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Philosophy of Medicine: Reframing the Past, Rethinking the Future

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Editorial

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The philosophy of medicine is a rapidly growing and progressing branch of philosophy; however, in order for it to remain a distinct field of inquiry, I propose historical reframing based on reflection on its roots and development. In other words, understanding its history is a way to give perspective to the contemporary issues of philosophy of medicine and shape its future.

It is well-known in the English-speaking world that the narrative of emergence of the philosophy of medicine in the 1970's in America started with the publication of "The Journal of Medicine and Philosophy" and "Theoretical Medicine". Although the role of the American movement in the 70's in both the institutionalization and globalization of the philosophy of medicine is undeniable, it should be noted that medical philosophy is deeply rooted in the non-English-speaking worlds, predominantly in Poland, Germany, and France (Giroux & Lemoine, 2018).

By the second decade of the 20th century, chairs of History and Philosophy of Medicine had already been established in five major Polish medical schools. The journal titled "Archives of the History and Philosophy of Medicine" published articles on the philosophical aspects of medicine, and medico-philosophical subjects were debated in the meetings of the Polish Society of the History and Philosophy of Medicine. The history of the Polish school of medical philosophy, which dates back to the mid-19th century, culminated with Ludwik Fleck (physician-philosopher), the most prominent figure in this circle (Lowy, 1990).

In Germany, Richard Koch's works on the foundations of medicine were first published in the 1920's. These publications reflect on the character of medicine as a practical endeavor and examine the status of medicine within the theory of natural sciences. One of his conclusions was that medicine is not a science, like physics or biology, in the original sense of the word, but a practical discipline (Topfer & Wiesing, 2005). Science versus practice, theory of medicine, the relationship between diagnosis and therapy,

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the importance of the goal of medicine are the topics he introduced to the field. In addition, two figures of German philosophy, Martin Heidegger and Has-Georg Gadamer, have specifically and deliberately reflected on certain topics in medicine. Heidegger, in Zollikon Seminars, related ontological and phenomenological perspectives to the theory and praxis of medicine, psychology, psychiatry, psychotherapy, as well as psycho-somatic medicine. In the “Enigma of Health: The Art of Healing in a Scientific Age” (Über die Verborgenheit der Gesundheit), Gadamer examines and reflects on the key components of medical practice such as intelligence, death, life, anxiety, freedom, health, and the relationship between the body and the soul based on the phenomenological and philosophical hermeneutics frameworks. As a member of Gadamer's school, Wolfgang Wieland has questioned judgment in numerous writings such as “practice and judgment or diagnosis: considerations on medical theory in the field of medical practice” based on Kant's theory of judgment. In France, Georges Canguilhem (French physician and philosopher) in “The Normal and the Pathological” showed that the emerging categories of the normal and the pathological were far from being objective scientific concepts. He demonstrated how the epistemological foundations of modern biology and medicine were intertwined with political, economic, and technological imperatives. Influenced by Canguilhem, Michele Foucault, based on the idea of spatialization, tried to meticulously illustrate the connection between medical epistemology and medical institutions in “The Birth of the Clinic”.

In addition to the attempts that were naïve, trivial, and lacking in historical perspective to frame the philosophy of medicine in such terms as “philosophy in medicine”, “philosophy and medicine”, etc., the American school treats the philosophy of medicine as a sub-discipline of the philosophy of science as a result of increasing specialization and fragmentation movements. Although it seems that general topics in the philosophy of science including experimentation, theory and evidence, causality and explanation, realism, reductionism, and science and values are still relevant in the philosophy of medicine, they are nonetheless too limiting to allow for a full coverage of all the issues in medicine.

Although it is reasonable to expect medical philosophy to serve as a basis for bioethics, it seems that there is a tendency in bioethics to engulf medical philosophy in itself (Stempsey, 2007), a process like phagocytosis! On the other hand, if the philosophy of medicine is defined as a sub-discipline of the philosophy of science, it will desensitize it to the humanistic concerns of clinical practice and run the risk of reducing such concerns to merely ethical issues.

I am suggesting neither the philosophization of all medical issues, nor the prioritization of medical philosophy. Instead, what I am suggesting is a critical and constructive dialogue between medical philosophy and other fields and disciplines like medical education, medical sociology, etc. Taking all of that which we consider to be the legacy of medical philosophy changes our narrative of its birth and development. By putting these pieces together we can draw a complete picture of the issues and approaches that medical philosophers have dealt with, which are very diverse and multifaceted. One of the major downsides to reducing the philosophy of medicine to the philosophy of science or bioethics is the loss of diversity of approaches and issues. Many of the issues that philosophers such as Gadamer have pointed out in medicine have not yet become serious issues in the field of medical philosophy. In my opinion, applying the ideas of philosophy to medical philosophy can enrich this field.

The philosophy of medicine needs both to interact with, and to reflect on the biomedical sciences; a task it has been busy with since its birth. It also should interact with non-medical sciences (social sciences and humanities

related to medicine); something that has not yet been Undertaken seriously. Medical philosophy offers the field of medical education profound and remarkable insights into clinical reasoning, the doctor-patient relationship, empathy, etc. Its contribution to medicalization reveals the hidden sides of this phenomenon. The role of technology (artificial intelligence and cyborg) in clinical practice, clinical encounter, and medical institutions is the issue that has received little attention in medical philosophy.

In my opinion, promoting debate among other disciplines both within and outside of medicine, utilizing the achievements of other disciplines in medical humanities, and playing a more serious role in medical education and health policy-making are the future of medical philosophy.

Conflict of Interests

Authors have no conflict of interests.

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Evolutionary Study of Chronic Non-Communicable Diseases Policy as Healthcare Intervention in Ghana (2000-2019)

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Qualitative Study

Abstract

The incidence of chronic non-communicable diseases (NCDs) such as diabetes, hypertension, cancers and cardiovascular diseases in Ghana has created a new mix of healthcare challenge for the country. Owing to the fact that NCDs have caused significant illness and deaths for decades and robbed people off their social satisfaction in life, several healthcare interventions have been initiated to stem the tide of these diseases. One of such interventions is the Non-communicable Diseases Control and Prevention Policy, which was adopted in the year 2012. A strategy for management, prevention and control of chronic NCDs document that contained plan of actions to be pursued from 2012 to 2016 accompanied the policy document and geared towards the facilitation of NCDs programs in the policy. However, it appeared that within the stipulated period, the set of actions spelt out in the policy and strategic document remained a mirage. This paper revolves around two critical questions on how policy makers have mulled over this issue; Does the NCDs policy have the historical evidence of being productive? What factors have posed as constraints to the policy implementation? The authors employed a qualitative research approach predicated on both primary and secondary sources for the study. In that stead, an electronic search was conducted through the database and archives of the World Health Organization (WHO), United Nations (UN), Ghana's Ministry of Health (MoH), the Ghana Health Service (GHS), the Ghana Statistical Service (GSS) and the Ghana Medical Journal (GMJ) among others to collect data for analysis and discussions. While the NCDs policy has the historical evidence of being productive given its strategic areas and plan of actions for implementation, legislative, leadership and governance, cultural and socio-economic factors were spot on as constraints to implementation. Policy makers and stakeholders alike are reminded to reflect soberly on these constraints in their quest to design and implement robust interventions for the management, prevention and control of NCDs in Ghana.

Keywords: Non-communicable diseases, Constraints, Healthcare Intervention, Policy Implementation, Ghana

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Introduction

Ghana is among one of the developing countries in Africa that have made significant strides as far as healthcare is concerned. The country's formal healthcare system has

witnessed several transformations, which encompassed structural, technological and policy reforms. Notable among them are the introduction of the National Health Insurance Scheme (NHIS), Health Sector Medium Development Plans (HSMDPs), formulation of national health policies and strategies, the decentralisation of governing structures and more recently, the introduction of medical drones. At the core of these reforms has been the goal to improve the health outcomes of Ghanaians, remove inequalities and ensure a responsive, efficient, equitable and sustainable healthcare system (Saleh, 2013). With the upsurge of NCDs in the 1990's, the healthcare system of the country at that time responded largely to communicable diseases since such diseases constituted the major healthcare challenge (de-Graft Aikins and Koram, 2017). Presently, NCDs co-exist with communicable diseases to cause greater morbidity and mortality among Ghanaians.

Ideally, non-communicable diseases have become a global healthcare challenge especially among developing countries. Not only do they pose as a threat to healthcare but also detrimental to socio-economic development (Nugent, 2008; Ezzati et al., 2005). This results from the nexus between health and socio-economic development as expressed in the adage 'a healthy population is a wealthy population' (WHO, 2006). The burden of NCDs made them appear on top of public health discourse at the United Nation's (UN) high-level meeting held in 2011 (Atun et al., 2013).

The burden of NCDs on healthcare systems and economies of countries has been a negative one. Thus, the prevalence of NCDs have culminated to an increase in expenditure in the health sector and this has affected the ability of countries to consistently advance their universal healthcare coverage (de-Graft Aikins et al., 2014). It is not surprising that NCDs have been conceptualized as "global emergency requiring urgent action" (Bosu, 2013). In 2008, global deaths from NCDs were estimated at over 36million where nearly 80% of deaths occurred in lower and middle-income countries (Kankeu et al., 2013). In addition, worldwide deaths that resulted from NCDs recorded a steady increase from 26.6million representing 57.2% of 46.5million deaths to 34.5million representing 65.5% of 52.8million deaths in 1990 and 2010 respectively (Atun et al., 2013). Reporting on same, the World Health Organization (WHO) recognised that the number of people who died as a result of cardiovascular diseases alone were 17.5 million representing 31% of global deaths in the year 2012 (WHO, 2018). In the same year, nearly half a million deaths from stroke in sub-Saharan Africa was also reported (Africa Check, 2018). Economically, the projected cumulative global loss of economic output due to NCDs from 2011 to 2030 was estimated over US$40 trillion with around US$21.3 trillion in lower and middle-income countries (Atun et al., 2013).

In Ghana, non-communicable diseases constitute a public health and developmental challenge as they have caused significant illness and deaths for more than a decade (de-Graft Aikins, 2007; Bosu, 2013). According to Ghana's Ministry of Health (MoH), NCDs claimed the life of about 86,200 persons in Ghana with 55.5% of them aged less than 70 years as of 2012 (MoH, 2012). In retrospect, the WHO reported in 2010 that NCDs killed 78,000 persons in Ghana every year (WHO, 2011). Again, NCDs in Ghana caused 2.32 million Disability Adjusted Life Years (DALYs) in 2012 (MoH, 2012). Correspondingly, between 1990 and 2010, the top 25 causes of premature deaths included seven NCDs successively (de-Graft Aikins and Koram, 2017). Within the same period, the top twenty-five causes of DALYs included eleven NCDs (Ibid.). In 2008, the Centre for Health Information Management (CHIM) of the Ghana Health Service (GHS) clearly communicated that cardiovascular diseases (CVDs) were the leading cause of deaths in health facilities (GHS, 2010).

NCDs have struck individuals with physical challenges as they have rob them of their social satisfaction in life (de-Graft Aikins, 2007). de-Graft Aikins (2007) has pointed out that these challenges have their psychological impact on the lives of affected individuals in respect of mobility and productivity. As exemplified in her study, in 1981, an assessment of the health impact of diseases in Ghana in the order of healthy days of life lost per 1000 persons per year revealed that 17, 500 days, 10,400 days and 5,100 days of healthy life was lost through sickle-cell disease, cardiovascular and hypertensive diseases respectively (de-Graft Aikins, 2007). The economic setbacks from NCDs also affect family livelihood and relations. de-Graft Aikins (2007) postulated that treating NCDs in Ghana is expensive and that managing a condition can cost more than what an individual earns . For instance, in 2001, the cost of care for one diabetic case stood between US$180 to US$420 while in 2007, the cost of caring for the same disease per month ranged from GH₵100 equivalent to US$106 to GH₵600 equivalent to US$638 at that time. (de-Graft Aikins, 2007)

In a similar study conducted by Tagoe (2012), it was revealed that households with NCDs incurred a mean healthcare cost of GH₵13.09 as compared with healthier household with a mean cost of GH₵8.76. In a situation like this, the WHO (2005) echoed that the poor largely suffer in terms of funding for NCDs care hence, deepen poverty and damage long-term economic prospects.

Undoubtedly, people with conditions such as diabetes often rely on their family members for financial assistance. For this reason, the dependence on family members and relatives who themselves are financially handicapped breeds tensions between families and in extreme cases, such victims are abandoned and left in isolation (de-Graft Aikin, 2007). Significantly, scholars have noted the societal stigma that people with NCDs conditions have faced over the years especially women. Individuals with NCDs conditions like cancer and diabetes have become laughing stocks in their communities (Ibid.). The stigma associated with NCDs can be intense to an extent where individuals with life partners eventually abandoned them (de-Graft Aikin, 2007). This situation is mostly peculiar with women. In addition, individuals living uncontrolled diabetes faced HIV/AIDS-related stigma due to rapid and extreme loss of weight.

Others have argued that policy changes that occurred in Ghana’s healthcare system from the 1990s compounded the burden of living with NCDs. Tagoe (2012) have argued among other things that the out of pocket fees introduced in public health facilities in 1992 led to a reduction in health subsidies from the government. He stressed that the policy culminated to the pricing of drugs and pharmaceuticals at full cost and that the introduction of the National Health Insurance Scheme (NHIS) led to a 39% reduction in government’s expenditure on health (Tagoe, 2012). Not only did it led to a reduction in government’s expenditure on healthcare but also to an increase in household healthcare cost. Tagoe (2012) further elaborated that in situations where ‘home-based’ care was required, both the infected and affected persons were significantly burdened. As pointed out by him, people living with NCDs with unemployment status at the time of his study constituted a percentage of 59. These unemployed with such health conditions had to depend on distant and close relatives for treatment, care and support. This placed persons living with NCDs conditions and their family especially the poor at a disadvantaged position in the society.

Kankeu et al. (2013) also made similar observations when they indicated that poorer households living with NCDs suffer more than richer households do. This assertion was consistent with the position of the WHO (2005) that poor people were the most vulnerable to suffer financially from NCDs.

Kankeu et al. (2013) stressed that NCDs can cost individuals to lose their work, reduce productivity and income since their treatment requires frequent visits to health facilities in addition to the inability to work due to poor health. On this note, we may ascribe to the position of the WHO that care for NCDs draws people further into poverty. Adding to the above, de-Graft Aikins (2005) asserted that majority of households spent greater proportion of their income on medications for diabetes in Ghana as at 2005. This is evident in the expenditure on insulin, which constituted about 60% of the monthly income of people (de-Graft Aikins, 2005).

Research has revealed that NCDs have had significant impact on maternal health and pregnancy outcomes. Kapul (2015) noted that NCDs such as diabetes, obesity, hypertension and hyperglycaemia considerably caused maternal morbidity and mortality. He reported that women especially expectant mothers with severe anaemia were at a higher risk of developing chronic pregnancy-related disease like pre-eclampsia (Ibid.). Again, he asserted that NCDs risk factor like obesity placed expectant mothers at an increased risk of pre-eclampsia, induction of labour, post-partum haemorrhage, intensive care admission, thrombosis and caesarean section. He went on to indicate, by drawing evidence from existing research that hypertensive pregnancy disorders accounted for 10% and 15% of maternal deaths in developing countries. Similarly, medical reports from the Korle Bu Teaching Hospital in the 1980s and 1990s revealed several maternal deaths to be caused by hypertension (Agyei-Mensah and de-Graft Aikins, 2010).

To respond to the burden of NCDs on the health and wellbeing of Ghanaians, policy makers have initiated several interventions including the NCDs prevention and control policy. Despite the existence of several interventions from the 1990s, Ghana had no single policy on NCDs until 2012 (de-Graft Aikins, Boynton and Atanga, 2010). In the same year, a strategy document that contained plan of actions geared towards the implementation of the policy from 2012 to 2016 was also drafted. However, since the adoption of the NCDs policy in 2012, it appeared that the policy's intentions seem to be a mirage. This paper revolves around two critical questions that are of interest to policy makers; Does the non-communicable diseases policy has the historical evidence of being productive? What factors have posed as implementation gaps in the policy? This paper answers these questions through thematic analyses of the policy with prime focus on the strategic areas to identify possible constraints concerning implementation.

Methods

The authors employed a qualitative research approach predicated on both primary and secondary sources for the research. The primary sources of data collection include reports and documents from local and international organisations and government. The secondary sources include books and journal articles. The authors conducted an electronic search in the database and archives of the World Health Organization (WHO), Ghana's Ministry of Health (MoH), the Ghana Health Service (GHS) and the Ghana Statistical Service (GSS) among others. Alternatively, they conducted literature search on various online database including Ghana Medical Journal (GMJ), PuBMED and BMC under the headings; "Non-communicable or chronic diseases," "Non-communicable diseases in Ghana," "Chronic diseases in Ghana," "Non-communicable diseases interventions in Ghana," "Health Policies in Ghana" among others. Our search for data extended to the year 2000, the year that marked the beginning of the twenty-first century. In addition, major changes in the country's healthcare system took place after 1995.

The search for data was limited to medical and social science research. The authors organised the information siphoned from these sources for the analysis and discussions

on the constraints to the policy's implementation.

The non-communicable diseases prevention and control policy was analysed within the context of other health related national policy documents, government of Ghana documents, reports and resolutions from both national and international organisations to examine the strategic areas of the policy in order to ensure a balanced discourse. These reports and documents include the GHS annual reports, the national health policy, reports and resolutions on NCDs for the African region from the WHO specifically from World Health Assembly (WHA) meetings. The work of Shaw, Elston and Abott (2004) on the analysis of health policy implementation guided the authors in their analyses. The authors read the policy document severally to gain sufficient knowledge and understanding of its contents. We revisited the document several times together with other supplementary documents to make sure key issues were identified for coherent analyses.

Background of the National Policy for the Prevention and Control of Chronic Non-communicable Diseases in Ghana

The National Policy for the Prevention and Control of NCDs was adopted in 2012 after several drafts in the form of policy frameworks had been prepared in 2002, 2006 and 2007 (MoH, 2012; Bosu, 2012). This policy was drafted jointly with a national strategy document for the management, prevention and control of NCDs. The strategy document contained plan of actions to spearhead the implementation of the policy objectives enshrined in the strategy document from 2012 to 2016. The set objectives were to: improve funding for NCDs interventions; strengthen the monitoring of NCDs (their determinants and the national capacity to respond to NCDs); build on clinical management and outcomes of NCDs; improve early detection of NCDs; reduce exposure to risk factors for NCDs; improve awareness and knowledge of NCDs; to improve governance and coordination of NCDs (MoH, 2012).

By 2011, Ghana had developed a draft of this policy and strategy documents with support from the West African Health Organization (WAHO) (GHS, 2012). By 2014, both the policy and strategy document had completely been finalized (GHS, 2015). The preparation of the policy document began with a joint workshop for Anglophone West Africa in Banjul, The Gambia from March to April 2010 with support from the WAHO and WHO (MoH, 2012). The final fold of the policy document in 2012 entailed review of existing national policies and strategies, international resolutions, strategic plans of various programmes and general literature review to identify cost-effective interventions.

This notwithstanding, both documents were not formally launched until 2016 (GHS, 2017). It is important to note that the MoH awarded these documents together with a national cancer plan for contract to the Ghana Health Service (GHS) (Ibid.). This underpins the fact that the GHS is pivotal in the implementation of the policy. The objectives of the NCDs policy were to reduce; the occurrence of NCDs, exposure to unhealthy lifestyles linked with NCDs, morbidity from NCDs and improves the quality of life in persons with NCDs at large.

Analyses of the Strategic Areas of the NCDs Policy

The NCDs policy in question related to five main strategic areas. They include primary prevention, early detection and clinical care, health system strengthening, research and development and surveillance of NCDs and their risks factors.

Primary Prevention

The primary prevention strategy related to policies directed toward tobacco and alcohol control, diet, physical activity and immunisation (MoH, 2012). As part of the strategies outlined to meet the set objectives

of the policy, emphasis was placed on health promotion through education and programs, advocacy, fiscal control measures, legislations and multi-sectoral actions. The implication was to promote the practice of healthy lifestyles among Ghanaians. In line with the above, experts reckoned that the effectiveness of health promotion as a tool to reducing the incidence of NCDs depends on the extent to which such activity is carried out at the national, community and individual levels (National Department of Health, 2013). This certainly was in response to the recommendation made by the WHO on primary preventive measures. The WHO recommended the necessity for a multi-sectoral approach to combating NCDs after recognising that the basic determinants of NCDs burden lie outside the health sector (WHO, 2005). In addition, most of the causal factors associated with NCDs are influenced by sectors such as transport, trade and agriculture. Clearly, the products from these sectors accompanied with advertisements have largely influenced the lifestyles of individuals. This implies that the quest to reduce the incidence of NCDs and improve health for that matter requires the collaborative efforts of all sectors of the economy. In 2014, the European report on NCDs control and prevention communicated clearly, on how most countries in Europe successfully addressed this burden through a multisector collaboration other than health ministries (WHO, 2014). The use of certain fiscal mechanisms also influences the prices of foods, which in turn influences consumers' choice of food. Price control mechanisms such as taxation and subsidies have historically influenced healthy eating and physical activity predicated on the availability, access and consumption of various foods (WHO, 2006). By 2010, 80% of countries in Europe had used fiscal interventions such as taxation on alcohol, tobacco products and beverages with high sugar content to influence individuals' behavioural change (Ibid.).

Significantly, the behavioural practices enshrined in the policy reflected the lifestyle practices that have contributed to major ill health specifically NCDs in Ghana. In the 1990s, a National Plan of Action on Food and Nutrition (NPAFN) document (1995-2000) mentioned excessive alcohol consumption, drug abuse, lack of regular physical activity and eating of unhealthy diets such as those high in fat as major contributors of ill health in Ghana (GoG, 1996). Given the World Health Assembly resolution in 2004, WHA57.16 on health promotion, Ghana's MoH sought to prioritise the promotion of healthy lifestyles both in and out of school youth (WHA, 2004). With recourse to the National Health Policy 2007, the primary prevention interventions of the NCDs policy were consistent with the objective four under the healthy lifestyles and environment section (MoH, 2007). This notwithstanding, scholars have argued that we cannot regulate the social life of people by simply educating them on behavioural modification stressing on the need to encourage people to take ownership of their behaviours and choices with a supportive environment (Adobor, 2018; NDH, 2013). However, they agreed that education could be extended to them on the dangers of practicing certain lifestyles that are deleterious to health with the availability and accessibility of healthy diets and essential facilities for physical activities that are within their reach (Ibid.).

To address cervical cancer among females, the introduction of human papilloma virus (HPV) vaccine by the MoH to prevent cervical cancer was under two conditions (MoH, 2012). The first was the availability of the outcome of a multi-country trial that had already begun. The second was a reduction in price of the vaccine reflecting its uncertainty in the NCDs policy. The introduction of HPV has been recognised as a highly cost effective population-based intervention (NDH, 2013). To this end, the primary prevention strategy of the NCDs policy indicated a commitment to other

national health policies in Ghana and in other jurisdictions.

Early Detection and Clinical Care

Under early detection and clinical care, the policy measures were directed at two groups of people (MoH, 2012). They include those with NCDs and those without NCDs but are at risk. The key policy options identified for the encouragement and improvement of early detection and clinical care respectively were public education, expansion of screening services across the country, expansion of NCDs special clinics, multidisciplinary approach to the management of NCDs, provision of palliative care and elevation of NCDs care into primary health care (Ibid.). Accordingly, the WHO has emphasised on the cost-effectiveness and effectiveness of primary health care (PHC) to ensure quality healthcare delivery (WHO, 2010). Consequently, given the kind of care that patients with NCDs and even those at risk require, the WHO has expressively echoed that it is only through PHC that can help meet such care.

Assuredly, the policy made recourse to the WHO Package of Essential NCDs Interventions. As part of the WHO's stepwise approach to combating NCDs, emphasis was laid on the training of health workers at the primary care level on NCDs management and referrals, the provision of palliative care services and the preparation of NCDs evidenced-based treatment guidelines (WHO, 2005). The palliative care as endorsed by the WHO relates to the control of pain and other symptoms as well as to permit death with dignity. Although the policy did not explicitly mention the training of primary health care workers in the management of NCDs and referrals, the strategy document 2012 – 2016 recorded the education of the public and traditional herbalists (THs) on NCDs to enable people with NCDs report to health facilities early and allow alternative healers to make early referrals (MoH, 2012). This is to emphasize that certain details omitted from the NCDs policy were captured in the strategy document. On the surface, the NCD policy under clinical care committed to the WHO recommendations on a comprehensive approach to the management of NCDs including Sickle Cell Disease. This notwithstanding, the Innovative Care for Chronic Conditions Framework of the WHO illustrated that managing NCDs is not dependent on good clinical diagnosis and interventions but on a planning and supportive environment that understands the difficulties of long term cases as well as partnerships between health personnel, the community, patients and families in particular (NDH, 2013).

Strengthening of Health Systems

According to the WHO, strong health systems are fundamental to maintain good health and manage threats to health (WHO, 2014). The National Department of Health of South Africa defined a health system as the “structured and interrelated set of all actors and institutions contributing to health improvement” (NDH, 2013). This definition underpins the fact that ensuring quality health is not only incumbent on the health ministry but on all other government and non-governmental agencies. The South African strategy for prevention and control of NCDs from 2013 to 2017 highlighted on strengthening health systems as preventive and control mechanism for reducing NCDs (NDH, 2013). Legetic and others identified the main functions of health systems to include health promotion, health financing and stewardship (Legetic et al., 2016). However, they maintained that one of the core objectives of healthcare systems is to protect persons from the financial risks associated with healthcare.

In the area of strengthening of health systems to assist in the management of NCDs, the major components of the policy included human resource capacity, provision of essential drugs and supplies, service integration, partnerships and funding (MoH,

2012). In that regard, the policy aspirations encompassed equitable distribution of human resources across the country to manage NCDs, advocate for training institutions to be tutored on NCDs, intensify health worker-patient relationship, access to NCDs drugs, tax regulations to minimize the cost of NCDs care, build and foster partnership with other health stakeholders.

It was expected to intensify community participation in planning and supervision of NCDs programs and the revision of national health accounts to include NCDs funding on one hand. The strategy document on the other hand proposed health system strengthening to address the lacunae in the components of the health systems that ranged from funding to service delivery (MoH, 2012).

Alternatively, the Ghana's National Health Policy provided that "the role of households and communities as social capital and primary producers of health should be incorporated in all health programmes" (MoH, 2007). The policy corresponded to this provision as it sought to engage the community in planning and monitoring of health programs including NCDs. According to the WHO, community participation has played a very crucial role to the successful implementation of NCDs interventions (WHO, 2005). In line with this, the WHO acknowledged the difficulty in imposing interventions on communities because of the fact that they genuinely don't demand for them (WHO, 2014). Thus, whenever communities are involved in the planning and decision making of interventions, such interventions to a higher degree succeeds especially when such approaches are based on traditional values. Therefore, implementable policies such as the NCDs policy require genuine partnership with communities.

A report by the WHO African Region issued in the year 2000 urged member states including Ghana to integrate traditional medicine into their health systems after recognising their role in healthcare (WHO AFR/RC50/9, 2000). In the same manner, the National Health Policy signalled the promotion of traditional medicines (MoH, 2007). On the contrary, in the strategy document of the NCDs policy, the MoH committed to strengthen the Traditional Medical Council as a regulatory body not to encourage but to prevent exposure to herbal medicines (MoH, 2012). Regarding same, the policy was silent on traditional medicine (TM) as an alternative to NCDs care. Meanwhile, there exist published traditional herbal pharmacopoeia in Ghana for the treatment of NCDs such as hypertension, diabetes and sickle cell in addition to herbal clinics in various hospitals (Kasilo et al., 2010). Again, Ghana has TM policy as well as centres for national research on TM yet there have been limited institutionalisation of TM into the country's formal health system (Ibid.). This could, perhaps be attributed to the limited national organisational mechanisms and research data on the safety, efficacy and quality of TM. This notwithstanding, opportunities exist for the use of traditional medicines and qualified practitioners for which evidence of effectiveness is widely accepted. Another issue that was spot on was that there was no Traditional Medical Council (TMC) representative on the Technical Working Group (TWG) of the NCDs policy. This could be a great set back in the policy, as TM has been essential in providing support for biomedical and behavioural interventions required to address NCDs in several jurisdictions across the globe (NDH, 2013).

Research and Development

Under this strategic area, research on various areas that shape the NCDs environment was emphasised. Notable among them were epidemiological, qualitative, economic and basic science research. There was the urge to create a platform to diffuse the outcome of every research. This certainly was a commitment to assess NCDs interventions through inter-sectoral and multidisciplinary

research. Ideally, in our quest to modify health behaviours, research can be a useful tool for establishing the basis upon which several determinants of health behaviours rest. For instance, research aimed at assessing the level of impact of self-efficacy in the management of NCDs has the tendency to provide significant insights into modifying health behaviours among the chronically ill (Marks and Allegrante, 2005). Significantly, scholars have eloquently highlighted on the vital role of research in the health system in respect of innovation, development of knowledge among practitioners and in achieving the goals of the policy (Whitehead, Taket and Smith, 2003). Hence, a research and development programme is ideal to implementing the policy. What we need to know is that research has had significant impact on health promotion aspects of several NCDs policy especially in evaluating health promotion related programmes (Ibid.).

According to the South African National Department of Health, evidenced based research is ideal in identifying cost-effective and efficient interventions for prioritisation purposes (NDH, 2013). It also established the comprehension of the nexus between the health of the population and their social, economic and political environments (NDH, 2013). Undoubtedly, research has formed the bases of policy implementation mechanisms in respect of support and evaluation among others especially in policy reviews (WHO, 2006; 2014). In a resource constraint setting like Ghana with multiple competing health problems, research is essential to offer an understanding and to demonstrate how NCDs interventions can be implemented effectively (NDH).

Surveillance

Prior to the final draft of this policy, Ghana had put in place a NCDs surveillance system in 2008 (Opare et al., 2013). This system was part of the District Health Information Management System (DHIMS) under the aegis of the GHS. The objectives were to detect and monitor morbidity, mortality and risk factor trend for evidence-based public health decision making. This notwithstanding, stakeholders were oblivious of the effectiveness of the NCDs surveillance system in realizing its set objectives by 2013 (Opare et al., 2013). In addition, there existed demographic surveillance sites at Navrongo, Kintampo and Dodowa with the objective of monitoring transitions in health behaviour and outcomes (Bosu, 2013). The NDH of South Africa eloquently posited that the ultimate goal of disease surveillance systems is to study disease trends in order to identify the harm caused by an outbreak or epidemic and to examine the effectiveness of current health services (NDH, 2013). Again, available data on living conditions can be obtained through the surveillance system in order to help take the appropriate public health action (NDH, 2013; Legetic et al., 2016). Significantly, monitoring has been effective in gathering information on the extent of progress made in policy and evaluate where and how productive outcomes can be achieved (WHO, 2010; 2014; NDH, 2013).

The Fifty-Seventh World Health Assembly in resolution WHA 57.16 on health promotion and healthy lifestyles urged member states to develop an appropriate data collection mechanisms to ensure effective societal and lifestyle changes (WHA, 2004). Concerning same, the WHA in 2007 in resolution WHA 60.23 urged member states to pay critical attention to monitoring and evaluative systems to facilitate decision making when it comes to NCDs prevention and control (WHA, 2007). The NCDs policy responded to the stepwise approach to surveillance proposed by the WHO to conduct surveys on risk factors of NCDs (WHO, 2005). In view of this, the policy set out to strengthen surveillance systems to monitor the mortality and morbidity of NCDs, which is a laudable one.

Discussions on Constraints to Implementation of the National Policy for the Prevention and Control of chronic Non-Communicable Diseases in Ghana

Most of the country's intervention policies for

several decades tends to be good and may not have weaknesses in them but their implementation has remained a challenge. Although the NCDs policy has the historical evidence of being productive and sustainable given the strategic areas and the laid down plan of actions, it is imperative to pay attention to some constraints that have and continue to create implementation gap between the policy's intentions and practice.

Legislation

The WHO has purported that policy frameworks should specify enforcement mechanisms and establish systems for their implementation including sanctions and a system for reporting complaints (WHO, 2010). This suggests that using legislation, as an implementation mechanism is not only incumbent on existing national regulations but also those of the policies. In light of the above, strengthening the compliance of and the amendment of existing legislation from the national to community levels regarding certain policies have a very great potential to achieve the set goals and objectives regarding NCDs (NDH, 2013).

Laws have historically played significant role in some of the greatest achievements in public health (WHO, 2005). For instance, advanced countries like the United States and Canada used laws to regulate the sale and consumption of alcohol (Adobor, 2018). However, in the Ghanaian context, weak legislation and enforcement engulf most of the country's policies and this has militated against successful and progressive implementation of several well-informed interventions including the NCDs policy. The weakness of rules and regulations in the country is witnessed in the situation where citizens of the country feel no compulsion to revere them (Adobor, 2018). In this stead, the feasibility of regulatory and legislative interventions relating to alcohol and tobacco use is largely dependent on the enforcement of punitive measures.

Ghana has taken significant steps toward legislations on tobacco and other NCDs related risk factor products. In 2012, Ghana passed the Public Health Act with the commitment to achieve strong tobacco control legislation (WHO, 2014). This ACT contained a consolidation of nine separate public health laws including a series of tobacco control measures such as bans on all tobacco advertising, promotion and sponsorship. Prior to the passage of the Public Health Act which includes a tobacco legislation, Ghana had ratified the World Health Organization's (WHO) Framework Convention on Tobacco Control (FCTC) in 2004 making Ghana the 39th country to do so (MoH, GHS and WHO, 2010). However, the FCTC came under enforcement in 2005, the year that the convention became an international law. Following the launch of the national alcohol policy in 2017, the Food and Drugs Authority (FDA) initiated a ban on the advertisement of alcoholic beverages before 8pm on the media both radio and television including live presentation mention effective 2018 (GhanaWeb, 2017; MoH, 2017). This notwithstanding, these advertisements continued to flout the media before the stated time at the time of this study. Compelling evidence had it that by 2013, "laws against exaggerated health benefits (including aphrodisiac properties) of products such as alcoholic bitters" were in place but were hardly enforced (Bosu, 2013). Bosu (2013) contended that the content of most processed foods in the country as of 2013 were largely unlabelled because of unclear regulations regarding the labelling of such foods.

The threat from trans-national industries such as the tobacco industry appears to thwart efforts at enforcing regulations. The Fifty-Fourth World Health Assembly, in resolution WHA 54.8 on transparency in tobacco control process issued a caution to member countries on the intensions of the tobacco industry to undermine tobacco control measures following the findings of a Committee of Experts on the tobacco industry (WHA, 2001). This is to emphasise that while advocacy

geared towards law enforcements were in place, the activities of multi-national corporations militated against them.

Culture

The usual way of doing things among a group of people including their beliefs influences policy implementation especially in relation to attitudes toward policy adoption. The cultural constraint relates to some practices and beliefs of Ghanaians held in high esteem when it comes to healthcare. As indicated earlier, the WHO for the African region has acknowledged the fact that "imposing interventions on communities is difficult and often not sustained because there is no genuine demand for them" (WHO, 2014). This underpins the fact that whenever communities adopt and support interventions, such interventions stand the highest chance of succeeding. This is made possible when the community is involved in the planning and decision-making of policy interventions. This is to reemphasise that the lack of involvement of the community in health decision making has undermined the national capacity to address NCDs and health challenges in general. For instance, between 1972 and 2013, community-based interventions in Finland, Indonesia, India and Iran illustrated significant changes in health behaviour and outcomes (Bosu, 2013). In accordance with what works for the African region when it comes to health, the WHO eloquently expressed that identifying whom the society trust for health related advice and interventions and why increases the opportunities for achieving good and quality health (WHO, 2014).

While the policy intended to intensify education and health promotion to enable people with NCDs to report early to health facilities, comply and adhere to medical treatment, recourse to Traditional Medicine (TM) in the absence of diagnosis appeared to be a barrier. It is imperative to hint that TM will continue to remain a challenge to NCDs management as posited by some health professionals if only credence is not given to the services rendered through it and its role in healthcare provision. Research has established that about 80% of the African population depends on TM to address their Primary Health Care (PHC) needs (Kasilo et al., 2010). In the same manner, the Ghana Statistical Service (GSS) reported in 2018 that the proportion of the ill or injured who were likely not to consult a medical doctor or even visit a health facility for treatment especially among the rural population were on the rise (GSS, 2018).

A recent study on the spiritual and indigenous healing practices among the Asante people of Kumase by Adu-Gyamfi (2015) concluded that the belief in healing have not shifted entirely from faith or spiritual healing even in the twenty-first century. There exists evidence of published TM notably herbal pharmacopoeia for the treatment of NCDs such as hypertension, diabetes and sickle cell (Kasilo et al., 2010). Accordingly, a study by O'Brien et al. (2012) revealed the role of Traditional Herbalists (THs) in cancer management. These studies among several others brought to the fore that even in the twenty-first century, TM has thrived as a cultural heritage in the health seeking behaviour among Ghanaians. This brings to the fore the need to take into consideration the cultural environment of a particular people in designing policies. In view of this, the country must respond to the WHO's recommendation to integrate TM especially herbal medicines into the management of NCDs (WHO AFR/RC50/9, 2000). Marks and Allegrante (2005) has argued that medical and surgical interventions alone have failed to address the burden of NCDs. Therefore, the opportunity exists to utilize the services of traditional health practitioners (THPs).

At this point, there is the need to pose some questions concerning how the Chinese and Indians have been able to develop their TM; Acupuncture and Ayurveda medicines to address their health care needs including

NCDs. Ghana has a TM policy and has, established TM clinics in hospitals as well as centres for national research on TM yet there have been limited institutionalisation of TM into the country's formal health system (Kasilo et al., 2010; WHO, 2014). This is due partly to limited national organisational mechanisms and research data on the safety, efficacy and quality of TM over the years. Ghana can learn from her African neighbours such as Mali, Senegal, Uganda and the United Republic of Tanzania. These countries have created formal networks of medical doctors and traditional health practitioners working together in patient diagnosis and treatment (WHO, 2014). In Senegal for instance, medical doctors measured the patients' vital signs such as blood pressure, pulse, respiratory cycle and made a diagnosis after analysis of laboratory tests have been made but did not take part in treatment. The role of the medical doctor was to make an initial diagnosis and send the patient to the qualified THP. After treatment, the THP sent the patient back to the medical unit to measure the impact of the traditional medicine treatment (WHO, 2014).

Socio-economic Factors

As found by the study, social and economic factors appeared to influence the implementation gap between policy intentions and practice. This emerges from the factors that lie outside the health sector such as financial, physiological and psychological circumstances that shape the NCDs environment. By this, we establish the link between the social determinants of health, which has in it economic factors and NCDs. The social determinants of health are defined as the conditions in which people are born, grown up, live, work and age including the role of health systems in dealing with diseases and ailments (WHO, 2014; Legetic et al., 2016). Legetic and others (2016) outlined such determinants to include geographic distribution, governance, public policies, level of education, employment status, health insurance and social classes within the society. Scholars and experts for that matter have contended that these determinants have created inequalities within the healthcare system hence, have had a significant impact on the management of diseases (Legetic et al., 2016). This notwithstanding, experts have indicated that the relationship between the social determinants of health and NCDs are complex and is not yet fully understood (Ibid.).

Concerning the social and economic dimensions of NCDs, Legetic and others proposed three indicators that can be used to measure same (Legetic et al., 2016). They include; public sector investments in NCDs prevention and health promotion, the affordability of a healthy diet, the proportion of households experiencing extreme health expenditures due to NCDs. The first indicator related to the amount of public sector investment in the prevention and control of NCDs in the form of government spending to create a healthful environment. The second encompassed the proportion of the population unable to afford and consume healthy diet. This indicator appealed to poverty and focussed on prevention of NCDs through nutrition and multisector collaborations. The third reflected growing concerns about the impoverishing effects of NCDs on the most vulnerable notably the poor in the society. The above, undoubtedly affirmed the notion that NCDs push people further into poverty. For instance, out of pocket payments for the treatment of NCDs have historically caused impoverishment and financial distress to people with limited income because of the nature of care associated with NCDs (Legetic et al., 2016; de-Graft Aikins, 2007 and WHO, 2005).

The National Plan of Action on Food and Nutrition (1995-2000) have recorded that food consumption has both financial and physical connotations (GoG, 1996). The financial aspect related to the ability of individuals to produce or purchase sufficient, safe and good quality food while the physical

component related to the access of food in a particular environment to ensure healthy diet. This plan of action, despite its longevity corresponds to the indicators proposed by Legetic and her counterparts stressing that caring for persons with NCDs go hand in hand with their economic status and social life (NDH, 2013). The NDH of South Africa simply conceptualized this with reference to a situation where an individual living with NCDs condition adhered to the prescribed medication but simultaneously had poor diet, lack of exercise and uses tobacco and excessive alcohol (Ibid.).

Significantly, the socio- economic challenges of life such as unemployment, extreme poverty and problems in relationship have placed people at risks of developing diseases like hypertension and heart disease (NDH, 2013). This is premised on the fact that these challenges exposed them to adopt deleterious lifestyles such as excessive alcohol intake and smoking. Experts has reached a consensus on same, and acknowledged that personal behaviours are not only contingent upon personal choice but also the interplay of social and economic forces (WHO, 2009). For example, the 1980's and 1990's economic recession in sub-Saharan Africa led to a deterioration in the health of the people as the region witnessed rampant unemployment coupled with food shortage among other several economic challenges (WHO, 2014). Therefore, national interventions to control social and economic issues of life that largely lies outside the health sector are essential to managing NCDs stressing that the policy on NCDs can effectively function with support from all other sectors of the economy as done in the European region.

Leadership and Governance

The WHO has defined leadership and governance as the role governments play in supporting the provision of healthcare and its relationship to other stakeholders whose activities impact on healthcare (WHO, 2014). Thus, although policies define the governing bodies to see to their implementation, it takes governments to provide leadership to spearhead the achievement of policy objectives. While political commitments to addressing healthcare issues have been witnessed greatly in childcare, maternal care and communicable diseases, commitment to non-communicable diseases has not been realised (WHO, 2014). The WHO in 2006 contextualised the role of governments as essential in achieving lasting public health changes through the building of structures, setting up of national coordination mechanisms and providing financial support to address issues relating to nutrition and physical activity (WHO, 2006). In the same year, the WHO recognised governments as key players in providing a healthy environment to enable individuals make healthy choices and to see to the availability of appropriate health promotion and education programmes (WHO, 2006). In effect, good governance is a key determinant of good health outcomes in countries and this is manifested through policies and legislation in all areas having a direct or indirect bearing on the health of people (WHO, 2014).

The use of certain fiscal mechanisms by governments goes a long way to influence the cost of food, which in turn affects consumer choice. Policies that were effected through price control mechanisms such as taxation and subsidies influenced healthy eating and physical activity which is predicated on the availability, access, consumption of various foods (WHO, 2006). Owing to the fact that the determinants of health in the African region are complex and numerous, the WHO called on leaders to stay committed and dedicated to addressing health risks that pose as a threat to socio-economic growth (WHO, 2014). The NDH of South Africa clearly communicated the matter by stating that "people must be encouraged to take ownership of their behaviours and choices and the environment should be supportive and enable people to

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make healthy choices." (NDH, 2013).

In Ghana, the initial failure of the Non-communicable Diseases Control and Prevention Programme (NCDCP) in 1992 was due to internal leadership problems and crippled funds to run the activities of the department (Bosu, 2013). According to Bosu (2013), NCDs were included in several national health policies during the 1990s but practical attention to their control was hindered by low political will and limited funding. In addition to, this were weak and inefficient coordinating systems for the implementation of NCDs control and prevention programmes. In 2007, the Sixtieth World Health Assembly in resolution WHA 60.23 on prevention and control of non-communicable diseases-implementation of the global strategy observed that member states apportioned minimum proportions of their health budget to the prevention and control of NCDs (WHA, 2007). This, in part portrayed that NCDs were not considered as a health priority and hence, affected its funding. In 2016, the Ghana Health Service (GHS) eloquently expressed that the management of NCDs receive little priority in the health sector. The deficit in the funding of NCDs activities at that time represented a setback to the preventive and control measures put in place.

Conclusion

The quest to stem the tide of the incidence of non-communicable diseases in Ghana led to the initiation of several interventions including the NCDs prevention and control policy. Within the purview of the policy environment through the historical lens, several factors have been spot on as contributing to the inability of policies to yield their expected gains. At the core of the NCDs policy was the commitment to already existing national and international health policies and international resolutions respectively. At this point, we may state that the policy was a replicate of several WHO's recommendations and national policy frameworks as well as proposals. In addition, certain intervention strategies and plan of actions were not explicitly expressed in the policy but such were done in the strategy for management, prevention and control document (2012-2016) of the policy. It is troubling to state that the policy made no recourse to traditional medicine as an alternative to NCDs care despite the WHO's recommendation to its member countries including Ghana to integrate TM specifically herbal medicines into the management of NCDs through effective and efficient mechanisms.

In retrospect, the NCDs policy has the historical evidence of being productive given the strategic areas and the plan of actions for its implementation. However, implementation issues regarding legislation, cultural environment, socio-economic and governance as evidenced in the study must not be glossed over for their historical tendency of creating implementation gaps between the policy's intentions and its practice. It is incumbent for policy makers to reflect soberly on these constraints in their quest to design and implement robust interventions on NCDs as done in other jurisdictions across the globe.

Limitations: None of the technical members who drafted the policy was involved in the analysis of the policy hence, certain information and details relevant to the study may be omitted.

Conflict of Interest

Authors have no conflict of interests.

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Cross-Cultural, Interdisciplinary Health Studies

The Effectiveness of Acceptance and Commitment Therapy on Optimism about Life and Psychological Well-Being in Infertile Women

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Quantitative Study

Abstract

Background: Fertility has been defined as the ability to reproduce, and it requires the ability to start and maintain a pregnancy. The purpose of this study was to determine the effectiveness of acceptance and commitment therapy (ACT) on optimism about life and the psychological well-being of infertile women.

Methods: The present study was a quasi-experimental study with a pretest-posttest design, control group, and follow-up period. The statistical population of this study included all patients with major depressive disorder (MDD) referred to infertility treatment centers in Tehran, Iran, in autumn 2018. The participants consisted of 30 individuals who were randomly divided into an experimental group and control group (n = 15). Measurement tools included the Revised Life Orientation Test (LOT-R) (1985) and Ryff's Scales of Psychological Well-being (SPWB) (1980). The experimental group was exposed to the intervention in 8 sessions (90 minutes each), and then, both groups were tested. Furthermore, the follow-up was conducted 1 month later. The collected data were analyzed using multivariate analysis of covariance (MANCOVA) and one-way analysis of covariance (ANCOVA).

Results: The results showed that ACT increased optimism, positive relationships with others, independence, environmental mastery, personal growth, purposefulness in life, self-acceptance, and psychological well-being ($P < 0.05$).

Conclusion: It can be concluded that ACT can reduce the suffering of infertile women and improve psychological optimism and well-being among them through intellectual acceptance, cognitive impairment, and the pursuit of value-driven behaviors. Thus, it can be used during pregnancy.

Keywords: Acceptance and commitment therapy, Optimism for life, Psychological well-being, infertile women

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Introduction

Today, the purpose of marriage and spouses' expectations of each other has changed dramatically. The necessity for love and intimacy, establishing a close relationship with the spouse, and satisfying emotional-psychological needs are the main reasons for today's couples to get married. Marriage is a social phenomenon that contributes to the stability and order of society. Marriage can ensure continuity and high quality, and the basis of community formation and maintenance of human emotions should be taken into consideration in this phenomenon (Breitbart, Rosenfeld, Pessin, Applebaum, Kulikowski, & Lichtenthal, 2015). Moreover, the increasing breakup of marriages is one of the main challenges of family life in the present age. Divorce rates are also rising in our country, and in this regard, the couples' fertility is an essential factor. Fertility has been defined as the ability to reproduce, and it requires the ability to start and maintain a pregnancy. Infertile women are those who have been unable to get pregnant after at least 1 year of trying without the use of contraception. They have begun treatment and specialists have diagnosed their infertility. It was estimated that 120-180 million women worldwide suffer from the disorder between the ages of 18 and 49 years (Crosby, & Twohig, 2016). In Iran, an infertility rate of 9.24% has been reported (Vahidi, Ardalan, & Mohammad, 2009). Infertile women are among the people in the community who are at risk of psychological trauma (Di Spiezio et al., 2016).

William James believed that despite all the problems people have at different ages, some tend to be happy all the time. They are the ones who do not pay attention to disease, death, killing, and unrest and focus on more pleasant and better things (Feldman, & Kubota, 2015). At first glance, the idea that one can experience psychological well-being despite illness is unacceptable. However, many studies have shown that even under the worst of circumstances, one can experience psychological well-being. Reef's factors of psychological well-being include self-acceptance, having purpose and orientation in life, personal growth, environmental mastery, self-determination, and positive relationships with others (Fergus, 2015).

The optimism of infertile women is another factor that appears to be affected by female infertility. Optimism is one of the structures that bring about the happiness and well-being of man. "Optimism" is one of the most prominent personality constructs that consists of positive cognitions (Frederiksen et al., 2017). Attention was first drawn to this structure when it was found that many people were not satisfied with their lives despite having many facilities. For this reason, many studies were conducted on life satisfaction and well-being and its related factors. These studies have shown that optimism is one of the factors that can play an important role in life satisfaction and well-being. Optimism refers to a generalized expectation, based on which the person feels that results are pleasant when facing problems. In stressful situations, a high level of optimism is correlated with better psychological well-being (Gillanders, Sinclair, MacLean, & Jardine, 2015).

One of the third wave therapies widely used in physical and psychological health problems is acceptance and commitment therapy (ACT). ACT has 6 central processes: acceptance, defusion, self as context, contact with the present moment, values, and committed action. The major advantage of this method over other psychotherapies is the ability to consider exciting aspects along with cognitive characters to further the effectiveness and continuity of the treatment (Graham, Gouick, Krahe, & Gillanders, 2016). In this treatment, it is essential that a partnership be built between the therapist and the patient because the relationship provides the basis for treatment. When the therapeutic relationship during this

treatment is correct and consistent with its principles, it indirectly enhances acceptance, motivation, continuity of treatment, and moving toward one's values (Hanna et al., 2017). It creates a context in which both effective and ineffective behaviors are called upon to find the skills needed to identify and practice appropriate responses. Increasing psychological flexibility is one of the main goals of ACT. In other words, the individual is helped to break the cycle of avoidance and cognitive fusion (Hughes, Clark, Colclough, Dale, & McMillan, 2017). Researches have shown that cognitive fusion is associated with stress, anxiety, and depression (Martin et al., 2015) and with physical dissatisfaction and eating disorders (Zettle, Rains, & Hayes, 2011) suggested that cognitive fusion is moderated. Gillanders, Sinclair, McLean, and Jardin (2015) have argued that cognitive fusion is the strongest predictor of anxiety syndrome in people with cancer. Due to the increasing number of infertile women and their major problems in the field of optimism and psychological well-being, it seems that many of these infertile women do not have sufficient knowledge and skills to solve such difficulties in infertility. The purpose of this research was to determine the effectiveness of ACT on optimism about life and psychological well-being in infertile women.

Methods

The present quasi-experimental study was conducted with a pretest-posttest design, control group, and a follow-up period. The statistical population of this study included all patients with extreme depression who referred to infertility treatment centers in Tehran, Iran, in autumn 2018. From among them, 30 people were selected as the experimental group and 15 as the control group. Based on the statistical power, the sample size was determined to be 0.95. The effect size was determined to be 0.25 for each group of 30 individuals.

Research participants were assessed in two stages (pretest and posttest) using the Revised Life Orientation Test (LOT-R) and Ryff's Scales of Psychological Well-being (SPWB). ACT was implemented in the experimental group in 8 120-minute sessions (1 session per week), and the control group received no interventions. Follow-up was performed 2 months after the posttest. The study inclusion criteria were infertile women within the age range of 25-40 years referred to infertility treatment centers in the autumn of 2018. The study exclusion criteria were age of lower than 25 years or over 40 years and providing incomplete information. The ethical considerations of this study were as follows. All persons received written information about the research and participated in the research voluntarily. The participants were assured that all information would remain confidential and would only be used for research purposes. Moreover, participants' names and identities were not recorded for privacy reasons.

The brief content of each ACT session is presented in table 1.

Optimism Questionnaire: Shearer and Carver developed a self-report summary of the LOT in 1985 to assess the nature of optimism, and revised it later (Zettle et al., 2011). The LOT-R consists of 10 items 6 of which were used in the present study; 3 items were related to negative sentences and 3 were related to positive sentences. The items are scored on a 5-point scale ranging from strongly disagree to strongly agree. The validity of the scale was calculated using concurrent validity. The validity of the LOT-R with the Beck Hopelessness Scale (BHS) has been reported to be 81.0 (Vahidi et al., 2009).

Ryff's Scales of Psychological Well-being: Ryff developed the SPWB with 54 questions and 6 subscales in 1980. In later reviews, shorter forms with 84, 54, and 18 questions were also suggested (Ryff & Singer, 2008). In the present study, the version with 54 items and 6 subscales was used. The subscales of this test consist of self-acceptance, positive relationships with others ,independence, environmental mastery, purposefulness in life, and personal growth.

Table 1. Educational goals of acceptance and commitment therapy

	Objective
First	Creating a therapeutic relationship, explaining the subject and goals of the research and defining the variables in general, answering questionnaires and completing an informed consent form, formulating a session contract, explaining the metaphor of two mountains
Second	Initial valuation, explaining creative disappointment and the hungry tiger metaphor, introducing the past inefficient system
Third	Practicing mindfulness and conscious breathing, accepting problems rather than responding to problems, focusing on control as a useless strategy, desire to deal with difficult experiences, daily desire memories, behavioral activation to increase the likelihood of success
Fourth	Short-term and long-term success in deliberately controlling unpleasant emotions, determining the efficacy or inefficiency of behavior, comparing outer control with the inner world, explaining the metaphor of the liar and gel donuts, comparing pure discomfort with foul discomfort
Fifth	Introducing the fault of the fault and the verbal change, practicing your mind is not your friend, explaining the metaphor of travelers on the bus, using the letter against but, conscious breathing
Sixth	Self-conceptualized differentiation from the observer self, explaining the chessboard analogy, moving on to a worthwhile life with the observer, committing to action, practicing mental polarity
Seventh	Clarifying and specifying goals and values, distinguishing between reasoning and choosing for reasoning, result/process and metaphorical distinction of skiing, linking goals and values, explaining the magic wand metaphor
Eights	Self-compassion training and metaphors, self-attributes, self-compassionate writing, attention to values or near-misses, uninvited guests, explaining positive goals, providing review and summary

The SPWB is an answer-dependent self-report test. The questions are scored on a 6-point scale ranging from 1 to 6 (strongly disagree, somewhat disagree, disagree, agree, somewhat agree, and strongly agree). The results of the correlation between the 54-item SPWB with the Satisfaction with Life Scale (SWLS), the Oxford Happiness Questionnaire (OHQ), and the Rosenberg Self-Esteem Scale (RSES) approved the construct validity of the questionnaire (Ryff & Singer, 2008). Cronbach's alpha subscales of this questionnaire have been reported in the range of 79.0-85.0 (Peterson & Eifert, 2011).

Descriptive and inferential statistical methods were used for statistical analysis. Descriptive statistics were used to calculate frequencies, and determine central features and dispersion. In the relational statistics, the collected data were analyzed using descriptive statistics (mean and standard deviation). Regarding inferential statistics, the data were analyzed using univariate and multivariate analysis of covariance (MANCOVA) in SPSS software (version 22, IBM Corporation, Armonk, NY, USA).

Results

The mean (standard deviation) of age in the experimental group was 34.23 (6.22) years, and in the control group was 35.32 (7.14) years. Table 2 presents the mean (standard deviation) of optimism and psychological well-being by group and test.

The null hypothesis for the equality of variances of the two groups' scores in the research variables was confirmed; that is, the equality of the variances of scores was confirmed in the two experimental and control groups. The null hypothesis for the normal distribution of the scores of the two groups in the research variables was confirmed; that is, the normality of the distribution of scores in the pretest was confirmed in both experimental and control groups. The F value of interaction for the regression line slope was the same for all the variables of the study. In other words, the homogeneity of the slope of the regression line was accepted.

As shown in table 3, by controlling the pretest and significant levels of all tests, it was indicated that there was a significant difference between the experimental and control groups ($P < 0.0001$; F 34.36) at least in one of the dependent variables (psychological well-being and optimism).

The effect or difference was 44.0, i.e., 44%

Table 2. The mean and standard deviation of scores of the research variables in the pretest, posttest, and follow-up

Variable		Group	Post-test	Pre-test	Follow-up
			Mean ± SD	Mean ± SD	Mean ± SD
Optimism		Experimental	26.06 ± 4.35	35.73 ± 4.43	34.33 ± 3.79
		Control	32.46 ± 4.95	33.86 ± 6.01	33.53 ± 4.85
Psychological well-being	Positive relationships with others	Experimental	11.13 ± 1.12	13.66 ± 1.04	14.00 ± 1.00
		Control	10.66 ± 0.97	10.80 ± 1.01	11.00 ± 0.84
	Independence	Experimental	10.80± 0.67	13.00 ± 0.53	13.40 ± 0.63
		Control	11.00 ± 0.84	10.66 ± 1.04	11.06 ± 0.96
	Environmental mastery	Experimental	11.86 ± 0.74	14.93 ± 1.03	15.06 ± 0.88
		Control	12.26 ± 0.70	12.40 ± 0.91	12.53 ± 1.06
	Personal growth	Experimental	10.06 ± 0.70	13.13 ± 0.74	12.86 ± 0.91
		Control	10.00 ± 0.84	10.13 ± 1.12	10.46 ± 0.96
	Purposefulness in life	Experimental	10.40 ± 0.63	13.66 ± 0.89	13.80 ± 0.77
		Control	10.53 ± 0.51	10.66 ± 1.11	11.06 ± 1.09
	Self-acceptance	Experimental	11.46 ± 1.76	13.26 ± 1.62	13.93 ± 1.33
		Control	10.46 ± 1.35	10.93 ± 1.33	11.22 ± 1.14
	Psychological well-being	Experimental	65.73 ± 3.19	81.26 ± 2.89	82.13 ± 3.20
		Control	64.93 ± 2.37	65.60 ± 2.16	66.00 ± 2.10

SD: Standard deviation

of individual differences in posttest scores of psychological well-being and optimism were related to the impact of ACT (group membership).

As shown in table 4, by controlling the pretest, a significant difference was observed between the experimental group and control group in terms of optimism ($P < 0.0001$; $F = 43.81$), positive relationships with others ($P < 0.0001$; $F = 59.06$), independence ($P < 0.0001$; $F = 82.45$), environmental mastery ($P < 0.0001$; $F = 65.13$), personal growth ($P < 0.0001$; $F = 124.25$), purposefulness in life ($P < 0.0001$; $F = 1120.41$), self-acceptance ($P < 0.0001$; $F = 31.29$), and psychological well-being ($P < 0.0001$; $F = 723.26$). In other words, ACT increased the mean optimism score in the experimental group in comparison with the control group.

Discussion

The results of this study were in line with that of the researches by Peterson and Eifert (2011), Jamshidian QalehShahi, Aghaei, and Golparvar (2017), and Samadi and Doustkam (2014). ACT involves modifying cognitive processes to cope with and solve problems, moment by moment awareness of emotions (mind awareness), and unconditional acceptance of the problem (disorder). Thus, it helps people develop the cognitive skills they require.

Furthermore, clarification of the values and commitment to acting in the direction of these values allows infertile women to act in ways that can further reduce individual anxiety (Bricker, Bush, Zbikowski, Mercer, & Heffner, 2014). In the ACT, mindfulness, acceptance, and cognitive diffusion skills are used to increase psychological flexibility. Psychological flexibility is the increase in the ability of clients to relate to their present experience based on what is possible at the present moment. Evidently, in this way, they choose to act in the forms that are consistent with the chosen values (Ghasemi, Dehghan, Farnia, Tatari, & Alikhani, 2016).

Table 3. Results of multivariate analysis of covariance on the mean posttest scores of psychological well-being and optimism in the experimental and control groups with pretest

Test name	Value	df hypothesis	df error	F	P	Eta square	Statistical Power
Pillai's Trace test	0.98	8	21	34.36	0.0001	0.44	1.00
Wilks' lambda test	0.01	8	21	34.36	0.0001	0.44	1.00
Hotelling's Trace	65.29	8	21	34.36	0.0001	0.44	1.00
Roy's largest root	65.29	8	21	34.36	0.0001	0.44	1.00

df: degrees of freedom

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Table 4. Results of one-way analysis of covariance in the experimental and control groups with pretest control

Variable	SS	df	Mean of squares	F	P	Eta square	Statistical power
Optimistic	270.43	1	270.43	43.81	0.0001	0.54	1.00
Positive relationship with others	49.90	1	49.90	59.06	0.0001	0.68	1.00
Independence	43.96	1	43.96	82.45	0.0001	0.75	1.00
Environmental mastery	52.76	1	52.76	65.13	0.0001	0.70	1.00
Personal growth	64.93	1	64.93	124.25	0.0001	0.82	1.00
Purposefulness in life	73.48	1	73.48	120.41	0.0001	0.81	1.00
Self-acceptance	15.31	1	15.31	29.31	0.0001	0.52	1.00
Psychological well-being	1760.34	1	1760.34	723.26	0.0001	0.96	1.00

SS: Sum of squares; df: degrees of freedom

In ACT, increased psychological flexibility is a mediator in improving psychological problems. Depressed patients, for example, usually seek to bring about depression, leading to increased rumination and criticism of their experiences. This therapy method is reinforced through mindfulness exercises, self-observation and body posture, and the modification of one's relationship with one's thoughts to increase the acceptance of thoughts, beliefs, feelings, and effort for sensory and physical perceptions (Galhardo, Cunha, Pinto-Gouveia, & Matos, 2013). It also appears that being aware of the present moment without using the lens of judgment will help infertile women to better convey their infertility and infertility history, which will lead to improved psychological optimism and well-being. This will ultimately improve pregnancy (Cunha, Galhardo, & Pinto-Gouveia, 2016).

Therefore, ACT will help individuals develop the skills needed to solve problems through cognitive-behavioral problem solving, instantaneous awareness of emotions (mindfulness), and unconditional acceptance of the problem (disorder). This treatment method decreases the amount of infertility stress that leads to physiological stress, pain, and physical discomfort by increasing the level of acceptance and reducing intellectual inhibition. Through the use of ACT, increased cognitive deficits, and informed acceptance helps infertile women experience new interactions and reduces negative thoughts. Infertile women learn to embrace situations and thoughts that they previously avoided. Transparent communication values and commitment to acting in harmony with these values allow infertile women to act in a way that leads them to life satisfaction, communication, management of their individual life, reduced physiological anxiety, and improved psychological well-being.

ACT is based on a cognitive-behavioral and therapeutic approach that not only alleviates the negative emotional consequences of diseases and disorders, but also increases the level of psychological well-being of infertile women. In short, it seems that in this program and relating to their set of goals and value systems. As noted above, behavioral commitment exercises, fault-tolerance and acceptance techniques, and detailed discussions of values and goals all lead to increased optimism and improved psychological well-being in infertile women. Concerning the application of this program in future treatment and research, it is recommended that practitioners dealing with infertile women receive ACT and use its techniques of intellectual acceptance, cognitive impairment, and the pursuit of value-driven behaviors to reduce their suffering and improve their optimism and psychological well-being during pregnancy. Moreover, the issue of long-term follow-up and the stability of treatment and its effects on infertile women, as well as the comparison of this intervention with other psychological approaches in different groups of people with infertility should be considered in future studies. Furthermore, psychological

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interventions enhance psychological optimism and well-being during pregnancy, especially for those with infertility, which may be a new perspective in therapeutic protocols in this field.

Conclusion

It can be concluded that ACT, which includes intellectual acceptance, cognitive impairment, and pursuit of value-driven behaviors, can reduce the suffering of infertile women and improve psychological optimism and well-being among them. Thus, it can be used during pregnancy.

Conflict of Interests

Authors have no conflict of interests.

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The Comparison of the Effectiveness of Schema therapy and Acceptance and Commitment Therapy on Depression and Anxiety among the Students of Hormozgan University of Medical Science, Iran

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Quantitative Study

Abstract

Background: Mental health is an important aspect of students' health as the future of the country, and they areexposed to many stressors due to their age and social status. This research was conducted with the aim to compare the effectiveness of schema therapy and acceptance and commitment therapy (ACT) on depression and anxiety.

Methods: The present quasi-experimental study was performed with a pretest-posttest design and an experimental and a control group. The statistical population consisted of all students of Hormozgan University of Medical Sciences, Bandar Abbas, Iran, who enrolled in the 2014–2015 academic year. For this purpose, 48 students were selected through purposive sampling and were divided into two groups (experimental and control). Both ACT and schema therapy were performed in 12 weekly sessions. The data collection tools consisted of the Beck Depression Inventory II (BDI-II) and Beck Anxiety Inventory (BAI). The questionnaires were completed in the pretest and posttest stages. The data analysis was carried out using multivariate analysis of covariance (MANCOVA) in SPSS software.

Results: The results of MANCOVA showed that there is a significant difference between the effectiveness of schema therapy and ACT on depression and anxiety. Schema therapy was more effective in treating depression compared to ACT in the students ($P < 0.001$). Nevertheless, ACT was more effective in reducing students' anxiety than schema therapy $P < 0.001$).

Conclusion: It can be concluded that schema therapy was more effective in treating depression, but ACT was more effective in reducing anxiety in students.

Keywords: Schema therapy, Acceptance and commitment therapy, Depression, Anxiety, Students

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Introduction

Universities are one of the most important environments in which the mental health of the youth can be evaluated. Moreover, students are creators of their country's future, constitute a considerable amount of the youth, and the developers of higher education centers. Stress, anxiety, and depression as mental health factors, in addition to the problems experienced by the

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students during their education, results in intervention with the professional role and taking responsibility for society members' health in the future (Ahmadian, Fata, Asgharnezhad, & Malakooti, 2008). Thus, decreasing stress, anxiety, depression, and psychological pressure among students has an important role in increasing interest in work and group cooperation and sense of accountability (Rajabi & Yazdkhasti, 2014). Various studies have shown that high levels of stress, anxiety, and depression can have negative effects on health, quality of life (QOL), educational progress, and students' enthusiasm to accept their professional roles; thus, attention to these issues and their consequences as well as the implementation of suitable strategies for their elimination is of great importance (Najafi Kalyani, Pourjam, Jamshidi, Karimi, & Najafi Kalyani, 2013).

Based on previous studies, it is believed that students with depression and anxiety cannot communicate effectively or adopt with others, and they are susceptible to physical diseases. These disorders can disturb the process of regulating and controlling emotions in them (Antai-Otong & Ward-Murray, 1995). This impacts the mental health of students, especially medical and nursing students. Medical and nursing students are witnessing suffering, death, and sadness every day in clinical environments and complaints, deterioration, death, and insomnia of the patient in hospitals. These situations increase tension in them and this tension, in turn, puts them at risk of anxiety and depression and affects the efficiency of the whole system which means the manner and quality of care (Agosti & Ocepek-Welikson, 1997).

One of the second generation's approaches applied for patients with depression and anxiety is schema therapy (Julian, 2011). Schema therapy focuses on self-destructive thinking patterns, feelings and behaviors that are rooted in an individual's childhood and are repeated throughout his/her life. These patterns are called early maladaptive schemas (EMSs) in the framework of schema therapy. Failure to meet basic needs (the need for safety and acceptance, identity, self-arousal, fun, and restraint) during childhood can lead to the formation of EMSs (Kaviani & Mousavi, 2008). Young has introduced EMSs and maladaptive coping mechanisms that automatically and consciously maintain each other, and therefore, lead to interference in a person's ability to meet his/her basic needs. In this treatment model, cognitive, empirical, interpersonal, and behavioral strategies are used to change EMSs (Young, 1999). Therefore, it seems that schema therapy with emphasis on EMSs developed during childhood and adolescence can be effective in treating depression. The results of studies on depression indicated that EMSs are one of the main predictors of depression severity during treatment (Mason & Hargreaves, 2001).

Another effective treatment for the improvement of depression and anxiety is acceptance and commitment therapy (ACT). In ACT, it is first attempted to increase the individual's psychological acceptance of his/her mental experiences (thoughts, feelings, etc.), and consequently, decrease ineffective controlling actions (Cuijpers, van Straten, Schuurmans, van Oppen, Hollon, & Andersson, 2010). The patient is taught that every action to avoid or control these unwanted mental experiences is ineffective or has a reverse effect and intensifies them, and thus, these experiences should be accepted completely without any internal or external attempt to eliminate them. By motivating individuals to commit action focused on specified objectives and values and to accept mental experiences, depressive and obsession thoughts, trauma-related thoughts, fears, social anxiety, and etc. can be avoided (Dolle, Schulte-Korne, O'Leary, von Hofacker, Izat, & Allgaier, 2012). Recent studies on ACT have provided satisfactory results and evidence of the effectiveness of the clinical use of ACT especially with patients with

mood and anxiety disorders (Gammon & Morgan-Samuel, 2005; Halvorsen et al., 2009; Hayes & Strosahl, 2004). Pourfaraj Omran (2011) has studied the effectiveness of group-based ACT on social phobia in students and reported that the scales of the social phobia decreased significantly in the intervention group relative to the control group and no considerable variation was observed in the follow-up. Therefore, the present study aims compare the effectiveness of schema therapy and ACT on depression and anxiety among students of Hormozgan University of Medical Sciences, Bandar Abbas, Hormozgan, Iran.

Methods

The current semi-empirical study was conducted with a pretest-posttest design and an experimental and a control group among medical sciences students in Bandar Abbas. The statistical population of this study included all male and female students of Hormozgan University of Medical Sciences in the 2015-2016 academic year. The research sample of this study consisted of 44 medical sciences students of Bandar Abbas who referred following a call at the university to form a treatment group for boys and girls interested in participation in training and therapy sessions for decreasing depression and anxiety. After an interview regarding anxiety and distribution of the Beck Depression Inventory II (BDI-II) and Beck Anxiety Inventory (BAI), it was decided that students whose average scores in these questionnaires were higher than average, indicating high anxiety and depression, would be identified as qualified to participate in the sessions. Therefore, from among these students, 48 individuals with high anxiety and depression were selected as the sample of the study. They were randomly divided into two groups of intervention and control, 16 individuals in each group. In this study, the data collection tools used were the BDI-II and BDA.

Beck Depression Inventory II

In the BDI-II, subjects are asked to take into account their feelings during the last 2 weeks and answer the questions. This inventory is designed to assess depression severity in adults and adolescents of over 13 years of age and consists of 21 items. The validity and reliability of the BDI-II have been studied repeatedly and the results reported have been at a high level. Beck et al. reported that the internal consistency reliability coefficient of the items ranged from 0.73 to 0.86 and the correlation coefficient between the BDI-II and Minnesota Multiphasic Personality Inventory (MMPI) was 0.74 (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). In the current study, the reliability of the BDI-II was obtained using Cronbach's alpha (α = 0.82).

Beck Anxiety Inventory

The BAI includes 21 items and measures the severity of anxiety in the subjects. Beck, Steer, and Garbin have reported the internal consistency of the BAI as 0.92. Moreover, they estimated the reliability of the BAI as 0.75 using a 1-week test-retest. The diagnostic and factor structure of this questionnaire were simultaneously investigated through content validity and the high efficiency of this tool in measuring anxiety severity was confirmed (Imel, Malterer, McKay, & Wampold, 2008). Furthermore, Mahmoud Aliloo et al. evaluated the content validity of the Persian version of the BAI in assessing anxiety 2 times every 10 days in 30 groups of 30 students and its consistency using test-retest was reported as 0.86 (Mokhtaripour, Goudarzi, Siadat, & Keyvanara, 2007). Using Cronbach's alpha, the reliability of this questionnaire was found to be 0.91.

Group therapy sessions were held at a big room with chairs arranged in a circle so that all members could see each other and they were allowed to move about freely. To collect data, first, the participants answered the BAI and BDI-II. Then, the 32 participants were randomly divided into two groups of 16 individuals and the experimental group participated in ACT sessions during 80 days (2 sessions a week). The control group did not receive any treatment programs and only the pretest and posttest were carried out in this group.

Table 1. A summary of the schema therapy training sessions

Sessions	Contents
First session	Explaining the schema model in a simple, clear language, the ways the early maladaptive schemas were formed, developmental roots, and its areas, functions of schema, styles, and maladaptive coping responses
Second session	Explaining the schemas, conceptualizing of the problems of the patients based on the schema-based approach, and collecting all the information obtained during the assessment, identifying dysfunctional schemas in patients, investigating the objective evidences confirming and rejecting the schemas based on the patient's past and current life
Third session	Teaching two cognitive schema therapy techniques including tests of schema validation and the new definition of supporting evidence
Fourth session	Teaching and practicing two other cognitive techniques, evaluating the advantages and disadvantages of the patients' coping styles, contacting between the different aspects of schema and healthy aspects and learning answers of healthy aspects by the patient
Fifth session	Teaching techniques to provide schemas training cards, recording schemas in a schema checklist during daily life
Sixth session	Offering rationale for using the experimental techniques, mental imagery, mental conceptualization in the form of an imaginary dialogue, strengthening the concept of a healthy adult in the patient's mind, identifying unsatisfied emotional needs, and fighting against the schema at an emotional level
Seventh session	Creating opportunities for patients to communicate with their parents and identify the needs unsatisfied by their parents, helping patients to express their blocked emotions on a traumatic event, and providing the patient with support
Eighth session	Finding new ways to communicate and give up the avoidant and excessive compensatory coping style, providing a comprehensive list of problematic behaviors, determining the change priorities, and identifying the therapeutic targets
Ninth session	Mental imagery of problematic situations and dealing with the most problematic behavior, practicing healthy behaviors through imagery and role-playing and performing tasks related to new behavioral patterns, and reviewing the advantages and disadvantages of healthy and unhealthy behaviors
Tenth session	Overcoming the barriers to behavioral changes, summary, and conclusion

A week after the last session, subjects in both groups completed the BAI and BDI-II again (posttest) to compare the scales between the groups in the pretest and posttest.

To evaluate the effect of the interventions and controlling pretest scales, multivariate analysis of covariance (MANCOVA) was used. SPSS statistical software (version 22, IBM Corporation, Armonk, NY, USA) was applied to perform data analysis.

Table 2. A summary of the acceptance and commitment therapy plan

Sessions	Contents
First session	Familiarizing members with the research subject, familiarizing group members with one another and establishing a therapeutic relationship, general measurement, control methods measurement, establishing creative inability, and completing the questionnaires
Second session	Investigating the inner and outer world in acceptance and commitment therapy; creating the willingness to quit inefficient programs and the realization that control is the problem not the solution, and substituting control with something, i.e., willingness
Third session	Identifying the individual's values, specifying his/her goals, specifying the required actions, and specifying obstacles
Fourth session	Examining each person's values and deepening previous concepts
Fifth session	Realization of fusion and departure and doing exercises for departure
Sixth session	Realization of fusion with the conceptualized self and training methods to depart from it
Seventh session	Mindfulness and emphasis on living in the present
Eighth session	Examining the story of life and committed action

Table 3. Descriptive findings for the control and experimental groups in the Beck Depression Inventory II and Beck Anxiety Inventory scores

Variable	Groups	Mean ± SD	N.	Confidence interval	
				Min	Max
BDI-II	ACT	67.56 ± 7.47	16	64.75	70.63
	Schema therapy	60.00 ± 3.01	16	56.92	62.80
BAI	ACT	64.00 ± 4.11	16	61.00	67.36
	Schema therapy	73.75 ± 7.87	16	70.38	76.74

BDI-II: Beck Depression Inventory II; BAI: Beck Anxiety Inventory; SD: Standard deviation

Results

To study the effect of experimental interventions (schema therapy and ACT), first, MANCOVA was performed on the dependent variables (BAI and BDI-II.

Then, to determine the efficacy of each experimental intervention, the least significant difference (LSD) was determined. The Shapiro-Wilk test results showed that the pretest BAI and BDI-II scores in the experimental and control groups were normaly distributed ($P = 0.05$). Moreover, the hypothesis of equality of variances was confirmed for the posttest BAI and BDI-II scores in the experimental and control groups. Therefore, to study the homogeneity slope of the regression line, each dependent variable was studied separately.

The results presented in table 4 indicate that there is a significant difference between the two groups at least in one of the dependent variables. The 4 tests of Pillai's trace, Wilks' Lambda, Hotelling's trace, Roy's largest root with Eta coefficient of 0.55 indicated that the group effect was statically significant ($P < 0.001$). Table 5 shows the results of a one-way analysis of variance (ANOVA) in the context of MANCOVA to compare the BAI and BDI-II in the two groups (schema therapy and ACT).

The results presented in table 5 indicate that one-way ANOVA is significant for the BDI-II score ($P < 0.001$, $F = 14.77$) and BAI score ($P < 0.001$, $F = 18.11$). Therefore, a significant difference was observed between theschema therapy and ACT groups in terms of the BDI-II and BAI scores.

As can be seen in table 6, the mean difference in depression between schema therapy and ACT groups was 7.82 that is significant ($P < 0.001$), and the mean difference in anxiety between schema therapy and ACT was -9.37 that is significant ($P > 0.001$). Therefore, considering that the mean BDI-II score of the schema therapy group was lower compare to the ACT group (Table 6), it can be concluded that schema therapy was more effective on depression in the students and decreased their depression. Thus, the performance of schema therapy was better in terms of decreasing depression. In contrast, ACT was more effective on anxiety in the students compared to schema therapy and caused a greater decrease in their anxiety.

Discussion

The present study was conducted to compare the effectiveness of schema therapy and ACT on depression and anxiety in students of Hormozgan University of Medical Sciences.

Table 4. Results of multivariate analysis of covariance for the Beck Anxiety Inventory and Beck Depression Inventory II

Effect	Test	Amount	F	Hypothesis df	Error df	P Ratio	Eta2
Group	Pillai's trace	0.55	16.42	2	27	0.001	0.55
	Wilks' Lambda	0.45	16.42	2	27	0.001	0.55
	Hotelling's trace	1.12	16.42	2	27	0.001	0.55
	Roy's largest root	1.12	16.42	2	27	0.001	0.55

df: degrees of freedom

Table 5. Results of a one-way analysis of variance in the context of multivariate analysis of covariance on Beck Depression Inventory II and Beck Anxiety Inventory scores

Resources	Variables (pre-test)	SS	df	MS	F	P-value.	Eta
Group	BDI-II	483.49	1	483.49	14.77	0.001	0.34
	BAI	693.53	1	693.53	18.11	0.001	0.39

BDI-II: Beck Depression Inventory II; BAI: Beck Anxiety Inventory; SS; Sum of squares; df: Degrees of freedom; MS: Mean of squares

MANCOVA was used to evaluate the difference between the efficacy of schema therapy and ACT in decreasing depression and anxiety in medical sciences students in Bandar Abbas. The results indicated a significant difference in mean posttest scores of BDI-II and BAI between the schema therapy and ACT groups. This means that the independent variables (schema therapy and ACT groups) were effective on the dependent variables (depression and anxiety), but this effect was not equal. Therefore, there was a significant difference between the schema therapy and ACT groups in this regard. The results of the LSD test indicated a greater decrease in the mean BDI-II score of the students in the schema therapy group compared to the ACT group. This result suggests that schema therapy was more effective on depression. In contrast, the results of the LSD test showed a greater decrease in the BAI score of the students in the ACT group compared to the schema therapy group. This means that ACT was more effective on anxiety in the students. Hence, it can be concluded that although both schema therapy and ACT were effective on decreasing anxiety and depression among the students, the efficacy of schema therapy was greater on depression and the efficacy of ACT was higher on anxiety. The results of this research were in line with that of the studies by Hemmati Sabet, Navabi Nejad, and Khalatbari (2016), Izadi, Neshatdust, Asgari, and Abedi (2014), and Ashoori (2015). It is worth mentioning that very few studies have compared the efficacy of these two therapy methods.

For example, a study compared the effectiveness of metacognitive therapy and schema therapy in decreasing depression and anxiety symptoms of nursing and midwifery students. They found that at the fallow-up stage both methods of schema therapy and metacognitive therapy had significantly decreased depression and anxiety; however, at the follow-up stage, there was no significant difference between the methods (Maddux et al., 2009). Furthermore, a study compared the effectiveness of schema therapy and group cognitive therapy on anxiety in the female clients of Hamedan's Health And Treatment Department. They indicated that schema therapy was more effective than group cognitive therapy on anxiety among these women with high-risk sexual behaviors (Dehghan Naiery & Adib Hajbaghery, 2006). Moreover, Izadi et al. (2014) compared the effectiveness of ACT and cognitive-behavioral therapy on the symptoms of 8 patients with obsessive-compulsive disorder (OCD).

Table 6. The results of the least significant difference test regarding Beck Depression Inventory II and Beck Anxiety Inventory scores

Criterion variable	Groups	Mean difference	SE	P-value	Confidence interval	
					Min	Max
BDI-II	Schema therapy ACT	7.82	2.03	0.001	3.65	12.00
BAI	Schema therapy ACT	-9.37	2.20	0.001	-13.88	-4.86

BDI-II: Beck Depression Inventory II; BAI: Beck Anxiety Inventory; SE: Standard error

Their results indicated a considerable decrease in the frequency of obsessive actions, severity of OCD symptoms, the amount of belief in obsessive thoughts, distress, and the necessity to react to them, as well as anxiety and depression scores in post-treatment evaluation in 8 patients and this decrease was maintained 1 month after therapy.

To explain these research findings, it can be said that few studies have been conducted on the comparison of the effectiveness of schema therapy and ACT inside and outside the country, but numerous studies have confirmed the effectiveness of these two methods in decreasing anxiety and depression. In the comparison area, it can be deduced that as depression has reacted more in cognitive therapies to individual's schemes then the stronger effect of schema therapy in students' depression is justifiable. Both methods have been shown to be successful in decreasing anxiety, but few comparisons have been made in this regard. These studies showed that ACT was more successful in decreasing anxiety compared to schema therapy (Renner, Lobbestael, Peeters, Arntz, & Huibers, 2012; Rezaei-Adryani, Azadi, Ahmadi, & Azimi, 2007). Thus, the hypothesis of the existence of a difference between schema therapy and ACT in decreasing depression and anxiety among the students of Hormozgan University of Medical Sciences is confirmed. The present study like other studies had limitations including the short duration of the execution of the desired interventions, and time limitation for greater consideration of the contents of the sessions. Moreover, the participants of this study consisted of male and female students of medical sciences; therefore, the findings of this study cannot be generalized to other classes of society such as men and women, patients in hospital centers, and other diseases. Thus, these limitations should be taken into consideration in using the results of this study.

Conclusion

It can be concluded that schema therapy was more effective in the treatment of depression, but ACT was more successful in the treatment of anxiety.

Conflict of Interest

Authors have no conflict of interests.

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Cross-Cultural, Interdisciplinary Health Studies

The Effectiveness of Mindfulness-Based Stress Reduction Training on Self-Efficacy and Self-Esteem in Patients with Obsessive-Compulsive Disorder

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Quantitative Study

Abstract

Background: Obsession is a repetitive and harmful thought, perception, feeling, or movement that is associated with a sense of compulsion and a tendency to resist it. The purpose of this study was to determine the effectiveness of mindfulness-based stress reduction training on self-efficacy and self-esteem in patients with obsessive-compulsive disorder (OCD).

Methods: The present study was a quasi-experimental study with a pretest-posttest design, control group, and follow-up period. The statistical population of this study included all patients with OCD in Tehran, Iran, in 2018. The study sample consisted of 30 people who were selected using a convenience sampling method and divided into experimental (n = 15) and control group (n = 15) participants. Measurement tools included the Coopersmith Self-esteem Inventory (CSEI) (1976) and General Self-Efficacy (GSE) Scale (Schwarzer & Jerusalem, 1995). First, a pretest was conducted in both groups. The experimental group then underwent eight sessions of intervention each lasting 90 minutes, and then, the posttest was performed in both groups. Moreover, one month later, the follow-up phase was completed. Data were analyzed using multivariate analysis of covariance (MANCOVA) and one-way analysis of covariance (ANCOVA).

Results: The results showed that mindfulness-based stress reduction training was effective on self-efficacy and self-esteem in patients with OCD, and this effect persisted until the follow-up.

Conclusion: It can be concluded that mindfulness therapy can stop the rumination cycle and distance individuals from their negative thoughts. Challenging negative beliefs about emotions improves self-esteem and self-efficacy in patients with OCD.

Keywords: Mindfulness, Self-efficacy, Self-esteem, Obsessive-compulsive disorder

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Introduction

Obsessive-compulsive disorder (OCD) is a type of mental illness that, although dissimilar among individuals, many of its symptoms are nearly identical. Obsession is a

repetitive and harmful thought, perception, feeling, or movement that is accompanied by a sense of compulsion and a tendency to resist it. The patient may realize that his/her personality is different from others in thought or behavior, and he/she may be aware of his/her abnormal behavior. These obsessions cause the patient to waste time and become extremely anxious when unable to perform obsessive behavior (Baron, Mueller, & Wolfe, 2016). OCD also interferes with one's social behaviors, and the obsessive-compulsive person reviews his/her behaviors and seeks an opportunity to apologize from others, or breaks up with others to get rid of these annoying thoughts. As such, they develop depression, loneliness, and rumination with obsession (Barry, Doucette, Loflin, Rivera-Hudson, & Herrington, 2017).

Low self-esteem is one of the factors that seem to contribute to OCD. Self-esteem is one of the most important aspects of personality. Self-esteem determines the development and evolution of human behavioral traits. Self-esteem is a value that one attaches to one's self, and includes the three components of belief, emotion, and behavior. Self-esteem is associated with a negative or positive attitude toward self and is dependent on one's assessment of one's personality traits (Bennett, Egan, Cook, & Mantzios, 2018). Self-esteem as a central factor in emotional-social adjustment is one of the most important components of mental health. Self-esteem is one’s degree of conformity, acceptance, and validness toward oneself that is known to be a stressor and the most important source of self-esteem in coping with stress. Having confidence in their skills will help individuals face life's challenges effectively (Bleidorn et al., 2016). Self-esteem is a person's confirmation, acceptance, and sense of self-worth that has been identified as a stress modulator and the most important individual source of adaptation to stress. Thus, people with higher self-esteem in stressful situations feel more valued and more confident in their skills, and this confidence can help them effectively cope with life's challenges (Burguiere, Monteiro, Mallet, Feng, & Graybiel, 2015).

Another component of OCD is low self-efficacy. Self-efficacy is an essential effective factor in self-care behaviors in patients. Patients who have higher self-efficacy better manage their care (Cherkin et al., 2016). Self-efficacy, as one of the central concepts in cognitive-social theory, has attracted the attention of many education professionals. It is defined as one's belief in the ability to cope with particular situations, and how attitudes are, influence the behaviors and emotions of individuals, and determine the initiation of work and the degree of persistence that people need to see them through. Self-efficacy, rather than referring to an individual’s judgment about him/herself and his/her physical characteristics, refers to an individual’s belief about what he/she can do (Farmer & Tierney, 2017). Self-efficacy is one of the important constructs in Bandura's social cognitive theory (SCT), which means confidence and belief in one's ability to control thoughts, feelings, activities, and performance in times of stress. Choosing higher goals, tolerance, and endurance in assignments, high-performance levels commensurate with abilities, and actively seeking new successes are characteristics of self-efficacious individuals (Frank, Reibel, Broderick, Cantrell, & Metz, 2015).

There are many ways to improve self-efficacy and self-esteem in patients with OCD. One of these methods is mindfulness-based therapy. Over the past decade, behavioral therapy has evolved and led to the development of behavioral science. Newer forms of cognitive-behavioral therapy (CBT), called the "third wave" of behavioral therapy, emphasize considerations such as complete awareness, acceptance, therapeutic relationship, spirituality,

values, meditation, being present, and emotional tools (Juul, Pallesen, Piet, Parsons, & Fjorback, 2018). Full awareness is about being aware of the experience in a receptive way and performing activities based on this non-judgmental awareness. In practicing complete consciousness, clinicians intentionally focus on the present experience while maintaining distance from it. Full awareness involves cultivating an attitude of curiosity and compassion for the present experience. Therapists learn to focus on one thing at a time and return their attention to the present moment when it has been diverted (Murray et al., 2019). Mindfulness training affects depression, anxiety, and psychological adjustment. Mindfulness training also affects stress, and anxiety. Stress-based mindfulness improves mental, physical, and emotional well-being, and sleep quality, reduce stress and chronic pain, and prevents recurrence of depression and generalized anxiety (Orth, Robins, Meier, & Conger, 2016). Thus, this study sought to determine whether mindfulness-based stress reduction training affects self-efficacy and self-esteem in patients with OCD.

Methods

The present study was a quasi-experimental study with a pretest-posttest design and control group. The study population included all patients with OCD in Tehran, Iran, in 2018. The sample of this study consisted of 30 people who were selected using a convenience sampling method and divided into two experimental (15) and control (15) groups.

Coopersmith Self-esteem Inventory: Coopersmith developed the Coopersmith Self-esteem Inventory (CSEI) in 1976. This questionnaire contains 58 yes-no questions. The CSEI has been widely used and has been shown to have sufficient reliability and validity in various studies. Johnson, Redfield, Miller, and Simpson reported a reliability of 0.9 using the split-half method, and Panadero, Jonsson, and Botella (2017) obtained reliability coefficient of 0.88 after five weeks and 0.7 after three years. Cronbach's alpha coefficient for the whole questionnaire was 0.86. Moreover, the correlation coefficients of the CSEI were calculated using Eysenck Personality Inventory (EPI), and the significant correlation coefficient was 0.80 (Parsons, Crane, Parsons, Fjorback, & Kuyken, 2017). The results of the questionnaire on adults showed that the internal consistency validity coefficient was 0.90.

General Self-efficacy Scale: Schwarzer and Jerusalem developed the General Self-Efficacy (GSE) Scale in 1995. The scale consisted of 17 items with the two subscales of general self-efficacy and social self-efficacy; it was reduced to a 10-item scale (GSE-10) in 1981 and translated into 28 languages (Polusny et al., 2015). The items of the GSE-10 are scored on a 4-point scale. This scale has a minimum and maximum score of 10 and 40, respectively. The reliability and validity of the GSE-10 were investigated in psychology students of the Shahid Chamran University of Ahvaz and Islamic Azad University, Marvdasht Branch, Iran. Factor analysis (structural analysis) yielded a construct called general self-efficacy beliefs that determined 38.69% of the scale options variance. Shapiro, Astin, Bishop, and Cordova, (2005) calculated the validation coefficient of the GSE-10 using an optimistic attribution style. They gained 0.49 in a group of students, 0.45 in challenging perceptions, and 0.58 in self-regulated teachers all of which were significant. The concurrent validity coefficient for the GSE-10 and Rosenberg Self-Esteem Scale (RSES) in 318 students of Shahid Beheshti University was 0.30, in 267 students of Shahid Chamran University of Ahvaz was 0.20, and in 208 students of Islamic Azad University, Marvdasht Branch was 0.23 (Song & Lindquist, 2015).

Results

Mean and standard deviation for scores of research variables in pretest, posttest, and follow-up is shown in table 1.

Table 1. The mean and standard deviation for scores of research variables in pretest, posttest, and follow-up

Variable	Group	Pre-test	Post-test	Follow-up
		Mean ± SD	Mean ± SD	Mean ± SD
Self-efficacy	Experimental	13.93 ± 2.96	20.66 ± 3.97	19.00 ± 2.56
	Control	15.93 ± 3.82	16.40 ± 3.06	16.20 ± 2.78
Self-esteem	Experimental	26.06 ± 4.35	35.73 ± 4.43	34.33 ± 3.79
	Control	32.46 ± 4.95	33.86 ± 6.01	33.53 ± 4.85

SD: Standard deviation

The null hypothesis was confirmed for the equality of variances of the scores of the two groups in the research variables. In other words, the equality of the variances of scores was confirmed in the experimental and control groups. The null hypothesis for the normal distribution of the scores of the two groups in the research variables was confirmed. That is, the normality of the distribution of scores in the pretest in both experimental and control groups was confirmed. The F value of the interaction for the same slope of the regression line was not significant for any of the variables in the study. In other words, the homogeneity of the slope of the regression line was accepted. Evaluation of the data specificity showed that variance-covariance matrices were homogeneous (Box's M = 118.19; $P > 0.05$); therefore, Wilks' lambda index was used to evaluate the significance of the multivariate effect.

As shown in table 2, by controlling significant levels of all tests in the pretest, it was indicated that there was a significant difference ($P < 0.0001$; $F = 36.79$) between the experimental and control groups at least in one of the dependent variables (self-efficacy and self-esteem scores). The effect or difference was 0.44, i.e., 44% of the individual differences in posttest scores of self-efficacy and self-esteem were related to the effect of mindfulness training (group membership).

As shown in table 3, there was a significant difference between the experimental and control groups in terms of self-efficacy ($P < 0.0001$; $F = 62.66$). The effect or difference was 0.42, i.e., 42% of the individual differences in posttest self-efficacy scores were related to the effect of mindfulness training (group membership).

There was a significant difference between the experimental and control group in terms of self-esteem ($P < 0.0001$; $F = 43.81$). The effect or difference was 0.44, i.e., 44% of the individual differences in posttest self-esteem scores were related to the effect of mindfulness training (group membership).

Table 2. Results of multivariate analysis of covariance on mean posttest self-efficacy and self-esteem scores of the experimental and control groups with pretest control

Test name	Value	df hypothesis	df Error	F	Significant level	Effect size	Statistical power
Pillai's effect	0.74	2	25	36.79	0.001	0.44	1.00
Wilks' Lambda	0.25	2	25	36.79	0.001	0.44	1.00
Hotelling effect	2.94	2	25	36.79	0.001	0.44	1.00
The largest root	2.94	2	25	36.79	0.001	0.44	1.00

df: Degrees of freedom

Table 3. Results of multivariate analysis of covariance on mean posttest scores of self-efficacy and self-esteem in experimental and control groups with pretest control

Variables	Source of Changes	SS	df	MS	F	P	Effect size	Statistical power
Self-efficacy	Pretest	640.92	1	640.92	149.63	0.0001	0.30	1.00
	Group	268.41	1	268.41	62.66	0.0001	0.42	1.00
	Error	158.47	27	4.28				
Self-esteem	Pretest	302.79	1	302.79	49.06	0.0001	0.37	1.00
	Group	270.43	1	270.43	43.81	0.0001	0.44	1.00
	Error	228.35	27	6.17	-	-	-	-

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

Discussion

The present study results showed that mindfulness-based stress reduction was effective on self-efficacy and self-esteem in patients with OCD. The results were in line with those of St-Louis, Verner-Filion, Bergeron, and Vallerand (2018), Fairfax (2008), and Hanstede, Gidron, and Nyklicek (2008). Their findings also indicated that mindfulness-based stress reduction affected self-efficacy and self-esteem in patients with OCD.

The results showed that group mindfulness training reduced the symptoms of OCD in treated patients. Mindfulness, as a technique, can produce a higher level of awareness of physical and environmental conditions; therefore, it can help people in different situations, especially when they feel compelled to perform specific actions. Indeed, they focus the mind on other phenomena, and focusing on emotional and physical states creates a barrier against rumination and repetitive acts. Mental training for patients with OCD helps them to see changes in their minds and change their performance by undergoing practical clinical courses. The change in the mind can easily bring about the expected performance changes. The mindfulness method affects the input and output as well as the biological processes underlying the obsessive behavior (unlike the behavioral methods that influence and control the output). These changes are taught to the patient in a step-by-step manner and are required to guide them to the next level through self-monitoring when they overcome a step. Hertenstein et al. (2012 also suggested that mindfulness treatment is appropriate for some OCD patients who do not have negative emotional states and anxiety, and that mindfulness-based cognitive therapy (MBCT) increases the patient's self-control, self-regulation, and self-monitoring by directing moment-by-moment and non-judgmental consciousness toward their behavior and recovery.

In explaining the effectiveness of cognitive group therapy based on mindfulness on improving the self-esteem of patients with OCD, it can be said that mindfulness therapy is one of the new approaches to modifying, controlling, and processing thoughts. In this approach, one's thoughts are experienced as mental events, and focus on and attention toward breathing is used as a means of living in the present moment. In this way, patients are trained to stop the rumination cycle and stay away from negative thoughts. Flexible training improves self-esteem by affecting attention, stopping rumination, correcting negative and positive beliefs, and challenging negative emotions (Hale, Strauss, & Taylor, 2013). The effect of mindfulness on self-esteem is through people's beliefs about their personality and values, which can keep their personality stable even when a person is ill. With these beliefs, individuals can influence the outcomes of their lives and feel more in control. Patients with OCD lose their source of social support and become isolated when they are upset (Wahl, Huelle, Zurowski, & Kordon, 2013). These physical and role changes lead to changes in their mental and physical image and decrease self-esteem and confidence in them. In the mindfulness intervention, emotional

management and both physical and mental dimensions are considered simultaneously, and one is taught to be completely aware of one's thoughts and feelings. Moreover, as patients with OCD are less likely to be in contact with the present moment, presence of mind and its training through mind control is effective and helps the person to become fully conscious of their thoughts and feelings and accept them. In a state of relaxation and concentration, without being overwhelmed, they gain the ability to control their thoughts. This ability makes individuals feel more in control of their life and, instead of giving negative self-responses in troubled situations, respond with more comfort and awareness, and better cope with problems.

Conflict of Interests

Authors have no conflict of interests.

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The Prediction of Quality of Life based on the Mindfulness of Middle-aged Women in Tehran, Iran

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Quantitative Study

Abstract

Background: Middle age can be the culmination of human life, provided that quality of life (QOL) and mental health are maintained and even improved in this period. The QOL in this period of life is susceptible to many biological, physical, psychological, and social changes and problems, and the consequences of these changes. This study was aimed at predicting QOL based on mindfulness in middle-aged women in Tehran, Iran.

Methods: This study was a descriptive-correlational research. The statistical population of this study included all middle-aged women who lived in districts 1 and 2 of Tehran in 2017. A total of 148 middle-aged women were selected using convenience sampling method. Data were gathered using the Mindful Attention Awareness Scale (MASS) questionnaire and 36-Item Short-Form Health Survey (SF-36). The collected data were analyzed using the Pearson correlation coefficient and multiple regression analysis in SPSS software.

Results: The mean (SD) age of the participants was 47.8 (6.2) years. The mean (SD) score of consciousness and QOL was 64.7 (13.4) and 66.9 (8.8), respectively. There was a direct and significant relationship between mindfulness and QOL ($P < 0.01$; $r = 0.38$).

Conclusion: The study showed that there was a relationship between mindfulness and QOL, meaning that the higher the mindfulness of middle-aged women, the better their QOL. It can be concluded that mindfulness is a predictor of the QOL.

Keywords: Quality of life, Defense mechanisms, Mindfulness, Middle-aged

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Introduction

Middle age, 45-65 years of age, is a bridge between youth and old age .This stage of life is the golden and fertile period of life (Serwinski, Salavecz, Kirschbaum, & Steptoe, 2016; De Vito, Baer, Dart, Chiuve, Rimm, & Colditz, 2015). Middle age can be the peak of human life provided that quality of life (QOL) and mental health continues to grow and expand in this period. In this period of life, QOL is susceptible to many biological, physical, psychological, and social changes and problems, and the consequences of these changes (Wong et al., 2017). Compared to men, women experience more changes and complications as they grow old. The most critical event for middle-aged women is menopause and loss of fertility. Menopause

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in middle–aged women has many consequences, including decreased libido and sexual satisfaction, sexual dysfunction, insomnia, increased risk of hypertension, cardiovascular disease (CVD), cancers especially breast cancer, and a variety of chronic and disabling diseases, which severely affect QOL. These problems cause mood, emotional, and interpersonal stress disorders and seriously threaten the QOL and mental health of middle-aged women (Chuni, & Sreeramareddy, 2011; Ayranci, Orsal, Orsal, Arslan, & Emeksiz, 2010). In fact, with increasing urbanization, the demographic transition to middle age and old age, and the increasing burden of non-communicable and chronic diseases, the prevention of these diseases and increasing of QOL in middle-aged adults is essential (Kim & Kang, 2015).

The most common diseases of middle age and old age are those that can be prevented by a healthy lifestyle and high QOL. For example, the two main causes of death (CVD and cancer) in middle age and old age are the same as the two major causes of general mortality, which can be prevented through the elimination of risk factors (Malekzadeh et al., 2013). Moreover, a healthy lifestyle, and consequently, a high QOL in middle-aged people affect their mental health, and change their communication patterns or their presence in social activities. Therefore, the QOL at this age is of great importance because of its ability to prevent disease and improve mental and physical health (Kim & Kang, 2015). QOL is a broad concept that encompasses all aspects of life, including health. The term 'QOL' is used to describe satisfaction, happiness, and social, emotional, physical, occupational, and financial aspects of personal life (Ayranci et al., 2010). One of the hallmarks of QOL, especially for middle-aged and elderly people, is awareness of the present moment and what is happening around them, which is referred to as consciousness.

The concept of consciousness encompasses awareness and attention. Awareness is a radar screen that constantly monitors the external and internal environment. A person may be aware of stimuli without heeding them. Therefore, attention is a process in which conscious awareness is concentrated. Consciousness and attention are intertwined, so that attention constantly pulls out forms of consciousness and keeps them at its center each time for a different period .Attention is a constant aspect of normal functioning, but consciousness is a heightened awareness of current experience or reality. In other words, it is a kind of awareness of and attention toward events and experiences (Desbordes et al., 2014). Moreover, through self-awareness, individuals recognize and facilitate their basic psychological needs (Zoogman, Goldberg, Hoyt, & Miller, 2015). Awareness is needed to make the individual aware of his/her basic needs so that they can be satisfied. Thus, the basic psychological needs and well-being of individuals provide the necessary conditions for their psychological development, cohesion, and psychological well-being (Zimmaro et al., 2016).

In a study on the impact of a mindfulness based program on the QOL of stem cell transplant survivors, it was found that this intervention increased their QOL (Grossman, Zwahlen, Halter, Passweg, Steiner, & Kiss, 2015). In a study on a mindful intervention based on well-being and QOL, it was reported that mindfulness intervention improved the QOL of patients suffering from heart disease (Nyklicek, Dijksman, Lenders, Fonteijn, & Koolen, 2014). In another study on the relationships between mindfulness, QOL, and psychiatric symptoms among gastric ulcer patients, it was concluded that mindfulness scores were significantly and inversely correlated with anxiety, depression, and perceived stress scores, and were positively and directly correlated with the QOL score (Jedel, Merriman, Hoffman, Swanson, Fogg, & Keshavarzian, 2013). Therefore, considering the importance of QOL and mindfulness in middle-aged people, the present study aimed to predict

QOL based on mindfulness in middle-aged women in districts 1 and 2 of Tehran, Iran.

Methods

This study was a descriptive-correlational study and the study population consisted of all middle-aged women residing in districts 1 and 2 of Tehran municipality in 2017. From among them, 148 middle-aged women were selected using convenience sampling. For sampling, 6 neighborhood halls were initially identified as accessible in districts 1 and 2 of Tehran. Then, questionnaires were distributed among the people who came to the neighborhood headquarters and were willing to participate in the study. The Sample size was determined to be 40 participants for each level of predictor variables according to the correlation method. Since in this study mindfulness and QOL each had one component, 80 participants were required, but 148 were selected due to the possible loss of subjects. The inclusion criteria included ages of 45-65 years and being married. Questionnaires containing incomplete information were excluded. Before completing the questionnaires, individuals were informed about the aim of the study, were assured that all information would remain confidential and would only be used for research purposes. Participation in the study was voluntary and could be withdrawn at any time. A consent form was obtained from every participant, and questionnaires were completed anonymously.

Mindful Attention Awareness Scale: The Mindful Attention Awareness Scale (MAAS) was developed by Brown and Ryan in 2003 and is used to measure mindfulness. The MAAS consists of 15 items that are scored on a 6-point Likert scale ranging from "almost never" (with a score of 1) to "almost always" (with a score of 6). The total score of the MAAS ranges from 15 to 90. This scale has good internal reliability as it was performed on 7 sample groups and its Cronbach's alpha was reported between 0.82 and 0.87. The validity of this scale was also reported to be highly correlated with many mental health variables (Kiken, Lundberg, & Fredrickson, 2017).

Moreover, the construct validity and criterion validity of this scale have been evaluated in cancer patients. This scale has been implemented in the Iranian society with a Cronbach's alpha of 0.82 and has been correlated with related variables such as self-knowledge and mental health in different samples (Phang, Mukhtar, Ibrahim, & Mohd Sidik, 2016).

The Medical Outcomes Study 36-Item Short-Form Health Survey: The Medical Outcomes Study (MOS) 36-Item Short-Form Health Survey (SF-36) is designed to assess health policies and overall health status in terms of physical and mental health. This questionnaire consists of 36 questions and 8 components, with questions such as: "How do you generally evaluate your health at present, compared to last year, to assess health-related QOL?" (Bogan et al., 2016). This questionnaire was designed and adjusted to measure health-related QOL. Individuals rate their response to each item using a 6-point Likert scale ranging from "almost never" (with a score of 1) to "all the time" (with a score of 6) (Gum, Glassman, & Carreon, 2013). Overall, the results indicated that the Persian version of the SF-36 has the reliability and validity to measure health-related QOL. Convergent validity, which is used to test the measurement assumptions using the correlation of each question with a hypothesized scale, also showed good results and all correlation coefficients were higher than the recommended value of 0.4 (range of coefficients varied from 0.58 to 0.95). The factor analysis test provided two main components that explained 65.9% of the variance between the scales of the SF-36 questionnaire. Researchers reported the validity of this questionnaire as 0.77 using concurrent validity and its reliability as 0.70 for most of the scales using Cronbach's alpha (Matcham, 2014). In the present study, the Cronbach's alpha of this questionnaire was

calculated to be 0.79.

Data were analyzed using descriptive and inferential statistics in SPSS software (version 22, IBM Corporation, Armonk, NY, USA). Descriptive statistics were used to calculate frequencies, determine central indices and dispersion, and draw charts, and graphs, and inferential statistics were used to determine the Pearson correlation coefficient and multiple regression analysis was used in order to evaluate the effect of predictor variables on the criterion variable.

Results

The mean (standard deviation) age of the participants was 47.8 (6.2) years; 89 (60.2 %) participants were between 40 and 50 years of age and 59 (39.8%) were between 40 and 65 years of age. Among the participants, 45 (30.4%) had a diploma, 73 (49.3%) had a bachelor's degree, and 30 (20.2%) had a master's degree. Moreover, 112 (75.6%) participants were married and 36 (24.3%) were single. Table 1 shows the descriptive indices of the study variables.

Table 1. Descriptive indices of study variables

Variable	Mean ± SD
Mindfulness	64.7 ± 13.4
Quality of life	66.9 ± 8.8
Physical functioning	36.3 ± 16.8
Physical role	16.5 ± 5.8
Bodily pain	20.3 ± 16.1
General health	28.8 ± 17.7
Vitality	28.6 ± 13.7
Social functioning	47.5 ± 29.3
Emotional role	19.3 ± 36.4
Mental health	46.2 ± 15.7

SD: Standard Deviation

Since all significance levels in the Kolmogorov-Smirnov test were greater than 0.05, the distribution of scores of the research variables was not significantly different from a normal distribution ($P > 0.05$). Furthermore, the results of Levene's test and its significance level, which was greater than 0.05 in all cases, showed homogeneous variances. The Pearson correlation test was used to investigate the relationship between the research variables, and the results are presented in table 2.

Table 2. Matrix correlation of quality of life and mindfulness

Variable	Mindfulness	P-value
Quality of life	0.38	0.001
Physical functioning	0.22	0.001
Physical role	0.27	0.001
Bodily pain	0.19	0.010
General health	0.17	0.010
Vitality	0.29	0.001
Social functioning	0.41	0.001
Emotional role	0.32	0.001
Mental health	0.24	0.001

The results showed that there was a direct and significant relationship between mindfulness and QOL ($P < 0.01$). That is, the higher the mindfulness of middle-aged women, the better their QOL. By simultaneously incorporating the mindfulness variable as a predictor and QOL as a criterion variable, the variable contribution of mindfulness in predicting and the amount of variance was explained (Table 3).

The value of R is the measure of the correlation between the observed value and the predicted value of the variable. R squared (R^2) is the square of this correlation and shows the contribution of variance in predicting the criterion variable. In essence, it is a scale that shows to what extent one can predict the criterion variable by knowing the predictor variables. Therefore, given the amount of R^2 presented in table 3, the variable of mindfulness explains about 22% of QOL variations. The observed F and its significant level ($P < 0.001$) indicate significant predictive power.

Table 3. Simultaneous multivariate regression of quality of life based on defense and mindfulness

Predictive values	R	R^2	Modified R^2	SE	F	P
Mindfulness	0.47	0.22	0.20	11.84	10.13	0.001

SE: Standard error

Discussion

The present study showed that there was a direct and significant relationship between mindfulness and QOL; that is, the higher the mindfulness of middle-aged women, the better their QOL. These results were consistent with the studies by Grossman et al. (2015) on the effect of mindfulness treatment on QOL, Nyklicek et al. (2014) on the effect of mindfulness treatment on emotional well-being and QOL in patients with coronary artery disease, and Jedel et al. (2013) on the relationship between mindfulness, QOL, and psychiatric symptoms in patients with gastric ulcer.

In explaining the relationship observed between mindfulness and QOL in the present study, it can be said that mindfulness frees one from maladaptive-cognitive habits (Kiken et al., 2017). Mindfulness also reduces maladaptive reactions in the individual by removing depressive schemas such as helplessness or frustration. Mindfulness is likely to reduce stress and increase QOL in several ways. First, mindfulness is likely to have a direct impact on the initial evaluation process, thus reducing the threat level, and indirectly, reducing disaster. Second, mindfulness probably indirectly reduces disaster by affecting the process of secondary evaluation, and thus, assesses one's actual ability to cope with stressful situations. Ultimately, mindfulness is positively assessed by directly enhancing one's ability to reduce stress perception in the initial assessment.

Furthermore, according to the results of this study, the variable of mindfulness explained about 22% of QOL variations, which was in line with the findings of Fortney, Luchterhand, Zakletskaia, Zgierska, and Rakel (2013) and Hoffman, Ersser, Hopkinson, Nicholls, Harrington, and Thomas (2012).

In explaining this finding, it can be said that through mindfulness, one finds self-awareness of negative emotions, such as anxiety and stress in the body, and discovers their related thoughts, and learns the means to deal with these problems (Germer 2005). When one can observe one's thoughts without any judgment and without reacting to those thoughts, one attains a state of comfort and rest in unpleasant situations (Kaviani, Javaheri, & Hatami, 2011). Relaxing in an unpleasant situation leads to reduced stress, well-being, and ultimately to a higher QOL. Mindfulness not only improves psychological and physical symptoms of anxiety through relaxation, but also reduces anxiety, improves stress resistance, and enhances self-coping skills by using a new perspective and focusing on the source of stress (Surawy, McManus, Muse, & Williams, 2015). This process involves focusing on one's stresses and anxieties. Mindfulness helps a person to be aware of what is happening to him/her at any given moment, and to respond more appropriately. Through mindfulness, the individual becomes aware of all his/her positive, negative, and neutral experiences and increases his/her QOL by reducing his/her suffering (Kaviani et al., 2011).

One of the limitations of the present study was the use of the available sampling method, which makes it difficult to generalize the findings. The limitation of the study population to middle-aged women in districts 1 and 2 of Tehran prevents the generalization of the results to other genders and other cities and regions. Researchers can also use other methods, such as interviews, to obtain accurate information. It is recommended that the present study be conducted as an empirical study to investigate the effect of mindfulness training and its impact on QOL in middle-aged women. It is suggested that a similar study be performed in middle-aged men to compare with the present study. In future research, the impact of other variables such as education, number of children, employment, and income may be examined on the QOL of middle-aged adults. In qualitative studies, researchers compare middle-aged people with good QOL to those with poor QOL to find out more about the factors affecting middle-aged QOL. Based on the results, it is suggested that health authorities consider the improvement of mental health and QOL

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through education on a healthy lifestyle in middle age, especially for women as the priority of cultural, welfare, and health centers, and in other cities especially Tehran. It is recommended that middle-aged adults be made aware of the factors affecting their QOL so that they can improve their QOL by choosing a healthy lifestyle. Mindfulness training should be taught to middle-aged and elderly people in cultural centers, psychiatric clinics, and retirement centers to enhance their QOL, psychological well-being, and mental health; in addition, they should undergoing self-knowledge skills training to improve their QOL.

Conclusion

The results of the present study showed that there was a relationship between mindfulness and QOL, meaning that the higher the mindfulness of middle-aged women, the better their QOL. It can be concluded that mindfulness is a predictor of the QOL.

Conflict of Interests

Authors have no conflict of interests.

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Comparison of Perfectionism and Parental Bonding between People with Eating Disorder and Healthy Individuals

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Quantitative Study

Abstract

Background: The purpose of this study was to compare perfectionism and parental bonding between people with eating disorder and healthy people.

Methods: The study sample consisted of 60 adults (30 people with eating disorder and 30 healthy people) who were selected using available sampling method. The research tools included the Eating Attitudes Test (EAT-26), Perfectionism Inventory (PI; Hill et al.), and Parental Bonding Instrument (PBI; Parker et al.). The collected data were analyzed in SPSS software.

Results: There was no significant relationship between positive (normal) perfectionism and eating disorder, but negative (abnormal) perfectionism had a positive and significant relationship with eating disorder. The results of this study showed that people with eating disorder perceived parental indifference and there was no significant difference in the subscale of PBI between people with eating disorder and healthy subjects.

Conclusion: Negative (abnormal) perfectionism has a significant relationship with eating disorder, so paying attention to preventing the formation and treating this variable will help reduce eating disorder. Moreover, the parenting and parenting relationship style of children and the perception of children of this bond have an effect on eating disorder, so educating parents to adopt appropriate behavioral styles as a primary prevention is desirable.

Keywords: Perfectionism, Parental bonding, Eating disorder

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Introduction

Eating disorders are one of the most important public health issues and their prevalence has increased significantly since about 1970 (Smink, van Hoeken, & Hoek, 2013). A preoccupation with body weight, food, and body shape is common among people with eating disorders, and the goal of patients in all groups is to lose weight (Sadock & Sadock, 2007). Eating disorders are serious psychological illnesses with high

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rates of morbidity and death (Kostro, Lerman & Attia, 2014). The American Psychiatric Association (APA) (2013) has replaced eating disorders with feeding and eating disorders in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5). Feeding and eating disorders are characterized by persistent disturbance in eating behaviors that lead to changes in food consumption or food absorption and significant damage to physical health and psychosocial functioning. Pica, rumination syndrome, avoidant-restrictive food intake disorder (ARFID), anorexia nervosa, bulimia nervosa, and binge eating disorder (BED) are disorders of this category.

Perfectionism has long been regarded as a central psychological feature of eating disorders and has been hypothesized to have a causal role in eating disorders (McGee, Hewitt, Sherry, Parkin, & Flett, 2005). Perfectionism is a personality trait typically characterized by striving for impeccability, over-performance standard, and self-critical tendencies (Lee, 2007). Perfectionists are constantly occupied with all aspects of life by demanding a high quality of performance from themselves. Perfectionists are self-critical and are constantly dissatisfied with the quality of their work (Cook, 2012).

It has been suggested that maladaptive perfectionism is influenced by early parent/child relationships. Hemachek (1978) has noted that parents who provide their children with inconsistent and contradictory approval cause the development of abnormal perfectionism in their children (Bulik, Tozzi, Anderson, Mazzeo, Aggen, Sullivan, 2003). McKarin and Boss (1984) found controlling, punitive, and interventionist parenting styles to be the cause of maladaptive perfectionism in adulthood. Patients with anorexia nervosa describe their parents as inattentive and rejective (Sadock & Sadock, 2007). In addition, there is evidence in the literature that unhealthy patterns of attachment and parental bonding influence the occurrence and persistence of eating disorders (Tetley, Moghaddam, Dawson, & Rennoldson, 2014). Until now, no specific parenting style has been identified for patients with eating disorders, but the results of several studies have shown that attachment style is inappropriate in patients with anorexia nervosa (Shayeghian, Aguilar-Vafaie, & Rasoolzadeh Tabatabae, 2011). The results of a study by Wallers and Kendler (1995) showed that women with eating disorders did not have good relationships with their parents. This study investigated 2,000 twin women. The results of the study showed that maternal overprotection was significantly associated with anorexia nervosa, and parental rejection was significantly associated with bulimia nervosa (Tetley et al., 2014). In general, women with eating disorders were reported to have high levels of parental protection and low levels of parental care (Leung, Thomas, & Waller, 2000).

Fujimori et al. (2011) also investigated parental bonding in people with eating disorder and self-harming behavior. Results showed lower levels of parental care in the experimental group compared to the healthy group (Tetley et al., 2014).

Although there have been studies in the past on the relationship between perfectionism and eating disorders, and parental bonding and eating disorders, no study has examined the relationship of these three variables with each other. Moreover, most of the previous studies that have been performed on women and men with eating disorders have been neglected by researchers. Thus, the aim of the present study was to compare perfectionism and parental bonding between patients with eating disorders and healthy people.

Methods

The present study was a descriptive and causal-comparative study. Participants in this study included a clinical sample (patients with eating disorder) and a non-clinical sample (healthy people). The clinical sample was selected from among the clients of several

nutrition centers in Tehran and Qom, Iran, using convenience sampling method. Brochures containing information on eating disorders and the psychological basis for weight and body dissatisfaction, and information about the subject and purpose of the research were distributed among individuals. Finally, people who were willing to cooperate were interviewed by a psychologist and if they were diagnosed with one of the eating disorders and obtained the necessary score for the diagnosis of eating disorders in the Eating Attitudes Test (EAT-26).

They entered the study and answered the Parental Bonding Instrument (PBI; Parker et al.) and Perfectionism Inventory (PI; Hill et al.). Finally, 130 men and women, including 80 women and 50 men, were interviewed and responded to the EAT-26. From among them, 30 individuals (15 men and 15 women) were selected and included in the study. All participants who cooperated in this study could participate in 2 free sessions of the Eating Disorders Group Therapy. The participants of the two groups were matched in terms of demographic characteristics of age, sex, education, and marital status. After an interview with a psychologist and answering the EAT-26, and being assured that they do not have an eating disorder or other serious psychological disorders, 30 people (15 men and 15 women) were included in the nonclinical group. They also responded to the PI and PBI.

Tools Measurement

Eating Attitudes Test: This EAT-26 was developed by Garner and Garfinkel (1979). It consists of the 3 subscales of dieting, overeating and mental occupation, and oral control. The EAT-26 is scored based on a Likert scale. The reliability coefficient of EAT-26 was 0.94 for internal consistency and 0.84 for test-retest. Its concurrent validity was obtained to be between 0.64 and 0.70 by using the validated Eating Disorders Scale. In Iran, the reliability coefficient of internal consistency of the EAT-26 was 0.86 and its factorial validity was evaluated as desirable (Fujimori et al., 2011).

Perfectionism Inventory: The PI was developed by Hill, Huelsman, Furr, Kibler, Vicente, and Kennedy (2004). It consists of 59 items and 8 subscales. The PI measures the two dimensions of positive perfectionism (normal) and negative perfectionism (abnormal). In this scale, the sum of the subscales of order and organization, planfulness, striving for excellence, and high standards for others determines positive perfectionism. The sum of the subscales of need for approval, concern over mistakes, perceived parental pressure, and rumination determines negative perfectionism (Babaei, Khodapanahi, & Saleh Sedghpour, 2007). The items of the PI are scored on a Likert scale ranging from 1 to 5, and the total score of the inventory is obtained from the sum of the scores of its 8 subscales (Jamshidi, Razmia, Haghighatb, & Samani, 2008). Hill et al. reported the internal consistency and retest reliability coefficients of the scale to be between 0.71 and 0.91 (Hill et al., 2004). In Iran, the reliability of the whole scale in a pilot study (68 subjects) was estimated as 0.80 using Cronbach's alpha (internal consistency). In the original study (with 313 subjects) after factor analysis, this coefficient was estimated as 0.90 for the whole scale. The validity of this questionnaire has been reported to be desirable through correlations with general health indicators and morbidity (Babaei et al., 2007).

Parental Bonding Instrument: This tool measures parental bonding styles. The PBI is a retrospective self-report scale and it is suitable for people over 16 years of age. The PBI is a 25-question self-assessment questionnaire. This questionnaire measures the two dimensions of parental care and protection. Care and support factors are two-dimensional. On one hand, care consists of the factors of empathy, emotional warmth, and closeness and, on the other hand, it includes emotional cold, indifference, and neglect. In the protection dimension, on theone hand, there is extreme support, interference, excessive contact, prevention of

independence and autonomy of the child and, on the other hand, there is the neglecting of the child.

Results

To compare negative and positive perfectionism between people with eating disorder and healthy people, the independent samples t-test was used; the results are presented in table 1

According to the results of independent samples t-test for the positive correlation test between the two groups, there was no significant difference between the positive perfectionism scores of people with eating disorder and healthy people. The difference between the two groups in the subscales of positive perfectionism was not significant. The difference between the two groups was not significant in any of the subscales of positive perfectionism except the subscale of high standards for others.

According to the results presented in table 1, the difference between the groups in terms of the negative perfectionism variable was significant and the mean of negative perfectionism in people with eating disorder was higher than that in healthy people. The difference between the two groups was significant in all subscales of negative perfectionism except the subscale of need for approval.

According to the results presented in table 2, there was no significant difference between the two groups in terms of parental overprotection and there was no significant difference between the groups in perceptions of parental over-support. Moreover, the difference between the groups in terms of the normal protection variable was not significant. The results of independent t-test showed a significant difference between the two groups in the perception of neglected parental care. Patients with eating disorders perceived more parental neglect than healthy people. There was no significant difference between the two groups in terms of the subscale of normal parental care.

Table 1. Results of t-test

Variable	Group	Mean ± SD	T	P
Positive perfectionism	Healthy people	113.60 ± 9.99	0.55	0.59
	People with eating disorder	112.13 ± 10.78		
Striving for excellence	Healthy people	25.03 ± 3.11	0.34	0.73
	People with eating disorder	25.30 ± 2.98		
Order and organization	Healthy people	33.06 ± 4.12	0.34	0.73
	People with eating disorder	33.60± 4.12		
Planfulness	Healthy people	27.83 ± 4.84	-0.43	0.66
	People with eating disorder	26.90 ± 5.39		
High standards for others	Healthy people	18.06 ± 5.39	0.70	0.48
	People with eating disorder	28.40 ± 4.49		
Negative perfectionism	Healthy people	81.87 ± 24.19	-4.28	0.001
	People with eating disorder	114.3 ± 12.78		
Need for approval	Healthy people	27.67 ± 5.57	-6.50	0.0001
	People with eating disorder	26.33 ± 5.57		
Concern over mistakes	Healthy people	16.83 ± 11.55	5.024	0.0001
	People with eating disorder	28.43 ± 5.14		
Perceived parental pressure	Healthy people	2.30 ± 2.81	0.47	0.0001
	People with eating disorder	27.56 ± 4.50		
Rumination	Healthy people	25.67 ± 4.67	0.47	0.0001
	People with eating disorder	29.94 ± 4.67		

SD: Standard deviation

Table 2. Independent samples t-test results for the Parental Bonding Instrument subscales in healthy people and patients with eating disorders

Variable	Group	Mean ± SD	T	P
Parental overprotection	Healthy people	20.50 + 8.43	-0.96	0.33
	People with eating disorder	14.33 ± 7.74		
Normal parental protection	Healthy people	8.26 ± 5.32	-2.87	0.11
	People with eating disorder	12.33 ± 0.57		
Neglected parental care	Healthy people	27.50 ± 0.58	-3.69	0.002
	People with eating disorder	23.80 ± 12.62		
Normal parental care	Healthy people	15.53 ± 10.18	1.13	0.27
	People with eating disorder	25.33 ± 10.18		

SD: Standard deviation

Discussion

The aim of this study was to compare perfectionism and parental bonding between patients with eating disorders and healthy people. The results of this study showed that there was no significant difference between healthy people and patients with eating disorder in the total score of positive (normal) perfectionism. The subscales of positive (normal) perfectionism are striving for excellence, order and organization, planfulness, and high standards for others. These subscales did not differ significantly between the two groups. Nevertheless, there was a significant difference between healthy people and people with eating disorder in the subscale of high standards for others; the mean score of the subscale of high standards for others in patients with eating disorders was higher than that in healthy people. Moreover, the results of independent t-test indicated a significant difference between the two groups in negative perfectionism; the mean total score of negative perfectionism was higher in patients with eating disorders compared to healthy people. A significant difference was observed between the two groups in the subscales of concern about mistakes, rumination, and perceived parental pressure. The mean scores of concern about mistakes, rumination, and perceived parental pressure were higher in people with eating disorder compared to healthy people. However, no significant difference was observed between the two groups only in the negative perfectionism subscale of need for approval.

The findings of the present study are in line with a number of previous studies. For instance, Ariapooran and Shirzadi (2012) reported similar results in their study. The findings of their study showed that negative perfectionism had a significant and positive relationship with eating disorder symptoms and positive perfectionism had a significant and negative relationship with eating disorder symptoms. The results of the research by Hosseini, Dusti, and Bagheri (2016) also illustrated a significant positive relationship between negative perfectionism and eating disorder (24). Bulik, Tozzi, Anderson, Mazzeo, Aggen, and Sullivan (2003) reported a significant relationship between premorbid perfectionism and eating disorder.

In explaining this finding we can refer to the definition of perfectionism. Perfectionism is a two-dimensional construct that ranges from normal to abnormal, positive to negative, and healthy to morbid. The unhealthy and negative form of perfectionism leads to an irrational tendency to achieve, a person with negative perfectionism, regardless of physical, biological, psychological, or environmental conditions, tries to achieve a mental ideal, and it often costs a heavy price to achieve this out of reach ideal. A person with positive perfectionism is willing to maintain

fitness and health, but considers his/her environment and biological framework.

The comparison of PBI factors between healthy people and people with eating disorder showed that there is only a significant difference between people with eating disorder and healthy people in parental neglect subscale. Patients with eating disorders are more likely to perceive parental neglect compared to healthy people. There was no significant difference between the two groups in the subscales of overprotection, normal protection, and normal care. This finding is in line with a number of studies; for example, Tetley et al. (2014) stated that women with eating disorders perceive boding with their parents to be inappropriate.

Fujimori et al. (2011) found a link between low levels of care and eating disorder. Walters and Kendall (1995) have also described parents of women with anorexia nervosa as rejective. Consistent with this finding, Sadock and Sadock (2007) also stated that parents of patients with bulimia nervosa are rejective and inattentive. Parents, who do not take suitable care of their children and reject them, are every day sending them the message that they do not deserve attention. One possible explanation for this result is the formation of beliefs in these individuals that ultimately lead to one form of eating disorder. These individuals do not perceive their bond with their parents as caring and appropriate. In stages of development, they have not achieved the necessary trust, autonomy, and independence. In response to such a problem, it is possible to develop a disorder depending on the genetic status, the context, and the characteristics of the individual one of which is eating disorder. People's behavioral strategy in response to the abnormal tendency toward an ideal body ranges from complete eating prohibition to excessive overeating.

Conflict of Interests

Authors have no conflict of interests.

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None.

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The Mediator Role of Ego-Strength in the Relationship between Student Self-Esteem and Parental Perfectionism

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Quantitative Study

Abstract

Background: Perfectionism as a personality trait is associated with self-esteem. There are many factors that can affect the relationship between perfectionism and self-esteem. The aim of the present study was to examine the mediating effect of ego strength on the relationship between perfectionism and self-esteem.

Methods: The study participants consisted of 200 students. All participants were asked to complete the Perfectionism Scale, Self-Esteem Test, and Ego-Strength Scale (ESS). The obtained data were analyzed using correlation and path analysis in SPSS and LISREL.

Results: The results showed that positive perfectionism had a significant positive relationship with self-esteem and negative perfectionism had a significant negative relationship with self-esteem. In addition, the results of the research showed that ego strength mediated between perfectionism and self-esteem.

Conclusion: Based on the findings of this research, it can be concluded that the relationship between perfectionism and self-esteem is not linear and one-dimensional, and ego strength can play a mediator role in the relationship between them.

Keywords: Ego strength, Perfectionism, Self-esteem

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Introduction

Although self-esteem is one of the most fundamental concepts studied in many studies, there is not much agreement among psychologists in a way that its definition range includes good or positive emotion up to egotism, selfishness, and sense of priority (Sayadpour, 2007). According to Mackie and Smith (2016), self-esteem is what we think about ourselves. Self-esteem is a positive or negative evaluation of and emotion toward oneself. Self-esteem is constructed due to the need for the positive evaluation of others in the form of feedbacks, warm and amicable confrontation, acceptance, and kindness from the one's environment particularly from the parents of a child.

The results of an examination of the value-

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making relationship of a family with students' self-esteem showed a positive correlation between the behavioral attitudes of parents and their children's self-esteem. One of the characteristics of parents that are effective on children's characteristics is perfectionism. Perfectionism is defined as a strong tool by which tasks can be performed without error in many dimensions of life (Flett & Hewitt, 2002). People with high perfectionism are very self-critical in comparison to others with a lower perfectionism for their cognition, emotion, and performance. Therefore, they show a negative reaction to failure and are vulnerable (Besser, Flett, Hewitt, & Guez, 2008; Flett & Hewitt, 2015). Perfectionists prevent a position or delay it if they cannot complete a duty because that position is not based on their perfect criterions. As a result of the most recent research findings, perfectionism has been recognized as a multi-dimensional structure including the two normative (adapted) and neurotoxic (maladapted) dimensions. Hamilton and Schweitzer (2000) have discriminated between normal and neurotoxic (positive and negative) perfectionism. They believe that positive perfectionism is correlated with rational expectations regarding one's abilities, limitations, attempt, and activity, which increase satisfaction and self-esteem. However, negative perfectionism is a collection of unreal, ambitious goals an individual is always afraid of. Negative perfectionism, neurotoxic perfectionism, is the prevention of negative consequences, and positive perfectionism is acquiring positive consequences and includes the 3 components of self-esteem, satisfaction, and acceptance. In fact, self-esteem is evaluated as the principal component of positive perfectionism (Pishva & Besharat, 2011; Slade & Owens, 1998). Dunkley, Zuroff, and Blankstein (2003) concluded that negative perfectionism is correlated with depression, anxiety, and low self-esteem.

Based on the studies on the relationship between self-esteem and perfectionism, it seems that this relationship is not linear and single-dimensional and can be influenced by variables such as ego strength as the mediator factor. Ego strength is one of the main components of psychological models that determine mental harms (Weiner, Tennen, & Suls, 2012) and refers to the combination of the internal psychological capacities of an individual in interaction with others and his/her social environment (Besharat & Tavalayeian, 2016). Ego strength is determined based on an individual psychological ability to solve mental internal conflicts and interaction with the environment including ego strength, resiliency, defensive mechanisms, coping strategies, and cognitive actions (Block, Horwich, & Goodman, 1973; as cited in Besharat et al., 2014). On the other hand, ego weakness is one of the main indexes of mental pathology in psychodrama approaches (Weiner et al., 2012). The results of the research by Besharat and Tavalayeian (2016) with aim of comparing perfectionism, ego strength, and anger rumination in patients with major depression and obsessive-compulsive disorder (OCD) showed a significant difference between depression and OCD in terms of perfectionism dimensions. The score of patients with depression in the dimensions of other-oriented and self-oriented perfectionism and socially prescribed perfectionism (SPP) was higher compared to those with OCD; however, no significant difference was observed between the two groups in terms of the ego strength score.

The aim of this research was to study the mediator role of ego strength in the relationship between the students' self-esteem and their parents' perfectionism. The findings of this research can familiarize parents with the consequences of their perfectionism behavior in their children and help them select the most accurate way of reaching their goals. Clinical research has shown that the supportive behavior of parents can help children form and use

effective coping strategies in the face of environmental stress factors. The results of a research by Bulanda and Majumdar (2008) on the relationship between parents and their children and adolescents' self-esteem showed that the relationship and involving quality in their relationship is positive and significant.

Khanbani (2006) in his research found a significant relationship between perfectionism and self-esteem in intelligent and ordinary students. It seems that ego strength as a characteristic plays a role in the relationship between self-esteem and perfectionism. Singh and Anand investigated self-concept and ego strength in both genders. Their results showed that teenage girls generally obtain a better ego strength score and have a more positive self-concept than boys. Results of the study by Tolooee Qarachanaq, Pormouzeh, and Mirza Loo (22015) on the relationship between ego strength, self-control, and self-esteem showed that these 3 variables have a positive and significant relationship with each other. Of course, the girls' role was higher than boys'. Moreover, the mediator role of ego strength was investigated in another research on the relationship between attachment styles and cognitive emotion regulation strategies (Besharat, Asadi, & Gholamali Lavasani (2017). The results showed the mediator role of ego strength in the relationship between attachment styles and the two groups of adapted and maladapted policies of cognitive emotion regulation strategies. Fayyaz, Sarmast, Ameri, and Besharat (2016) conducted a research to compare the effect of parenting styles and ego strength of parents on children among 190 girls in the third grade of high school. They showed that the more authoritative the parenting style is, the more ego strength is observed in children. Pourhosein, Dehghani, and Darabi (2018) found that ego strength and body image had a significant relationship with psychological well-being in high school girls.

Thus, the main aim of the present research was to examine the mediator role of ego strength in the relationship between perfectionism and self-esteem.

Methods

This descriptive (non-experimental), correlative research was conducted using path analysis. Self-esteem is indigenous, perfectionism is exogenous, and ego strength is a mediator variable.

Statistical population and sample

The statistical population of this research consisted of all high school girls in Natanz, Iran, in 2016-2017. The sampling method used was random cluster sampling method; Badrud was selected from among various counties of Natanz city, and 2 out of the 5 high schools of Badrud were selected. In total, 13 girls were selected from among the 200 students who participated in this research.

Research tool

The tools used in this research included the Ego Strength Inventory (Besharat, 2011) and self-esteem inventory (Pourhosein, 2010).

1. Ego Strength Scale: This 25-item scale is used to measure and normalize ego abilities to control and manage situations and difficult life conditions by adopting ego control, ego-resiliency, defense mechanisms, and coping strategies measurement tools (Besharat, 2011). This scale measures individual reactions to difficult living conditions based on the 5 subscales of ego strength, ego resiliency, mature defense mechanisms, problem-focused coping strategies, and positive emotional-focused coping. The minimum and maximum test scores in each subscale are 5 and 25, respectively. The items are scored on a 5-point Likert scale ranging from 1 (very low) to 5 (very high). The psychometric properties of the Ego Strength Scale have been investigated and confirmed in several studies in 2005-2014 in patient (n = 372) and normalized samples (n = 1257) (Besharat, 2011; Besharat & Tavalayeian, 2016). In these studies, Cronbach's alpha coefficient of the total Ego Strength Scale was reported as 0.89-0.93. These coefficients are the internal consistency coefficients of the

Ego Strength Scale. Test-retest reliability of the scale for the patients (m = 122) and normalized patients (n = 274) was obtained to be 0.83-0.88 in two shifts and within a 2-6-week interval for the total score of ego strength. These coefficients confirm the test-retest reliability of ego strength that is all significant (P < 0.001).

2. Self-Esteem Scale: This scale was made by Pourhosein (2010) based on the cognitive developmental theory of Damon and Hart (1991). This test is an abbreviated form of the 30-question test made by Pourhosein (2007). Pourhosein (2010) used Cronbach's alpha coefficient and Pearson's correlation coefficient to estimate the validity of the 10-question Self-Esteem Test. The test results showed that the 10-question Self-Esteem Test has high content and face validity and high internal consistency (0.843) based on the 30-question criterion, and high and significant structure validity. In addition, the 10-question test consists of two subscales (self-psychological and self-social). The reliability of each subscale was measured and both have high and significant internal consistency. The construct validity of the scale was calculated using factor analysis, and the result showed that 54% of the total variance was measured by two factors. This means that the scale reached self-esteem measurement level. Moreover, the results showed that the 10-question Self-Esteem Test has high content and face validity and internal consistency (0.825) based on the Rosenberg self-esteem criterion, and high and significant construct validity.

3. Perfectionism Scale: This sale has 59 questions that are scored on a 5-point Likert scale ranging from totally agree to totally disagree. In addition, it measures positive and negative perfectionism. Positive perfectionism is measured by the 3 subscales of organizing, purposefulness, and attempt to be excellent. Negative perfectionism is measured by the 3 subscales of high criterions for others, negative self-concept, and pressure-perception by parents. A Cronbach's alpha coefficient (internal consistency) of 0.90 was obtained after factor analysis by distributing the scale among 313 participants.

Results

For data analysis, first, the related descriptive indexes and the examined variables were taken into the sample, then, the correlation matrix of variables, path coefficients, fitness goodness values, and fitted model figures are shown. All studied variables and descriptive indexes such as mean and standard deviation, skewness, kurtosis, and minimum and maximum scores are reported in table 1 for each variable individually to report the mean performance and scores distribution of the participants.

As the results presented in table 1 show, since the skewness and kurtosis of all research variables are within the range of +2 and -2, the cores distribution of the research variables is normal.

Path analysis was used to answer the research hypotheses. Since the casual analysis basis of the correlation matrix, the correlation matrix of all variables showed a significant correlation among all variables. The relationship between positive perfectionism, and ego strength (0.49) and self-esteem (0.35) was positive and significant. The relationship between negative perfectionism, and ego strength (0.62) and self-esteem (0.59) was negative and significant.

Table 1. Descriptive indexes of the research variables

Variable	Min	Max	Mean ± SD	Skewness	Kurtosis
Positive perfectionism	2.00	5.00	4.084 ± 0.562	-0.87	1.22
Negative perfectionism	2.00	5.3	3.430 ± 0.620	-0.06	-0.37
Ego strength	1.72	4.48	3.365 ± 0.577	-0.31	-0.23
Self-esteem	1.20	5.00	3.793 ± 0.731	-0.91	0.97

SD: Standard deviation

Table 2. Correlation coefficients between the research variables

Variable	Positive perfectionism	Negative perfectionism	Ego strength	Self-esteem
Positive perfectionism	1			
Negative perfectionism	-0.52**	1		
Ego strength	0.49**	-0.62**	1	
Self-esteem	0.35**	-0.59**	0.58**	1

**P < 0.01

The relationship between ego strength and self-esteem (0.58) was positive and significant. Moreover, the correlation value showed no collinearity problem among the predictive factors in this research (Table 2).

Lisrel path analysis method was used to examine the mediator role of ego strength in the relationship between perfectionism and self-esteem. Before the statistical test, the presumption of path analysis, including the linearity relationship among variables, variance homogeneity, residuals independency, or errors, was tested (Table 3).

As shown in table 3, there is no linear relationship among the variables ($R^2 = 0.72$; $F_{1,184} = 1025.96$; $P < 0.05$). Therefore, the variables are independent, there is no correlation among errors and residuals (D-W < 4), and variances are homogeneous. Therefore, it can be concluded that the path analysis presumptions were considered and the results were reliable. The model presented in figure 1 was examined after investigating the presumptions. The results showed that the variables of positive perfectionism, negative perfectionism, and ego strength predict 62% of self-esteem variance. A general schema of the suggested model, general fitting indexes, standardized and non-standardized path coefficients, regression coefficients, and t-values are presented in figure 1 (see Figure 1 and Table 4).

The standard parameter values for each factor show their factor load on the latent variable whose corresponding value (T > 2) shows their significant role in measuring the latent variable. As seen in figure 1, the direct effect of positive perfectionism on ego strength (0.54) was positive and significant, the direct effect of negative perfectionism on ego strength (-0.32) was negative and significant, and the direct effect of ego strength on self-esteem (0.27) was positive and significant. Moreover, the indirect effect of positive perfectionism on self-esteem by the mediator role of ego strength (0.14) was positive and significant, and the indirect effect of negative perfectionism on the mediator ego strength (-0.09) was negative and significant.

Table 3. Presumptions of path analysis

Test variable	Positive perfectionism	Negative perfectionism	Ego strength	Self-esteem	Desirable value	Index condition
Variance homogeneity (Levene's test)	$F_{1,184} = 0.32$ $P > 0.05$	$F_{1,184} = 0.34$ $P > 0.05$	$F_{1,184} = 3.36$ $P > 0.05$	$F_{1,184} = 1.07$ $P > 0.05$	$P > 0.05$	Confirmed
Measurement level of variables	Interval	Interval	Interval	Interval	Interval	Confirmed
Residuals independency		D-W = 1.58			D-W < 4	Confirmed
Linear relationship		R^2 LINER = 0.72 $F_{1,184} = 1025.57$ $P < 0.05$			R^2 LINER > Log, cubic, inverse, quadratic $P < 0.05$	Confirmed
Theoretical non-linearity						Confirmed

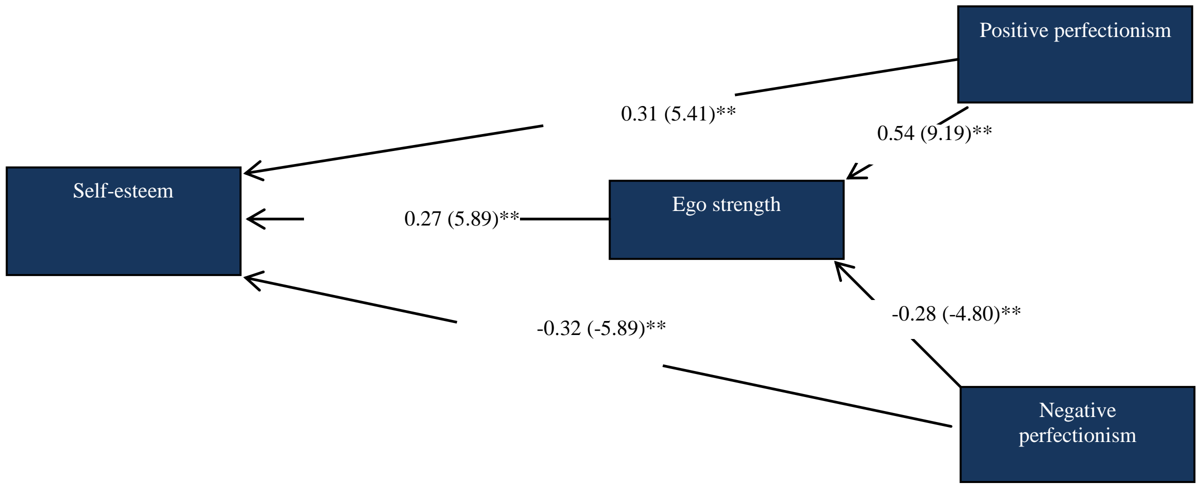

Figure 1. A model of the relationship between perfectionism and self-esteem with the mediator role of ego strength

Furthermore, the absolute, comparative, and parsimonious fitting indexes were tested. Path analysis test indexes of the model showed a desirable fitting model for data, and path coefficient and significant tests were found to be relied. The results related to the fitting indexes are summarized in table 4.

Absolute fit indexes of the suggested model covariance matrix were compared to the collected data covariance matrix. For example, if Sig > 0.05 in chi-square, it could be concluded that the model covariance structure was not significantly different from the observed covariance structure, and claimed by confirming H_0, which means H_0: $S = \Sigma$; thus, the model formulated by the researcher is generally confirmed, although some parts of the model may not be acceptable statistically. The absolute fit indexes were all confirmed, as seen in table 4.

Discussion

The objective of this research was to investigate the mediator role of ego strength in the relationship between perfectionism and self-esteem. The findings of this research showed the positive and significant relationship between positive perfectionism and ego strength, and the negative and significant relationship between negative perfectionism and self-esteem. These findings are in agreement with the findings of previous studies including those by Flett and Hewitt (2015); Besharat et al. (2014), Besharat and Tavalayeian (2016), Besharat et al. (2017). It can be claimed in the determination of the non-adjusted aspects of perfectionism (other-oriented and socially prescribed

Table 4. Model fitting indexes

Test variable	Index	Desired value	T-value of model
	Chi-square	Close to 1	1.55
		P > 0.05	P > 0.05
Absolute indexes	The goodness of the fit index	> 0.09	1
	Adjusted goodness of fit index	> 0.09	0.99
	Root mean square residual	Close to 0	0.008
	Tucker-Lewis Index or Non-normed fit index	> 0.09	1
	Normed fit index or Benthall-Bonnet fitting index	> 0.09	1
Comparative indexes	Comparative fit index	> 0.09	1
	Relative fit index	> 0.09	1
	Incremental fit index	> 0.09	1
	Parsimonious normed fit index	> 0.50	0.33
Parsimonious indexes	Root mean square error of approximation	> 0.05	< 0.05
	Normed chi-square	> 2	1.55/2 = 0.77

perfectionism) self-criticize a lot by characteristics of concerns about committing the mistake, parent's critic, others expectations particularly parents, and they prevent challenging and difficult situations for the failure panic. This group of people shows a negative reaction to failure. Thus, they are vulnerable to life events and challenges and have low resiliency. On the contrary, people with higher adaptable perfectionism (self-oriented perfectionism) enjoy difficult challenges and try to reach their goals by focusing on their assignments. Therefore, self-oriented perfectionists have high motivation, balanced expectations and demands, and lower vulnerability to difficult events.

Moreover, the results of this research showed a positive and significant relationship between positive perfectionism and self-esteem and a negative and significant relationship between negative perfectionism and self-esteem. These findings are in agreement with the findings of previous studies by Dunkley, Zuroff and Blankstein (2003), Slade and Owens (1998), Saadat, Shahyad, Pakdaman, and Shokri (2017), and Tolooee Qarachanaq, et al. (2015). In addition, these studies also reported a relationship between perfectionism and self-esteem. In explaining these findings, it can be claimed that positive perfectionism is obtaining positive consequences and includes the 3 components of self-esteem, satisfaction, and acceptance. In fact, self-esteem is evaluated as the principal component of positive perfectionism (Slade & Owens, 1998) and is tied to a positive sense of self-worth and attention to positive personal characteristics. A person with a rational expectation of him/herself determines goals within his/her ability which increases the objectives of self-worth, and thus, self-esteem. Therefore, according to Erikson, perfectionistic parents do not allow their children to express a sense of guilt, low-worth, and isolation. These children are afraid to express themselves, have low self-esteem, and do not participate actively in groups because of their dependency on their parents, and most of them live in isolation (Biabangard, 2011). Perfectionist parents dismiss their children's successes, and find it difficult to reward their children for their attempts. They are permanently making their children do better and reprimand them instead of confirming their behaviors. These children never feel validated because their behaviors are not sufficiently good to result in their parents' satisfaction. Thus, these children, like their parents, do not see their own successes and will never satisfy their parents (Missildine, 1963). As a result, their self-esteem is threatened.

Conclusion

According to the findings, the direct relationship between self-esteem and ego strength is positive and significant. Moreover, the indirect effect of positive perfectionism on self-esteem by the mediation of ego strength (0.14) is positive and significant, and the indirect effect of negative perfectionism on self-esteem by the mediation of ego strength (-00.09) is negative and significant. This result is in agreement with the results of previous studies (Tolooee Qarachanaq et al., 2015; Karami Khajelu, 2015). Resiliency, as the principle factor of ego strength, promotes self-esteem in people by facilitating out-expressing positive emotions and reducing negative emotions. Moreover, people particularly adolescents who can face life challenges rationally and move toward successes through an accurate path with high resiliency have a sense of satisfaction about themselves and high self-esteem. This requires the support of relatives particularly parents and that parents not disturb this process. In fact, positive perfectionism increases the sense of competence in adolescents by reinforcing self-esteem so that they can use their maximum capacities; however, negative perfectionism reduces the sense of competence in adolescents. In addition, ego strength shows an individual's attitude

toward problems, measured and coherent reaction toward crises, clarifying ability, and individual adaptability and can play a mediator role in the relationship between perfectionism and self-esteem.

Limitations and suggestions: This research had some limitations. The present study was a correlational research; thus, the causal relationship is not obtainable. Moreover, this research was only conducted on girl students; therefore, the generalizability of its results is limited.

Therefore, it is suggested that this research be conducted on a larger statistical population in future studies. Moreover, it is suggested that this research be conducted on other social classes particularly university students in various cities. It is also recommended that the mediator role of other psychological components such as ego development be examined.

In subsequent studies, the relationship between perfectionism and low self-esteem can be assessed and "self-depletion" be evaluated. Findings on these relationships can be used in psychological interventions to increase ego strength and self-esteem.

Conflict of Interests

Authors have no conflict of interests.

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