, dimensions of emotional schemas were independent variables and psychological symptoms (anxiety, depression, and stress) were dependent variables. The research population consisted of all patients with IBS who referred to one of the gastroenterologists of Isfahan, Iran, in the winter of 2016 and their caregivers.

SPSS SamplePower software (IBM Corporation, Armonk, NY, USA) was used to estimate the size of the sample. Considering the research hypotheses (hypotheses based on the comparison of mean of variable or variables between two groups of people) and 0.05 error percentage, power of higher than 0.85, and effect size of 0.60, the sample size was estimated as 180 individuals. Error percent of 0.05, power of higher than 0.85, and effect size of 0.60 are the most desirable values for the statistical analytical methods based on the comparison of mean. The sample consisted of 90 patients with IBS and 90 healthy individuals in the control group. Subjects were selected through convenience sampling method and were divided into two groups. The subjects of the control group consisted of caregivers and university staff. The control group was matched with the patient group in terms of age, gender, education, and income level using frequency matching method to prevent bias in research findings. First, the patient group participants were differentiated from patients with other digestive diseases by a gastroenterologist based on Rome-III Diagnostic Criteria and referred to a clinical psychologist after diagnosis of IBS. After a brief explanation for patients and emphasis on data confidentiality, they were asked to study the research testimonial. Individuals who were willing to participate in the study and had the inclusion criteria were entered into the study. The inclusion criteria consisted of at least middle school education, age of between 18 and 50 years, and diagnosis of IBS (based on the ROME-III Diagnostic Criteria by a gastroenterologist). The

exclusion criteria consisted of age of over 50 years and less than 18 years, severe psychiatric disorders, attendance of psychological treatment sessions during the recent 6 months, and substance abuse.

Structured clinical interview for DSM-IV (SCID-I), ROME-III scale, short form of Emotional Schemas Questionnaire (ESS-P), and the 21-item Depression, Anxiety, and Stress Scale (DASS-21) were used to collect data. To this purpose, the questionnaires were distributed among patients. They were asked to complete the questionnaires simultaneously, and in the case of any problems, the examiner presented them with the necessary explanations.

ROME-III: This tool is related to FGIDs and has been normalized by Safaei et al. (2013) in Iran. The reliability of this questionnaire has been determined through Cronbach's alpha and reported as more than 0.7 in all principal symptoms (Safaee et al., 2013). In the present research, this tool was used by a gastrointestinal specialist to differentiate between IBS and FGIDs.

Structured clinical interview for DSM-IV: SCID-I is a semi-structured interview that provides diagnostics based on the DSM-IV. The tool has been devised by Spitzer et al. (1992). Furthermore, it has been normalized by Sharifi et al. (2004) in Iran. In the current study, the SCID-I was used for the investigation of lack of sever psychiatric diseases (inclusion criteria) such as psychosis and chronic bipolar disorder.

Persian version of Emotional Schemas Questionnaire: The ESS has been prepared by Leahy (LESS) on the basis of his emotional schemas model as a self-report scale. The Persian version of the scale was provided by Khanzadeh, Edrisi, Muhammadkhani, and Saidian (2013). The results of exploratory factor analysis showed that of the 16 derived factors of the scale, 12 factors were in accordance with Leahy emotional schemas, 3 factors were eliminated because they loaded only one item and a new factor called emotion self-awareness was added. The reliability of the scales has been reported as 0.56-0.71 (Khanzadeh et al., 2013). Furthermore, the internal consistency of the total scale and its subscales was obtained using Cronbach's alpha (0.82 and 0.59-0.72, respectively). Generally, the findings of the two methods indicate acceptable reliability of the scale (Khanzadeh et al., 2013). Note that of these 13 schemas, 6 schemas (emotion self-awareness, emotion expression, being understandable, higher values, emotion acceptance, and agreement) are adaptive schemas and 7 schemas (rumination, being uncontrollable, guilt, seeking confirmation, censure, the endeavor to be logical, and simplistic views of emotions) are maladaptive.

21-item Depression, Anxiety, and Stress Scales: The DASS-21 is a self-report scale that evaluates depression, anxiety, and stress. The items are scores based on a 4-point Likert scale ranging from 0 to 3 (never to very much). Henry and Crawford (2005) calculated the reliability of this scale using Cronbach's alpha and 1794 individuals as sample and reported 0.93 for the total scale and 0.88, 0.82, and 0.90 for the depression, anxiety, and stress scales, respectively. Asghari Moghaddam, Saed, Dibajnia, & Zangeneh (2008) reported the internal consistency coefficients of 0.93, 0.90, and 0.93, and retest coefficients of 084, 0.89, and 0.90 for depression, anxiety, and stress scales, respectively. In addition, they reported retest reliability as 0.78, 0.87, and 0.80 for depression, anxiety, and stress scales, respectively (Asghari Moghaddam et al., 2008).

Statistical analysis: Findings were analyzed using chi-square test, independent sample t-test, multivariate analysis of variance (MANOVA), and Pearson correlation in SPSS software, version 23. The differences in the level of 0.05 were considered significant.

Results

In this research, 98 patients with IBS were

investigated, of whom, 46 individuals (46.9%) were men and 52 (53.1%) woman, 22 individuals (22.4%) were married and 74 (75.5%) were single. Mean age of the participants was 34.11 ± 8.21 years with an age range of 18-50 years. In the control group (n = 97), 38 individuals (39.2%) were men and 59 (60.8%) woman, 29 (29.9%) were single and 66 (68%) married. In the two groups, 2 individuals were divorced. Mean age of the control group participants was 32.21 ± 5.09 years with an age range of 18-50 years.

No significant difference was observed between the control and patient groups in terms of age, gender, and marital status; however, they differed in terms of education level.

According to the results presented in table 1, there were statistically significant differences in all schemas between the control and IBS groups ($P \leq 0.05$), except the emotional schemas of trying to be rational and being comprehensible ($P > 0.05$).

According to the results presented in table 2, there were statistically significant differences among scores of depression, anxiety, and stress of subjects in the control and IBS groups ($P \leq 0.05$).

The results of table 3 indicate that depression was negatively and significantly related to all schemas ($P \leq 0.05$), except the emotional schema of trying to be rational ($P > 0.05$). Stress was negatively and significantly associated with all schemas ($P \leq 0.05$). Moreover, anxiety was negatively and significantly related to all schemas ($P \leq 0.05$), except the emotional schemas of trying to be rational, simplistic views of emotions, and expression of feelings ($P > 0.05$).

Table 1. Summary of results of multivariate analysis of variance of emotional schemas in the control and irritable bowel syndrome groups

Variable	Group	Mean ± SD	F	P-value
Uncontrollability	Control	4.32 ± 2.99	8.24	0.0050
	IBS	5.78 ± 3.36		
Trying to be rational	Control	12.24 ± 2.38	0.308	0.5800
	IBS	12.47 ± 2.66		
Emotional self-awareness	Control	6.86 ± 2.98	6.47	0.0120
	IBS	5.75 ± 3.46		
Comprehensible emotions	Control	5.96 ± 2.10	0.642	0.4240
	IBS	5.67 ± 3.12		
Rumination	Control	6.84 ± 3.13	29.32	0.0005
	IBS	9.37 ± 3.27		
Compromise	Control	5.92 ± 2.50	8.98	0.0030
	IBS	4.82 ± 2.40		
Acceptance	Control	7.29 ± 2.20	13.14	0.0005
	IBS	5.98 ± 2.71		
Seeking confirmation	Control	4.47 ± 2.25	4.28	0.0400
	IBS	3.73 ± 2.36		
Higher values	Control	9.67 ± 1.97	11.98	0.0010
	IBS	8.57 ± 2.17		
Simplistic views of emotions	Control	5.43 ± 1.64	9.80	0.0020
	IBS	6.16 ± 1.94		
Guilt	Control	5.29 ± 2.50	3.95	0.0480
	IBS	6.35 ± 3.29		
Expression of feelings	Control	5.55 ± 1.42	13.52	0.0005
	IBS	4.61 ± 2.06		
Blame	Control	4.78 ± 2.00	12.50	0.0010
	IBS	5.82 ± 1.97		

IBS: Irritable bowel syndrome

Table 2. Summary of the results of multivariate analysis of variance of depression, anxiety, and stress in the control and IBS groups

Variable	Group	Mean ± SD	F	P-value
Depression	Control	8.82 ± 7.58	28.61	0.0005
	IBS	16.16 ± 10.09		
Anxiety	Control	7.14 ± 5.20	66.06	0.0005
	IBS	15.43 ± 8.37		
Stress	Control	12.73 ± 7.17	63.76	0.0005
	IBS	22.29 ± 8.15		

IBS: Irritable bowel syndrome

Discussion

The results of the current research showed that emotional schemas of patients with IBS differ from healthy individuals and are the context for more intense symptoms in patients with IBS. Anxiety, depression, and stress are high in patients with IBS. Some emotional schemas have positive effects on the level of anxiety, depression, and stress and some of them have negative effects. The findings of the present research showed that there was no significant difference between patients with IBS and healthy individuals in terms of scores of trying to be rational and being comprehensible. However, there were significant differences between patients with IBS and healthy individuals in scores of being uncontrollable, emotional self-awareness, rumination, compromise, acceptance, seeking confirmation, higher values, simplistic views of emotions, feeling of guilt, expression of feelings, and blame. In other words, the results of the current study represented the greater use of negative schemas of being uncontrollable, rumination, simplistic views of emotions, and feelings of guilt and blame by patients with IBS than healthy individuals (Table 1). These findings are consistent with the results of previous studies. Moradi et al. (2015) conducted a study with the aim of the comparison of emotional schemas and coping strategies between patients with IBS and healthy individuals. Their findings indicated a significant difference among emotional schemas of seeking confirmation, feeling of guilt, simplistic view of emotions, being uncontrollable, compromise, rumination, expression of feelings, and blame in patients with IBS and healthy individuals (Moradi et al., 2015). The results of the study by Phillips et al. (2013) showed that the guilt/shame schema significantly predicts IBS and the severity of its symptoms.

Table 3. Pearson correlation test between dimensions of emotional schema and the rate of depression, stress, and anxiety

Variable	Depression	Anxiety	Stress
Uncontrollability	0.498**	0.534**	0.555**
Trying to be rational	0.088	0.138	0.187**
Emotional self-awareness	-0.465**	-0.405**	-0.495**
Comprehensible emotions	-0.404**	-0.302**	-0.317
Rumination	0.586**	0.415**	0.588**
Compromise	-0.179*	-0.202**	-0.246**
Acceptance	-0.468**	-0.366**	-0.530**
Seeking confirmation	-0.504**	-0.352**	-0.393**
Higher values	-0.423**	-0.298**	-0.391**
Simplistic views of emotions	0.192**	0.025	0.179*
Guilt	0.490**	0.376**	0.504**
Expression of feelings	-0.192**	0.052	-0.152*
Blame	0.339**	0.342	0.447**

*P < 0.05, ** P < 0.01

Patients with IBS have a wide range of negative beliefs or schemas about emotions. Their emotions are uncontrollable. They insist on the fact that they have unpleasant feelings and cannot get rid of these thoughts and emotions, have an all or nothing attitude about their experiences, feel shame and guilt about their emotions, and hide their emotions from others. The common response of individuals with IBS to negative emotions is blaming others. It seems that negative schemas act as a mechanism against emotions due to the stressful situations of change in bowel habits and abdominal pain in patients with IBS. Therefore, they experience higher levels of negative emotional schemas compared with healthy individuals.

The results of the current research indicated the presence of significant differences among scores of anxiety, depression, and stress of individuals with IBS and healthy individuals. The results showed that the scores of anxiety, depression, and stress of individuals with IBS were higher than healthy individuals (Table 2). These findings are in agreement with the results of previous studies (Pinto et al., 2000; van der Veek et al., 2008; Kovacs & Kovacs, 2007). The biopsychosocial model or mind/body model can explain these results. In the biopsychosocial model of IBS, it is assumed that there is close interaction between cognitive and emotional centers of the central nervous system and the enteric nervous system (Naliboff, Frese, & Rapgay, 2008). Another explanation may be that intestinal walls are covered with layers of muscle which the contraction or relaxation of which is coordinate with each other as food moves from the stomach to the intestinal tract and rectum. When IBS occurs, the contractions become stronger, last for a longer duration than normal, and cause the production of excess gas in the intestines, bloating, and diarrhea. With weaker contractions, movement of food becomes slow, and as a result, stool becomes dry and hard. These states lead to sadness and anxiety of individuals with IBS in different situations, because distressing thoughts focus on the future and often announce a disaster. The thoughts often begin with if or what a disaster may occurs. The anxiety that patients with IBS experience due to visceral emotions leads to behavioral avoidance. That is, patients with IBS avoid different situations due to fear of the onset of symptoms. Evidence suggests that a reduction initially occurs in anxiety when difficult situations are avoided. Nevertheless, it is interesting that continuous avoidance of these situations results in greater anxiety when they are encountered in the future (Greenberger & Padesky, 2013). It seems that the avoidance response causes a reaction in anxiety in patients with IBS.

The cognitive model for patients with IBS shows a natural tendency to negative thought (Lackner et al., 2005). On the other hand, it is believed that depression is caused because of pervasive negative thoughts about oneself and the surrounding world. Perhaps this is why a higher rate of depression is observed among patients with IBS compared to healthy individuals.

The results of the present research showed that anxiety, stress, and depression are positively and significantly associated with the emotional schemas of being uncontrollable, rumination, and feeling of guilt and blame. In addition, they are negatively and significantly associated with the emotional schemas of emotional self-awareness, being comprehensible, compromise, acceptance of emotions, seeking confirmation, and higher values (Table 3). These results are consistent with that of previous studies. Dashtban Jami, Bayazi, Zaeimi, & Hojjat (2014) conducted a research with the aim of the investigation of the relationship of meta-cognitive beliefs and emotional schemas with depression. Their findings illustrated that emotional schemas of blame, compromise, being comprehensible, and feeling of guilt predict depression (Dashtban Jami, et al., 2014). The findings of

the study by Leahy, Tirch, and Napolitano (2015) indicated that emotional schemas of rumination, feeling of guilt, lack of confirmation, lack of higher values, control, not being comprehensible, expression of feelings (higher), and low compromise predict depression. Research results display that the best predictors of anxiety are beliefs about emotion control, the belief that emotions are not comprehensible, and belief of lack of confirmation of emotions (Leahy, 2015). For explanation of these results on the basis of cognitive theory, it can be said that individuals who think they do not have control over their environment experience more stress, anxiety, and depression (Kring et al., 2009). Individuals engaged in rumination often believe that they cannot get rid of the thoughts and emotions. The feeling of inability to change negative emotions predicts depression. Individuals who feel shame or guilt begin to criticize themselves, hide their emotions from others and experience anxiety and sorrow regarding their emotions. In contrast, individuals, who have the ability to be aware of and understand their own feelings, believe their emotions are comprehensible, and thus, do not attempt to control their feelings. They believe others accept their emotions and empathize with them, emphasize on values, and experience less anxiety, depression, and stress.

It should be noted that a significant relationship was observed between the emotional schema of trying to be rational and stress (Table 3); individuals who insists on being rational more than emotional believe that being rational is the preferable method of performance. They believe that emotions should be eliminated or controlled in order to find the rational solution of the problem. The outcome of this belief is increased stress experience on the basis of the findings of the current study.

The results of the present research showed the emotional schema of simplistic views of emotions has a positive and significant relation with depression and stress (Table 3). To justify this relationship, it can be noted that simplistic views of emotions is an indicator of the all or nothing attitude of experiences (Leahy, 2015). Argument through all or nothing method is to think in one of the extreme poles, for example, they all leave me or no one likes me. All or nothing thought is related to depression (Hawton, Salkovskis, Kirk, & Clark, 2013). Therefore, it seems natural that an individual who has the emotional schema of simplistic view of emotions, that is, all or nothing attitude of experiences, feel more depressed. The present research results also illustrated that the emotional schema of expression of feelings was not significantly related to anxiety (Table 3). However, the results of a prior study suggested that low emotional expression predicts anxiety (Leahy, 2015). It seems that the inconsistency between results is due to the use of different tools. Regarding the significant relation of the emotional schema of expression of feelings with depression and stress (Table 3), it can be argued that individuals who believe they can express their emotions allow themselves to tell their emotions to others. The expression of feelings is a clear principle of social relations. The expression of feelings helps humans feel that they have relations with others and are a part of society or certain groups. This helps individuals experience less depression because depression is an interpersonal component of the lack of communication.

Conclusion

The results of this research indicated a difference between individuals with IBS and healthy individuals in terms of emotional schemas, anxiety, depression, and stress. The findings show that anxiety, depression, and stress are related to some emotional schemas. Hence, it is necessary to instruct individuals with IBS in the field of emotional schemas. Increased awareness regarding emotional schemas will result in the acceptance of undesirable emotions as a part of the complex human nature, and as a result, less

experience of anxiety, depression, and stress.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

The authors would like to thank all the study participants and those who cooperated in the designing and conducting of the study.

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

The Effectiveness of Marital Therapy based on Acceptance and Commitment on Couples' Marital Satisfaction and Quality of Life

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Quantitative Study

Abstract

Background: The present study assessed the effectiveness of acceptance and commitment therapy (ACT) for couples on couples' quality of life (QOL), emotional regulation, marital satisfaction, general health, and mindfulness.

Methods: This semi-experimental study was performed on 50 couples selected from among 150 couples referring to Zehn Agah Clinic, Bonyad-e Shahid Centre, and the counseling center of Kargarnezhad Hospital in Kashan, Iran, in 2015. The subjects were divided into 2 equal groups including ACT and treatment as usual (TAU). The first group received psychological treatment while the second did not receive any intervention. QOL was assessed in both groups using the Short Form-12 (SF-12) and the ENRICH marital satisfaction questionnaire during pretest and posttest.

Results: A significant differences was observed in the mean scores of marital satisfaction and QOL between the two groups ($P < 0.001$).

Conclusion: It can be concluded that ACT for couples can enhance marital satisfaction and QOL. It appears that ACT for couples is an effective intervention for the treatment of clients with marital problems.

Keywords: Acceptance and commitment therapy (ACT), Marital satisfaction, Quality of life (QOL)

Citation: Omidi A, Talighi E. **The Effectiveness of Marital Therapy based on Acceptance and Commitment on Couples' Marital Satisfaction and Quality of Life.** Int J Body Mind Culture 2017; 4(1): 46-51.

Received: 15 Aug. 2016
Accepted: 20 Nov. 2016

Introduction

Interpersonal problems are defined as those issues that are repeated frequently in referred interpersonal relationships and which occur because of maladaptive coping responses and behaviors (Gehart, 2012). These behaviors and reactions are learned in childhood and may include demission, blaming, attacking, or aggression. Although these behaviors have adaptive performance in some living conditions, they are often problematic. For example, it is possible for children to remain calm through avoiding their angry, domineering, and controlling parents, but the persistence of these coping behaviors leads to more pain and suffering in adult

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relationships. Individuals usually learn adaptive behaviors by watching their parents and other family members deal with pain (Gehart, 2012). It is also possible to have aggressive behavior when criticized by others. Evidently, all coping strategies are not learned through modeling. When people are motivated in interpersonal relationships, they may show a response which provides them with a rather short-term relief and usually because this response has already been reinforced, it is possible to be repeated frequently. These compromising behaviors may bring peace in the short-term, but may cause serious damage to relationships in the long-term (Schumacher, 2005). Marital satisfaction is the level of interest of the couple in each other and their positive attitude toward being married which is dependent on factors such as personality problems, relationship with the partner, conflict resolution, financial management, leisure activities, sex, children, friends, and relatives, and religious orientation (Ameri, 2003).

On the other hand, quality of life (QOL) is the most important factor affected by family atmosphere. The World Health Organization (WHO) defines QOL as individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, and standards. QOL means a good physical and mental condition, which consist of two elements. These elements are the ability to cope with everyday tasks (at the biopsychosocial level) and the patient's satisfaction with his activities at all levels as well as control over the disease and symptoms connected with the treatment method being applied. The body and mind are not separate. This means that all psychological benefits resulting from the relationship improvement are accompanied with physical benefits (World Health Organization, Division of Mental Health, 1996).

Moreover, several recent papers have reported the important role of familial relationships in somatic health, especially chronic pain. Marital satisfaction is a mental state that reflects the perceived benefits and costs of marriage to a particular person. The operant formulation of physical health, in particular chronic pain, emphasizes the importance of contingent reinforcement in the maintenance of behaviors. The social environment of the patients has been assigned a significant role in this process. Researchers have noted the relationship of numerous somatic problems, such as bodily image, eating disorders, stress related diseases, cardiovascular problems, tension, and migraine headache, with marital satisfaction (Eaker et al., 2007).

There are different approaches in the field of couple therapy, each of which has shown its effectiveness in certain cases. Nevertheless, each approach has strengths and weaknesses, which have been further investigated in studies and clinical trials, and this in turn, has caused the growth and formation of new approaches (Schumacher, &Leonard, 2005).

Acceptance and commitment therapy (ACT) for couples is an evidence-based behavioral intervention that uses acceptance and mindfulness strategies with commitment and behavior-change strategies in order to increase psychological flexibility. Initially, this model was called comprehensive distancing. ACT is rooted in the philosophical theory of functional contextualism and based on a research program regarding language and cognition, is called relational frame theory (RFT). The objective of this model is the creation of psychological flexibility in couples (Gehart, 2012). The therapeutic processes include acceptance, defusion, self-as-context, present moment, values, and committed action. While traditional behavioral couples therapy focused on change, the basic state of ACT for couples (in this study) aims to create a balance between change and acceptance, and a compassionate relationship in couples. This relationship may exist between members of a family, in a couple, and even in interpersonal communication (Hayes & Strosahl, 2010). Couples therapy

usually lasts between 10 to 14 sessions and teaching adaptive coping strategies is the goal of the treatment (Gehart, 2012).

Methods

The present quasi-experimental study was conducted on individuals who referred to the Zehn Agah Clinic, Bonyad-e Shahid Centre, and counseling center of Kargarnezhad Hospital in Kashan, Iran, due to relationship problems and who had no intention to divorce. From among the 150 cases which were referred as a couple, 50 couples who had the inclusion criteria were selected through simple random sampling and were divided into 2 groups of 25 couples (intervention and control group). The intervention group was treated based on ACT for couples and the control group underwent treatment as usual (TAU). It should be noted that the intervention group included 50 individuals (25 couples) and it was difficult to shape a group of 50 individuals; therefore, every 5 couples were assigned to a small group and the collected data were aggregated.

The therapy program process instructions were adjusted based on two books; "Acceptance and Commitment Therapy for Interpersonal Problems" (Gehart, 2012) and "Mindfulness and Acceptance in Couple and Family Therapy". The program consisted of 10 weekly sessions, each session lasting approximately 90 minutes (McKay, Lev, Skeen, & Hayes, 2012).

Marital Satisfaction: Marital satisfaction was measured using the ENRICH marital satisfaction index. The original test consists of 115 questions that have been prepared in various forms due to its length. The questionnaire was designed by Olson, et al., and then, the 47-item form was created. The ENRICH inventory is a multidimensional marital satisfaction measurement that includes 12 subscales. These subscales were developed through a series of theoretical and empirical analyses (Olson, et al., 1983). These subscales consist of personality issues, marital communication, conflict resolution, financial management, leisure activities, sexual relationships, marriage and children, relatives, friends, and religious orientation. In Iran, Soleymanian and Navabinejad (1994) calculated the internal consistency of the ENRICH inventory and reported it as higher than 0.7 for the subscales. Furthermore, test-retest reliability of the questionnaire was acceptable with an average of 0.86 within 4 weeks. Mahdavian (1997) obtained a reliability of 0.94 for women and 0.94 for men using Pearson correlation coefficient and test-retest.

Quality of Life: The quality of life (QOL) variable was measured using the 12-item Short Form (SF-12). In this tool, the minimum and maximum possible score for each dimension of QOL and QOL in general is between 0 and 100. This means that a score of 100 is the best QOL score and a score of 0 is the worst QOL score. The SF-12 was designed in order to be used by the British Health Institute in 1988 and was standardized in 1990. Most of the questions on the SF-12 were gained from tools that were used in 1970 and 1980. This tool includes the 8 subscales of physical functioning, physical role, bodily pain, general health, vitality, social function, emotional role, and mental health. Studies have shown that the correlations among physical, somatic, and mental health in the general population and patients in different countries were 0.80-0.85 (World Health Organization, 2005). Content validity of SF-12 has been investigated in a large-scale health study and the results have shown that the majority of the components of the SF-12 measure health. Empirical validity of the subscales of the SF-12 was reported as 0.80-0.90 in studies on mental and physical health (Omidi, Mohammadkhani, Mohammadi, Zargar, 2013).

Results

Data analysis was performed using SPSS software (version 13, SPSS Inc., Chicago, IL, USA). Descriptive statistics was used to examine differences in demographic

characteristics at baseline between the intervention group and the control group. The multivariate analysis of covariance (MANCOVA) was used to compare multiple variables. Statistical indicators of the two groups in terms of demographic characteristics show that there is no significant difference between the two groups (Tables 1, 2, and 3).

Table 1. Demographic characteristics of the subjects

		Mean ± SD
Age (year)	Intervention group	25.70 ± 5.77
	Control group	24.85 ±2.39
		No (%)
Age (years)	20-25	10 (12.5)
	26-30	16 (20.0)
	> 30	24 (65.5)
Level of education	Diploma	14 (44.0)
	University	36 (56.0)

Levene's test was used to confirm homogeneity assumption of variances between groups. MANCOVA was used to test the hypothesis and to identify significant differences between the intervention and control groups in terms of the dependent variables. Significant differences were observed between the groups in marital satisfaction and QOL scores.

The results of multivariate analysis of variance (MANOVA) showed a significant difference between the intervention and control groups in posttest in terms of mean QOL (P > 0.001). Therefore, in this study, the effectiveness of marital therapy based on ACT was confirmed on marital satisfaction. In this study, effect size and statistical power of marital therapy based on ACT on the subscales of marital satisfaction was 0.197 and 0.889, respectively. To understand the difference, MANCOVA was performed and the results are listed in table 4.

According to the contents of table 4, there was a significant difference between the intervention and control groups in posttest in terms of marital satisfaction (P > 0.001). Accordingly, it can be stated that all aspects of marital satisfaction have improved in the intervention group.

The results of MANOVA on mean QOL scores showed that there is a significant difference between the two groups in posttest in terms of the dependent variables related to QOL (P > 0.001). Therefore, the effectiveness of marital therapy based on ACT was confirmed on QOL.

According to the contents of table 5, there was a significant difference between the intervention and control groups in posttest in terms of QOL for all subscales except physical functioning (P > 0.001). Thus, the effectiveness of marital therapy based on ACT was confirmed on the QOL of couples.

Discussion

The aim of this research was to determine the effectiveness of marital therapy based on ACT on couples' marital satisfaction and QOL. Patterns of interaction between spouses can affect how satisfied they are with their marriage. The pattern that is most often related to marital dissatisfaction is one of

Table 2. The mean and standard deviation of marital satisfaction subscale scores of experimental and control groups in pretest and posttest

Variables	Intervention group (Mean ± SD)		Control group (Mean ± SD)	
	Pretest	Posttest	Pretest	Posttest
Personality issues	3.120 ± 0.824	3.652 ± 0.840	3.632 ± 0.739	3.656 ± 0.907
Marital relationship	2.928 ± 0.667	3.664 ± 0.768	3.440 ± 0.892	3.616 ± 0.891
Conflict resolution	3.052 ± 0.758	3.512 ± 0.809	3.572 ± 0.708	3.504 ± 0.838
Financial management	3.352 ± 0.766	3.984 ± 0.604	3.712 ± 0.822	3.756 ± 0.728
Leisure activities	3.256 ± 0.700	3.696 ± 0.650	3.748 ± 0.707	3.676 ± 0.714
Sexual relationships	3.536 ± 0.673	3.856 ± 0.676	3.608 ± 0.798	3.640 ± 0.666
Marriage and children	2.848 ± 1.196	3.116 ± 1.275	3.064 ± 1.165	2.936 ± 1.149
Relatives and friends	3.276 ± 0.684	3.632 ± 0.703	3.628 ± 0.680	3.504 ± 0.572
Religious orientation	3.984 ± 0.568	4.328 ± 0.596	4.068 ± 0.661	4.056 ± 0.791
Overall satisfaction	41.260 ± 8.980	49.420 ± 9.188	47.88 ± 9.290	46.98 ± 9.580

Table 3. The mean and standard deviation of quality of life subscale scores of experimental and control groups in pre-test, post-test

Variables	Intervention group (Mean ± SD)		Control group (Mean ± SD)	
	Pretest	Posttest	Pretest	Posttest
Emotional health	46.700 ± 21.443	31.200 ± 15.205	43.200 ± 5.264	36.400 ± 23.453
General health	58.000 ± 21.093	63.140 ± 22.345	66.000 ± 22.452	67.500 ± 22.160
Physical function	39.200 ± 39.646	9.000 ± 18.736	28.500 ± 35.718	19.500 ± 25.897
Physical pain	70.500 ± 27.980	79.000 ± 29.606	77.000 ± 27.590	79.000 ± 27.830
Physical role	32.000 ± 44.904	17.500 ± 32.308	29.000 ± 40.520	24.000 ± 38.119
Social function	34.500 ± 25.500	25.400 ± 22.879	25.700 ± 26.515	30.500 ± 27.798
Emotional role	46.000 ± 43.846	20.000 ± 36.422	34.000 ± 39.693	28.000 ± 40.608
Vitality	49.100 ± 19.939	63.200 ± 19.737	53.400 ± 22.822	60.800 ± 21.077

demand/withdrawal and especially impulsive behavior. On the other hand, bodily complaints and somatic problems are common among these couples (Eaker et al., 2007). Therefore, in this research, couples received training on coping behaviors and schemes identification, appropriate behaviors and mindfulness techniques, and etcetera, and expected an increase in marital satisfaction. According to the findings, it seems that couples, who had conflicts and experienced intense emotions in their relationship, responded better to this treatment. During the treatment sessions, it was clear that when they were aware of their emotions, thoughts, and physical sensations in times of sadness and anger, they were able to tolerate their negative emotions and manage their behavior, enhance their ability to have dialogues and modify their relationship, speak and listen about disagreements and problems, use problem-solving techniques, and improve their relationship and marital satisfaction. The research findings were consistent with the results of the study by Morshedi, Davarniya, Zahrakar, Mahmudi, & Shakarami (2016), in which the effect of ACT on couple burnout, sleep problems, sexual complaints, fatigue, anxiety, and depression wasassessed. In this study, the participants showed great equal improvement in the rates of depression, anxiety, performance problems, QOL, life satisfaction, and general clinical conditions. Furthermore, effectiveness of marital therapy based on ACT on couples' QOL showed that QOL dimensions in the intervention group, in comparison with the control group, had a significant increase from pre-test to posttest. Hence, it can be concluded that intervention sessions based on ACT were effective on the QOL of couples. This finding is consistent with the results of the study by Morshedi et al. (2016). A study on the effectiveness of acceptance and coping strategies on improved performance and QOL in a sample of 32 patients showed that treatment based on ACT significantly improved perceivedfunctional ability associated with pain, pain intensity, discomfort of pain, and QOL (Ghomian & Shairi, 2014). The results of a study on the effectiveness of ACT on QOL improvement among obese individuals showed that ACT caused a significant increase in QOL, reduction in psychological anxiety, BMI, and concerns endurance, and an increase in psychological flexibility against obesity after 3 months (Lillis & Kendra, 2014).

Table 4. Results of multivariate analysis of covariance on mean marital satisfaction scores in the intervention and control groups at posttest

Stattistical test	Value	F	Hypothesis df	Error df	Size effect	Statistical power	P-value
Pillai's trace	0.197	2.535	8	83	0.197	0.889	< 0.001
Wilks' lambda	0.803	2.535	8	83	0.197	0.889	< 0.001
Hotelling's trace	0.245	2.535	8	83	0.197	0.889	< 0.001
Roy's largest root	0.245	2.535	8	83	0.197	0.889	< 0.001

df: Degrees of freedom

Table 5. Results of multivariate analysis of variance on mean quality of life scores in the intervention and control groups at posttest

Statistical test	Value	F	Hypothesis df	Error df	Size effect	Statistical power	P-value
Pillai's trace	0.197	2.538	8	83	0.197	0.889	< 0.001
Wilks' lambda	0.803	2.538	8	83	0.197	0.889	< 0.001
Hotelling's trace	0.245	2.538	8	83	0.197	0.889	< 0.001
Roy's largest root	0.245	2.538	8	83	0.197	0.889	< 0.001

df: Degrees of freedom

Conclusion

The present study showed that marital therapy based on ACT is effective on the improvement of QOL and marital satisfaction. Moreover, its effectiveness was significant due to its shorter duration compared with other marital therapy methods.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

The authors would like to thank all the participants for their valuable collaboration in this study.

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

A Cross-Cultural Comparison of Climacteric Symptoms, Self-Esteem, and Quality of Life between Mosuo Women and Han Chinese Women

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Quantitative Study

Abstract

Background: The present study was designed to compare climacteric symptoms, self-esteem, and quality of life (QOL) between women from two different cultures in China (Mosuo and Han Chinese) and to evaluate the interaction among these variables. Mosuo is a small ethnic group in southwest China, which is described as a matriarchal society, while Han Chinese is the largest ethnic group with a patriarchal system.

Methods: This cross-cultural study was conducted on 54 Mosuo women and 52 Han Chinese women between 40 and 60 years of age. The subjects were selected through convenience sampling. They answered a sociodemographic questionnaire, the Menopause Rating Scale (MRS), the Self-Esteem Scale (SES), and the 12-Item Short Form Health Survey (SF-12).

Results: In our sample, Mosuo women obtained lower scores on the psychological and somato-vegetative subscales of the MRS, but higher scores on SES and the mental health-related QOL (SF-12/MCS) than Han Chinese women. However, the correlation between climacteric symptoms, self-esteem, and QOL was weaker in the Mosuo group compared to the Han group. Multiple linear regressions indicated that climacteric symptoms have negatively affected women's QOL.

Conclusion: In accordance with the study hypothesis, Mosuo women showed milder symptoms, a higher self-esteem, and a better QOL compared to the Han Chinese women during the climacteric. The interaction between climacteric symptoms, psychosocial variables, and QOL revealed cultural differences.

Keywords: Climacteric Symptoms, Self-esteem, Quality of life, Cross-cultural comparison, Mosuo

Citation: Ying Z, Xudong Z, Leonhart R, Wirsching M, Fritzsche K. **A Cross-Cultural Comparison of Climacteric Symptoms, Self-Esteem, and Quality of Life between Mosuo Women and Han Chinese Women.** Int J Body Mind Culture 2017; 4(1): 52-64.

Received: 20 Jan. 2017
Accepted: 25 Mar. 2017

Introduction

Menopause and the climacteric: The word "climacteric" originated from the Latin word "climactericus", meaning "of a dangerous period in life". In the medical field, "climacteric" is used to describe the transition period from reproductive to a post-reproductive stage of life, during which the menopause occurs. The term "menopause" is defined by the World Health Organization (WHO) as the permanent cessation of menstruation resulting from the loss of

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ovarian follicular activity (World Health Organization, 1996).

In Chinese, "menopause" is translated into "Jue Jing" which is neutral and the medical term means the end of menstruation, while "climacteric" is translated into "Geng Nian Qi" which covers a wider time span.

Despite being a natural process, not every woman can undergo the climacteric period peacefully. Many epidemiological and clinical studies have shown that the climacteric is a vulnerable window of time for various discomforts (Im, Lee, Chee, Brown, & Dormire, 2010; Sievert, 2014; Melby, Sievert, Anderson, & Obermeyer, 2011).

Climacteric symptoms from the biopsychosocial aspect: As the most popular hypothesis, the fluctuation in hormone levels, for example, a decline in inhibin levels and a rise in pituitary hormone levels (primarily hormone), was assumed to be responsible for the climacteric symptom. Ross (1951) explained climacteric symptom from the psychosomatic medicine standpoint as multiple loss experiences in the biological, psychological, and social spheres, such as the loss of the reproductive ability, the independence of the children, the illness or death of the parents, and or the stagnation of the career which can result in an identity crisis and grief. Inadaptability and inappropriate processing of grief could result in various somato-vegetative and psychological symptoms (Ditz 1999).

Kirmayer and Sartorius (2007) illustrated different cultural influences on the symptom experience including psychophysiology, attention, symptom attribution and interpretation, modes of coping and help-seeking, and treatment. Pimenta, Leal, Maroco, and Ramos (2012) hold the view that the severity of the vast majority of menopausal symptoms was significantly influenced by the way women perceived their recent life conditions and events, rather than hormonal changes. Becker et al. (2001) believed that psychological distress during the climacteric indicates a personal psychological or physiological vulnerability rather than a specific reaction to the menopausal events.

Self-esteem and quality of life: Self-esteem is defined as a person's overall evaluation of his or her own worth, and reflects the individual's relationship with himself or herself. Self-esteem is regarded as an important individual characteristic that affects an individual's ability to cope with stress and life challenges, and is associated with feelings of worthiness and happiness. Thus, women with high self-esteem feel good about themselves and their social and familial roles (Chedraui et al., 2010; Greenberg, 2008; Bloch, 2002). A higher level of self-esteem is negatively associated with climacteric symptom severity even after menopause (Lee et al., 2010; Elavsky, 2010).

Health-related quality of life (HRQOL) is defined "as the value assigned to duration of life as modified by impairments, functional states, perceptions, and social opportunities that are influenced by disease, injury, treatment or policy." (Patrick & Erickson, 1993). The specific domains of HRQOL include not only symptoms, but also resilience or the capacity to respond to stress, health perceptions, and physical functioning. According to Kumari, Stafford, and Marmot (2005), the menopausal transition is associated with decreased health functioning in women who report menopausal symptoms. However, many studies of menopause operationalize QOL as frequency and severity of symptoms. It is unclear whether perimenopause is related to other domains of HRQOL (Matthews & Bromberger, 2005).

Mosuo and their Culture: The Mosuo, with a population of approximately 40,000, is a small ethnic group living in southwestern China. Most of this ethnic group lives in the town of Yongning near Lake Lugu.

The Mosuo is a well-known "matriarchal society"; however, this term does not fully describe the complex characteristics of the Mosuo society (He, 2008; Shih, 2009; Cai,

2017). Moreover, the Mosuo people live in large households of several generations from the mother's lineage and trace their lineage from the female side of the family. Women are often the head of the house and play a key role in running the household. On the other hand, men (typically uncles and oldest sons) have their own rights to make trades and major decisions in the household.

Another well-known characteristic of the Mosuo is their partnership, named "walking marriage" or "visiting relationship", in which the partners only spend nights together in the woman's room rather than living together. In the morning, the men return to their own family. Both males and females typically belong to their maternal households, both materially and spiritually, throughout their life. In such a cultural context, women are more highly respected and independent than women of other ethnic groups.

To date, many studies have examined the anthropological and sociological aspects of this unique Mosuo culture. Nevertheless, very few texts on the health status of the Mosuo people exist. No literature on Mosuo women's climacteric symptoms can be referred to.

Women and climacteric in the Chinese culture: In the traditional Chinese culture, women's social roles were governed by Confucian ethical principles within the family to reproduce offspring, and to care for the children and the family members of their husband. The obedience and subservience of women to their fathers when young, husbands when married, and sons when widowed are emphasized. Beyond being daughters, wives, and mothers, women were generally not expected to fulfill other social roles (Tang, Chua, & Jiaqing, 2010).

Based on these considerations, our research aims were the following:

– to understand how Mosuo women differ from Han Chinese women in terms of sociodemographic data and climacteric symptoms;

– to analyze the differences in self-esteem and QOL between Mosuo women and Han Chinese women;

– to determine the strongest correlation between sociodemographic variables, climacteric symptoms, psychological variables, and QOL.

Based on the findings from previous studies, the following hypotheses were tested:

– During the climacteric period, Mosuo women experience milder symptoms on the Menopause Rating Scale than the Han Chinese women.

– Mosuo women have a higher self-esteem.

– Mosuo women have a better QOL.

In multiple linear regressions, the level of QOL, as a dependent variable, significantly correlates with severe climacteric symptoms and lower Self-Esteem Scale (SES) in both groups.

Methods

Study design and subjects: According to the literature review, the inclusion criteria for the study were Mosuo women or Han Chinese women of 40 to 60 years of age. The exclusion criteria were history of alcohol or substance abuse, history of treatment with estrogen replacement or any other drugs affecting the endocrine system (e.g., raloxifene), history of physical disease and/or mental disorders, and post-surgical menopause.

This cross-sectional study was conducted in Yongning, Yunnan Province, P.R. China from May 2014 to June 2014. According to the data from the civil affairs bureau in Yongning, at the time of the study, the total number of female residents in the age range of 40-60 years in Yongning included 1006 Mosuo and 490 Han Chinese women. However, the difference in the population size of the Mosuo and Han Chinese women and the poor infrastructure limited the sampling. Using the G-Power software, the required sample size was estimated for a two-tailed t-test (two independent means) with an effect size of d = 0.5 (α err prob = 0.05, Power (1-β err prob) = 0.8) and for a critical t = 1.9789706, and df = 126, which resulted in

a total sample size of n = 128. The effect size was based on the 2011 pilot study by the authors. Therefore, a convenience sampling was conducted in the 10 nearest villages (namely, 5 villages of each ethnic group); therefore, 15 women were planned to be recruited from each village.

All of the data collection was conducted by one researcher. Furthermore, a female Mosuo student with high school education was responsible for translating the interview questions into the Mosuo language.

Assessment Instruments: All the women completed the following questionnaires.

Demographic Information: This questionnaire gathered data on ethnicity, age, education level, occupation, family members, family income, religion, marital status, history of smoking or drinking, age at menarche, menstrual status, and medical history.

Menopause Rating Scales: The Menopause Rating Scale (MRS) is an 11-item symptom checklist that is used worldwide to measure symptoms during the climacteric period (Heinemann et al., 2004). Each item is scored on a scale ranging from 0 to 4, with increasing severity of subjectively perceived complaints. If the score of an item is ≥ 1, the symptom is regarded as present. The 11 items are grouped into 3 subscales, i.e., the psychological, somato-vegetative, and urogenital subscales. The summed scores of these 3 subscales are the composite score. Higher index scores reflect more severe symptoms. Studies have shown that the Chinese MRS exhibits satisfactory reliability and have provided preliminary evidence of the scale's validity (Wang et al., 2008). However, in this study, the "sexual problems" item was not asked because of cultural taboos.

The Self-Esteem Scale (SES): The Self-Esteem Scale (SES) is the most widely used self-report instrument of individual self-esteem and measures both positive and negative feelings regarding one's self (Rosenberg, 1965). The 10-item scale is believed to be one-dimensional. All of the items are answered using a 4-point Likert scale ranging from strongly agree (score 1) to strongly disagree (score 4). A higher score indicates a higher self-esteem. The Chinese version of the SES is widely used and has good reliability and validity (Ji & Yu, 1993).

The 12-Item Short Form Health Survey: The 12-Item Short Form Health Survey (SF-12) is a subset of the SF-36 survey which measures the QOL from the patient's perspective (Ware, Kosinski, & Keller, 1996). The health-related quality of life consists of the domains of physical health and functioning, emotional functioning, role limitations and social functioning (Cleary, Wilson, & Fowler, 1994). The SF-12 yields an 8-scale profile of well-being to divide the scores into two groups of physical component summary (PCS) and mental component summary (MCS). A previous study has shown that the SF-12 can be equivalently used in China with its reliable and valid information (Lam, Tse, & Gandek, 2005).

Statistical Analysis: The statistical analysis was performed using SPSS software (version 22.0, IBM Corporation, Armonk, NY, USA). Two groups were defined according to their ethnicity. Independent-samples t-test was used for the comparison of the continuous demographic variables (age, menarche age, family members, and family income) between the two groups and the comparison of group differences in the scores of the four questionnaires (MRS, SES, and SF-12). Chi-square test or Fisher's exact probability test was used for the comparison of the categorical demographic variables (occupation, educational level, and marital status) between the two groups and the differences in symptoms-reporting rates from MRS.

Pearson's correlations (r) were conducted to examine the relationship between the questionnaire scores. Multiple linear regressions were performed in each group.

For the separate analysis of Mosuo women and Han Chinese women, physical QOL and psychological well-being were treated separately as dependent variables and examined in relation to the independent variables of continuous demographic variables (age, age at menarche, number of family members, and family income), 3 subscales of MRS, and total score of the SES. A stepwise method was applied in the regression and criteria for selection were P = 0.050 for entry and P = 0.100 for removal. The interrelationships found in the best fit models were interpreted.

Results

Study sample

A total of 66 Mosuo women and 65 Han Chinese women were contacted, and 58 Mosuo and 56 Han Chinese provided informed consent for participation in the study. However, 4 Mosuo and 4 Han Chinese women were excluded because of serious physical diseases. The final sample consisted of 54 Mosuo and 52 Han Chinese women.

Clinical measures

Sociodemographic characteristics: Table 1 shows the demographic characteristics of the Mosuo and Han Chinese women.

Table 1. Sociodemographic characteristics

Variables	Mosuo (n = 54)	Han Chinese (n = 52)	χ^2/t	P
Age (years) (Mean ±SD)	47.85 ± 4.16	48.65 ± 4.93	-0.91	0.367
Educational level (%)			0.31	1.000
Primary school	52 (96.3)	51 (98.1)		
Junior middle school	2 (3.7)	1 (1.9)		
Occupation (%)			3.96	0.266
Peasants	48 (88.7)	51 (98.1)		
Administrators	1 (1.9)	0 (0.0)		
Business women	3 (5.6)	1 (1.9)		
Unemployed	2 (3.7)	0 (0.0)		
Family members (Mean ±SD)	5.94 ± 4.62	2.86 ± 1.35	3.08*	0.003
Number of children (Mean ±SD)	2.26 ± 0.71	2.50 ± 0.75	-1.70	0.092
Family Income (RMB[a]/year/person) (Mean ±SD)	3197.42 ± 4240.65)	2107.38 ± 1278.59	1.96	0.055
Religious (%)				< 0.001
Daba/Buddhism	54 (100.0)	0 (0.0)		
Others	0 (0.0)	0 (0.0)		
None	0 (0.0)	52 (100.0)		
Marital status (%)			43.17**	< 0.001
Walking marriage[b]	25 (46.3)	0 (0.0)		
Traditional marriage[c]	18 (33.3)	46 (88.5)		
Divorced	8 (14.8)	1 (1.5)		
Widowed	3 (5.6)	5 (8.6)		
Smoking[d]/Drinking (%)			5.67*	0.032
No	46 (85.2)	51 (98.1)		
Yes	8 (14.8)	1 (1.9)		
Menarche age (years) (Mean ±SD)	17.66 ± 2.15	15.42 ± 2.60	4.82**	< 0.001
Menstrual status[e] (%)			8.49*	0.014
Premenopausal	32 (59.3)	24 (46.2)		
Perimenopausal	16 (29.6)	10 (19.2)		
Postmenopausal	6 (11.1)	18 (34.6)		
History of premenstrual syndrome (PMS)			5.14*	0.023
No	41 (75.9)	28 (54.9)		
Yes	13 (24.1)	23 (45.1)		

SD: Standard deviation; * P < 0.05; ** P < 0.01; [a] RMB: Ren Min Bi, currency in China; [b] Walking marriage: see "Introduction-Mosuo and their culture"; [c] Traditional marriage: Monogamous marital relationship. One man and one woman who were married and living together in a nuclear family or with the parents from the man's side of the family; [d] Smoking average: Five cigarettes per day; [e] Premenopause: Regular cycling. I have experienced a menstrual period during the two months prior to the study; Perimenopausal: Irregular cycling. I have experienced a menstrual period between three and eleven months prior to the study.; Postmenopausal: I have experienced a last menstrual period at least twelve months prior to the study.

The two ethnic groups differed significantly on several characteristics. The Mosuo women were mostly living in their larger extended family with several generations and more family members (P = 0.003). All Mosuo women practiced two coexisting beliefs; their own syncretic faith called Daba and also the Tibetan Buddhism (P < 0.001). Among the Mosuo women, the "walking marriage" was dominant (P < 0.001). The Mosuo women had a higher percentage of smokers and drinkers (P = 0.030). The menarche age of Mosuo averaged later than that of Han Chinese (P < 0.001). Fewer Mosuo women reported premenstrual syndrome (P = 0.020).

Comparison of MRS: The climacteric symptoms were assessed using the scales of the MRS (excluding sexual symptoms because of the cultural taboo). The 3 most frequently experienced symptoms among Mosuo women were muscle and joint pain, heart discomfort, and physical and mental exhaustion. However, the most frequent symptoms in descending order among the Han Women were anxiety, muscle and joint aches, physical and mental exhaustion, and irritability. The least detected symptom was bladder problems in Mosuo women and vaginal dryness in Han Chinese women.

Compared with Han Chinese women during the climacteric, Mosuo women reported heart discomfort (P = 0.030), sleep problems (P = 0.020), depressive mood (P = 0.04), irritability (P < 0.001), anxiety (P < 0.001), physical and mental exhaustion (P = 0.040), and vaginal discomfort (P = 0.020) less frequently. The comparison of symptom frequencies is presented in table 2.

As shown in table 3, the mean score of the psychological dimension (P < 0.001) and the somato-vegetative subscales (P = 0.047), and the total score of the MRS (P = 0.002) in the Mosuo group were lower than that in the Han Chinese group.

Comparison of the Self-Esteem Scale and 12-Item Short Form Health Survey between Mosuo and Han Chinese groups: Compared with Han Chinese women, Mosuo women scored significantly higher on the SES (P = 0.006).

In terms of physical health, there was no significant difference between the groups (P = 0.129). However, in the psychological well-being aspects, the Mosuo women scored higher than the Han women (P < 0.001) (Table 4).

Relationships between the Menopause Rating Scale, Self-Esteem Scale, and 12-Item Short Form Health Survey within Mosuo and Han Groups: The results of the Pearson correlation among the 3 questionnaires and their subscales are recorded in table 5. Within the Mosuo group, only the mean score of the reported somato-vegetative symptoms were negatively related to SES (r = -0.360, P = 0.040). The mean score of psychological (PCS: r = -0.381, P = 0.070; MCS: r = -0.579, P < 0.001) and somato-vegetative symptoms (PCS: r = - 0.458, P < 0.001; MCS: r = -0.387, P = 0.06) were negatively related to SF-12. However, in the Han group, mean scores of the 2 dimensions of MRS score (psychological subscale: r = -0.482, P < 0.001; somato-vegetative subscale: r = -0.392, P = 0.040) and all mean scores of the 3 dimensions of SF-12 (PCS: psychological subscale: r = -0.502, P < 0.001; somato-vegetative subscale: r = -0.543, P < 0.001; urogenital subscale: r = -0.290, P = 0.043; MCS: psychological subscale: r = -0.786, P < 0.001; somato-vegetative subscale: r = -0.594, P < 0.001; urogenital subscale: r = -0.304, P=0.034) were negatively related to SES.

The mean total score of SES of the Mosuo women was positively correlated with the physical QOL (r = 0.432, P = 0.002). Nevertheless, within the Han group, the mean total score of SES had a positive correlation with the physical (r = 0.501, P < 0.001) as well as mental QOL (r = 0.446, P = 0.001).

Predictive variables of 12-Item Short Form Health Survey: Table 6 shows the strongest statistical predictive variables for physical and psychological well-being in the Mosuo and Han groups separately.

Table 2. Frequency of symptoms according to the Menopause Rating Scale between Mosuo and Han women

Items	Mosuo (n = 54)	Han (n = 52)	Frequecies (n = 106)	$\chi 2$	P
Hot flashes, sweating (episodes of sweating)				4.412	0.220
None	42 (77.8)	31 (59.6)	73 (68.9)		
Mild	8 (14.8)	13 (25.0)	21 (19.8)		
Moderate	3 (5.5)	7 (13.5)	10 (9.4)		
Severe	1 (1.9)	1 (1.9)	2 (1.9)		
Heart discomfort (unusual awareness of heart beat, heart skipping, heart racing, tightness)				9.039*	0.029
None	23 (42.6)	20 (38.5)	43 (40.6)		
Mild	24 (44.4)	13 (25.0)	47 (34.9)		
Moderate	6 (11.1)	17 (32.7)	23 (21.7)		
Severe	1 (1.9)	2 (3.8)	3 (2.8)		
Sleeping problems (difficulty in falling asleep, difficulty in sleeping through the night, waking up early).				11.695*	0.020
None	31(57.4)	22 (42.3)	53 (50.0)		
Mild	18 (33.3)	12 (23.1)	30 (28.3)		
Moderate	3 (5.6)	15 (28.8)	18 (1.7)		
Severe	2 (3.7)	2 (3.8)	4 (3.8)		
Extremely Severe	0 (0.0)	1 (1.9)	1 (0.9)		
Depressive mood (feeling down, sad, on the verge of tears, lack of drive, mood swings)-				8.330*	0.04
None	35 (64.8)	23 (44.2)	58 (54.7)		
Mild	14 (25.9)	14 (26.9)	28 (26.4)		
Moderate	5 (9.3)	12 (23.1)	17 (16.0)		
Severe	0 (0.0)	3 (5.8)	3 (2.8)		
Irritability (feeling nervous, inner tension, feeling aggressive)				21.562*	<0.001
None	39 (72.2)	16 (30.8)	55 (51.9)		
Mild	11 (20.4)	16 (30.8)	27 (25.5)		
Moderate	4 (7.4)	17 (32.7)	21 (19.8)		
Severe	0 (0.0)	3 (5.8)	3 (2.8)		
Anxiety (inner restlessness, feeling panicky)				24.151*	<0.001
None	36 (66.7)	11(21.2)	47(44.3)		
Mild	13(24.1)	21(40.4)	34 (32.1)		
Moderate	5 (9.3)	20 (38.5)	25(23.6)		
Physical and mental exhaustion (general decrease in performance, impaired memory, decrease in concentration, forgetfulness)				8.203*	0.042
None	28 (51.9)	16 (30.8)	44 (41.5)		
Mild	20 (37.0)	20 (38.5)	40 (37.7)		
Moderate	4 (7.4)	13 (25.0)	17 (16.0)		
Severe	2 (3.7)	3 (5.8)	5 (4.7)		
Bladder problems (difficulty in urinating, increased need to urinate, bladder incontinence)				3.684	0.158
None	45 (83.3)	35(67.3)	80 (75.5)		
Mild	6 (11.1)	11(21.2)	17 (16.0)		
Moderate	3 (5.6)	6 (11.5)	9 (8.5)		
Vaginal dryness (sensation of dryness or burning in the vagina, difficulty with sexual intercourse)				8.251*	0.016
None	36 (66.7)	36 (69.2)	72 (67.9)		
Mild	18 (33.3)	10 (19.2)	28 (26.4)		
Moderate	0 (0.0)	6 (11.5)	6 (5.7)		
Joint and muscular discomfort (pain in the joints, rheumatoid complaints)				4.976	0.290
None	8 (14.8)	13 (25.0)	21 (19.8)		
Mild	20 (37.0)	10 (19.2)	30 (28.3)		
Moderate	17 (31.5)	21 (40.4)	38 (35.8)		
Severe	8 (14.8)	7 (13.5)	15 (14.2)		
Extremely Severe	1 (1.9)	1 (1.9)	2 (1.9)		

All % are column percentages; *P < 0.050

Table 3. Comparison of Menopause Rating Scale between Mosuo and Han women

Factors	Mosuo (Mean ± SD) (n = 54)	Han (Mean ± SD) (n = 52)	t	P
Psychological	1.85 ± 1.99	4.27 ± 2.88	-5.017**	< 0.001
Somato-vegetative	3.11 ± 2.07	4.08 ± 2.81	-2.010*	0.047
Urogenital	0.56 ± 0.84	0.87 ± 1.40	-1.590	0.115
Total Score	5.26 ± 3.52	8.04 ± 5.22	-3.203*	0.002

SD: Standard deviation; * P < 0.050; ** P < 0.001

In the Mosuo group, somato-vegetative symptoms (β = -0.353, P = 0.011) and self-esteem (β = 0.315, P = 0.021) were the predictive variables for physical QOL and psychological symptoms (β =- 0.549, P < 0.001) and family income (β = 0.247, P = 0.043) predicted psychological well-being.

In the Han group, somato-vegetative symptoms (β = -0.379, P = 0.003), self-esteem (β = 0.312, P = 0.013), and age (β = 0.271, P = 0.019) were the predictive variables for physical QOL. Furthermore, severe psychological symptoms (β =- 0.786, P < 0.001) predicted poor psychological well-being.

Discussion

The present cross-sectional study was performed to compare climacteric symptoms, and level of self-esteem and QOL between Mosuo women and Han women.

Sociodemographic characteristics: The study subjects lived in the same geographical region. The average age of the participants in the two groups was approximately 48 years. Most of them had only attended primary school and were engaged in farming. The annual family income for each individual was about 2000-4000 RMB. In all these aspects, the differences between Mosuo and Han Chinese women were statistically insignificant. The typical ethnic and cultural differences are reflected in discrepancies in terms of family members, religious beliefs, marital status, and menarche age, which were in line with the qualitative research.

Remarkably and interestingly, Mosuo women had a much higher percentage of smokers and drinkers, but none of them were addicted to either one.

Climacteric symptoms: There was a wide range of literature reporting about the different climacteric symptoms in different cultural groups.

In this study, we found several similarities between the 2 ethnic groups. The most reported physical symptom for both groups was joints and muscle complaints. The vasomotor symptoms, which are the symptoms associated with declining estrogen levels, were less commonly mentioned. Furthermore, urogenital symptoms were the least reported subgroup for both ethnic groups. These results are comparable to many international and Chinese studies (Shea, 2006; Huang, Xu, & Jaisamrarn, 2010; Gold et al., 2004) that suggest that non-Western women suffer primarily from non-specific somatic symptoms during the climacteric period rather than vasomotor symptoms as reported in the Western view of menopause.

Table 4. Comparison of the Self-Esteem Scale and 12-Item Short Form Health Survey between Mosuo and Han women

Factors	Mosuo (Mean ± SD) (n = 54)	Han (Mean ± SD) (n = 52)	t	P
SES	29.72 ± 3.56	27.73 ± 3.71	2.823*	0.006
SF12/PSC	44.32 ± 9.90	41.35 ± 9.29	1.530	0.129
SF12/MCS	48.41 ± 8.61	39.18 ± 13.52	4.032**	< 0.001

* P < 0.010, ** P < 0.001; SES: Self-Esteem Scale; SF12/PSC: SF-12/Physical component summary score; SF12/MCS: SF-12/Mental component summary

Table 5. Pearson correlations (*r*) of the Menopause Rating Scale, Self-Esteem Scale, and 12-Item Short Form Health Survey

	SES[b]		SF-12 /PCS		SF-12 /MCS	
	Mosuo (n = 54)	Han (n = 52)	Mosuo (n = 54)	Han (n = 52)	Mosuo (n = 54)	Han (n = 52)
Psychological	-0.081	-0.482***	-0.381**	-0.502***	-0.579***	-0.786***
Somato-vegetative	-0.306*	-0.392**	-0.458***	-0.543***	-0.387**	-0.594***
Urogenital	-0.162	-0.181	-0.261	-0.290*	-0.017	-0.304*
MRS total score	-0.268**	-0.490***	-0.490***	-0.587***	-0.464***	-0.744***
SES			0.432**	0.501***	0.185	0.446**

* P < 0.05; ** P < 0.01;*** P < 0.001; MRS: Menopause Rating Scale; SES: Self-Esteem Scale; SF12/PSC: SF-12/Physical component summary score; SF12/MCS: SF-12/Mental component summary

However, significant differences between the 2 groups were also indicated. Mosuo women reported fewer vasomotor symptoms, fewer psychological symptoms, as well as less physical and mental exhaustion in comparison to the Han women. Regarding the severity of the symptoms, the psychological and somatic symptoms in the Mosuo group were milder, thus confirming the first hypothesis.

Additionally, it is also interesting to note that the predominant cluster of symptoms in the Mosuo group was somato-vegetative symptoms; whereas, psychological symptoms were the most commonly reported problems in the Han group.

Self-esteem: The comparison of self-esteem partially confirmed the second hypothesis; namely, that Mosuo women have higher self-esteem than Han Chinese women. There was strong quantitative evidence for the qualitative data (He, 2008; Shih, 2009; Cai, 2017). Chedraui et al. (2010) held the view that lower self-esteem was not related to the aging process per se, yet it had a relation to the socio-demographic female/male aspects. Mosuo females work harder than males in both domestic and agricultural spheres and the partners do not live together. In this sense, Mosuo women lead their lives as mothers and important family members, who share an equal position with men. They are likely to develop greater resourcefulness and coping skills; thereby, leading to a greater sense of personal and familial control and growth. These factors could all be helpful in establishing a higher self-esteem and addressing the identity crisis during the climacteric period (Markus & Kitayama, 1991; Brewer & Chen, 2007; Brewer & Gardner, 1996).

Table 6. Multiple linear regression predicting 12-Item Short Form Health Survey

Dependent	Minority	Model	Standardized coefficient β	Adjusted R^2	F	P
SF-12 /PCS	Mosuo			0.267	9.567	< 0.001
	(n = 54)	Somato-vegetative[a]	-0.353			0.011
		SES	0.315			0.021
	Han			0.425	12.813	< 0.001
	(n = 52)	Somato-vegetative	-0.379			0.003
		SES	0.312			0.013
		Age	0.271			0.019
SF-12 /MCS	Mosuo			0.336	12.884	< 0.001
	(n = 54)	Psychological[b]	-0.549			0.000
		Income	0.247			0.043
	Han			0.610	75.964	< 0.001
	(n = 52)	Psychological[c]	-0.786			0.000

[a] Somato-vegetative: Somato-vegetative subscale of the Menopause Rating Scale ; [b] Psychological: Psychological subscale of the Menopause Rating Scale (MRS); SES: Self-Esteem Scale; SF12/PSC: SF-12/Physical component summary score; SF12/MCS: SF-12/Mental component summary; Independent variables: Age, age at menarche, number of family members, and family income, three subscale scores of MRS, total score of the SES.

Quality of life during the climacteric: As an important outcome of the evaluation of both function and disease progression, it can be stated that social functioning is different from symptomology. A greater social dissatisfaction and a lower level of social functioning were reported as significant factors for climacteric women's demand for medical care (Montero, Ruiz, & Hernandez, 1993).

As the study showed, no significant difference was found in terms of physical well-being between the groups, in spite of the differences in the severity of the somatic symptoms. Nevertheless, in terms of psychological well-being, the Mosuo women were less likely to be reported as being impaired. Kroenke, Spitzer, and Williams (2002) were of the opinion that somatic and psychological symptoms have differential effects on various dimensions of QOL.

Interaction between climacteric symptoms, self–esteem, and quality of life: The forth hypothesis regarding the relationship between climacteric symptoms, self-esteem, and QOL was partially confirmed.

First, the correlation between climacteric symptoms, self-esteem, and QOL was weaker in the Mosuo group compared to the Han group. In the Mosuo group, lower self-esteem correlated with severe somatic symptoms, but the correlation with the psychological symptoms was not significant. This suggests that self-esteem had different impact on the symptoms severity and QOL in each group. High self-esteem was more important for Han women in protecting them from climacteric symptoms.

Second, it is worth noting that for both, the Mosuo group and the Han group, a negative correlation was found between the severity of the symptoms and QOL. Somatic symptom was one of strongest predictive variables for physical well-being and psychological symptom was one of strongest predictive variables for mental well-being. As evident in other studies, the presence of climacteric symptoms was associated with a decreased health-related quality of life of the women (Matthews & Bromberger, 2005). Many studies have shown that the climacteric negatively impacts QOL (Dennerstein, Lehert, & Guthrie, 2002; Mishra, Brown, & Dobson, 2003); however, this negative impact is not related to the menopausal status (i.e., the fluctuation or cessation of menses) alone, but to the menopausal symptoms (Avis, Assmann, Kravitz, Ganz, & Ory, 2004; Kumari et al., 2005; Cheng, Lee, Wang, Wang, & Fuh, 2007). Nevertheless, in the Mosuo group, the correlation between psychological symptoms and physical functioning as well as somatic symptoms and mental functioning are weaker compared to the results of the Han Chinese group. The cultural differences in the association between body and psyche are reflected in this sense.

It is also interesting to note that self-esteem is a predicator of physical QOL, but not mental QOL. It was found that, in addition to the severity of somatic symptoms, the psychological variable of self-esteem is also of importance in physical well-being.

To summarize, Mosuo women and Han women are heterogeneous populations, this results in different interactions of symptoms, psychosocial variables, and QOL during the climacteric.

Limitations: The present findings must be interpreted with caution with respect to several limitations. First, the sample size was not sufficiently large to be representative. Therefore, the ethnic differences in climacteric symptoms, QOL, and self-esteem cannot be generalized to all the women in this region. The comparability with studies on other cultural groups is also limited. Moreover, the reliability and validity of the instruments used were limited because of the cross-cultural context and the Mosuo participants' lack of knowledge of the Chinese language. Furthermore, these multiple variables and their multicollinearity limit the interpretation of the correlation analysis and the multiple linear regressions.

Conclusion

As concluded in previous studies (Sievert &

Obermeyer, 2012; Melby, Lock, & Kaufert, 2005), although menopause is universal, the experience and meaning of menopause and the climacteric period vary across countries and cultures.

The present study provides some preliminary support for the beneficial effects of Mosuo culture for women during the climacteric. Mosuo women during the climacteric period reported milder symptoms, particularly in terms of psychological symptoms, as well as higher self-esteem and better psychological QOL compared with Han Chinese women.

This way of evaluation of symptoms, standards of psychosocial variables, and QOL is different from the ways in which culture is understood in other sub-disciplines of anthropology and sociology. It is implicated that cultural ideologies, norms, and meanings interacted with biopsychological variables during the climacteric. Future research with larger samples and more comprehensive evaluation is necessary to obtain a more representative and informative result.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

The travel cost for the data collection was supported by the German Ministry of Education and Research (BMBF), Grant number 1010017102.

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