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Mental State and Life Experience of Chinese Students in Germany: An Exploratory Study

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Theoretical Study

Abstract

Chinese students in Germany suffer from various factors. They also have to adapt to the daily life. There is little known about these issues of Chinese students. Thus, an independent group of Chinese and German experts started an exploratory study on this situation. There were three general aims:
1- to get a better understanding of the situation
2- to create guidelines for the better support of the students
3- to better understand transcultural communication on the field of research
The present paper describes and comments on the architecture of the research. It also describes some typical issues of transcultural communication. Moreover, it tries to contribute to a better cooperation between the Chinese and German cultures.

Keywords: Chinese students; Germany; Exploratory study; Action research; Transcultural communication

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Introduction

Experts in universities as well as the Chinese Embassy have reported that they have met many Chinese students with various psychological and mental problems in Germany. Yet, very little is known about the cause of this issue. Usually, Chinese students do not look for specific psychological support or psychotherapy in Germany. This is due to various aspects. Mostly, Chinese students try to solve problems by themselves. Moreover, they do not know where to seek support or psychotherapy in Germany, and more importantly, Chinese students cannot find specific support in their own mother tongue.

Therefore, we, a group of Chinese and German psychotherapists and researches, decided to perform this specific exploratory study to obtain a better understanding of the mental state of Chinese students in Germany.

We present the specific design of the study for professional discourse because such a transcultural research connected with the Chinese culture is quite new in Germany, and it can be proofed as a possible role model. Thus, we decided to present the study in the form of a "learning history".

A "learning history" is a process and documentation to help become better aware of one's own development, learning, and change efforts. It presents one's experiences and understandings of one´s own relation to a new field of experience. It includes reports of actions and results. It shows how my learning is an approach to becoming familiar with what I do, where I do it, and with whom I do it. It also illustrates how I achieved the results.

The "learning history" also includes descriptions of learning methods and techniques, intentions, tools, and the design of interventions. Finally, it includes descriptions of my underlying assumptions and reasoning, which help me perform psychobiographical analysis in an unfamiliar context. However, "learning history" goes beyond writing a history that documents the process of analysis. It serves as a critical element in developing my own architecture of research to support at the same time. This helps us create new opportunities, new approaches, new questions, and new hypotheses. The content creates a way to communicate with the readers and/or colleagues, referring to aspects which would not be seen and discussed otherwise. My leading questions were:

- How can I judge the success of my psychobiographical analysis as a change effort?
- How can readers and/or the analyzed celebrity benefit from this experience?
- What kinds of opportunities for success and/or potential for failure arise in this process?

Exploratory research has several functions. These are essentially:

- Chinese students in Germany:
- First focused research on the situation of Chinese students in Germany
- Definition of guidelines for offers of help and support
- Communication with DAAD, universities in China and Germany in this regard, the Chinese Embassy, etc.
- Medium-term development of concrete support offers, internet platform, etc.
- Transcultural communication and cooperation in the field of science between Germany and China
- Improvement of the exchange of experiences on the Sino-German science exchange program (What helps? What makes it difficult? What are the lessons learned?)

- Exemplary application of the different experiences with action research, qualitative studies, different understandings of transculturality, second-order observation, science discourse, etc.
- Identification of typical models of thinking, patterns of behavior, and fields of tension
- Outline of quintessence and central questions for future Sino-German projects.

Chinese students form the largest group of foreign students in Germany (from non-EU countries). They are more or less well prepared linguistically for their stay in Germany (DAAD, Statista). They are also well informed culturally. They make use of social and cultural offers, and yet, they often feel unfamiliar in Germany. It is not uncommon for them to feel lonely or homesick. One possible solution is therefore to find familiar protection and communication in Chinese groups. Another is to seek psychological help/support. However, these students rarely seek psychological support.

Chinese students are therefore in a very specific life situation, which is characterized by considerable pressure, such as:

- Pressure to perform, due to Chinese socialization
- Pressure from their families
- Pressure due to the foreignness of the language and culture as well as the living situation in Germany
- Pressure due to relative isolation, loneliness, problems meeting the demands of the culture, life, and studies as well as pressure to perform.

Even before the Corona crisis, many of the students complained of anxiety, depression, and loneliness, and some even had suicidal fantasies. Dropping out of studies and returning to China prematurely are not uncommon.

However, where can Chinese students find appropriate culturally-adequate and psychologically-professional help in Germany?

This issue has been further complicated by the Corona crisis.

Content

The qualitative, exploratory project had two aims: The first was to promptly determine Chinese students' experiences of their living and study situation in Germany before the Corona crisis and now. What are their specific difficulties?

The second aim was to derive central guidelines as well as relevant and specific support and counseling services from the results. The aggregated results will be communicated to higher education institutions, DAAD, student counseling, the Chinese embassy, representatives of Chinese universities, etc.

Methods used include:

- Online-questionnaire
- Exploratory, narrative interviews (online) with Chinese students (in Chinese and English)
- Reference to specific typical cultural patterns of behavior and impact
- Qualitative review (Aghamanoukjan, Buber & Meyer, 2009) of texts by students who report on their stay in Germany (more than 70 such texts are now available)
- Some in-depth interviews.

How did the study come about?

My work in China, or an ethnologic voyage of discovery

From the beginning, it was important for me to meet the people in China with whom I relate professionally and privately in different ways, and to get to know them in their everyday life, in their individual living environment, insofar as the circumstances allowed. From the beginning, I have reported my experiences in a

journalistic way.

Similar to an ethnologist, I embark on a journey through the everyday life that I encounter during my on-site visits. For example, on my first visit to Beijing, I spent a whole week walking through Beijing. What was important to me was the sensual experience, namely seeing people, observing them, watching them, and letting myself be impressed by the impressions. During the ethnological walk, for example through the hutongs in Beijing, I also wanted to smell, hear, and feel, so that I was not just acquiring visual knowledge, but practicing "sensed-knowing", in the sense of "felt-sense"(Sollmann 2018).

For me, encounter meant, and still does today, venturing on a scenic journey of discovery together with the people I meet, getting involved in the adventure of the unknown in order to engage with them in a shared process of experiential learning entirely in the sense of a "p2p diplomacy" (people to people) (Sollmann 2021).

I distinguish such a transcultural process from intercultural and multicultural processes (Nazarkiewicz & Kramer, 2012; Frietsch & Rogge, 2014; Halbmayer, 2022). (Figure 1).

3 Approaches for Working with Cultures*

Perspectives	Intercultural	Multicultural	Transcultural
Culture appears as...	Challenge for intercultural learning	Part-system, interference in the expectations	Undetected prerequisites for interaction and identity
Culture concept	Essentialist: Countries, nation states	Systemic: Game rules, patterns	Cohesive: Differences and diversity
Methods	Teaching, advising, training ▸ Apply and adapt	Use of models for the reflection and detection of values ▸ Reflect and test	Deconstruction of all preconceptions, images of normality and power asymmetries ▸ Consider cultural and diversity factors on all levels of activity
Intercultural competence encompasses	Knowledge and techniques	Ability to reflect and flexibility	Competences and personality development
Advantages	Recognition of cultural factors	Multiple perspectives	Essentially difference and equality oriented
Role and particular competences of the expert	Promotes intercultural competence as cultural expert; trains and recommends	Broadens perspectives, choices and options for actions, provokes and intervenes	Assesses collaboratively which identity factors and boundaries are relevant
Challenges	Overestimation of cultural factors	Lack of (inter) cultural expertise	Limited reach of individual influence

*Source: Nazarkiewicz/Krämer (2012): Handbuch Interkulturelles Coaching. V&R.

Figure 1. 3 approaches for working with culture (Nazarkiewicz & Kramer, 2012)

Compared to the acquisition of a language, intercultural communication is analogous to the acquisition of vocabulary and concepts (e.g., how to hand over a business card). Multicultural communication, analogous to the acquisition of a foreign language, is about the acquisition of grammar (rules of communication and relationship, cultural presence, etc.). Finally, transcultural communication is comparable to linguistic and non-linguistic exchange in the field and with people in their neighborhood and real life whom I do not know. It is precisely this kind of communication that is also about being open and awake to what is written between the lines or becomes audible through intermediate tones. Finally, it is above all about the emotional resonance in me as well as the possible emotional resonance in my counterpart (compare the concept of the transference relationship in psychoanalysis and also Devereux, 1976).

Chinese students in Germany: first impressions

It is not surprising that in my work, on site in China, I was particularly attracted to topics such as personality development, education, experiential learning, and communicative exchange of cultures. Since I had contact with Chinese students here in Germany, I learned about the difficulties of many Chinese students in Germany long before my first trip to China. Later, in China, this experience was reinforced. This impression was confirmed by a tip from Professor Zhao Xudong and an employee of the Chinese Consulate in Düsseldorf. Both expressed their great concern about the mental health of Chinese students in Germany. They also expressed their even greater concern about the fact that as professionals they were still quite inexperienced in dealing with this specific situation. “So, what are we to do?”, they asked. “How should the students' psychological distress be addressed? What could be done to support the Chinese students in Germany or to better prepare them in China?”

Through my interactions with Chinese students in Cologne as well as my communication through social media, I vividly learned about concrete examples and fates:

- A young student studied successfully, but felt increasingly lonely, even though she was well socially integrated in Cologne. Finally, homesick, she broke off her studies to fly back to Shanghai. Her parents had divorced in the meantime and she was therefore unsure whether she could return to her father or her mother. In any case, she was convinced to leave Germany and return to China. Even if she did not return to the "protective" family as before (her father and mother were living separately). What kind of distress must this young student have been in to take such a step?
- A young opera singer was studying in Cologne. His singing was excellent. His German professor therefore tried to teach the young Chinese the importance of personal expression in singing. In Germany and in Europe, one would perform oneself as a singer through personal expression. In the evening, the young student communicated with his mother, who unapologetically wanted to impose her own view, namely the Chinese cultural view, on him. This was not atypical for a Chinese mother, forceful, energetic, and with the necessary amount of pressure. He should work on his singing to perfect it, because that is what is wanted and required in China.

The young student was obviously in a deep dilemma for which he had not been prepared at all, in an almost unsolvable emotional, transcultural dilemma.

I also started communicating via social media with colleagues, former workshop participants, and people I did not know in China who contacted me by WeChat. The topics of our conversations were very different. With some of them, an email

friendship developed that has lasted for years now, involving the exchange of very personal, cultural, social, and political topics. Here is an example:

Triggered by a post, I was approached (circa 2015) by a group of young students who studied at a police academy. Over time, the young Chinese took the opportunity to discuss general topics of psychology with me, which increasingly led to very personal conversation with some of them. They told me about their attitude to life, their questions about the future, doubts, and wishes. They told me about difficulties in their relationships, about their puberty, about love and sexuality, and about the integration of love, marriage, career, but also divorce. Their joy at being Chinese always resonated.

You could say that these years of experience indirectly prepared me to a certain extent to deal with the situation of Chinese students in Germany in a targeted, specific, and differentiated way.

General research approach (Kuhn, 1970; von Unger et al., 2007; Zizek & Genschow, 2014)

Without intending to do so, I myself, and later in exchange with interested colleagues, had already begun an exchange process that, entirely in the sense of action research, would lead us to the topic. Long before the questionnaire went online, we were already in the middle of the action and acted as (co-)shapers. Understanding such a research design is rather unknown in China. If known, however, there are then clear uncertainties in role behavior. We experienced the discovery of topics together as an important part of the research process itself right from the beginning. We will go into this in more detail later in the final evaluation in 2022.

We therefore worked our way forward step by step, modifying, discarding, supplementing, and confirming the respective results of our exchange, in order to finally outline a rough structure for the procedure (project architecture):

- Life field analysis
- Content analysis
- Analysis of self-descriptions
- Virtual communication
- Exemplary situation analysis
- In-depth analysis

The transcultural communication of this action-research-project opened up important and relevant issues like:

- Difference between deductive and inductive approach (Gendlin 2012)
- Different understanding of action-research
- Self-reflection as an independent researcher
- Clarification of self-understanding, role, and function as researcher
- Different modes of "experience" (post-experience, pre-experience, and in-situ-experience)
- Handling of direct action and/or optional action

Thus, transcultural communication is like giving birth together and co-creating a relevant story.

Basic questions in the process of research

- How should the interplay of emotionality and professionality be handled?
- How should tension for example between announcement of transparency and practical doing be handled?
- How should the different understandings of dialogue, debate, discourse, etc. be

dealt with?

- How can we stay focused on the topics of research and be open enough for the personal "well-being" of the team?
- How can the team be adapted to ambiguity so that they can stay open to juxtapositions?
- How can frictions / conflicts / ambivalences be used to support cohesion?
- Do I have to be Chinese in order to do this kind of study or not?
- How can I stay open enough to the process so that a possible cultural clash does not lead to the "either you or me" / "I am when you are not" mentality?
- How can I create a "Third Space" which offers professional and personal shelter/safety?

A basic conclusion was: This kind of research is like an endeavor made every day and every moment with everybody. This is the opportunity that this scientific approach provides because right away it puts you in touch with life as it is.

Project team

The project idea, conception, and operative implementation turned out to be, one could almost say, a process of shared experience with colleagues of different provenance and cultural experiences (Germans and Chinese). On the one hand, this process led to a more differentiated view of the topic. On the other hand, this process itself acted as an independent, significant component of the planned exploratory, transcultural approach.

The interaction of the participants in the project was characterized by three aspects, which brought together the respective active participants in different weights:

- Interested persons enriched the project in the run-up to the start of the actual survey through providing examples, questions, opinions, additions, and views.
- The members of the more active core participated based on the situation or occasion, directly and concretely, but changed during the process.
- Other persons were available in the background for specific questions, suggestions, and criticism. Some of these people also promised active assistance in the future course of the project.

The group of people involved was thus not firmly defined and anchored. As a rule, there were also no fixed assignments and roles. One took on a task and gave it up again. In retrospect, it can be said that the process meandered until the end of the online questionnaire (May 2021), resembling a steady state. Such a procedure is very different from the way project work is usually done in Germany. As a rule, there are clear goals, tasks, roles, responsibilities, timelines, and so on right from the start.

Resonance In the run-up to the survey

The exchange of information and the shaping of relationships, as a different kind of resonance in the run-up to the start of the survey, were interesting in many respects:

- Everyone with whom we exchanged information about the topic of the study was consistently interested and emphasized the importance and relevance of the study. The project team sees itself as an independent team, especially in this respect.
- As the study is carried out consciously pro bono as a non-profit study, we do not have any financial resources to rely on. However, financial resources are absolutely necessary, even if only in a small amount, to guarantee the technology, to perform the necessary translations, to cover possible travel costs, and so on. We therefore tried to obtain such resources through social crowdfunding. Since Chinese students are very internet and social media savvy, and the survey was also designed as an online survey, we launched a call for social crowdfunding on the internet. We

explained this in great detail, justifying the call for social crowdfunding as an effort for Chinese students to support each other. Indirectly, we appealed to individuals' sense of community, since they could have a good friend in the group of Chinese students who complained of psychological difficulties. We did not ask for financial support, but only for active support, i.e., willingness to translate some of the answers to the survey.

Unfortunately, this call did not receive much response, and had no success. Only one PhD student was willing to do some translations. We know that there are crowdfunding projects in China, but we are not sure with which tradition they are started and successfully finished, and how familiar the Chinese society, the virtual community, is with crowdfunding, especially in relation to a Sino-German project.

Another explanation for the silence may lie in a more culturally determined pattern of behavior. Our crowdfunding was related to a cause that was planned in the mid-term future (we had launched the appeal in March and hoped for support from June onwards). However, many Chinese are more likely to be attracted to an active (co-)impact that lies in the immediate present, in the here and now.

- Contrary to our fear, the search for translators turned out to be very easy. After all, the previous call for "social crowdfunding" came to nothing. There was mostly no response and the occasional apology plus rejection.

However, I found translators for all the questionnaire packets within a few days. After three days, one third of the translators responded with their translation. We were successful because:

- We related to the here and now
- We asked them for a timely response
- We linked to existing relationships
- We referred to the "give-take principle"
- We could communicate successfully because of trustful recommendation

Quite a few of those we approached expressed their keen interest and apologized for not being able to participate. In the correspondence regarding the request, there were therefore more reciprocal responses. Now, is this typical Chinese, typical for such a designed exploratory study, and/or an expression of "contemporary" virtual communication?

- At the end of April 2021, in one of the social media groups (WeChat), there turned out to be a spontaneous and surprisingly heated discussion about the architecture of the study, the procedure, the scientific attitude, and so on. The group/forum in question saw itself as a self-organized communication platform, primarily for Chinese students in Germany, aiming at cultural, social, psychological, and philosophical discussion. Of course, Chinese individuals living in China and interested Germans were also invited. The forum also offers special webinars, discussion groups, references to literature, and so on. In practical terms, the web group also fulfilled the function of a virtual home. In the first year (2020), there were various webinars on special topics such as gender, intercultural communication, tea making ceremony, and ecology. German experts were also regularly invited to these webinars (I myself was invited on topics such as transcultural communication, traumatization, gender, etc.). These webinars turned out to be an engaging and fruitful discussion circle in which representatives of the German and Chinese cultures could engage in professional as well as personal discourse. These intercultural webinars were discontinued at the beginning of 2021. Since then, there have only been Chinese-language events in various forms.

In the transcultural wild water of Síno-German communication

Some typical areas of tension and questions that have emerged in the first two years are presented in this section. A specific description and evaluation will follow in a publication of the results of the study in 2022:

- How can the interplay of emotional enthusiasm and professional exchange be fertilized in such a way that possible conflicts remain workable?
- Scientific discourse in the context of an exploratory study requires a great deal of exchange, (self-)reflection, and reciprocal communication without immediately (and hastily) going into action. This requires a practiced experience in the tolerance of ambiguity. This requires sensitivity to other opinions, positions, or cultural patterns. This also requires a corresponding appreciation without interrupting or breaking off communication or cooperation in the case of a field of tension.
- How do you deal with the tension between an announcement, e.g., regarding transparency, and a different practice? When and how can this be discussed?
- How does one deal with different understandings of dialogue, debate, discourse, etc.? What cultural experience (familiarity) is there in this regard?
- How can sufficient cohesion be created to productively deal with the ambivalences and frictions that arise?
- Such cohesion promotes good interaction between the discussion of the subject matter and an interaction with each other that also creates sufficient satisfaction.
- A typical area of tension arose in this respect when two cultural patterns of experience and action clashed. When strong emotions arose in the cooperation, the Chinese side had the impulse to suddenly break off communication and cooperation. The German side often thought it had been "too long", believing that their Chinese colleagues would also think like them. The unconscious emotionality of this tension can be summarized in the sentence: "Either you or I" or "I am when you are not".
- In order to be able to deal with the experience of the situation of Chinese students in Germany, do you have to be Chinese or not? As a German, can one deal with the experience of Chinese students in such a study without having a broader, prior understanding of patterns of experience and behavior typical of China?
- When one can talk about such irritations in academic discourse and typical cultural patterns, a "third space" emerges (Bhabha, 2017). This can become an important space of experience, insight, and transcultural exchange if the following perspectives/concepts, among others, can be used:
  - o Projective identification
  - o Dealing with triangulation
  - o Second-order-observation
  - o Reciprocal communication
  - o Dealing with juxtaposition
  - o Tolerance of ambiguity

The more this can be incorporated into the exchange, the more likely it is that this "third space" will become a protective space, which nourishes and enriches transcultural scientific research.

Outlook

Other results of the questionnaire will be published in spring 2022. The final results and guidelines for support will be published in autumn 2022.

Conflict of Interests

Authors have no conflict of interests.

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A Family-Based Model to Prevent Sexual Violence on Children

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Qualitative Study

Abstract

Background: In the globalization era, parents need to put more effort to fortify children against sexual violence. There are several cases of sexual violence that are mishandled due to shame, taboo, and parental ignorance. Therefore, this study aims to develop a family-based model to prevent sexual violence against children.
Methods: Three cases which have occurred in Indonesia became as reference, namely Garut, Sukabumi, and Tangerang. The model development was divided into two phases including the scheme and its validation. This research involved housewives and children (33 families), the Integrated Service Unit (UPT) of Rancamanyar, Mitra Citra Remaja PKBI, Tabu Indonesia Berdaya Foundation, and the National Population and Family Planning Agency (BKKBN). A 'Model Peduli Utama' (Delima) (the primary caring model) was employed to prevent sexual violence against children.
Results: Delima integrated the need for sexuality education, because it formed family resilience as social capital.
Conclusion: This model increases parents' knowledge and awareness, promoting them to attend to children's privacy. Moreover, it becomes stable because it provides a safe environment for the youth.
Keywords: Delima; Family; Indonesia; Preventive effort; Social capital

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Introduction

Currently, social media becomes a medium for spreading different influences on children (Ersoy, 2019). This is because it exposed the youth to the digital world through affordable prices of smartphones and data packages. Social media negatively affects children while there is no meaningful supervision from parents. According to Cataldo et al. (2020) and Schwarzer et al. (2022), it not only triggers deviant behavior, but also sexual violence. Previously, social media was based on text but later shifted to images and videos-based era. This brings about violent and pornographic content which negatively affects the youth's development. Therefore, parents are required to protect their children from the bad influences of social media and the digital world (Bryant, 2018).

The study by Cutas and Smajdor (2017) showed that families had to perform their role by instilling the societal values and norms in youth. Parents as the main protectors need to ensure the children's safety against deviant behavior. Meanwhile, social media exposes the youth to pornographic content while there is no meaningful supervision from families. This inappropriate content enables children to engage in deviant behavior (Cankaya & Odabasi, 2009; Laili, Puspitawati, & Yuliati, 2018). Pornography causes children to be powerless while being abused, because they are not aware of different forms of sexual violence; it often occurs in harmless environments including educational, religious, and social circles.

Furthermore, sexual violence causes traumatic effects because it promotes sex addiction and the repetition of similar events in the future (Debowska, Willmott, Boduszek, & Jones, 2017; Koçtürk & Bilginer, 2019). The victims often experience post-traumatic stress disorder (PTSD) such as nightmares, social suspicion, limitation to their environment, self-harm, strong urges to suicide, and drug addiction (Nurbayani, Dede, & Malihah, 2022). This protection against sexual violence is not only the role of a legal practitioner but also the family to ensure that children are always vigilant while hanging out in the digital world. In developing countries, family conditions and illiteracy become the main challenges for this protection.

Previous studies showed that sexual violence against children was closely related to family conditions, parenting, and intimate interactions. According to Anwar (2013), families need to ensure that there is a quality upbringing and education for the youth in society. Even though parents allow someone, who has potential as a perpetrator, to interact intimately with their children (Duncan, 2005; Quadara, Nagy, Higgins, & Siegel, 2015). The suspects often give the children special treatment including food, gifts, and money, to enable them to get a positive self-image (Schoch et al., 2020). This study aims to develop a family-based model to prevent sexual violence. Besides, it examines the need for education and social capital because families are expected to protect their children against the negative influence of social media. This model can be a basis for families to apply parenting as a preventive effort; moreover, it has the potential to develop robust assessment instruments for victims, perpetrators, and neighborhoods where the sexual violence has occurred.

Methods

Study participants: Generally, the method used in this study focuses on strengthening a society where families assist to protect children against sexual violence. Li et al. (2018) showed that this model enhanced social capital. Therefore, families need to provide cognitive, psychological, and spiritual support for youths to overcome difficulties. The cognitive aspect helps parents to build relationships, communication,

and interpersonal trust (Hoffmann & Dufur, 2018). From 2014 to 2020, there are several cases of sexual violence against children in Tangerang, Sukabumi, and Garut, Indonesia, at the village level (Nurbayani & Dede, 2021). These cases were studied by authors and were inspirations for the model development, in which all parents of victims were interviewed in depth.

The model development involved housewives and children as representative of 33 families in Rancamanyar, Bandung Regency, Indonesia. Participants become interested in receiving information on sexuality education which they no longer identify as a taboo, whereas previously, there have been cases of sexual violence in which the perpetrators and victims were under the influence of social media. This information was conveyed by the Integrated Service Unit (UPT) of Rancamanyar, Mitra Citra Remaja PKBI, Indonesian Tabu Berdaya Foundation (Tabu ID), and the National Population and Family Planning Board (BKKBN). Furthermore, the agents in BKKBN GenRe Ambassadors assist in promoting children's knowledge and private space to minimize sexual violence. These contents become useful to promote stimulation, interests, and active participation (Crisogen, 2015; Pourkazemi, janighorban, Mostafavi, & Boroumandfar, 2020). Every participant has been aware of this scientific effort and they have provided informed consent. Researchers were also obliged to protect all identities and the subject itself.

Model development: This study used a family-based model to prevent sexual violence against children. Moreover, it aimed to know the effectiveness of this method (Nobelius, 2002; Richey & Klein, 2005; Mohajan, 2020). The article is divided into two phases including the scheme and its validation. Meanwhile, the scheme consists of 3 parts including: 1) analyzing the informant's needs, 2) formulating tentative guidance, and 3) developing a method in line with the desired achievement. Model validation continues to strengthen the relationship between children and their parents through education, content screening, and family protection against sexual violence. Moreover, it targets the social components that influence youth experiences including societal bonds, educational institutions, and peer groups.

Results

The need for comprehensive sexuality education: Indonesian's awareness of sexuality is still low because people view and assess it as behaviors related to intimate organs (Pakasi & Kartikawati, 2013). Meanwhile, sexuality includes privacy, mental and physical health, social cohesion, as well as interpersonal relationships. At first, society believes this study model is taboo but later develops an interest in it. This is because the method assists in preventing sexual violence against children. Society often judges that sexuality education is only for those that are married (Madasari, 2021; Mohseni, Riazi, Nasiri, & Karimian, 2022). In Indonesia, the cases of sexual violence that occurred stimulate the people to seek relevant information. There are several sources of information from cyberspace and electronic media to ensure that society gets the proper knowledge that is fact-based, free of bias and hoaxes.

Parents' education level helps to determine people's ignorance about the importance of sexuality. According to Nurbayani et al. (2022), sexuality which can occur through friends accidentally affects children. Indirectly, families without this knowledge cause youth to be vulnerable to bad influences. This study showed that there were several elements including: (1) knowing the children's daily activities, (2) providing knowledge about personal privacy, (3) identifying the children's friends, (4) understanding their social group, (5) willing to accept complaints and reports, as

well as (6) complementing the family role. These components create awareness for the parents to protect children from sexual violence which is commonly performed by pedophilia. The cases that occurred in Garut, Sukabumi, and Tangerang showed that these elements were incomplete or missing. This is because the cases caused health problems, trauma, predatory cycles, drug abuse, and the spread of diseases to victims and society (Chen et al., 2016).

Sexual violence against children does not only occur in urban, but also the rural areas. The main difference is that there is no criminal prosecution and proper trauma caring for victims in the rural setting. This phenomenon shows that comprehensive sexual education is needed in all societies. Meanwhile, society in the urban areas fails to always show sensitivity to youth's caring. Collin-Vezina et al. (2013) and Srivastava et al. (2017) indicated that children failed to report sexual violence to their families because they were weak. Therefore, forming social awareness becomes the main capital to tackle sexual violence in society.

Family resilience as social capital: The development of social capital and model becomes a challenge for a society that is not concerned with proper and adaptive child care against sexual violence. Most parents without sound education failed to know if their children were vulnerable to this harassment or not. However, families believe that it is normal for the youth to intensively interact with adults in the society. Featherstone et al. (2019) showed that suspects of sexual violence were the closest people to the victim. Most parents find it difficult to be aware of this act because they fail to give children extra attention; many fathers and mothers act as breadwinners for the family (Nurbayani et al., 2022). Meanwhile, families are not fully aware that permitting youth to hang out without proper supervision creates a high potential for them to be victimized. The victims perceive that the perpetrator is a loving, trustworthy, and caring playmate. According to Octaviana (2019), children fail to realize that they are smaller in age than the perpetrator.

The victims of sexual violence are afraid of reporting the incident to anyone because the perpetrators make effort to threaten and pressurize them. According to Nurbayani and Dede (2021), children failed to understand the violent acts due to their obedience to the culprit. The perpetrators performed the sexual acts because they were once a victim and were carried away by pornographic images and videos. Figure 1 shows that education is needed to build a family that is resilient to the threats of sexual violence.

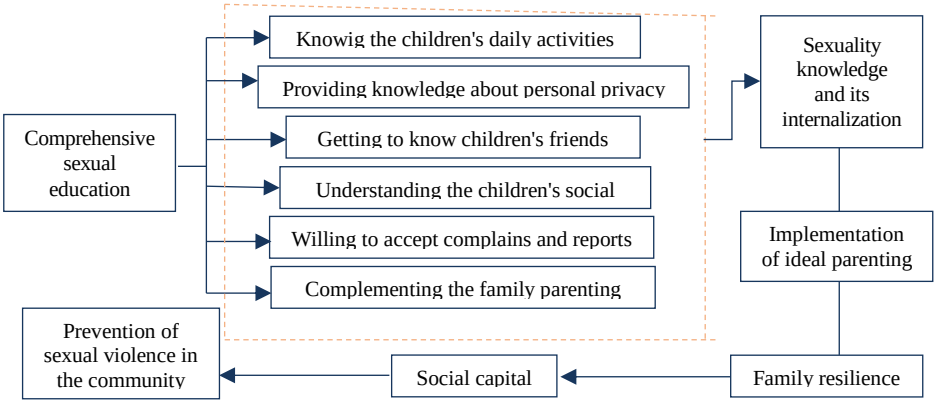

Figure 1. Sexuality education creating family resilience

Therefore, this resilience tends to become a social capital while parents are knowledgeable and ready to apply ideal styles for their children. This social capital needs to gain full support from society and related stakeholders to enable families to provide a more open communication space for the youth.

Model Peduli Utama (Delima) (the primary caring model): This study used a family-based model which enables parents to physically and mentally prevent children from sexual violence. The method is also called 'Model Peduli Utama' (Delima) which the English meaning is the primary caring model. Figure 2 shows that Delima able to restore the family role and status in the realm of education. This is to promote the emergence of common goals between parents and children. Tailor et al. (2014) showed that socialization including internalization and shared goals assisted in arousing family sensitivity to be more aware of their environments. This model is an effort to restore and strengthen the role of parents. Furthermore, this model enables the family to have proper parenting knowledge to protect their children against sexual violence.

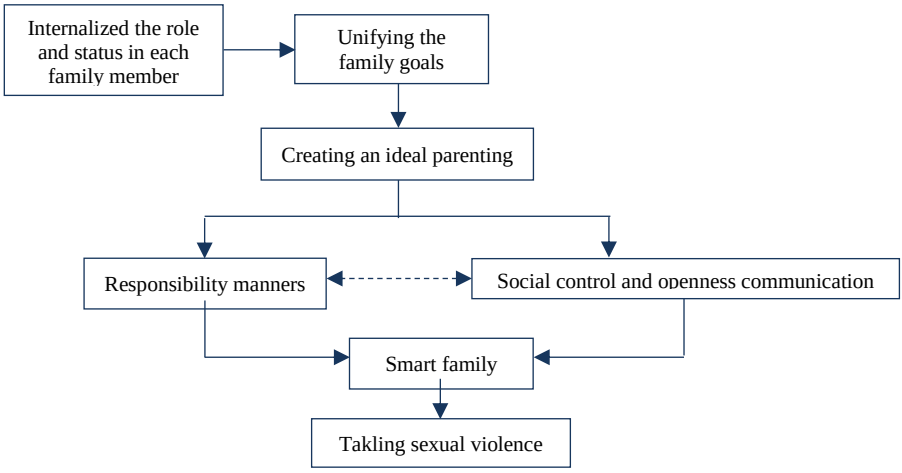

Figure 2. Scheme of Model Peduli Utama (Delima)

Discussion

Delima is a series of efforts and processes to form smart families in educating children. The validation results showed that people who accepted this model realized their role over the youth. This enables the supervision of children to be in the form of prohibitions and orders. The model enlightens parents that information and openness lead to effective communication. However, society becomes enthusiastic about different outreach and mentoring activities because it has a way to convey information to the youth. Delima aims to enhance parenting patterns and goals in managing children. Therefore, families become more responsible and empathetic because they provide an open space to discuss the privacy realm with the youth. Social capital becomes stronger to overcome sexual violence if all parents emerge this awareness. Furthermore, social capital is a great resource because it forms beneficial and lasting interactions among individuals, families, and their activities (Iyer, Kitson, & Toh, 2005; Berzina, 2011; Mačerinskienė & Aleknavičiūtė, 2011).

Family is a network agent for children to be aware of sexuality knowledge.

Economy, blood, and clan ties are other factors that affect the size of social capital. According to Anderson (2014) and Bzostek and Berger (2017), single-parent families cause parenting not to work well because their non-ideal structure greatly affects children. The model can be a reference for people to establish a new family after marriage. This is useful for establishing ideal matrimonial relationships, including the division of roles within the family (Sharbafchizadeh & Sadeghi, 2021). There are four components of social capital including prestige, property, education, and power to protect the youth against sexual violence. Delima aims to strengthen education and power because it enables people to be knowledgeable and forms collective awareness, which the underprivileged groups find difficult to obtain. Further, it has a long-term goal of protecting children against harassment in society. This study has limitations because the model is only based on the testimonies of participants - qualitative approach.
In the future, it is necessary to develop instruments that are valid, reliable, and robust to know the effect of 'Delima' on families, children, and the neighborhood by involving many participants in several locations. In addition, this model can be incorporated into the educational content at the elementary and junior high school levels in Indonesia.

Conclusion

Most cases of sexual violence showed that youth's lives were not safe because they were easily swayed by the perpetrators' persuasion. Meanwhile, children failed to realize that the culprit was the closest person that was supposed to protect them. Families play an important role in providing insight into self-protection, private space, and selecting peer group. Therefore, parents and children need to build social awareness to protect themselves from sexual crimes. The lack of social capital greatly affects youths' upbringing because it allows them to be victimized. This makes Delima become an option in linking family roles and functions due to their experiences. Parents need to put more effort to protect children against sexual violence in society. Further study is needed to assess the significance of Delima in urban and rural settings.

Conflict of Interests

Authors have no conflict of interests.

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Emotional Schema Therapy for Social Phobia in Medical Students

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Quantitative Study

Abstract

Background: Metacognitive beliefs are associated with various psychological pathologies in social anxiety disorder, thus necessitating psychological therapies in individuals with social anxiety symptoms. The current study was conducted to investigate the efficacy of group training in emotional schema therapy on metacognitive beliefs.

Methods: The present study was a quasi-experimental study with a pretest-posttest design and a control group. The statistical population comprised all students with social phobia who attended the University of Surabaya and Airlangga University between 2020 and 2021. Through a multistage cluster sampling strategy, 80 students were chosen at random from a statistical population of 143 individuals. For this purpose, the Social Phobia Inventory (SPIN) and 5-DSM were administered. Analysis of covariance in SPSS software was used to evaluate the intervention's effectiveness.

Results: The mean posttest score differed significantly between the intervention and control groups ($F = 8.46$; $P < 0.05$). Moreover, positive beliefs changed the most (25.7%), while the need to control thoughts changed the least (15.21%).

Conclusion: Emotional schema therapy has effectively reduced symptoms of social phobia and improved medical students' social communication abilities.

Keywords: Metacognition; Phobia; Social anxiety disorder; Schema therapy; Emotion-focused therapy

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Introduction

Humans are social beings with a constant need for social, emotional, and material communication; however, this connection is not easily accessible to all individuals. Anxiety is a common experience that affects social, personal, and educational domains and ranges from low to high in severity (Samantaray, Kar, & Mishra, 2022). However, a moderate level of anxiety can be advantageous because it heightens a person's awareness of danger and the importance of taking action (Amiri-Moghadam, 2019). In contrast, a phobia is not only a weakened response, but also a source of failure and widespread despair (Brook & Schmidt, 2008). Phobias limit a person's options, reduce adaptability, and cause various anxiety disorders, including cognitive and physical disorders, irrational fears, and panic attacks. Social phobia creates numerous difficulties in interacting with other members of society (Voncken, Dijk, Stohr, Niesten, Schruers, & Kuypers, 2021). Social phobia is characterized by extreme anxiety in social situations. These individuals with social phobia fear that, in social situations, they will attract the attention of others and be negatively evaluated by them (Tully, Cosh, & Baune, 2013). This severe anxiety develops into a disorder known as social phobia, with an extreme and persistent fear of social situations in which one's performance may cause embarrassment. Facing the dream prediction of these situations that trigger an immediate anxiety response, the individual realizes that their fear is irrational, that they avoid these situations or tolerate them with great trepidation, and that anxiety interferes with their functioning and social relationships (Zhang, Chen, & Ma, 2018; Sfeir, Saliba, Akel, Hallit, & Obeid, 2022).

The defining characteristic of social phobia disorder is the fear of being observed and evaluated by others. People with social phobia dread saying or doing anything in social situations that will attract the negative attention of others. Social phobia is a chronic anxiety disorder characterized by a fear of being humiliated in social situations and avoiding these situations (Watkins, Blumenthal, Davidson, Babyak, McCants, & Sketch, 2006). The disease can impose restrictions on the patient's way of life, significantly impact significant life decisions, and in many cases result in the loss of numerous important opportunities. This disorder typically results in lengthy incapacity, and sufferers experience severe impairments in their daily work, and social and occupational relationships (Becker, Orellana Rios, Lahmann, Rucker, Bauer, & Boeker, 2018). According to estimates, about 50 to 80% of patients with this disorder have at least 1 other mental disorder (Alfano & Beidel, 2011). Social phobia is associated with other anxiety disorders, depression, alcoholism, and various personality disorders, including avoidant personality disorder. In recent years, this disorder has been regarded as a significant disorder in public health (Bitsika, Sharpley, & Heyne, 2022).

Several factors have been proposed in recent years to explain the persistence and aggravation of social phobia symptoms. Metacognitive beliefs describe a variety of interrelated factors. In addition, they include any knowledge or the cognitive process involved in interpreting, reviewing, or controlling cognitions associated with different forms of psychological pathology in panic disorder (Merikangas, Avenevoli, Acharyya, Zhang, & Angst, 2002). The processing style created by a person's metacognitive beliefs leads to the formation of negative thoughts and ideas about themselves. It facilitates the stabilization of the disorder's symptoms by the person and their environment. Due to the complexity of negative metacognitive beliefs as the cognitive cause of the social phobia, it appears necessary to offer a wide range of

therapeutic interventions to individuals with this phobia. Emotional schema therapy is a method that has been investigated for its effectiveness in alleviating the symptoms of anxiety disorders. Emotional schema therapy is based on the premise that emotional disorders result from emotion-related beliefs, interpretations, and coping mechanisms. In the emotional schema model, when experiencing a negative emotion, a set of evaluations, interpretations, and strategies known as emotional schemas are employed (Santabarbara, Lipnicki, Villagrasa, Lobo, & Lopez-Anton, 2019). Since patients with social phobia engage in objective processing, assessments of the significance of disturbing thoughts are deemed entirely reliable. Metacognitive therapy helps patients become aware of and reflect on their metacognitive processing system. As a result, it shifts the focus of treatment away from attempting to stop obsessive thoughts and toward realizing that these kinds of disturbing thoughts are not always followed by action. In metacognitive therapy, the fusion of thoughts challenges verbal re-mastering techniques and behavioral experiences (Özdemir, Kapikiran, Bülbüloglu, & Saritas, 2022).

Cognitive theories in psychopathology have increased interest in cognitive characteristics and their regulation. Wells and Matthews (1996) combined metamorphosis and information processing for the first time in modern psychological therapies. They used a metacognitive model to explain and treat emotional disorders based on self-regulation and executive performance. Metacognition refers to any knowledge involving a cognitive process that involves cognitive evaluation or control. Metacognitive therapy was developed to address cognitive-behavioral deficits. Wells (2005) argues that cognitive therapy emphasizes the origin of thought content, given that negative thoughts in emotional disorders result from dysfunctional beliefs' activity. While no attempt has been made to determine how dysfunctional thoughts are formed or what constitutes and operates these dysfunctional thoughts, it is known that they exist. People's metacognitive beliefs and how they control their attention are critical to understanding how their thoughts work. Do not confront long-term and frequent beliefs about trauma or physical symptoms or challenge thoughts and cognitive errors. Metacognitive therapy focuses on factors that control thinking and alter mental state (Harter, Conway, & Merikangas, 2003; Naghibzadeh, Johari Fard, & Moradi, 2018).

In most social phobia treatments, more emphasis has been placed on the content of thoughts and avoidance behaviors. Positive metacognitive beliefs about anxiety are related to an individual's positive beliefs about the efficacy of anxiety-based coping strategies, whereas these are incompatible (Morrison & Heimberg, 2013). Low cognitive trust refers to a person's lack of confidence in memory and attention, which are incompatible with metacognitive components and strategies. Numerous studies have demonstrated a link between certain facets of metacognition and psychological disorders (Izgic, Akyuz, Dogan, & Kugu, 2004). Metacognitive therapy's success in treating anxiety disorders can be attributed to its ability to target the positive and negative aspects of one's self-perceived anxiety. Positive metacognitive beliefs in anxiety and low cognitive trust are also considered to be the causes of anxiety and worry (Al-Bawaleez, 2022).

The third most common psychiatric disorder is social phobia. This disorder is marked by a persistent fear of one or more social or functional situations in which a person may be closely watched by others and is afraid to act in a way that will make them look bad or humiliate them. This disorder affects approximately 7 to 8% of the population. According to previous studies, women are more likely than men to suffer

from social phobia (Celano, Daunis, Lokko, Campbell, & Huffman, 2016). Researchers have considered this disorder due to its high prevalence and serious interference with a person's personal and professional life. Social phobia usually manifests in late childhood or early adolescence (Jia, Dai, Chu, Wang, Hao, & Wang, 2022).

In addition to drug therapies, numerous psychological treatments have been developed over the years to treat this disorder. In the 1950s and 1960s, the first generation of behavioral techniques was developed in contrast to the classical psychoanalytic approach based on classical conditional and factor perspectives. In the 1990s, the second generation of these therapies (known as "cognitive-behavioral") emerged with a greater emphasis on the cognitive aspects, emphasizing the role of beliefs and cognitive processes such as schemas and information processing in the etiology of mental disorders (Malekian, Afshar, & Ahamadzadeh, 2014). The current study examined the effect of emotional schema intervention on metacognitive belief components.

When contemplating the effects of mental disorders, mental health is essential. The prevalence of depression and social phobia among students will have negative individual and social repercussions, thus necessitating universities' efforts to reduce it. Due to the importance of identifying strategies to promote students' mental health and the paucity of prior research on this group, the present study investigated the effect of intervention through emotional schema on social anxiety in a student sample.

Methods

The quasi-experimental study was conducted using a pretest-posttest design with a control group. This statistical population consisted of all students with social phobia enrolled at the University of Surabaya and Airlangga University, Indonesia, from 2020 to 2021. From the entire student body, 80 students were randomly chosen using a multi-stage cluster sampling strategy. Thus, 5 fields of study were identified. In each academic discipline, 16 students from different academic years were chosen.

Students filled out the Social Phobia Inventory (SPIN). Then, 80 students diagnosed with social phobia based on a cut-off score of 18 or higher on the questionnaire and the Fifth Diagnostic and Statistical Manual of Mental Disorders (5-DSM) criteria were selected. The selected individuals were randomly allocated to intervention and control groups (40 people in each group). The study inclusion criteria included diagnosis of social phobia disorder based on the 5-DSM and a cut-off score of 46 on the SPIN scale. Failure to receive emotional schema treatment training prior to entry into the study or to receive other psychological interventions occurred simultaneously. The study exclusion criteria included not agreeing to participate, not completing the questionnaire, and missing 3 consecutive sessions.

All participants were briefed on the procedure and execution of the project, and their consent was obtained. In order to comply with ethical principles, they signed a consent form to participate in the study, and the researcher assured them that all information presented during the training sessions and the questionnaire results would be kept confidential. The intervention group received treatment for emotional schemas, whereas the control group did not. The study groups completed the questionnaires in two phases: pretest and posttest.

Before surveys could be done, a demographic information questionnaire had to be filled out. The questionnaire contained questions regarding the participants' age, term, gender, marital status, and socioeconomic status. The SPIN, created by Connor, Davidson, Churchill, Sherwood, Foa, and Weisler (2000), consists of 17 questions and the 3 subscales of physiological fear, avoidance, and anxiety. The questions are

scored on a 5-point Likert scale ranging from 0 (not at all) to 5 (unlimited). The total score of the inventory ranges between 0 and 85, with higher scores indicating greater social anxiety. To interpret the scores, a cut-off score of 40 with a diagnostic accuracy of 80% and a cut-off score of 50 with a diagnostic accuracy of 89% is indicative of social phobias. Connor et al. (2000) determined the reliability coefficient of this scale to be between 0.78 and 0.89 by retesting in groups with a diagnosis of social phobia disorder, and the internal consistency coefficient for the whole scale to be 0.94 using Cronbach's alpha method in healthy individuals.

In addition, the Metacognitions Questionnaire (MCQ) was utilized. Wells and Cartwright-Hatton (2004) designed the questionnaire to measure individual differences in metacognitive beliefs, judgments, and supervisory attitudes. It consists of 30 questions and 5 subscales measuring confidence, positive beliefs, cognitive self-awareness, uncontrollability and danger of thoughts, and the desire to control one's thoughts. The questions are scored using a 4-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). The total score of the questionnaire ranges between 30 and 120. They determined the retest reliability of the whole questionnaire to be 0.75 and its subscales to be in the range of 0.76-0.93 using Cronbach's alpha coefficient.

Notably, in this study, the intervention group received 5 weeks of training (2 sessions each week for 90 minutes). The educational content of the emotional schema therapy sessions is presented in table 1.

A P-value of less than 0.05 was considered significant. Accordingly, SPSS software (version 21, IBM Corp., Armonk, NY, USA) was used to perform descriptive and inferential statistics on the data, including frequency, percentage, mean and standard deviation.

Results

Table 2 presents the demographic characteristics of the subjects.

Table 1. The educational content of the emotional schema therapy sessions

Session	Educational content
1	Explaining social phobia disorder based on emotional schema therapy, communicating, evaluating, and teaching the dynamic schema treatment model
2	Emotions and patient validation, describing the function of emotions, and distinguishing between thoughts, emotions, and behavior
3	Giving the patient credit, mindfulness corresponding with the patient's negative beliefs, emotions, identifying the patient's difficult strategies and emotional schemas
4	Accrediting patients' emotions, using emotion recognition and labeling techniques, recording emotions, observing and describing emotions
5	Validating patient emotions, using emotion normalization techniques, educating transient emotions, and reducing stress by exercising
6	Validating the patient's emotions, confronting emotional misconceptions, increasing emotion acceptance, and using a guest metaphor
7	Explaining the benefits and drawbacks of accepting emotions, observing and describing emotions, validating the patient's emotions, using the ladder of meaning technique, and challenging the patient to abandon troublesome strategies
8	Identifying useful strategies and introducing mindfulness to help stop worrying and rumination, as well as behavioral techniques, mixed emotion tolerance, and mindfulness
9	Reducing negative emotional beliefs and interpretations, increasing the power of emotional acceptance, taking contradictory action, taking a position far from judging for emotion, and conducting behavioral experiments to test false emotional beliefs
10	Accrediting sick emotions, re-confronting negative beliefs and emotional interpretations, linking to higher values, explaining the technique for creating emotional space, increasing tolerance for mixed emotions

Table 2. Demographic characteristics of participating students

Demographic characteristics	Variable	Frequecy (%)		P-value
		Intervention group	Control group	
Age (year)	< 20	6 (15)	6 (15)	0.63
	21-23	17 (42)	21 (52)	
	24-26	14 (35)	11 (28)	
	> 26	3 (8)	2 (5)	
Term	< 4	13 (32)	14 (35)	0.37
	4-8	18 (45)	15 (37)	
	> 8	9 (23)	11 (28)	
Gender	Female	23 (58)	26 (65)	0.19
	Male	17 (42)	14 (35)	
Marital status	Single	27 (68)	21 (52)	0.24
	Married	13 (32)	19 (48)	
Socioeconomic status	Very poor	5 (11)	3 (7)	0.46
	Poor	7 (18)	8 (20)	
	Medium	18 (45)	19 (48)	
	Good	9 (23)	7 (18)	
	High	1 (3)	3 (7)	

The chi-square test was used to evaluate the significance of the parameter values. The results indicated that none of the groups had a significant relationship ($P > 0.05$).

Table 3 displays the mean and standard deviation of variables of metacognitive belief and its components in the intervention and control groups in the pretest and posttest phases. As shown in table 3, after emotional schema treatment in the intervention group, the mean scores of metacognitive belief variables of students with social phobia decreased.

Figure 1 depicts, in percentage, the rate of change for each metacognitive belief component. As can be seen, the most changes occurred in positive beliefs (25.7%), while the least occurred in need to control thoughts (15.21%).

Multivariate analysis of covariance (MANCOVA) was used to see if there were any differences between the intervention and control groups (Table 4). Based on the total score of cognitive beliefs in the groups receiving emotional schema therapy and control therapy, Wilkes' lambda coefficient equaled 0.106 and the eta coefficient equaled 0.92 after adjusting the variable and modifying the analysis of multivariate covariance ($F = 37.41$; $P < 0.05$).

According to table 4, it can be concluded that the results showed that the intervention caused noticeable changes between the groups in the pretest and posttest ($P < 0.05$). Notably, the effect of the intervention on both variables has been observed for all metacognitive belief components.

Table 3. The mean and standard deviation of metacognitive belief variables

Components	Group	Mean ± SD	
		Pretest	Posttest
Cognitive self-awareness	Intervention	20.63 ± 1.87	16.41 ± 1.48
	Control	19.84 ± 1.64	20.74 ± 1.72
Need to control thoughts	Intervention	17.09 ± 1.36	14.49 ± 1.03
	Control	17.42 ± 1.39	17.26 ± 1.14
Lack of control of thoughts	Intervention	16.73 ± 1.64	13.07 ± 1.48
	Control	17.23 ± 1.71	16.45 ± 1.76
Positive beliefs	Intervention	15.37 ± 1.13	11.42 ± 1.61
	Control	15.29 ± 1.27	14.93 ± 1.44
Cognitive reassurance	Intervention	16.89 ± 1.26	13.18 ± 1.94
	Control	16.43 ± 1.47	16.75 ± 1.17

SD: Standard deviation

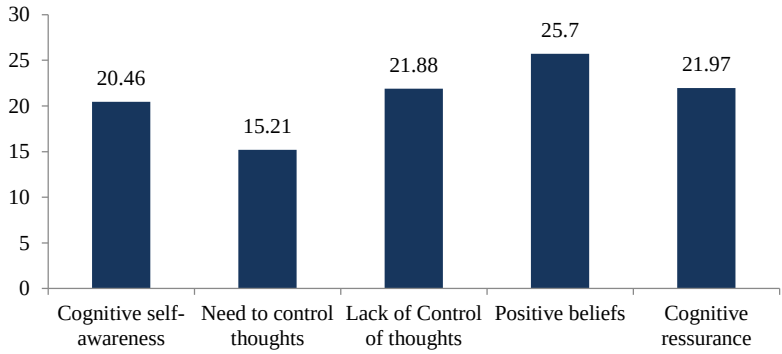

Figure 1. Percentage reduction of metacognitive beliefs components

Discussion

The current study was conducted with the aim to examine the impact of an educational intervention on medical students with social phobia. Emotional schema training in groups affected students' metacognitive beliefs (cognitive self-awareness, need to control thoughts, lack of control over thoughts, positive beliefs, and cognitive reassurance). The results also revealed that the intervention caused noticeable differences in the posttest results compared to the pretest, and between groups.

The present study sample was selected from among the student population, which is a homogeneous and typical population. Due to a reduction in variability, a specific factor structure has been extracted from this data. In contrast, if a heterogeneous community, such as those with different mental disorders, were sampled, the variance of the variables would increase dramatically, and a new factor structure might emerge. Leahy, Holland, and McGinn (2011) created this scale to diagnose emotional schemas underlying the problems of individuals with refractory mental disorders.

Table 4. Results of analysis of covariance in the examination of the difference in scores obtained for the components of metacognitive beliefs

Components	Evaluation variables	SS	df	Mean MS	F-value	P-value
Cognitive self-awareness	Intervention	20.43	1	20.43	7.48	0.003
	Group	86.51	1	86.51	34.26	0.002
	Error	46.29	24	1.93		
	Total	1164.13	28			
Need to control thoughts	Intervention	17.24	1	17.24	6.59	0.010
	Group	139.41	1	139.41	84.54	0.001
	Error	47.12	24	1.96		
	Total	6647.73	28			
Lack of control of thoughts	Intervention	21.76	1	21.76	9.13	0.040
	Group	114.25	1	114.25	38.14	0.003
	Error	73.68	24	3.07		
	Total	6409.17	28			
Positive beliefs	Intervention	7.28	1	7.28	2.43	0.009
	Group	152.07	1	152.07	94.28	0.001
	Error	14.19	24	0.59		
	Total	6249.15	28			
Cognitive reassurance	Intervention	43.51	1	43.51	26.73	0.002
	Group	127.13	1	127.13	88.19	0.001
	Error	46.27	24	1.93		
	Total	5329.14	28			

Consequently, some species on this scale sought answers that appeared vague and incomprehensible to the average human. They also stated that dysfunctional ways of controlling emotions could be changed through determining and changing people's emotional schemas. Stein et al. (2017) believed that at least 3 variables or items are required to identify a particular factor using the factor analysis method. Emotional self-awareness is an adaptive factor in emotion regulation that includes reviewing, evaluating, and modifying emotional experiences, and has been included as one of the 6 factors of emotion regulation on the Difficulties in Emotion Regulation Scale (DERS) in the research by Lipsitz and Schneier (2000).

In this emotional therapy intervention, dysfunctional coping strategies used in social situations, such as negative metacognitive beliefs about oneself, are first identified. Then, applying the approach of accepting emotions, mindfulness, and validating the patient's feelings reduces the individual's effort to control their thoughts, physical sensations, and phobias. The patient is then instructed to observe emotions without judging them to reduce the signs and symptoms of panic (Watkins et al., 2006).

Social phobias can impair social functioning and are linked to lower levels of career advancement, a higher risk of unemployment, and difficulty forming intimate relationships. Despite the numerous negative effects of social phobia, few sufferers seek professional assistance. One possible explanation for the low level of assistance seeking is that social phobia prevents these individuals from interacting with psychiatric providers and others. Mindfulness techniques such as detached consciousness attention and fusion increase an individual's capacity for fundamental acceptance when regulating emotional intervention. By increasing the psychological flexibility of individuals, the application of mindfulness techniques facilitates the process of accepting emotions and promotes their conscious existence (Sfeir et al., 2022).

Additionally, observing and getting feelings is beneficial compared to relying on ineffective coping strategies based on flawed metacognitive beliefs, such as depression. By curiously focusing on the present moment and advancing the experience in the present moment with curiosity, mindfulness techniques promote openness and acceptance. In addition, they cause individuals to reduce their efforts in maintaining dysfunctional metacognitive beliefs, and instead, concentrate on the present experience (Bitsika et al., 2022).

The limitations of the study include purposeful sampling, a quasi-experimental design rather than a full experimental design, and the one-dimensional evaluation of research variables (for example, the assessment of social phobia symptoms with only one tool). Other limitations of this study included the small sample size and incomparability with common cognitive-behavioral therapies or other psychotherapies. Therefore, it is recommended that future researches in this field compare this treatment in larger groups and to other treatment methods because the study of the therapeutic effect mentioned on other mental disorders can be extremely beneficial in psychotherapy. It is suggested that other researchers interested in this field investigate the subject discussed in this study among students from other universities and employ alternative experimental designs involving random sampling. In addition, it is suggested that they monitor the effect of the intervention in question to determine the degree of stability of the results over time and collect information using additional self-report or interview methods.

Conclusion

It is recommended that students with social phobia symptoms be taught this

therapeutic approach as an effective intervention to reduce their metacognitive beliefs through emotional schema treatment. It is important to note that this study was conducted on medical students of the University of Surabaya and Airlangga University, which reduces the generalizability of its findings to other samples.

Conflict of Interests

Authors have no conflict of interests.

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None.

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Reliability and Validity of Persian Version of the Rating Anxiety in Dementia Questionnaire

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Quantitative Study

Abstract

Background: Due to the importance of anxiety and its common symptoms with other physical and mental diseases in elderly patients, valid screening measures are needed. Based on this need, the present study attempted to assess the reliability and validity of the Persian version of the Rating Anxiety in Dementia (RAID).

Methods: This research was a cross-sectional study on the development and localization of instruments, conducted on 209 patients with dementia referring to psychiatry clinics of the elderly in Isfahan, Iran, with the convenience sampling method. The procedures for RAID localizations were translated and back-translated in 2021 using central and distributive tendencies and inferential statistical methods, internal consistency of the scale and exploratory factor analysis (EFA) were tested. To conduct the statistical calculations, SPSS software was used.

Results: 209 participants with a mean age of 52.6 ± 13.3 were selected. Seventy-eight participants were men (37.3%), and 126 were women (60.3%). The Cronbach's alpha coefficient was found to be 0.89. Based on the varimax rotation, in the five-factor model (according to principal component analysis, irritability, tension, anxiety, worry, weakness), questions 2 and 11 were removed for weak factor loading, and eigenvalue was explained by 66.2% variance. The convergent validity between Mini-Mental State Examination (MMSE) scale and RAID was positive (r = 0.25, P = 0.002).

Conclusion: The findings confirmed the validity and reliability of the Iranian version of RAID as an appropriate instrument for screening anxiety in elderly patients with dementia.

Keywords: Reliability; Anxiety; Dementia; Questionnaire

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Introduction

Dementia is a non-curable and progressive disease that significantly affects the quality of life of those afflicted by it (Barrios, Narciso, Guerreiro, Maroco, Logsdon, & de Mendonca, 2013). This syndrome inflicts a vast financial and clinical burden on health systems worldwide and every year, following the increase in the age of the communities and the growing rate of dementia diagnosis, the rate of dementia increases (Corrada, Brookmeyer, Paganini-Hill, Berlau, & Kawas, 2010). The prevalence of anxiety varies in patients with dementia. This variation can be explained to some extent by the different features of the samples, the diagnostic criteria used for diagnosing anxiety, and the screening instruments used for diagnosing anxiety in this group of patients (Goyal, Bergh, Engedal, Kirkevold, & Kirkevold, 2017).

Diagnosing anxiety in patients with dementia is complicated for several reasons. First, these symptoms appear simultaneously in dementia and anxiety. Second, it is difficult to differentiate between the symptoms of anxiety and depression. Third, the effect of the source of information makes it even more difficult. Finally, there is a lack of valid and appropriate rating scales for diagnosing anxiety in Iranian patients with dementia (Seignourel, Kunik, Snow, Wilson, & Stanley, 2008).

Anxiety symptoms usually negatively affect people with dementia (Calleo et al., 2011), and short neurology and psychiatry questionnaires are a means of diagnosing these symptoms (Goodarzi et al., 2019). A brief search on the databases reveals few valid instruments for screening anxiety in patients with dementia. Few of them include an evaluation of the experiences of the patients themselves. Geriatric Anxiety Inventory (GAI) is also a self-report scale that can be used in a structured interview for assessing anxiety in the elderly. Cronbach's alpha for the 20-item GAI was 0.91 among normal older adults and 0.93 in the psychogeriatric sample. Therefore, it is difficult to use it for patients with severe dementia (Scanlon, 2017). In addition, the sensitivity of other instruments such as Penn State Worry Questionnaire (PSWQ) and GAI is lower than that of Rating Anxiety in Dementia (RAID). PSWQ (with a coefficient of 0.93 for the entire group) (Meyer, Miller, Metzger, & Borkovec, 1990) and GAI are self-rating or proxy rating scales (Goodarzi et al., 2019). Besides, in the systematic review in 2019, only three instruments were identified that were validated against the gold standard. This lack of validity can be attributed to the lack of agreed-upon criteria for diagnosing anxiety disorders in individuals with dementia. Despite that, there are valid instruments that need to be considered for use in assessing anxiety in all stages of dementia, including RAID, which was introduced by Shankar et al. in 1999. Drawing on numerous data sources, including the patient's personal experiences, we realized that the RAID scale could be regarded as one of the most appropriate instruments for assessing anxiety in patients with dementia (Seignourel et al. 2008; Shankar, Walker, Frost, & Orrell, 1999). In numerous studies on anxiety in patients with dementia, the RAID scale has been used (Seignourel et al., 2008), but few have examined its reliability and validity (Seignourel et al., 2008; Snow et al., 2012; Twelftree & Qazi, 2006).

This questionnaire has been validated in three studies. It has been exclusively developed to assess anxiety in individuals with dementia based on the existing criteria for anxiety such as Diagnostic and Statistical Manual of Mental Disorders-Third Edition-Revised (DSM-III-R), Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV), international diagnostic criteria (version 10), and the current anxiety measurement instruments. For RAID, sensitivity ranges from

85% to 90%, and specificity ranges from 56% to 79%. The sensitivity of this instrument is ideal for diagnosis and higher than other instruments. However, the RAID specificity has a higher dimension; the Norwegian version has the lowest (i.e., 56%), and the English version has the highest (i.e., 67%-79%) value. The difference in the specificity of this disease in different studies can be attributed to the fact that these three articles have used different populations; the Norwegian study was based on those who lived under long-term care, and the other two studies in England were focused on inpatients and the patients referring to specialized clinics. Therefore, further studies in different cultures and locations are suggested (Sharifi et al., 2016).

Anxiety, like depression, is prevalent in patients with dementia. On the other hand, the overlap of its symptoms with medical problems, psychosis, and mood disturbance makes it challenging to diagnose anxiety. Therefore, the diagnosis of anxiety is necessary for patient management, a better understanding of the disease from other disorders, and providing an appropriate treatment plan. It should be noted that there is no specific tool for assessing anxiety in patients with dementia in Iran. Due to the growing population of Iran towards aging, the need for further studies to manage these patients is strongly felt, and in this regard, the need to access appropriate tools to diagnose emotional and behavioral problems in these patients is a priority to pay attention to the problems of the elderly.

The main object of this study was to evaluate the reliability and validity of the Persian version of the RAID.

Methods

Research design: This research was a cross-sectional study on the development and localization of instruments.

Participants: The participants included 209 patients with dementia referring to psychiatry clinics of the elderly in Isfahan, Iran.

The inclusion criteria included being afflicted by dementia and aged 60 years or more, having the DSM-V criteria based on American Psychiatric Association, willingness to participate in the study, and the ability to speak in Persian. The exclusion criterion included being afflicted by schizophrenia.

After briefing all the participants on the study objectives and procedure, they were assured of their voluntary participation. The data were collected from October 2020 to January 2021. Convenience sampling was also used to select the patients.

The study was approved by the Ethics Committee of Isfahan University of Medical Sciences (approval no.: IR.MUI.MED.REC.1399.568).

Procedure

Translation: After obtaining permission from the scale developer, cross-cultural adaptation using a "forward-backward" procedure was applied to translate the original version of RAID into Persian according to Beaton et al. guidelines (Beaton, Bombardier, Guillemin, & Ferraz, 2007). Two translators, who had M.Sc. degrees in speech-language pathology, synthesized two initial translations and resolved any inconsistencies. The synthesized Persian version of the RAID was then back-translated into English by two bilingual translators and a native English speaker unfamiliar with the original English version.

Data collection: After obtaining the required licenses from the university and obtaining the required permissions, the sample population was selected using the convenience Sampling method from the elderly afflicted by dementia, who had been referred to the related psychiatry centers for the elderly affiliated with Isfahan

University of Medical Sciences. The demographic information included age, gender, marital status, level of education, occupational status, social status, and duration of the disease, and the information related to the RAID questionnaire and the Mini-Mental State Examination (MMSE) scale was collected via interviews. Furthermore, considering the conditions of many of the patients, the questionnaire could not be administered in groups and was filled in by the researcher or a conscious caretaker. We did not have the pretest and content validity. Convergent validity between RAID and MMSE was calculated. All processes were revised by the expert panel committee.

Measures

RAID: RAID includes 20 items (18 questions with 4-score items which are classified into five categories and two separate questions) and has been developed to be used for patients with dementia. Some of the items are related to worry (e.g., worry about dry mouth, financial affairs). The remaining items are related to sleep disorder, irritability, and a few physical symptoms (e.g., palpitations, dry mouth, and shortness of breath). The last two items, which deal with phobias and panic attacks, are not included in the total score. The information related to the disease symptoms in the previous two weeks is obtained from the existing resources, including patient information, taking care of the patient, clinical observations, and medical records. The treating physician determines a score for every patient drawing on all the existing sources of information. A general score is obtained by adding up the scores for the first 18 items. This scale has medium to high inter-rater and test-retest reliability and has good internal consistency. In addition, RAID scores are higher for patients with symptoms consistent with the DSM-IV criteria for generalized anxiety disorder (GAD) and show a sensitivity of 0.90 and specificity of 0.79 (Shankar et al., 1999). Considering the small sample size of the study (i.e., 38) and the fact that the present study's findings are based on one single study (i.e., Shankar et al., 1999), the results should be interpreted with caution. RAID is not related to all anxiety measurement scales but some of them, and their correlation is 0.16-0.62 (Beaton et al., 2007; Fillenbaum, Heyman, Wilkinson, & Haynes, 1987). The correlation between this scale and the Cornell Scale for Depression in Dementia (CSDD) varies from 0.66 to 0.69.

MMSE: The MMSE and the Blessed Orientation-Memory-Concentration (BOMC) test, a six-item derivative of the Blessed Information-Memory-Concentration (BIMC) test, were each administered to 36 patients with a clinical diagnosis of Alzheimer's disease (Sharifi et al., 2016). In 24 patients, both tests were re-administered a month later. The correlation between the MMSE and BOMC was -0.83 with a test-retest correlation of 0.89 (MMSE) and 0.77 (BOMC). Factor analysis indicated that the multiple MMSE cognitive components could be explained by two factors, which accounted for 66% of the variance (Morris, 1993).

This study used both descriptive, to indicate the central and distributive tendencies, and inferential statistical methods. Exploratory factor analysis (EFA) was used to investigate and verify the sub-scales of the scale. Cronbach's alpha was calculated for all questions. A Cronbach's alpha value higher than 0.70 points to this questionnaire's high internal consistency (Taber, 2018). To conduct the statistical calculations, SPSS software (version 24, IBM Corporation, Armonk, NY, USA) was used.

Results

Demographics: We had 209 participants with a mean age of 52.6 ± 13.3. Seventy-eight participants were men (37.3%), and 171 were women (61.1%). The demographic information related to the study participants is summarized in table 1.

Table 1. Demographics of participants' characteristics

Variable	n (%)
Sex	
Women	171 (61.1)
Men	78 (37.3)
Missing	5 (2.4)
Severity of dementia	
Grade 1	87 (46.4)
Grade 2	82 (39.2)
Grade 3	30 (14.4)

Consistency: The Cronbach's alpha coefficient was 0.89, indicating this questionnaire's excellent fit in the Iranian population. The total Cronbach's alpha coefficient was calculated for the factors of this questionnaire and found to range from 0.45 to 0.85 (Table 3). A Cronbach's alpha value higher than 0.70 points to this questionnaire's high internal consistency (Taber, 2017) (Table 2).

Convergent validity: The convergent validity between MMSE scale and RAID was significant (r = 0.25, P = 0.002). Therefore, these two scales had a positive correlation.

EFA: Before performing the EFA, Kaiser-Meyer-Olkin (KMO) and Bartlett's Test of Sphericity were used to evaluate the adequacy of the sample size. The measurement indices of KMO were 0.83 in the one-factor and two-factor models, and the Bartlett's Sphericity Test was significant, showing the need to perform factor analysis in this study. Based on the varimax rotation, in the five-factor model (according to principal component analysis), questions 2 and 11 were removed for weak factor loading (Table 3). The number of factors decided with parallel analysis is likely to be observed in the same way as seen on the screen plot presented in figure 1.

Discussion

The present study examined the reliability and validity of the RAID questionnaire in the elderly afflicted by dementia. The results indicate that this questionnaire has a good fit for the Iranian population. The Cronbach's alpha coefficient was found to be 0.89. Based on the varimax rotation, in the five-factor model (according to principal component analysis), questions 2 and 11 were removed for weak factor loading, and the eigenvalue was explained by 66.2% variance.

Table 2. Cronbach's alpha, mean, and standard deviation (SD) of questions

Questionnaire items	Mean ± SD	Cronbach's alpha if item deleted
Q1	0.60 ± 0.80	0.896
Q2	1.20 ± 0.80	0.887
Q3	1.90 ± 0.90	0.892
Q4	0.80 ± 0.80	0.896
Q5	1.05 ± 1.02	0.893
Q6	1.07 ± 0.80	0.889
Q7	1.80 ± 0.90	0.893
Q8	1.80 ± 0.90	0.889
Q9	1.70 ± 0.90	0.890
Q10	1.50 ± 1.02	0.884
Q11	0.80 ± 0.90	0.889
Q12	1.60 ± 0.80	0.889
Q13	0.90 ± 0.80	0.892
Q14	0.80 ± 0.90	0.891
Q15	0.70 ± 0.90	0.892
Q16	0.80 ± 0.90	0.895
Q17	0.80 ± 0.90	0.897
Q18	0.60 ± 0.70	0.898

SD: Standard deviation

Table 3. Rotated component matrix (extraction method: principal component analysis)

Questions	Factors				
	Irritability	Tension	Anxiety	Worry	Weakness
Worry over physical health				0.621	
Worry about family problems/finances	0.649				
Worry associated with false beliefs/perceptions				0.677	
Worry over trifles				0.606	
Frightened and anxious			0.700		
Sensitivity to noise	0.672				
Sleeplessness	0.725				
Irritability	0.740				
Trembling	0.696				
Restlessness	0.607				
Fatigue ability		0.783			
Palpitations			0.755		
Dry mouth/sinking feeling		0.751			
Shortness of breath		0.645			
Dizziness					0.691
Sweating flushes					0.591
Eigenvalue (%)	19.500	33.700	46.030	57.060	66.200
Cronbach's alpha	0.850	0.710	0.700	0.580	0.450

The factor analysis results also showed that the RAID scale included factors that covered a wide range of anxiety symptoms and enjoyed high construct validity. These findings support the psychometric features and validity of the RAID questionnaire in patients with dementia. It seems that this questionnaire not only has good psychometric features but also is an excellent practical instrument for diagnosing dementia anxiety. In addition, due to the short length of the questionnaire, it can be administered in quite a short time. This questionnaire can also be used in research projects. Psychotherapists and researchers can use different validated instruments to measure the level of dementia anxiety. The questionnaire assessed in the present study can also be used for this purpose.

A few studies have been done about instruments used to measure anxiety in dementia. The RAID is one of the most frequently evaluated instruments and has the highest level of evidence in terms of quality of measurement properties (content validity, structural validity, and hypothesis testing).

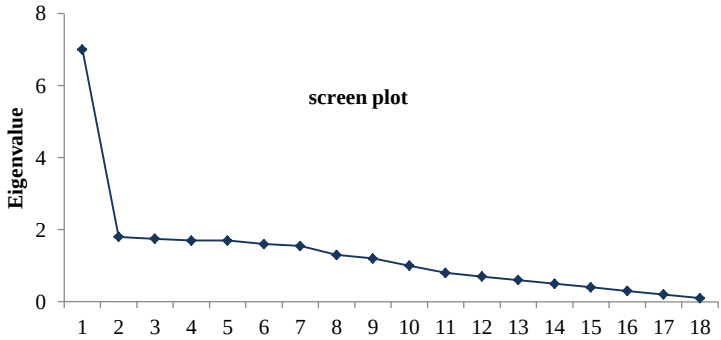

Figure 1. The screen plot of factor analysis for the Iranian version of Rating Anxiety in Dementia (RAID)

The methodological quality of RAID has been assessed in four studies by Snow et al. (2012), Twelftree and Qazi (2006), and Shankar et al. (1999). All four studies evaluated construct validity through hypothesis testing. The RAID showed positive moderate-high correlations with other observer-rated anxiety scales [Clinical Anxiety Scale (CAS), The State-Trait Anxiety Inventory (STAI), and GAI-collateral]. In this study, the factor analysis indicated that the RAID scale comprised five factors, all of which made a contribution to the variance. 16 items on the RAID scale were components of the five factors. Items 2 and 11 were removed (from the scale) because of the 66.2% variance; however, one of the most common concerns in patients with mild cognitive impairment (MCI) and early-stage dementia is worry about cognitive performance and tension related to decreasing cognitive performance. This would indicate that all items are necessary and cover a wide range of anxiety signs and symptoms, along with having good construct validity.

Up to now, there has been no research related to this issue in Iran. However, in a study that was conducted by Bandari et al. (2016) for the validity and reliability of the GAI in Iran, the validity of irritability and anxiety factors in the Iranian population was close to irritability and anxiety in RAID. Although RAID does not replace the need for proper clinical assessment, the score could be a helpful guide in the assessment and management of individual patients.

Despite various factors that contribute to mental health (Bagherian, Ahmadzadeh, & Baghbanian, 2009), anxiety has always been considered a fundamental concept in all periods of human life, and due to its overlap with physical symptoms, particularly in the elderly, it is usually ignored. What makes working with these patients difficult is the way the symptoms of anxiety are differentiated from the dementia symptoms, the distinction between anxiety and irritation and depression, and whether the sources of information used for evaluating anxiety in dementia patients, particularly in extreme cases, are valid (Calleo et al., 2011). So far, few studies have been carried out on anxiety in patients with dementia. Considering the importance of anxiety in dementia, clinical experts are attempting to assess this issue. Therefore, it is essential to develop an instrument with an acceptable clinical reliability and validity level. The instrument examined in the present study included a RAID questionnaire administered to the elderly suffering from dementia, who were referred to psychotherapy clinics for the elderly. Cronbach's alpha was used as the criterion for assessing the reliability of the present scale, which pointed to the relatively high reliability of the instrument used and indicated the stability and reliability of the instrument used for identifying anxiety in patients with dementia. These findings were consistent with Shanker et al. (1999).

This questionnaire is the only questionnaire concerning the anxiety of patients with dementia. The closest study to this study is probably related to the validity and reliability of anxiety in the elderly in Iran, which was conducted by Bandari et al. in 2016 and has good validity and reliability.

The present study was constrained by some limitations. One of the limitations was the small sample size. Another limitation was that when the patients had severe dementia, the caretaker filled in the questionnaire, and the caretaker's biases might have influenced the answers. Many of the patients could not express their feelings or identify their symptoms. They may even provide different answers to one behavior or question due to the mood swings caused by cognitive problems. Therefore, it is suggested that future studies use a larger sample from different cultural backgrounds.

Conclusion

Overall, it can be concluded that the dementia anxiety questionnaire is a reliable and valid instrument for patients who have dementia in the Iranian population.

Conflict of Interests

Authors have no conflict of interests.

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The Relationship between Psychological Well-Being and Parents' Communication Patterns and Social Acceptance of Third-Grade Primary School Students in Tehran, Iran

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Quantitative Study

Abstract

Background: Child psychologists argue that primary school years are one of the critical periods of development because many of the child's abilities are developed during this period. There is a research gap in students' social acceptance and the role of psychological well-being and communication patterns between parents. The purpose of the study was to examine the relationship between psychological well-being and parental communication patterns with students' social acceptance.

Methods: The study design was correlational. The statistical population was all female third-grade primary school students in Tehran, Iran, studying in the academic year of 2019-2020. The sample included 381 female elementary school students and the schools were selected using a convenient sampling method; the samples from these schools were selected randomly. Data were collected using Social Acceptance Scale, Ryff Psychological Well-being Scale, and couples' Communication Patterns Questionnaire (CPQ). Pearson correlation coefficient and regression analysis were used for data analysis.

Results: A significant positive relationship was observed between psychological well-being and parents' pattern of interaction with the social acceptance of children and a significant negative relationship between the components of the pattern of bilateral avoidance of fathers and mothers with social acceptance of students. Multiple regression analysis results indicated that fathers' psychological well-being (13%), mothers' psychological well-being (24%), fathers' constructive model (27%), and mothers' constructive model (29%) could predict children's acceptance.

Conclusion: Parents' psychological well-being and communication patterns can predict their children's social acceptance; therefore, the results can have implications for the follow-up of psychological problems among the students.

Keywords: Social status; Schools; Students; Parents; Communication

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Introduction

Child psychologists argue that primary school years are one of the critical periods of development because many of the child's abilities are developed during this period (Javadi, Sohrabi, Falsafi Nejad, & Borjali, 2008). During primary school, children gradually develop more effective social interactions with their peers. One of the aspects of making a distinction between a child and his or her peers is social acceptance (Vahedi, Fathiazar, Hosseini-Nasab, & Moghaddam, 2008). The results of this period can affect other aspects of personality and accompany a person for the rest of his or her life. Social acceptance is speaking and behaving based on the expectations of others (Soubelet & Salthouse, 2011). Social acceptance plays a major role in the development of a child's social personality and predicts subsequent adjustments during adolescence (Ghorbanian, Mohammadloo, Khanbani, & Yousefi Kia, 2017). Children who fail to gain social acceptance among their peers and are rejected by them have many problems, including poor academic performance, dropout, anti-social behavior, delinquency, and other behavioral disorders in adolescence and early childhood deprivation (Hassanzadeh Kalateh, 2009). Moreover, children who are not liked by their peers are more quarrelsome, rebellious, and unbalanced.

Unfortunately, parents and teachers do not identify and detect child poor adjustments until they are separated from their peers (Hurlock, 2011). Family is the first educational base for a child and the parents form this important educational institution. The influence of parents on the child begins without introduction and is manifested with a certain learning power and may remain throughout the life of the person (Navabi Nejad, 2007). Hence, when each parent has a marital problem or difficulty in communicating with their spouse, they will be unable to meet the needs of their children, and these marital and communication problems between the parents cause many adjustment problems in children. Parents' communication with each other is a process during which a man and a woman exchange feelings and thoughts with each other, either verbally in the form of speech or non-verbally in the form of listening or facial expressions (Trenholm & Jensen, 1996). Those communication methods that occur frequently between parents are called communication patterns, which are internalized and each couple brings with himself or herself to married life. People tend to repeat the communication styles learned in their origin family in their relationships with their spouses and pass these patterns on to their children (Hurlock, 2011).

At least three important communication patterns have been identified: bilateral constructive communication pattern, bilateral avoidance communication pattern, and expectation/withdrawal communication pattern (Christensen & Shenk, 1991).

Dysfunctional and defective communication pattern reduces parents' correct understanding of each other and prevents spouses from supporting each other, trying to satisfy each other's needs. Discussion on patterns of parents' communication with each other has a long history that researchers have stated several factors. These people, despite different wants, conditions, and requirements, have one common area, and that is psychological well-being. The term psychological well-being refers to how people assess their own lives. These assessments include both cognitive judgments (life satisfaction) and emotional assessments (positive and negative emotions) (Diener & Diener, 1995). Psychological well-being indicates an increase in positive mood compared to negative mood (Bagheri, 2010). Besides, psychological

well-being refers to people's assessment and perception of their quality of life (quality of social, psychological, and emotional actions) (Peyvastegar, Dastjerdi, & Dehshiri, 2010). Thus, parents' communication patterns and their performance can be influenced by the person's mental feelings, well-being, or current life experiences (Bagheri, 2010). Psychological well-being consists of several components, including life satisfaction, positive and negative affections, effective communication with others, mastery of the environment, personal growth, purpose, orientation in life, and self-acceptance (Konu & Rimpelä, 2002). Some researchers have considered mental health and psychological well-being as one of the most important aspects of going to school (Anderson & Bourke, 2000).

Human personality is affected by the family environment and one can state that from among the environmental variables, the variables related to parents have always been the most effective ones in child development in all aspects. This is because all aspects of parents' life are related to children, and family and family members' relations can have a deep effect on children's social behavior. The behaviors seen through children's communication with their peers show the significance of this issue. However, despite the studies on each of the variables of the present study, alone or with other variables, on different groups and communities, no similar studies were found among the internal and external sources to be similar to this study. Thus, this study can fill the research gap with its innovative aspect. Hence, the most important question of the study is whether there is a relationship between psychological well-being and parental communication patterns with children's social acceptance or not.

Methods

The study was descriptive-correlational. The population was all female elementary school students in Tehran, Iran, in the academic year of 2019-2020, of whom 381 were selected as the sample. A questionnaire was used to collect information in the study. After obtaining the necessary permits from the educational administration in Tehran, the first 5 schools were selected randomly as the sample and 381 students were randomly selected from among these schools according to the inclusion criteria - gender (girl), educational level (third-grade elementary), no history of serious psychological and psychiatric illnesses, and no use of neuropsychiatric drugs - and exclusion criterion - incomplete completion of questionnaires. Then, they were given the Psychological Well-being Questionnaire, Parental Communication Patterns Questionnaire (CPQ), and Social Acceptance Scale after explaining the study objectives to each subject, and were asked to carefully read the questions on each of the scales and select the answers according to their characteristics and not leave any question unanswered as much as possible. Then, the completed questionnaires were collected and entered into SPSS software (version 22, IBM Corporation, Armonk, NY, USA) and analyzed using statistical methods of mean, standard deviation (SD), correlation, and regression.

Social Acceptance Scale: The Ford and Robin's Social Acceptance Scale (1970) was used to measure the need for social approval in children. This scale was examined by Samoei (2004, quoted by Shekarbaygi and Amiri, 2011) and some of its questions were removed. This scale includes 17 questions with three options of "yes", "to some extent", and "no", and this scale was answered by the students, and scores of 0, 1, and 2, respectively, are assigned for them. Questions 9 and 10 are scored in reverse. The minimum score of the subject in the questionnaire is 0 and the maximum score is

34. A higher score indicates high social acceptance and a lower score indicates low social acceptance. The concurrent validity of the questionnaire was calculated based on verbal intelligence quotient (IQ), which indicated a significant correlation between the two variables. In general, children who received higher scores on the Social Acceptance Scale responded more positively to interpersonal demands (Ford & Robin, 1970). Ford and Robin (1970) calculated internal consistency at 0.48 and 0.51 for female and male preschool children, respectively, but for primary school children who were tested in the next step, it was obtained at 0.79 for male and 0.84 for female students. Further, in the other step, it was reported at 0.83 for male and 0.85 for female students. The validity and reliability of this questionnaire in Iranian primary school students were examined and approved (Khanzadeh Firoozjah & Safikhani, 2008). The reliability of this questionnaire was 0.79 by Cronbach's alpha method.

Parental CPQ: This questionnaire is a self-assessment tool designed to assess parents' marital communication and know how spouses cope with the problems that arise in their communication. It consists of 35 questions that assess parents' communication in three stages of marital conflict. Parents mark each behavior on a 9-point Likert scale set from 1 to 9. The CPQ consists of three subscales: A) bilateral constructive communication, B) bilateral avoidance communication, and C) expectation/withdrawal communication. The letters A, B, and C indicate the questions of the three steps of the parents' conflict in the questionnaire, and the numbers with these letters indicate the question of each step. Cronbach's alpha obtained in the studies conducted by these researchers on 5 scales of the CPQ has been reported from 0.44 to 0.85, which are satisfactory results. Cronbach's alpha obtained in the studies of these researchers on the constructive communication scale of CPQ was reported between 0.74 and 0.78, which is an acceptable value (Abbasipour Bourondaragh, 2011). The correlation coefficients obtained for the three subscales of bilateral constructive communication, bilateral avoidance relationship, and expectation/withdrawal communication were 0.58, 0.58, and 0.35, respectively; all of which were significant at the alpha level of 0.1. To determine the reliability of the questionnaire, the internal correlation was calculated for the subscales of this questionnaire and it was obtained at 0.50 for bilateral constructive communication, 0.50 for bilateral avoidance communication, 0.53 for expecting man/withdrawal woman, and 0.55 for expecting woman and 0.55 for withdrawal man (Fatehizadeh & Ahmadi, 2005). The reliability of the subscales of this questionnaire was obtained between 0.77 and 0.84 by Cronbach's alpha method.

Psychological Well-being Questionnaire: The questionnaire was developed by Ryff in 1989 and revised in 2002. The questionnaire consists of 18 items, which are answered by the parents. It includes six axes of independence, mastery of the environment, personal growth, positive communication with others, purpose in life, and self-acceptance. Each question is answered on a 6-point scale (from "strongly disagree" to "strongly agree"). Questions 3, 4, 5, 9, 10, 13, 16, 17 are scored in reverse. Cronbach's alpha coefficient for each of the psychological well-being scales of self-acceptance, mastery of the environment, positive communication with others, purpose in life, personal growth, and independence was obtained at 0.78, 0.77, 0.74, 0.75, 0.76 and 0.73, respectively.

To statistically analyze the data, descriptive information of variables such as mean and SD and Pearson correlation coefficient between variables were calculated using SPSS software.

Results

In this section, descriptive indices of frequency and percentage of parents of female third-grade primary school students separately based on gender, education, age range, and the mean and SD of the age of parents are presented. Based on the results, among the fathers of female third-grade primary school students, 15 had under diploma (3.9%), 40 had diploma (10.5%), 72 had associate (18.9%), 213 had bachelor (55.9%), 26 had master (6.9%), and 15 (3.9%) had a PhD level of education. Moreover, among the mothers of female third-grade primary school students, 21 had under diploma (5.5%), 55 had diploma (14.4%), 54 had associate (14.2%), 194 had bachelor (50.9%), 44 had master (11.5%), and 13 (3.4%) had PhD level of education. Moreover, among the parents, the mean age of mothers was 34.92 and the mean age of fathers was 38.57 and the minimum age observed for parents was 21 years and the highest was 51. Table 1 presents the descriptive indices of mean, SD, minimum value, maximum value, skewness, and kurtosis of social acceptance (students), psychological well-being (parents of students), and parents' communication model.

To evaluate the three assumptions of normality of criterion variable, lack of collinearity, and non-correlation of residuals, the values of skewness and kurtosis, variance inflation factor, and Durbin-Watson, respectively, were used. Based on the results of table 2, the assumption of normality for the criterion variable was confirmed. If the value of skewness and kurtosis is in the range of -2 to +2, the assumption of normality is confirmed. A value close to one means that in an

Table 1. Descriptive indices of social acceptance, psychological well-being, and parents' communication pattern

Variable	Mean ± SD	Minimum	Maximum	Skewness	Kurtosis
Students' social acceptance	18.71 ± 5.72	6	31	-0.04	-5.44
Psychological well-being (fathers)	336.46 ± 57.68	206	488	0.12	-0.45
Psychological well-being (mothers)	331.09 ± 55.08	204	477	0.04	-0.38
Bilateral constructive pattern (fathers)	28.36 ± 8.28	10	51	0.21	-0.16
Bilateral constructive pattern (mothers)	31.25 ± 8.40	4	52	-0.54	-0.05
Bilateral avoidance pattern (fathers)	11.62 ± 4.19	3	22	0.18	-0.54
Bilateral avoidance pattern (mothers)	13.13 ± 4.40	3	25	0.07	-0.33
Expectation/withdrawal pattern (fathers)	11.58 ± 4.49	3	25	0.26	-0.41
Expectation/withdrawal pattern (mothers)	11.60 ± 4.51	3	25	0.27	-0.20
Sub-scale of expecting man/withdrawal woman (fathers) pattern	12.10 ± 4.60	3	24	0.19	-0.49
Sub-scale of expecting man/withdrawal woman (mothers) pattern	12.64 ± 4.44	0	24	0.22	-0.32
Sub-scale of expecting woman/withdrawal man (fathers) pattern	23.67 ± 6.63	7	42	0.01	-0.39
Sub-scale of expecting woman/withdrawal man (mothers) pattern	24.23 ± 6.27	8	44	0.17	-0.44

SD: Standard deviation

independent variable, a small part of its distribution is justified by other independent variables, and a value close to zero indicates that a variable is almost a linear combination of other independent variables; therefore, it should be more than 0.5. The results showed that this statistic was in the range of 0.872 to 0.995; thus, this assumption was also confirmed. Further, the Durbin-Watson value for the criterion variable was 1.631, which is a long distant from 0 to 4; therefore, the assumption of a correlation of residuals is rejected, since if the Durbin-Watson value is close to 0 or 4, the assumption of the correlation of the residuals is confirmed. Given what was stated above, there are assumptions for using regression. Before analyzing by multiple regression method with the stepwise model, first, Pearson correlation coefficients between students' psychological well-being and parents' communication pattern and students' social acceptance were examined, the results of which are presented in table 2.

According to the results of table 2, there was a significant positive relationship between fathers' psychological well-being (r = 0.381), mothers' psychological well-being (r = 0.343), mothers' bilateral constructive model (r = 0.275), and fathers' bilateral avoidance pattern (r = 0.286) with students' social acceptance and a significant negative relationship between the pattern of bilateral avoidance of fathers (r = -0.141) and mothers (r = -0.192) with students' social acceptance (P < 0.01).

As is seen in table 3, the observed R^2 level was significant (P < 0.01) and fathers' psychological well-being (13%), mothers' psychological well-being (24%), fathers' constructive pattern (27%), and mothers' constructive pattern (29%) could predict the acceptance of children.

Discussion

The present study aimed to predict the students' social acceptance based on psychological well-being and communication patterns of parents.

Based on the research literature, no study has been conducted so far to test all these relationships and variables in the form of research.

Results obtained on the first hypothesis are in line with results of the studies conducted by Soltani Kasmaei (2017), Behere et al. (2017), Shirnejad and Zinali (2017), Hosseini and Nazarpour (2014), and Shahsiah et al. (2012).

Table 2. Correlation coefficients of psychological well-being and parents' communication pattern with students' social acceptance

Variable	Students' social acceptance	
	Pearson correlation	P-value
Psychological well-being (fathers)	0.381	0.001
Psychological well-being (mothers)	0.343	0.001
Bilateral constructive pattern (fathers)	0.275	0.001
Bilateral constructive pattern (mothers)	0.286	0.001
Bilateral avoidance pattern (fathers)	-0.141	0.001
Bilateral avoidance pattern (mothers)	-0.192	0.001
Expectation/withdrawal pattern (fathers)	0.066	0.196
Expectation/withdrawal pattern (mothers)	0.025	0.622
Subscale of expected man/withdrawal woman (fathers)	0.033	0.519
Subscale of expected man/withdrawal woman (mothers)	0.015	0.675
Subscale of expected woman/withdrawal man (fathers)	0.065	0.207
Subscale of expected woman/withdrawal man (mothers)	0.019	0.711

Table 3. Multiple regression analysis results for predicting social acceptance through psychological well-being and bilateral constructive pattern in third-grade elementary students

	Non-standard coefficient		Standard coefficient	t	P-value
	SE	B	Beta		
Predicting variables	SE	B	Beta		
Constant	1.614	6.291	-	3.898	< 0.001
Psychological well-being (fathers)	0.005	0.037	0.372	7.813	< 0.001
				(R^2) = 0.139	R = 0.372
Predicting variables					
Constant	1.984	-0.714	-	0.360	0.719
Psychological well-being (mothers)	0.005	0.030	0.268	5.663	< 0.001
				(R^2) = 0.468	R = 0.248
Predicting variables					
Constant	2.020	-3.404	-	-1.685	0.093
Bilateral constructive pattern (fathers)	1.031	0.142	0.209	4.600	< 0.001
				(R^2) = 0.273	R = 0.520
Predicting variables					
Constant	2.032	-4.892	-	-2.407	0.017
Bilateral constructive pattern (mothers)	0.031	0.112	0.164	3.571	< 0.001
				(R^2) = 0.292	R = 0.540

SE: Standard error

It can be concluded that investigating the educational role of parents is one of the important issues in the field of education and psychology because the personality and behavior of individuals are influenced by various factors at different stages and parents are one of the basic and primary factors in this regard. Among the environmental variables, variables related to the child's parents are the most important factors influencing the development of the child because the family is the core of every society, and all aspects of the life of parents are associated with children; therefore, mental health of parents plays an important role. People with high psychological well-being have a positive evaluation of themselves in environmental events and report more satisfaction with life and are happier, while people with low psychological well-being evaluate these cases as undesirable and experience more negative emotions such as anxiety and depression, which can have a negative impact on the interaction between parents and children. Parents who were mentally healthy and had a healthy pattern of communication with each other provided good support for their children and their children felt more value among their peers. Concerning the relationship between parents' psychological well-being and children's social acceptance, it has to be noted that parents' psychological pathology leads to an increase in depression and other psychological disorders among the children (Behere, Basnet, & Campbell, 2017) and the children of the parents with psychological health problems are at increased risk of psychological and developmental problems (Wiegand-Grefe & Petermann, 2016).

The studies on clinical examples of children and adolescents have estimated that more than half of children treated for psychiatric illness have parents with a mental disorder (Middeldorp, Wesseldijk, Hudziak, Verhulst, Lindauer, & Dieleman, 2016). Parents' psychological well-being enables their children to think well, make social progress, learn communication and social skills well, have a good attitude towards life and society, and show greater adaptation in the community. In such families, the

children can agree and coordinate with each other and easily communicate with other people and the community by following the example of the parents. In families where parents have low psychological well-being, children are emotionally disadvantaged and unable to communicate well with parents and others. The well-being and health of the parents give the children psychological and emotional security and pave the way for their entry into the community, social exchanges, and comprehensive communication. Moreover, explaining the socialization of children requires the expression of patterns of individual development and patterns and values that are transferred by society and social groups, including the family and, most importantly, parents. Thus, parents should also keep in mind that increasing positive feelings and satisfaction leads to balanced development and growth and human health, and this paves the way for the proper education of children. Thus, it can be stated that components related to the psychological dimension of parents, such as their psychological well-being, predict the social acceptance of children.

The results showed that parents' communication patterns predicted students' social acceptance. The results of the study can be in line with Rinaldi and Howe (2012), Yarisar et al. (2018), Fathi and Javadzadeh (2017), and Zarei et al. (2017). The results indicate that the proper interaction pattern of parents can be one of the main factors in predicting the acceptance of children. Defective communication patterns reduce parents' correct understanding of each other and make spouses unable to support each other and meet each other's needs, and this dysfunctional communication pattern makes important problems in life remain unsolved and become a source of recurring conflict between parents. According to the above points, one can state that if besides expressing the love of parents for each other, authoritative rearing style is used to raise children, the psychological health of children and their social acceptance will increase. Indeed, satisfaction and parental love for each other lead to peace and happiness in the home, and this, directly and indirectly, brings about a positive emotional state among the children.

This study was conducted only on girls and boys were excluded; therefore, the results of this study cannot be generalized to boys. Information and data were collected through a self-report questionnaire and this method is always influenced by various factors such as the tendency of respondents to provide community-friendly answers. There was a temporal limitation for students and their parents. It is recommended for educational centers to use the results of this research to improve the status of students. In addition, it is recommended to treat with caution in generalizing the results of this research to other educational grades. It is suggested that parents and educators talk about the impact of parental communication on their children's socialization process and be aware of this important issue. Further, it is recommended for future studies to investigate the above-mentioned relationship in both sexes simultaneously or on the male sex and also investigate the relationship between the above-mentioned variables in other educational grades, including high school students.

Conclusion

Based on the above points, one can state that if parents have appropriate communication patterns, the flow of social acceptance of their children will form well and it will be accepted by others. However, if the communication patterns of the couples are not in line and do not solve problems, the children are affected by them, and the process of their socialization will not go well. Thus, one can claim that the

communication patterns of couples (parents) predict the social acceptance of children.

Conflict of Interests

Authors have no conflict of interests.

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The Efficacy of Positive Psychology on Hope, Self-Compassion, and Post-Traumatic Growth in Women with Breast Cancer

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Quantitative Study

Abstract

Background: Breast cancer is the most common cancer in women and can cause various psychological issues for those with it. The current study aimed to determine the efficacy of positive psychology in improving hope, self-compassion, and post-traumatic growth in patients with breast cancer.

Methods: The current study used a quasi-experimental research with a pre-test, post-test, and follow-up design. The statistical population included 483 women with breast cancer diagnosis referred to King Abdullah Medical City Hospital in Makkah Region, Saudi Arabia, in 2021. One hundred patients were chosen using a simple random sampling method and assigned to intervention and control groups (50 people in each group). Members of the intervention group received positive psychology training. At various stages of the test, Snyder Hope Scale (1996), Neff Self-Compassion Scale (2003), and Tedeschi and Calhoun Post-Traumatic Growth Inventory (1996) were used. The data were analyzed using the mixed analysis of variance (ANOVA) test in SPSS software.

Results: Positive psychology-based intervention effectively improved hope ($F = 17.94$, $P = 0.002$), self-compassion ($F = 10.41$, $P = 0.003$), and post-traumatic growth ($F = 35.23$, $P = 0.001$) in women with breast cancer.

Conclusion: Positive psychology provides patients with breast cancer with a compassionate and hopeful understanding of the disturbances affecting their quality of life, allowing them to consciously accept their feelings and thoughts.

Keywords: Breast cancer; Positive psychology; Hope; Self-compassion; Post-traumatic growth

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Introduction

Cancer is a disease that affects an increasing number of people and necessitates extensive medical attention. Ongoing research has shown that cancer is a global problem affecting not just developed countries (Faryabi, Rafieipour, Haji-Alizadeh, & Khodavardian, 2021). Breast cancer is the most common cancer in women in developed countries, even though the mortality rate in developed countries is higher than in semi-industrialized countries. It is one of the most common cancers in women and one of the leading causes of death in women around the world (Lotfi-Kashani, Fallahi, Akbari, Mansour-Moshtaghi, & Abdollahi, 2018). Aside from the fear and stress of cancer recurrence and reactivation, or the spread of cancer to other parts of the body, surgery and mastectomy have numerous psychological consequences. Most patients with cancer suffer from anxiety and depression, among the most common mental disorders. Major depressive disorder is the second most common psychiatric diagnosis in these patients (Goli, Scheidt, Gholamrezaei, & Farzanegan, 2021). Depression and anxiety reduce patients' energy and interest in continuing treatment, quality of life, interpersonal relationships and perception of health and physical symptoms. These mental illnesses are partly caused by fear of the disease and uncertainty about its treatment. Breast cancer can challenge patients' core beliefs about their invulnerability, safety, and worth, leading to depression, tension, body image issues, and physical symptoms (Shi, Shi, Liu, & Cai, 2021).

Breast cancer is more common in depressed women than in fit women. Because cancer resistance is dependent on immune system resistance, it appears that stressors weaken this system and cause disease (Porro, Broc, Baguet-Marin, & Cousson-Gelie, 2022). Breast cancer and its treatment will cause numerous physical and mental issues. It is the most common cancer in women and is one of the most serious threats to women's physical and psychological health. Breast cancer is the fifth leading cause of death in women with cancer, with a mortality rate of four out of every 100000 people, and it is the third most common cancer in women among all cancers. Breast cancer has a greater emotional and psychological impact on women than other cancers. It is also a stressful situation for women and affects more than one million women worldwide (Michalczyk, Dmochowska, Aftyka, & Milanowska, 2022).

Because of the increasing prevalence of breast cancer in recent decades and its negative effects on all physical, emotional, psychological, social, and economic dimensions, specialists' attention is increasingly focused on this disease. Patients with cancer face a wide range of physical, psychological, and social issues, with clinical depression being the most common mental disorder. Numerous cancer studies have suggested that depression is a significant risk factor. Depression is a crippling disorder that costs the individual and society dearly due to its widespread prevalence, relatively chronic course, and dysfunction of work and interpersonal relationships, which cause severe economic and human harm. These patients' most common causes of depression are illness-related pain, decreased social activities, and disability (Fujimoto & Okamura, 2021). Because it requires surrender to the disease, depression is extremely harmful to patients with cancer. Depression can manifest itself in various ways, including pessimism about the future, low self-esteem, and feelings of worthlessness and inadequacy. Hope increases a person's efforts to cope with the disease and continue treating ailments such as cancer. Despair is a major feature and manifestation of depression. Depression and anxiety can occur in these patients for various reasons, including the individual's reaction to the diagnosis,

treatment complications, long treatment duration, repeated hospitalization, and disruption of family life. According to studies, depression will be one of the world's most common and expensive diseases in the future (Zhai, Weller-Newton, Shimoinaba, Chen, & Copnell, 2021).

Patients with cancer who become aware of impending death experience feelings of helplessness, pessimism about the future, despair, and failure following denial and anger (Shen, Qiang, Wang, & Chen, 2020). As a result, one of the variables that must be investigated about patients with cancer is life expectancy (Abdollahi, Panahipour, Hosseinian, & Allen, 2019). Hope, a multidimensional and potentially powerful complex factor in effective recovery and adaptation, is an important adaptation mechanism in chronic diseases such as cancer. People who are depressed, hopeless, and restless, and those who are lonely lament the meaninglessness and emptiness of life (Todorov, Sherman, & Kilby, 2019). Access to appropriate resources, including hope, can significantly affect adjustment process of a patient with cancer; one of these patients' most common psychological problems is a sense of despair and hopelessness. Furthermore, hope can play an important role in improving the overall health of patients with cancer, facilitating healing, and increasing therapeutic responses at various stages of treatment (Pahlevan et al., 2021). Hope, from a biological standpoint, has biological effects and can help control pain and physical weakness in sick people, because it activates brain circuits and releases endorphins, which reduce pain (Li, Kong, Xuan, Wang, & Huang, 2021).

Compassion is another variable linked to mental health and, as a result, physical health. Compassion, according to Neff (2003) is a three-part construct that includes self-kindness versus self-judgment, common humanity, and mindfulness in the face of extreme imitation, which is closely related to emotion (Arambasic, Sherman, & Elder, 2019). Patients with cancer who have more compassion for themselves have fewer negative consequences and psychological symptoms and have more personal control over their lives. In women with breast cancer, self-compassion modifies the relationship between perceived stress and self-care behaviors and mediates the relationship between body image and anxiety. In patients with breast cancer, poor body image and lack of self-compassion are linked to increased psychological distress. Compassion, according to researchers, increases emotional resilience and reduces depression and anxiety in patients (Abdollahi, Taheri, & Allen, 2020).

Because of the prevalence, devastation, and cost of depression and anxiety disorders in breast cancer, patients should pay special attention to theoretical and applied research in prevention and treatment. It appears that psychological evaluation of these patients is necessary to identify common reactions and psychological complications for rapid prevention and treatment. As a result, in addition to medical and pharmacological treatments, it is essential to teach these patients some appropriate coping strategies for dealing with the experience of overcoming the pathological dimensions caused by the courses of diagnosis, treatment, and prevention. As a result, the three variables of post-traumatic growth, self-compassion, and hope are important factors in improving the mental health of people with cancer, and interventions to improve these factors should be sought. One of the interventions that appear to be effective in this field is positive psychology. Today, the effect of positive psychology on the healing process of chronic diseases has been confirmed. With the advancement of the field of health psychology, psychologists have taken a more active role in the disease treatment process. As a result, the current study investigated the effect of positive psychology on hope,

self-compassion, and post-traumatic growth in patients with breast cancer.

Methods

The current study was a quasi-experimental research with pre-test, post-test, and follow-up design with a control group. The study's statistical population included 483 women with breast cancer diagnosis referred to King Abdullah Medical City Hospital in Makkah Region, Saudi Arabia, in 2021. One hundred people were chosen for this study using a simple random sampling method. With a 95% confidence level, 0.05 alpha error, 80% study power, and a 10% probability of loss, 50 people were assigned to each intervention and control groups using simple random replacement. Inclusion criteria included breast cancer diagnosis, being between the ages of 35 and 55, not having a severe mental disorder, and not using antidepressants or anxiety medications. Exclusion criteria included missing more than two treatment sessions, having a significant physical illness other than breast cancer, being unwilling to continue participating in the study, and failing to complete a questionnaire. Questionnaires were completed before, during, and two months after the intervention. The Snyder Hope Scale (Snyder et al., 1996), Self-Compassion Scale, and Post-Traumatic Growth Inventory were used to collect data in this study. To observe ethical principles in the research, the fundamental conditions of informed consent to participate, protection of personal information and confidentiality of participants, and exit at any research stage when the treatment process caused psychological discomfort were taken into account. Before the intervention, participants were briefed on the research, its objectives, necessity, terms, and number and duration of sessions.

The Snyder Hope Scale was created to assess hope. This scale has 12 terms and is used for self-evaluation. Four expressions are used to assess factor thinking, four are used to assess strategic thinking, and four are deviant expressions. The scores range from entirely true (8) to entirely false (1). Deviant questions are no longer scored in order to improve test accuracy. Thus, the score range is 8 to 64, with 8 representing the lowest level of hope and 64 representing the highest level of hope. Numerous studies back up the Snyder Hope Scale's reliability and validity as a measure of hope (Stanton, Danoff-Burg, & Huggins, 2002). The overall homogeneity of the test ranges from 0.74 to 0.83, and the reliability is 82% (Vakili, Ghanbari, Nooripour, Mansournia, Ilanloo, & Matacotta, 2022). The functional subscale has an internal consistency of 0.72 to 0.77, while the strategic subscale has an internal consistency of 0.65 to 0.84 (Leite et al., 2019). In the current study, the Cronbach's alpha for the Snyder Hope Scale was 0.79.

Neff created the Self-Compassion Scale, a 26-item tool for measuring self-compassion. Test questions are graded on a 5-point scale ranging from zero (rarely) to four (almost always). The overall score ranges from 0 to 104. According to Brown et al. (2020), Cronbach's alpha for the Self-Compassion Scale is 0.81, indicating that the questionnaire questions have the desired internal consistency. Confirmatory factor analysis (CFA) was used to evaluate the instrument's validity, and it was discovered that factor loads related to all subscales and reagents were in good condition. In the current study, the Cronbach's alpha for the Self-Compassion Scale was 0.84.

Tedeschi and Calhoun (1996) developed the Post-Traumatic Growth Inventory; it consists of 21 items designed to measure post-traumatic growth. This test is a self-evaluation instrument in which individuals should rate their responses on a scale from 0 (no change) to 5 (significant change). The range of test scores is from 0 to 105, with higher scores indicating greater post-traumatic development. In a

study by Ruini and Vescovelli (2013), the questionnaire's reliability coefficient with a one-week interval was 0.95, and Cronbach's alpha for the entire scale was 0.91. In the current study, the Cronbach's alpha for the Post-Traumatic Growth Inventory was 0.93.

The current study's intervention program based on positive psychology was administered in eight 90-minute sessions (one weekly). A description of the intervention sessions is provided in table 1. Before the intervention, participants were briefed on the research, its objectives, necessity, terms, and number and duration of sessions. In addition, each participant was required to complete the Snyder Hope Scale, the Self-Compassion Scale, and the Post-Traumatic Growth Inventory. The experimental group was then administered an intervention grounded in positive psychology. Both groups completed the questionnaires again after the intervention (post-test phase) and two months later (follow-up phase).

First, the demographic characteristics of the research participants were investigated. The mean and standard deviation (SD) values of the intervention and control groups in the pre-test, post-test, and follow-up phases for each of the hope, self-compassion, and post-traumatic growth variables are given below. The differences in variable scores were subsequently compared between and within groups. For this purpose, the univariate mixed analysis of variance (ANOVA) was utilized. The Bonferroni post-hoc test was then used to compare pre-test, post-test, and follow-up stages. Noteworthy is the fact that SPSS software (version 23, IBM Corporation, Armonk, NY, USA) was used for the analysis.

Results

The intervention group's mean age was 47.32 ± 6.49, while that of the control group was 49.27 ± 7.26. Table 2 contains information about the demographic characteristics of the groups.

Table 3 displays descriptive statistics for subjects' scores on the variables under consideration. According to table 3, the positive psychology intervention was associated with increased scores of hope, self-compassion, and post-traumatic growth, whereas there was no change in the control group.

Table 1. Description of intervention sessions

Session	Session description
1	Introducing patients to each other, general statement of group work rules, general explanation about the program
2	Issues related to the lack of positive resources such as positive emotions, commitment, positive communication, meaning, and positive abilities in the occurrence of negative emotions and their effect on the disease treatment process
3	Determining your positive competencies, discussing competencies to create and strengthen commitment, and how to use the strengths of the index
4	Understanding the nature of forgiveness and its effects on a variety of issues
5	Emphasis on good memories and gratitude as a lasting form of gratitude and writing the first letter of appreciation to a familiar person
6	Acceleration in the enjoyment of pleasures as a potential threat to gradual satisfaction and ways to deal with it through a variety of strategies
7	Practicing constructive and active reaction as a strategy to strengthen positive communication
8	Final summarizing, getting feedback, and running the post-test phase

Table 2. Comparison of groups' demographic characteristics

Demographic variables		Intervention group [n (%)]	Control group [n (%)]
Marital status	Single	9 (18)	7 (14)
	Married	41 (82)	43 (86)
Age category (year)	35-40	8 (16)	9 (18)
	41-50	23 (46)	20 (40)
	51-55	19 (38)	21 (42)
History of cancer (year)	< 5	16 (32)	15 (30)
	5-10	27 (54)	24 (48)
	> 10	7 (14)	11 (22)
Education level	High school	10 (20)	11 (22)
	Diploma	26 (5)	23 (46)
	Undergraduate	14 (28)	16 (32)

The differences in the scores related to the variables were then compared between and within groups. The univariate mixed ANOVA was used for this purpose. Table 4 shows the results of the univariate ANOVA.

Table 4 shows that all three effects of intergroup and intragroup membership and interactive intergroup and intragroup interaction were significant on hope, self-compassion, and post-traumatic growth variables. As a result of the intergroup effect, or in other words, the intervention based on positive psychology, the scores related to the variables studied in the intervention group improved. Furthermore, the effect within the group indicates that all three variables' scores increased significantly from the pre-test to the post-test stage. The interactive results also showed that when the impact of the intervention and test time (stage) were considered concurrently and in interaction, the scores of hope, self-compassion, and post-traumatic growth increased significantly. Table 5 presents the Bonferroni post-hoc test comparing pre-test, post-test, and follow-up stages.

According to table 5, it is evident that the pre-test stage differs significantly from the post-test and follow-up stages for all studied variables. In addition, a comparison of the post-test and follow-up phases revealed that none of the mentioned components differed significantly.

Discussion

The current study aimed to assess the efficacy of the positive psychology on hope, self-compassion, and post-traumatic growth in women with breast cancer. According to the results, the positive psychology intervention was effective on the values of the variables in women with breast cancer. This study's results are consistent with those of other studies in this field (Brix et al., 2013; Svetina & Nastran, 2012).

Positive psychology can help increase life expectancy in all aspects of life, because it reduces ineffective strategies (Bergqvist & Strang, 2019). In fact, by interrupting the mechanisms of continuity of inefficient strategies, this type of intervention frees the patient's attention from repeated involvement with unpleasant events from the past.

Table 3. Indicators describing the studied variables in each group at various stages

Variable	Group	Pre-test (mean ± SD)	Post-test (mean ± SD)	Follow-up (mean ± SD)
Hope	Intervention	22.49 ± 6.74	27.94 ± 9.28	26.13 ± 8.62
	Control	23.17 ± 7.83	23.31 ± 7.76	23.81 ± 8.14
Self-compassion	Intervention	54.38 ± 11.41	62.49 ± 12.83	61.24 ± 12.16
	Control	55.14 ± 11.76	55.71 ± 11.46	55.37 ± 11.94
Post-traumatic growth	Intervention	63.51 ± 12.07	72.64 ± 14.17	70.42 ± 13.74
	Control	62.97 ± 11.83	63.68 ± 12.39	62.57 ± 11.03

SD: Standard deviation

Table 4. Univariate mixed analysis of variance (ANOVA) test results for study variables

Source of changes	Variable	Sum of squares	df	Mean squares	F-value	P-value	Effect size
Group	Hope	421.36	1	421.36	17.94	0.002	0.47
	Self-compassion	104.35	1	104.35	10.41	0.003	0.36
	Post-traumatic growth	2207.38	1	2207.38	35.23	0.001	0.68
Time	Hope	1538.72	1	1538.72	38.26	0.001	0.59
	Self-compassion	193.27	1	193.27	7.16	0.007	0.32
	Post-traumatic growth	941.59	1	941.59	29.17	0.004	0.53
Group*Time	Hope	602.57	1	602.57	19.67	0.003	0.41
	Self-compassion	241.61	1	241.61	8.13	0.005	0.34
	Post-traumatic growth	549.18	1	549.18	21.53	0.001	0.47

df: Degree of freedom

It also enables the individuals to free their attention and focus from the trap of emotionally, behaviorally, and cognitively defective circles, allowing them to concentrate on other aspects of life (Parambil, Philip, Tripathy, Philip, Duraisamy, & Balasubramanian, 2019). The findings can be explained by considering patients' maladaptive coping behaviors, including avoiding activities and social contact. These patients reduce their activities to allow more time for rumination or to increase their relaxation, because they mistakenly believe that rumination provides a valuable opportunity for recovery (Soderberg-Naucler, 2022). As a result of performing the techniques and tasks of this treatment, patients undergoing positive psychology treatment will not have much time to drown in negative thoughts, memories, and rumination (Khezri, Bagheri-Saveh, Kalhor, Rahnama, Roshani, & Salehi, 2022). Mentioned treatment causes them to pay more attention to other aspects of their lives and expand their social relationships, resulting in increased energy, positive thinking, and life expectancy. Patients with breast cancer in such situations can engage in activities they were previously unable or unwilling to do (Ginter, 2020).

There are several reasons why positive psychology effectively improves the self-compassion of patients with breast cancer. By reducing the avoidance of painful emotions, this treatment increases self-compassion and its components, such as mindfulness, self-kindness, and human sharing (Mifsud et al., 2021). Patients are helped to accept feelings of compassion by investigating their reasons for not empathizing with themselves (Todorov et al., 2019). People with a high level of compassion accept it to relieve resentment for healing rather than avoiding pain, and this trait can be seen in patients with cancer who eagerly pursue the healing process (Hoffman & Baker, 2022; Semenchuk et al., 2022). Compassion, according to the theoretical definition, is a kind of ability to adapt to the current situation, which means that when a tragic event occurs, people develop the ability of compassion to cope with this situation. As a result, when faced with pain and failure, self-compassion shines brighter.

Table 5. Bonferroni post-hoc test for comparing pre-test, post-test, and follow-up stages

Variable	Paired comparison	Mean difference	Mean deviation	P-value
Hope	Pre-test vs. post-test	-5.45	1.37	0.001
	Pre-test vs. follow-up	-3.64	0.76	0.007
	Post-test vs. follow-up	1.81	0.23	0.721
Self-compassion	Pre-test vs. post-test	-8.11	2.16	0.003
	Pre-test vs. follow-up	-6.86	1.79	0.004
	Post-test vs. follow-up	1.25	0.17	0.493
Post-traumatic growth	Pre-test vs. post-test	-9.13	2.43	0.001
	Pre-test vs. follow-up	-6.91	1.64	0.011
	Post-test vs. follow-up	2.22	0.56	0.512

Consequently, when the breast cancer treatment process is complete and patients have completed an emotion-focused treatment, they have less need for compassion exercises within two months of follow-up. Furthermore, some highly self-critical clients have a low capacity for compassion; in such cases, developing and expressing self-compassion may be a complex process that necessitates gradual occupational therapy.

Limitations of the current study, including the reduction in the number of treatment sessions for this group of participants appear to have prevented the consolidation of positive psychology's effects on hope, self-compassion, and post-traumatic growth, and the study's statistical population of women with breast cancer at King Abdullah Medical City Hospital in Makkah. They were chosen by simple random sampling; therefore, caution should be exercised when extending the findings to others in the community. It is possible to improve the generalizability of treatment results by implementing this intervention in other cancer groups. Different sampling methods are also suggested to improve the external validity of the results. Furthermore, follow-up courses with longer intervals and multiple follow-up courses should be used to increase knowledge and the possibility of definitively commenting on the stability of changes during treatment and generalization of treatment skills. Because hope, self-compassion, and post-traumatic variables play a protective role in mental health, it is suggested that the number of sessions of positive psychology interventions is increased to evaluate the stability of the effectiveness of this treatment in patients with cancer.

Conclusion

The current study found that treating patients with breast cancer with positive psychology significantly increased hope, self-compassion, and post-traumatic growth. Positive psychology reduces self-criticism and negative emotions by increasing the values of the variables under consideration and assisting patients in evaluating their judgment. As a result, the findings can assist researchers, therapists, and other health professionals in developing appropriate interventions for these patients.

Conflict of Interests

Authors have no conflict of interests.

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None.

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An Evaluation of the Impact of Teaching Emotional Intelligence Components on the Emotional Intelligence of Medical and Nursing Students

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Quantitative Study

Abstract

Background: Emotional intelligence is a collection of emotions and skills that increase a person's capacity to cope with and exert control in adversity, and lead to optimal performance in various domains, including academic achievement. The present study was conducted with the aim to investigate the impact of teaching different components of emotional intelligence on the emotional intelligence of medical and nursing students of Basra University, Iraq.

Methods: The current quasi-experimental study was performed with a pretest-posttest design. With the help of a quota system, 247 students were selected at random and divided into two groups (intervention and control group). The data collection tools used included the Bar-On Emotional Intelligence Questionnaires in the academic year 2020-21. Each group took part in the posttest after 10 training sessions on emotional intelligence components. Analysis of covariance was used in SPSS software to examine the effect of group, discipline, and intervention on various components of emotional intelligence.

Results: The results indicated that teaching emotional intelligence components was effective on the emotional intelligence of medical and nursing students ($F = 99.422$; $P < 0.01$).

Conclusion: It can be concluded that emotional intelligence training is effective on the emotional intelligence and can be used as an effective method to improve students' psychological status.

Keywords: Emotional intelligence; Medical education; Nursing education

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Introduction

Emotional intelligence consists of emotions and skills that increase a person's ability to cope with and maintain control in the face of problems and anxiety. It also promotes optimal self-awareness, social awareness, relationship management, and self-management performance. In other words, emotional intelligence is the ability to recognize, utilize, and control one's own and others' emotions (Karimi, Leggat, Bartram, Afshari, Sarkeshik, & Verulava, 2021). Emotional intelligence is one of the practical strategies for relationship management and enhancement of communication functions. This skill improves a person's problem-solving abilities and decreases the amount of conflict between intellectual and emotional perceptions (Humphrey, Curran, Morris, Farrell, & Woods, 2007). Learning effective strategies enables students to manage stress effectively and communicate in stressful situations. One of these methods is the development and application of emotional intelligence. Emotional intelligence is one of the essential self-regulatory learning strategies associated with empathic communication in students (Beauvais, Brady, O'Shea, & Griffin, 2011).

Emotional intelligence consists of the ability to comprehend oneself and others better. Mayer and Salvi (1997) stated that emotional intelligence has four parts: recognizing emotions, using emotions and feelings, understanding emotions, and controlling emotions. More specifically, emotional intelligence is defined as taking in information and managing your own and other people's emotions (McCallin & Bamford, 2007). Moreover, emotional intelligence refers to the capacity to recognize concepts, meanings, and emotions, and their interrelationships, and to reason, solve problems, and manage emotions (Amiri, Hassani-Abharian, & Seyrafi, 2021; Obeid et al., 2020). Using this skill and through self-awareness, students can manage their moods, improve them through self-management, comprehend their impact through empathy, and behave in a way that improves both their own and their patients' dispositions through relationship management. Improve. Numerous medical graduates lack the skills necessary for successful adaptation to the outside world (Cejudo Prado, 2016). Although cognitive abilities and fundamental skills are essential for physicians to begin their careers, emotional intelligence plays a crucial role in effective occupational performance, and educators must address this need. Managers of educational institutions should focus on the cultivation and education of this skill among their students (Suleman, Hussain, Syed, Parveen, Lodhi, & Mahmood, 2019).

Students are the human capital, productive force, and future builders of any society. In this regard, the major mission of universities is the comprehensive development and cultivation of scientists, thinkers, experts, and committed and educated individuals who can exhibit the required behavior and exert emotional control to achieve academic, professional, and social success (Sundararajan & Gopichandran, 2018). Today, researchers believe that cognitive intelligence accounts for no more than a quarter of wins, with the remainder depending on emotional intelligence and intelligence factors. It is believed that students with high emotional intelligence experience less academic failure and anxiety. In other words, educational status is affected by emotional and stress regulation. There is abundant evidence that emotional intelligence increases a person's future success and productivity (Patel, 2017; Jensen et al., 2008; Obeid et al., 2021). Numerous studies demonstrate a significant positive correlation between emotional intelligence and academic achievement (Nelis, Quoidbach, Mikolajczak, & Hansenne, 2009; Maalouf, Hallit, & Obeid, 2022).

In addition to knowledge and experience, if physicians possess sufficient emotional intelligence, they can achieve the organization's goals at a lower cost and higher quality by fostering healthy relationships with others and fostering a spirit of cooperation and work motivation (Basheer et al., 2022). Through healthy relationships, people feel valued, accepted, and trusted, and these skills promote mental health and increase their efficiency and usefulness. It should be an integral part of any health-related education due to the significance of emotional intelligence. For full implementation, students require role-playing, experimentation, and scientific opportunities. Learn creatively and creatively (Sharbafchizadeh & Sadeghi, 2022). It is necessary to meet patients' needs by teaching medical and nursing students to be sensitive to their patients' morals and spirits. Students of medicine and nursing should learn this skill for three reasons: they need to be able to provide suitable care services in crowded and chaotic places (Benson, Ploeg, & Brown, 2010). Traditional medical and nursing education programs must incorporate emotional intelligence requirements such as self-awareness, self-management, and social management to achieve these objectives (de Fabio, Palazzeschi, Bucci, Guazzini, Burgassi, & Pesce, 2018). Emotional intelligence is a trainable model that cultivates both intellectual and emotional processes. Emotional intelligence is essential for developing and integrating professional identity in diverse fields of health knowledge, including medicine, psychology, care, and nursing (Saddki, Sukerman, & Mohamad, 2017; Ghanbari, Asgari, & Seraj-Khorrami, 2022).

Emotional intelligence is a valuable managerial skill for patients, health care providers, and health organizations (Kafetsios & Zampetakis, 2008). Managers with emotional intelligence significantly impact how patients are cared for and how their problems are resolved, communicate more effectively with their employees, and manage the clinical environment more efficiently (Cherry, Fletcher, O'Sullivan, & Shaw, 2012). In addition, they are better at resolving conflicts, empathizing with patients and their companions, solving problems, playing a more constructive role in stressful environments, and achieving superior results. In other words, these managers in the treatment system can control their emotions and make sound decisions despite the complexities of the health system (El Othman, El Othman, Hallit, Obeid, & Hallit, 2020; Ebrahimi Barmi, Hosseini, Abdi, & Bakhshi, 2018; Bar-On, 2006).

One of the issues with most educational systems is their emphasis on academic ability while ignoring the significance of emotional intelligence in determining the fate of individuals in society. In comparison, influential members of the community have a high emotional Intelligence. The base of this research is the Bar-On model. This study was conducted with the aim to determine how teaching parts of emotional intelligence affects medical and nursing students' emotional intelligence. Medical and nursing students play an important leadership role in the health care system. Understanding the importance of emotional intelligence can help them achieve academic success and improve their performance in future management roles. Therefore, by elucidating the primary components of emotional intelligence in the two groups, we can attempt to plan and succeed optimally, eliminate any deficiencies, and provide students with complementary and compensatory opportunities. Thus, the present study was performed with the aim to investigate the impact of teaching different components of emotional intelligence on the emotional intelligence of medical and nursing students of Basra University, Iraq.

Methods

The present quasi-experimental study was performed with a pretest-posttest design

and intervention and control groups. The statistical population of the study included 381 medical and nursing students of Basra University in the academic year 2020-21. Therefore, 247 medical and nursing students were selected using a simple random sampling method. The data collection tool of this study was a questionnaire. The questionnaires used in this study included the standard Bar-On emotional intelligence test and a demographic information questionnaire. After selection, the participants were divided into two groups. The intervention group was given emotional intelligence-based strategies. The control group, on the other hand, did not receive any education. The posttest scores were compared between the two groups. In completing the questionnaires, participants did not need to provide their names and information without doing so. Ethical principles were taken into consideration for all study participants to ensure the confidentiality of their information.

The demographic information questionnaire included 20 questions regarding age, sex, marital status, grade, number of family members, multiple children, and the field of study, semester, father's generation, father's education, father's occupation, mother's age, mother's education, and mother's occupation. The study inclusion criteria included living with parents or family, interest in the field of study, interest in tackling difficult problems, interest in continuing education, and interest in research.

Mental intelligence patterns (such as that presented by Mayer and Salvi) or mental and personality patterns (such as Gelman and Bar-On patterns) are commonly used to assess emotional intelligence. The Bar-On pattern is the hybrid pattern, where emotional intelligence is defined as a combination of cognitive abilities and personality traits. Figure 1 presents the Bar-On Emotional Intelligence Questionnaire's five scales and fifteen subscales.

Each question on this survey is scored on a scale ranging from 5 (strongly agree) to 1 (strongly disagree). The mean of each component's questions is then calculated, yielding a score between 1 and 5, with 5 being the highest and 1 being the lowest. The Bar-On Emotional Intelligence Questionnaire, a 43-item instrument, was used to gauge the subject's level of emotional intelligence.

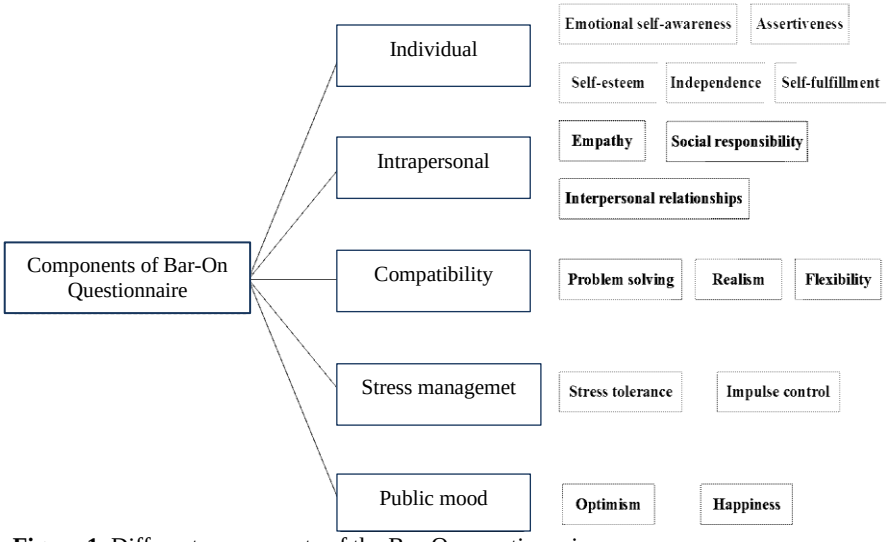

Figure 1. Different components of the Bar-On questionnaire

With a 95% confidence interval (CI) in this index's non-discrepancy index or the square root of the mean estimation error, the relative chi-square of 1.96 was used for confirmation factor analysis. In this study, the experimental group received ten sessions of emotional intelligence training over five weeks, while the control group received no special training. To estimate convergent validity, Bar-On (2004) asserts a 36% overlap between his questionnaire and other social and emotional intelligence tests, and he deems this overlap significant. According to Bar-On (2006), numerous international studies have been conducted to evaluate the validity and dependability of the Bar-On questionnaire. The Bar-On questionnaire evaluates the role of subjects in social interactions at school, university, and the workplace, as well as its role in physical and mental health, self-actualization, and relaxation. Based on the study by Dawda and Hart (2000), this questionnaire's predictive validity coefficient averaged 59%. This coefficient indicates that the questionnaire load can predict various aspects of human behavior. This questionnaire's Cronbach's alpha coefficient, Spearman-Brown Gain, and test-retest reliability were also reported as 93%, 90%, and 85%, respectively.

For ethical reasons, the students were given an informed consent form that told them how to fill out the questionnaire and emphasized that their participation in the project was voluntary, that they did not have to give their names, and that the information collected would be kept confidential. Descriptive statistical indices such as frequency, mean, and standard deviation were utilized to describe the data. The collected data were analyzed using variance and analysis of covariance in SPSS software (version 23; IBM Corp., Armonk, NY, USA).

Results

The demographic characteristics of the studied groups are presented in table 1. It is worth noting that 63% of the participants were girls, and 76% were single. According to table 1, there were no statistically significant differences in the demographic characteristics of the subjects between the control and intervention groups, indicating the homogeneity of the two groups.

Table 2 indicates that the training group's mean scores on the five emotional intelligence components increased significantly compared to before training. However, the values in the control group remained relatively stable and almost unchanged; consequently, the impact of learning is well-defined.

The percentage changes resulting from the intervention for each component of emotional intelligence are depicted in figure 2. The figure shows that the variable of individual skills has changed the most, while the variable of compatibility has changed the least.

The results of the covariance analysis for emotional intelligence components are presented in table 3.

Table 1. Demographic characteristics of participating students

Demographic characteristics	Intervention group (mean ± SD)	Control group (mean ± SD)	P-value
Age	22.47 ± 3.81	21.76 ± 2.49	0.59
Term	6.42 ± 2.14	6.86 ± 2.28	0.43
Father's age	55.73 ± 5.14	54.49 ± 6.19	0.19
Mother's age	52.24 ± 4.43	50.38 ± 6.86	0.81
Number of brothers	0.93 ± 0.62	0.86 ± 0.58	0.76
Number of sisters	0.79 ± 0.83	0.84 ± 0.46	0.52

SD: Standard deviation

Table 2. Mean and standard deviation for components of emotional intelligence

Emotional intelligence components	Group	Field	Pretest		Posttest	
			Mean	SD*	Mean	SD
Individual skills	Intervention	Medical	36.82	2.16	46.92	2.49
		Nursing	37.15	2.43	48.12	2.83
	Control	Medical	36.49	2.09	36.59	2.67
		Nursing	36.86	3.13	36.28	1.82
Interpersonal skills	Intervention	Medical	27.91	3.47	32.49	3.59
		Nursing	28.34	2.69	32.23	2.67
	Control	Medical	27.45	2.94	27.63	2.43
		Nursing	28.07	2.82	27.64	2.29
Compatibility	Intervention	Medical	23.19	1.59	26.43	2.41
		Nursing	24.37	1.87	26.58	2.16
	Control	Medical	23.26	2.09	23.54	1.86
		Nursing	23.41	1.83	22.94	1.72
Stress management	Intervention	Medical	22.19	1.52	25.48	3.18
		Nursing	24.35	2.16	26.54	3.04
	Control	Medical	21.83	2.43	21.96	2.68
		Nursing	24.61	2.17	24.82	2.73
Public mood	Intervention	Medical	22.39	2.19	25.64	3.67
		Nursing	23.81	2.83	26.79	2.62
	Control	Medical	22.64	2.49	22.45	2.19
		Nursing	24.15	1.94	23.76	2.38

SD: Standard deviation

The group variable became significant for all components of emotional intelligence (individual skills, interpersonal skills, compatibility, stress management, and public mood).

According to table 3, there is a statistically significant difference ($P < 0.01$) between the training group and control group in terms of the mean of all components of emotional intelligence, indicating that training was effective. In the analysis, the effect of discipline was not significant, so there was no significant difference between the medical and nursing groups in this regard. The significance of the pretest score used as a control in the model is notable.

Discussion

This present study was conducted with the aim to investigate the connection between emotional intelligence and communication and management abilities.

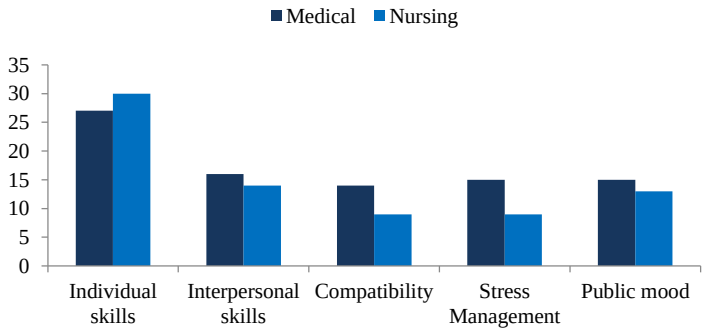

Figure 2. Percentage of changes in emotional intelligence components in the intervention group

Table 3. Results of analysis of covariance for emotional intelligence components

Emotional intelligence components	Variable	SS	MS	df	F-value	P-value
Individual skills	Group	1367.446	1367.446	1	288.154	< 0.01
	Field	6.328	6.328	1	1.149	0.38
	Pretest	629.866	629.866	1	172.541	< 0.01
	Error	843.949	4.741	178	-	-
Interpersonal skills	Group	143.252	143.252	1	76.338	< 0.01
	Field	3.411	3.411	1	1.631	0.76
	Pretest	1645.714	1645.714	1	468.172	< 0.01
	Error	578.143	3.25	178	-	-
Compatibility	Group	106.253	106.253	1	64.518	< 0.01
	Field	1.035	1.035	1	0.863	0.43
	Pretest	283.142	283.142	1	243.755	< 0.01
	Error	517.433	2.91	178	-	-
Stress management	Group	213.425	213.425	1	29.124	< 0.01
	Field	5.942	5.942	1	0.736	0.57
	Pretest	465.755	465.755	1	54.282	< 0.01
	Error	971.587	5.458	178	-	-
Public mood	Group	261.732	216.732	1	39.076	< 0.01
	Field	1.579	1.579	1	0.961	0.34
	Pretest	397.463	397.463	1	143.261	< 0.01
	Error	412.566	2.318	178	-	-

The results demonstrated that emotional intelligence derived from self-report is related to associated skills and subscales, and predicts these skills in a meaningful way. Analysis of covariance test results for the components of interpersonal skills, interpersonal skills, adjustment skills, general mood skills, and stress management skills revealed that the effect of the field of study was not significant for any of the components. Thus, the impact of learning emotional intelligence components on medical and nursing students was identical. While the results demonstrated the effect of training in the intervention group, the values of various emotional intelligence components have a significant relationship with the group. The results also showed that in the intervention group the individual skills component changed the most (27% for medical and 30% for nursing students). In contrast, the compatibility component changed the least (14% for medical and 9% for nursing). A pretest variable evaluation was used to assess the test's impact via analysis of covariance. The outcomes demonstrated that the test was significant for all aspects of emotional intelligence. Notably, at the beginning of the study, the participants' demographic characteristics were collected; it was determined that the intervention and control groups were appropriately divided and none of the groups' demographic characteristics were significant.

People with higher emotional intelligence are better able to understand interpersonal messages, listen better to others, understand how to communicate effectively with others, and are better able to regulate their emotions. Encoding, comprehending, and managing emotions is associated with social and emotional adaptation, which is consistent with the findings of previous researches (Vargas Valencia, Vega-Hernandez, Aguila Sanchez, Vazquez Espinoza, & Hilerio Lopez, 2022; Irfan, Saleem, Sethi, & Abdullah, 2019). People with high emotional intelligence have more positive social interactions, place a higher value on their relationships with friends and family, and are more successful in their interpersonal relationships (Wessel, Larin, Benson, Brown, Ploeg, Williams, 2008; Koczwara & Bullock, 2009; Chau et al., 2019).

Emotional intelligence is a collection of non-cognitive abilities, skills, and

competencies that influence a person's adaptability to environmental situations and pressures. Possessing a higher level of emotional intelligence will result in a greater capacity to effectively manage emotions and adapt to daily challenges, which will improve mental health. Emotional intelligence is also the ability to accurately recognize emotions, facilitate thought, and control these emotions to separate reason from human emotions. Given its significance, emotional intelligence should be an integral part of all health-related education. Many studies indicate that students' emotional intelligence is not at an acceptable standard and level because there is no written training in this regard; however, this skill can be improved. However, practice can improve emotional intelligence regardless of how high or low an individual's emotional intelligence is. Even in individuals who lack emotional intelligence, it is possible to cultivate high emotional intelligence. A portion of emotional intelligence is innate, while the remaining is acquired through human experience and can be enhanced through psychotherapy, critical thinking, awareness-raising, counseling, and coaching.

To achieve the stated training goals, such as improving one's behavior, learning new skills and abilities, and training highly-trained professionals, we can use emotional intelligence principles in medical and nursing training. As prevention is the most effective means of preventing emotional intelligence deficits, the development of this skill in vocational education students should be deliberated. Due to the extensive role of nurses in various medical centers and clinical services, physicians today possess, in addition to practical skills and knowledge, the ability to solve problems and make appropriate decisions, as well as the ability to communicate effectively and be aware of their values and the values of their patients. They require sound judgment in a variety of situations. Consequently, these competencies enhance the quality of nursing services, increase client satisfaction, and improve the health of patients.

People need communication and management skills to work more effectively in a complex health care system. They must work with many coworkers and adapt to the constant changes in the organization; on the other hand, they must care for patients with diverse cultures, races, and beliefs. Increasing the emotional intelligence of the treatment staff can therefore be very liberating and prevent fatigue and burnout among them. This will improve the job security of physicians, and patients will also benefit from the positive outcomes.

The current study's limitations include the self-reporting of emotional intelligence and communication skills and the study's use of a small sample from a university in Iraq. Administrators should give all students opportunities to grow and pay attention to their emotional and cognitive intelligence when planning education because emotional intelligence affects students' mental health and makes them better in many fields. Moreover, given the importance of emotional intelligence in managing health team members and patients, it is suggested that it be included in the curriculum of medical and nursing students.

Conclusion

The current study investigated the impact of teaching emotional intelligence components on the development of emotional intelligence among medical and nursing students at Basra University. The results indicated that the effect of the field of study on outcomes was not significant, whereas the impact of groups was highly significant. Therefore, the importance of training was made clear to the intervention

group. The analysis of the results demonstrated that the acquisition of emotional intelligence skills could enhance the profession by fundamentally altering physicians' attitudes toward patients, themselves, and their work as professional skills. Therefore, acquiring emotional intelligence skills requires physicians' professional activities with other employees in health systems and is a necessity of modern medicine. Managers' acquisition of emotional intelligence skills prevents the wasting of financial and human resources, and advances the profession.

Conflict of Interests

Authors have no conflict of interests.

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An Investigation of the Effect of Smoking, Alcohol, and Drug Use on Male Infertility

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Emprical Study

Abstract

Background: Infertility in men has increased in recent years. Numerous physical, chemical, biological, and social factors are known to play a role in reducing semen quality, in between, there are high-risk behaviors that affect the quality of semen. In this paper, the effects of three factors: smoking, alcohol consumption, and drugs have been investigated.

Methods: This case-control study was performed from June to September 2021 on 500 people, 250 people with normal semen quality and 250 people with defective semen quality. The data collection tool was a questionnaire made by researchers and semen test results. Finally, the collected data were analyzed by descriptive method with SPSS software. For quantitative variables, mean and standard deviation (SD) were used, while frequency and percentage reports were used for qualitative variables.

Results: Drug use had a significant relationship with the shape and motility of sperm (B = -0.675, P = 0.005). The chance of natural semen decreases by 0.506 times with an increase of one drug use unit; moreover, the older the age of onset of drug use, the more the semen disorders (B = 0.514, P = 0.002)..

Conclusion: Smoking and alcohol consumption were not identified as factors affecting semen quality, but there was a significant relationship between drug use and age of onset and semen disorders.

Keywords: Smoking; Infertility; Alcohol; Drug

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Introduction

One of the problems of countries around the world today is infertility, which has different aspects. The cause of infertility is sometimes related to women (40% to 50%), sometimes related to men (20% to 30%), sometimes related to both (10% to 40%), and in 10% to 20%, is related to unknown factors (Ghasemi, Ghofranipour, Shahbazi, & Aminshokravi, 2020; Prakash, Hatcher, & Shiffman, 2021; Wang et al., 2021). Infertility patterns in developing countries differ from those in developed countries. The incidence of preventable infertility is very high in developing countries. According to World Health Organization (WHO) studies, 42% of women and 29.7% of men suffer from secondary infertility (Rezaei & Vadiati, 2020). Having a history of a past pregnancy, even if it did not lead to a live pregnancy, is called secondary infertility. In most cases, these infertilities are preventable. The ecological causes listed for these infertilities in extensive field studies include environmental toxins such as heavy metals, toxins, pesticides, and mechanical vibrations (Wagner, Stephanson, & Pierson, 2019). Medical causes include chromosomal or hormonal disorders, inflammation of the prostate, inflammation of the testicles, and varicocele (Czyzyk & Krolewski, 1976).

Smoking can lead to infertility in both men and women. If erectile dysfunction in men and increased pregnancy complications also increase with smoking. Chemicals (such as nicotine, cyanide, and carbon monoxide) in cigarette smoke accelerate the destruction of eggs. Unfortunately, once the eggs are destroyed, they cannot be reproduced or replaced (Yi, Ding, Keith, Coffey, & Allison, 2008). This means that menopause occurs 1 to 4 years earlier in women smokers than in non-smokers (Zavidic & Lovrinic, 2018). In men who smoke, smoking is associated with a decrease in sperm count and low sperm motility and an increase in abnormal sperm count, while sperm quality is worse in smokers (Snow, Fonarow, Ladapo, Washington, Hoggatt, & Ziaeian, 2019). The fertility of women smokers is lower than that of non-smokers, so that the infertility rate of women and men smokers is almost twice that of non-smokers. The risk of fertility problems increases with the number of cigarettes smoked daily. Even assisted reproductive therapies such as in vitro fertilization (IVF) may be effective in reducing the effects of smoking on fertility. Women who smoke need more ovarian stimulants during IVF, but they still have fewer eggs during ovulation and are 30% less likely to become pregnant than IVF patients who do not smoke (Abid, Abid, & Abid, 2021). Because smoking damages eggs and sperm, abortions and birth defects are more common in smokers' fetuses. Even smokeless tobacco can increase the rate of miscarriage. The prevalence of chromosomal abnormalities such as Down syndrome is higher in women who smoke than in non-smoking mothers (Gredner, Mons, Niedermaier, Brenner, & Soerjomataram, 2021). In women smokers, the rate of ectopic pregnancy and preterm delivery is also higher. Studies have shown that men whose mothers smoked half a pack (or more) a day had lower sperm counts. In addition, smoking during pregnancy can lead to fetal growth retardation and being underweight before birth. These children are at greater risk for lifelong medical problems (such as diabetes, obesity, and cardiovascular disease). Children whose parents smoke are at higher risk for sudden infant death syndrome and asthma. Some research has shown that non-smokers have twice as much sex as smokers, and smoking affects the shape and motility of semen. Some studies have been inconsistent with these data and have not found a significant relationship between smoking and semen quality (Babakhanzadeh, Nazari, Ghasemifar, & Khodadadian, 2020). Cigarettes are said to contain mutagenic substances that lead to chromosomal

abnormalities in sperm. In addition, by reducing the amount of antioxidants in the blood and semen, it can increase the risk of oxidative damage to sperm deoxyribonucleic acid (DNA) (Fainberg & Kashanian, 2019; Leslie, Siref, & Khan, 2020).

Research has identified alcohol consumption as another socio-ecological factor related to semen quality. According to studies around the world, alcohol can affect any part of the reproductive system in men and cause impotence and infertility. In the testes, alcohol interferes with the secretion of testosterone by affecting the Leydig cells, which are responsible for the production and secretion of testosterone. Chronic alcohol consumption lowers testosterone levels in the blood (Agarwal et al., 2021). Alcohol also disrupts the function of Sertoli cells and impairs the maturation of sperm cells (Choy & Eisenberg, 2018). In the pituitary gland, alcohol consumption also reduces the production, secretion, and function of both luteinizing hormone and follicle-stimulating hormone (Alahmar, 2019). Finally, alcohol can interfere with the production of hypothalamic hormone. Drug use can affect semen parameters and reduce male fertility potential (Alhathal et al., 2020). Drugs act through the morphine receptor in the brain and the limbic system, thalamus, and hypothalamus. Because the testicles function as gonads in men under the control of the endocrine system and the brain-hypothalamus-pituitary axis, hormonal inadequacy is responsible for sperm production disorders. In addition to affecting this axis, narcotics cause defects in spermatozoa. Long-term drug use causes testicular weight loss and impotence. Given that drugs have the ability to affect from the cerebral cortex to the testes themselves, and the spermiogram provides a good view of the various aspects of direct male reproductive function, this paper compared the quality of semen in male consumers without consumption by evaluating the spermiogram. The aim of the present study was to evaluate the effect of smoking, alcohol, and drugs on semen quality to assess male infertility.

Methods

This was a case-control study, and in order to find a significant relationship between alcohol, smoking, and drug use and disorders of semen parameters, this paper examined and compared the frequency distribution of these substances in 250 men who had defects in at least one of the semen parameters and 250 people with normal semen. The Jakarta Infertility Clinic, Jakarta, Indonesia, was chosen to select the study population, which included 500 men who were referred to this center in case and control groups based on semen quality. The study lasted from June to September 2021. Sampling was done randomly on different days of the week from men referring to this clinic. Inclusion criteria were 25 to 60 years of age and the duration of marriage being at least 2 years. First, written consent was obtained from the individuals and then an interview was conducted. Persons having a genetic or chromosomal problem, hypogonadism, unilateral testicular hypotrophy, cryptorchidism, and chemotherapy, or taking anticonvulsants, colchicine, sulfasalazine, and retinoic acid over the past year were excluded from the study. The two groups were matched in terms of age, marriage age, and residence in urban or rural areas. To determine the sample size by reviewing similar researches and considering the significance level of 5%, power of 80%, confidence interval (CI) level of 95%, the minimum sample size in each group was calculated as 240, of which 250 people were considered for the study. For ethical reasons, participants in the study were assured that their identities and information would not be disclosed.

Data collection tool was a questionnaire based on the parameters required for the study on epidemiological and observational design by the researcher. First, by

holding a specialized panel with the presence of 5 experts, changes were made in the questionnaire. To evaluate the quantitative face validity, the item effect method was used. The results of the item impact score indicated that all questions with a score greater than 1.5 were included in the questionnaire. To determine the validity of the content, a questionnaire was sent to 10 experts. The answers were calculated according to the content validity ratio (CVR) formula. The results showed that 30 questions were larger than the Lawshe number (0.49). Content validity was also assessed based on the opinion of experts using the content validity index (CVI) formula. The reliability of the questionnaire was assessed through a retest method; 40 patients were asked to answer the questions twice, 15 days apart. The correlation between the questions before and after the test was measured by bivariate correlation test and was reported with a Spearman coefficient above 0.91.

To check sperm parameters, semen analysis was collected according to WHO guidelines performed in the clinic. Spermiogram tests include the following: the volume of semen should be at least 1.5 to 2 cc, the pH of the semen is about 7 to 8, which is in the alkaline range, and the number of sperm is at least 15 million per milliliter or 40 million in total ejaculation; if it is less than this number, it is referred to as oligospermia. Sperm motility should be at least 32% and if it is less than this amount, it is called astenozoospermia. The sample is checked for a maximum of half an hour. After sampling, the sample is placed in an incubator to remove it from the clot. This step is called liquefaction. During this period, the sample is checked and rotated every 10 minutes, if it moves like water in a container, the test can be done. In the next step, the sperm parameters are examined by preparing 3 slides under a microscope.

The content of the questionnaires consisted of four sections. The first part, demographic information, included age, marriage age, number of children, place of birth, and place of residence. The second part included information about the result of semen analysis including sperm count, number of motile sperm, semen volume, sperm shape, semen pH, and finally determining the quality of semen. The third part included risk factors and history of diseases affecting the quality of semen, such as mumps, history of cryptorchidism in childhood, testicular rotation, trauma to the testicles, hernia, varicocele, and urinary and genital infections. Fourth part provided information on personal habits including smoking, alcohol consumption, and drug use. Cigarette smoking was divided into three categories: less than 10, 10 to 20, and more than 20 cigarettes per day. Alcohol consumption was divided into 3 parts: more than one glass per month, more than one glass per week, and more than one glass per day. Drug use was divided into 2 groups: more than 10 times a year and more than once a week and the age of onset of each was determined. Considering the results of the second part and the quality of semen, participants were divided into 2 groups of 250 people with healthy semen as a control group and with defective semen as a case group.

The information was reviewed and controlled after collection. SPSS software (version 22, IBM Corporation, Armonk, NY, USA) was used for data analysis. For final analysis of data, univariate statistical tests, chi-square test (for qualitative variables), and logistic regression with the corresponding odds ratio (OR) and 95% CI level were used. P-values less than 0.05 were considered significant.

Results

In order to separate the case and control groups, first the results of spermiogram test were examined. In this experiment, the number of sperms, semen volume, number of motile sperms, sperm shape, semen pH, etc. were tested. The test results are shown in figure 1.

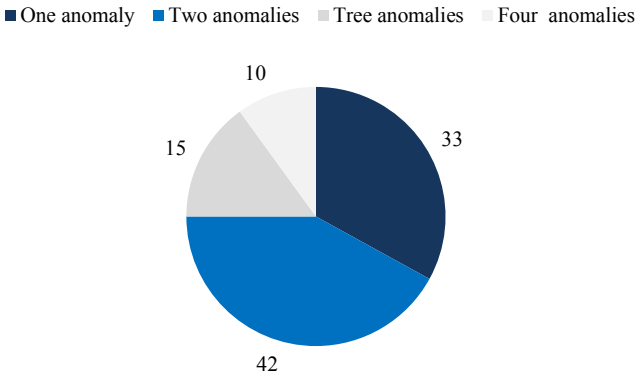

Figure 1. Percentage of sperm anomalies in the case group

As shown in figure 1, 33% had one anomaly, 42% had 2 anomalies, 15% had 3 anomalies, and 10% had 4 or more anomalies.

The results showed that the mean age (P = 0.082) and age of marriage (P = 0.486) were not significantly different between the two groups, but the mean duration of infertility (P = 0.001) was significantly different between the two groups. The results for this section are presented in table 1.

The living conditions in the case and control groups were as follows: 31.2% of the men in the case group and 29.1% of the men in the control group lived in rural areas and the rest lived in cities. As can be seen in table 2, the frequency of smoking in the case group was 34% and in the control group was 25.7%. Table 3 also shows the consumption of alcohol and drugs in the two groups.

According to these findings, the frequency of smoking in the two groups was significantly different (P = 0.031). The highest frequency of smoking in both groups was 10 to 20 cigarettes per day, which was 22% in the case group and 15.5% in the control group. The highest frequency of age of onset of smoking was 21 to 29 years; the frequency of this group was 17% in the case group and 11.2% in the control group. There was a significant difference between the two groups according to the P-value (P = 0.001).

Frequency of drug users in the case group was 33 people, which was equal to 13.3% of the people in the case group, and among the control group was 15 people, which was equal to 6.1% of the control group. The P-value (P = 0.004) indicates a significant difference in drug use between the two groups.

According to the results of a total of 500 people in the study, 9.6% were drug users who had 6.6% defective semen. 29.8% of the total study sample were smokers, of which 17% had defective semen. Data were entered into logistic regression to find the relationship between smoking, alcohol and drug use with defects in semen parameters.

Table 1. Comparison of mean age, age of marriage, and duration of infertility in case and control groups

Variables	Case group (mean ± SD)	Control group (mean ± SD)	P-value
Age (year)	34.65 ± 7.01	33.85 ± 6.36	0.082
Marriage age (year)	27.21 ± 5.01	27.18 ± 5.01	0.048
Duration of infertility (year)	6.40 ± 4.60	5.12 ± 3.85	0.001

SD: Standard deviation

Table 2. Comparison of smokers' frequency, smoking rate, and age of onset of smoking in the two groups

Factor	Group	Case [n (%)]	Control [n (%)]	P-value
Smoking	Yes	85 (34.0)	64 (25.5)	0.031
	No	165 (66.0)	186 (74.5)	
	Total	250 (100)	250 (100)	
Daily smoking rate	≤ 10	14 (5.8)	21 (8.5)	0.017
	10 to 20	55 (22.0)	39 (15.5)	
	> 20	16 (6.2)	4 (1.5)	
Age of onset of smoking (year)	≤ 20	18 (7.2)	22 (8.8)	0.001
	21-29	42 (17.0)	28 (11.2)	
	≥ 30	25 (9.8)	14 (5.5)	

At 95% CI, smoking and alcohol consumption did not have a significant weight in relation to semen disorders, but drug use had a significant relationship with defects in sperm shape and motility (OR = 0.506, CI = 0.485-0.515, B = -0.675, P = 0.005). In other words, by increasing one unit of drug consumption, the chance of normal semen decreases by 0.506. There was also a relationship between the age of onset of drug use and abnormalities in semen parameters (OR = 1.00, CI = 1.000-1.001, B = 0.514, P = 0.002), that is, the older the age of onset, the more the abnormalities observed in semen parameters.

Discussion

The current study examines the effects of three factors on semen quality parameters in men: smoking, alcohol, and drugs. There was no significant relationship between the frequency of history of semen-related disease and spermiogram abnormalities in the two groups. In both groups, no history of infectious diseases related to the quality of semen parameters was reported. Although in the past, varicocele was known as the most important cause of male infertility, based on recent studies, it is not possible to speak with certainty about the relationship between varicocele and infertility (Lotti & Maggi, 2018). Rather, we can talk about the relationship between this disease and infertility in men; this relationship may be multifactorial. Smoking in some studies has shown a significant relationship with semen quality; in some studies, contradictory results have been obtained and similar to this study, no significant relationship has been observed between smoking and semen quality (Durairajanayagam, 2018). A significant issue in relation to the study of the frequency of this type of behavioral habits is the cultural, social, and belief differences affecting different societies, which overshadow the results of studies (Houston et al., 2022). Based on the evidence, the pattern of infertility sauce varies according to different ecological, health, and cultural conditions in different parts of the world. Regarding drug use and semen quality, the results showed that there was a significant relationship between semen quality with drug use and age of onset (Turner et al., 2020).

Cigarette smoke contains harmful substances that disrupt the hypothalamic cycle of sex hormone production and prevent adequate sperm production.

Table 3. Comparison of alcohol and drug use in 2 groups

Factor	Group	Case [n (%)]	Control [n (%)]	P-value
Drug	Yes	33 (13.3)	15 (6.1)	0.004
	No	217 (86.7)	235 (93.9)	
Alcohol	Yes	5 (1.8)	3 (1.0)	0.725
	No	245 (98.2)	297 (99.0)	

The cultural, social, and belief differences affecting different societies that overshadow the results of studies are a significant issue in the study of the frequency of this type of behavioral habit. Because according to the evidence, the etiology of infertility varies according to ecological, health, and cultural conditions worldwide (Takeshima et al., 2021).

Alcohol consumption is linked to people's cultural status and religious beliefs; thus, naturally, the frequency of consumption varies greatly across regions. The difference in results appears to be due to differences in behavioral habits between regions (Gunes & Esteves, 2021). In terms of opium use and sperm quality, the findings show a significant link between opium use and sperm disorders, as well as the age of onset of use. More detailed studies are needed to identify the intervening and controlling socio-ecological factors in different regions to achieve more definite results in this field (Henkel, Sandhu, & Agarwal, 2019). Smoking, drinking, and using drugs are high-risk reproductive health behaviors. It appears that paying attention to ecological differences in different regions can justify differences in consumption frequency in different regions. Increasing awareness and changing people's behaviors, particularly in couples, can be effective in preventing infertility and maintaining reproductive potential, as well as providing more effective infertility treatment (Colaco & Modi, 2018).

Among the limitations of this study are the absence of educational intervention and the failure to compare results to international benchmarks. In order to achieve more conclusive results in this field, it is suggested that future research be conducted to determine the intervening and controlling social and ecological factors in various regions. Moreover, raising awareness and modifying the behavior of individuals, particularly child-seeking couples, can effectively prevent infertility, particularly secondary infertility; therefore, it is recommended to implement educational interventions in this area.

Conclusion

Infertility occurs in men for a variety of reasons. Semen quality is the most important indicator of the cause of infertility in men. By examining the factors affecting the quality of semen, in this paper, we tried to investigate the effect of three factors: smoking, alcohol consumption, and drug use on semen quality. There was no significant relationship between male infertility and smoking and alcohol consumption, but there was a relationship between drug use and infertility. By increasing one unit of drug use, the chance of natural semen decreases by 0.506. There was also a relationship between the time of drug use and the quality of semen, so that the older the age of onset, the more the abnormalities in semen.

Conflict of Interests

Authors have no conflict of interests.

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Somatic Symptoms and Mental Health in Parents of Children with and without Autism: A Comparative Study

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Quantitative Study

Abstract

Background: Autism spectrum disorder (ASD) affects families, especially the parents of people with this disorder. The purpose of this study was to investigate psychosomatic symptoms and mental health in parents of children with and without autism.

Methods: This casual-comparative study was performed on parents of children with and without autism who referred to an outpatient autism specialty clinic located in Tehran, Iran, in 2020-2021. The statistical population included all parents of children with and without autism and the sample consisted of 80 parents selected through random sampling method. Therefore, randomized sampling was conducted and the parents were selected based on the inclusion criteria. The data collection tools used included the Patient Health Questionnaire-15 (PHQ-15) and General Health Questionnaire-28 (GHQ-28). Data were analyzed using descriptive statistics (mean and standard deviation) and MANOVA in SPSS software.

Results: The results showed that parents of autistic children had higher GHQ-28 and PHQ-15 scores than parents of children without autism (F= 18.47; 11.901; P = 0.001).

Conclusion: Our results showed that the rate of psychosomatic symptoms and all dimensions of mental health was higher in parents of autistic children compared to that in the parents of children without autism. Thus, governments and other relevant institutions should provide support to parents of autistic children.

Keywords: Somatic symptoms; Mental health; Autism; Anxiety; Depression

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Introduction

Autism spectrum disorder (ASD) is a heterogeneous, lifelong, neurodevelopmental condition that is defined by delays in social communication and the presence of restricted and repetitive behaviors (Roehr, 2013). The prevalence of ASD, especially autism, has risen over the last several decades (Licinio & Wong, 2021). The Centers for Disease Control and Prevention estimates that 1 in 54 (1.7%) children in the United States has autism (Maenner et al., 2020). While the prevalence of autism continues to rise, there are still many obstacles to receiving a timely diagnosis. The American Academy of Pediatrics has presented the latest guidelines on identifying, evaluating, and managing autistic children (Hyman, Levy, & Myers, 2020). These guidelines include standardized autism screening for all children aged 18–24 months, followed by continuous developmental monitoring by primary care providers (Hyman et al., 2020). This time period, between 12 and 24 months, is generally when parents begin to identify developmental abnormalities in their child (Cheng, Iao, & Wu, 2021). While a reliable clinical autism diagnosis can occur as early as 18 months (Cheng et al., 2021), there is often a gap of several years between first noticing developmental delays and diagnostic confirmation (Edwards, McKenney, Niekra, Hupp, & Everett, 2021). Noticeably, the national age at autism diagnosis among children under 8 years of age in the United States is 4.2 years (Maenner et al., 2020).

Much has been written about the numerous barriers to receiving an autism diagnosis (Haghighat, Mirzarezaee, Nadjar Araabi, & Khadem, 2022). The Andersen model for healthcare utilization can be used to organize these obstacles into the 3 components of predisposing (sociodemographic and societal influences), enabling (organization of healthcare infrastructures), and need (clinical characteristics) (Rigles, 2021). Among the predisposing factors, higher age at diagnosis is associated with non-White race and Hispanic ethnicity (Mazurek et al., 2021), lower parental education and socioeconomic status (Gibbs, Hudson, Hwang, Arnold, Trollor, & Pellicano, 2021), younger maternal and paternal age (Beenstock, 2021), being a first-born child (McLean, Eack, & Bishop, 2021), and rural geographic region (Song et al., 2021). The enabling factors linked to delay in diagnosis include no prior connection to the healthcare system (Clarke, Hull, Loomes, McCormick, Sheinkopf, & Mandy, 2021) and distance from treatment centers (Feeney & Burke, 2021). Among the need factors, high IQ (Calio & Higgins-D'Alessandro, 2021), low autism symptom severity (Guner, Gunay, & Demir Acar, 2021), and the presence of comorbid psychiatric disorders (Cederlund, 2021) have all been connected to older age at diagnosis. It is important to note that a recent systematic review reported contradictory findings across studies in terms of the factors that influence age at diagnosis (May, Vollenhoven, & Williams, 2021).

In terms of mental disorders, one area that has received surprisingly little attention is the parents and their mental health (Ebrahimi, Nasiri-Dehsorkhi, Hosseini, Afshar-Zanjani, & Schroeder, 2021). Caregivers, often the parents, of children with autism report a lower health-related quality of life (QoL) compared to general population norms (Kaur, Eigsti, & Bhat, 2021). Shanok, Lozott, Sotelo, and Bearss (2021) have reported that these caregivers are at a higher risk of mental health problems, such as stress, depression, and anxiety disorders. Somatic symptoms have always been described in various forms and often with interchangeable terms, all of which recognize the interaction between the mind and the body of an individual. The DSM-5 *Somatic Symptom Disorder* emphasizes diagnosis on the basis of positive

symptoms and signs (distressing somatic symptoms plus abnormal thoughts, feelings, and behaviors in response to these symptoms) rather than the absence of a medical explanation for somatic symptoms. A distinctive characteristic of many individuals with somatic symptom disorders is not the somatic symptoms per se, but the way they present and interpret them (American Psychiatric Association, 2013).

Kim and Lecavalier (2021) found a higher chance of dying at a young age in mothers of children with autism. Qualitative data also show that parenting a child with autism is demanding and affects the caregiver's health-related QoL negatively (Rinaldo, Anagnostou, Georgiades, Ayub, Nicolson, & Kelley, 2021). In addition to these health problems, caregivers may also experience many challenges because of the care procedures, such as problems combining care with other daily activities or relational problems with the child they care for (Kim & Lecavalier, 2021). Kakabraee, Saleh, Afrooz, and Lavasani (2016) found that 56% of parents of autistic children experience physical symptoms and anxiety. Furthermore, 85% of these parents do not feel satisfied with their marital life (Hoseinnejad, Chopaniyan, Sarvi Moghanlo, Rostami, & Dadkhah, 2020). The need to pay attention to this issue becomes more prominent when we know that parents as caregivers have other responsibilities such as work activities and taking care of routine life activities, and that the occurrence of psychological problems in parents will be a heavy burden. Considering the importance of paying attention to the physical and mental health of parents of children with and without autism, this study was conducted with the aim to compare mental health and somatic symptoms in parents of children with and without autism.

Methods

The study data were obtained from parents referred to an urban, outpatient autism specialty clinic located in Tehran, Iran. Autism evaluation was conducted between the years 2020 and 2021. The studied clinic provides medical, psychological, speech/language, occupational, and social work services. A primary goal of the clinic is to diagnose, monitor, and treat ASD.

This casual-comparative study was extracted from a comprehensive study in Tehran University of Medical Sciences (Somatic Research Center), Iran. The study participants included 80 individuals (40 parents of autistic children and 40 parents of children without autism) selected through random sampling method based on the following formula.

X1=3.8, X2=3.2, S1=1.5, S2=1.2, Za=1.96, Zb=0.84, n=85

$$n_1 = n_2 = \frac{(S_1^2 + S_2^2)(Z_{1-\frac{\alpha}{2}} + Z_{1-\beta})^2}{(\bar{X}_1 - \bar{X}_2)^2}$$

The inclusion criteria for the families of parents of children with and without autism included 33 to 65 years of age, literacy, absence of serious psychiatric and neurological diseases, and lack of any disability. The exclusion criteria for the two groups included unwillingness to continue participation and failure to respond to at least 20% of the items in each questionnaire.

Measuring tools

Demographic and disability information questionnaire

Patient Health Questionnaire-15: The Patient Health Questionnaire-15 (PHQ-15) was developed by Spitzer (2002). Its items include the somatization disorder/somatic

symptoms of the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV). The participants were asked to rate the severity of 15 symptoms as 0 ("not bothered at all"), 1 ("a little bothered"), or 2 ("bothered a lot") for the preceding 4 weeks. Thus, the total PHQ-15 score ranges from 0 to 30, and scores of ≥ 5, ≥ 10, and ≥ 15 represent mild, moderate, and severe somatization/somatic symptoms, respectively. The validity and reliability of the PHQ-15 are high in clinical and vocational health care settings. The Cronbach's alpha of the original English version of the PHQ has been reported within the range of 0.79-0.89 in different studies (Kroenke, Spitzer, Williams, 2002; Kroenke, Spitzer, Williams, & Lowe, 2010). In this research, the Cronbach's alpha of the PHQ-15 was 0.78.

General Health Questionnaire: The General Health Questionnaire-28 (GHQ-28) is currently being applied as the primary outcome measurement. The GHQ-28 asks participants to indicate how their general health has been over the past few weeks. The behavioral items are scored on a 4-point scale indicating the following frequencies of experience: "not at all", "no more than usual", "rather more than usual", and "much more than usual". The minimum score for the 28 version is 0, and the maximum is 84. Higher GHQ-28 scores indicate higher levels of distress. In the present study, the Cronbach's alpha reliability of 0.89 was calculated for this questionnaire.

Data analysis method: Descriptive data are presented as mean and standard deviation, and frequency distribution. Moreover, analysis of variance (ANOVA) was used to compare the mental health and somatic symptoms of people with disabilities and their families according to the type of disability, and SPSS software (version 23; IBM Corp., Armonk, NY, USA) was used for the statistical analyses.

Results

In this study, 80 people (40 parents without children with autism and 40 parents with children with autism) participated. The age range of the participants was 35-55 years. In addition, 35 (66.3%) participants were employed and 27 (33.7%) were not employed. Descriptive statistics for the research variables are presented in table 1.

Table 1. Mean and standard deviation of research variables (n = 80)

Variables	Groups	Mean ± SD
Age	With autism	44.82 ± 6.09
	Without autism	44.47 ± 5.90
	Total	44.65 ± 5.96
Defects in physical symptoms	With autism	14.85 ± 3.46
	Without autism	11.80 ± 4.41
	Total	13.32 ± 4.23
Anxiety	With autism	15.40 ± 2.91
	Without autism	12.60 ± 4.17
	Total	14.00 ± 3.84
Defects in social functioning	With autism	14.80 ± 3.60
	Without autism	12.67 ± 4.18
	Total	13.74 ± 4.02
Depression	With autism	15.32 ± 2.64
	Without autism	12.90 ± 2.99
	Total	14.11 ± 3.06
General health total	With autism	60.37 ± 9.43
	Without autism	49.97 ± 12.05
	Total	55.17 ± 11.96
Somatic symptoms	With autism	14.97 ± 3.35
	Without autism	12.50 ± 3.06
	Total	13.74 ± 3.42

SD: Standard deviation

The mean and standard deviation of the research variables are presented for both groups of parents of children with and without autism in table 1. The results presented in the table show that for all of the study variables, the average of parents of children without autism was lower than the average of parents of autistic children. In order to compare the research variables between the two groups of parents, multivariate analysis of variance (MANOVA) was used. Before performing the test, its hypotheses were tested. The results of Box's M test for the similarity of the covariance matrix showed that this assumption holds (P = 0.061, F = 1.616, and M = 0.030). In addition, another precondition is the equality of variances of error. The results of Levene's test showed that this statics is 0.034 and 0.78 for general health and somatic symptoms, respectively.

Therefore, the results of Levene's test showed that this assumption holds for some variables, but does not hold for some others. Therefore, according to Tabachnick and Fidel (2001), when this assumption is not established, instead of Wilks' Lambda effect, Pillai's effect should be reported. Therefore, the results of MANOVA showed a significant difference in the linear composition of the research variables according to the group (P = 0.0005, F = 7.231, and Pillai's V = 0.328). The results of MANOVA are presented in table 2.

The results presented in table 3 show significant differences between the two groups of parents in terms of the scores of all dimensions of mental health and its total score. Moreover, in the somatic symptoms variable, this difference between the groups was significant. Based on the descriptive findings, it can be concluded that the group of parents of children without autism have higher general health and have reported fewer psychological symptoms (P < 0.0001).

Discussion

This study was performed with the aim to determine the mental health status and somatic symptoms of the parents of children with and without autism. To the best our knowledge, our study is the first study to assess and compare the mental health status and somatic symptoms of the parents of children with and without autism. The results of our study showed that mental health indicators and somatic symptoms are worse in parents of autistic children than parents of children without autism. These results are consistent with those of previous studies (Conner, White, Scahill, & Mazefsky, 2020; Guner et al., 2021; Licinio & Wong, 2021).

The results of the present study showed that the mental health of parents of children with autism in the physical dimensions, anxiety, depression, and social functioning is lower than the other group. Anxiety is recognized as an underlying cause of mental disorders in parents of children with autism, and in many other disabilities. Anxiety weakens the immune system and deteriorates the physical health. With the deterioration of physical and mental health, parents report more and more deterioration.

Table 2. Results of multivariate analysis of variance in the comparison of the research variables between the two groups of parents

Effects	Value	F	df hypothesis	df error	P-value
Pillai's Trace	0.328	7.231	5	74	0.0005
Wilks' Lambda	0.672	7.231	5	74	0.0005
Hotelling's Trace	0.480	7.231	5	74	0.0005
Roy's Largest Root	0.489	7.231	5	74	0.0005

df: Degree of freedom

Table 3. Results of the effects between subjects on the scores of research variables in the two groups of parents with and without children with autism

Variables	SS	df	MS	F	P-value
Defects in physical symptoms	186.050	1	186.050	11.842	0.001
Anxiety	156.800	1	156.800	12.095	0.001
Defects in social functioning	90.312	1	90.312	5.944	0.017
Depression	117.612	1	117.612	14.740	0.0005
General health total	2163.200	1	2163.200	18.476	0.0005
Somatic symptoms	122.513	1	122.513	11.901	0.001

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

Cleary, parents worldwide are concerned about how to support their children best under these difficult conditions (Bellomo, Prasad, Munzer, & Laventhal, 2020; Liu, Bao, Huang, Shi, & Lu, 2020). Autism has negatively affected the mental health of parents with autistic children. Many factors play a role in increasing the stress levels of parents, and stress in turn may lead to different problems. Nevertheless, it is possible for children with autism to continue their lives in a healthy way with mentally healthy parents.

Another factor emphasized by researchers in parents of autistic children is somatic symptoms. This syndrome chronically affects the general health of parents over time. It was concluded that parents of children with autism had difficulty with their children being at home all day long and financial difficulties as they had to quit their jobs. The parents were also able to devote less time to themselves during this process, and their stress and anxiety levels increased (Feeney & Burke, 2021). Therefore, taking care of an autistic person disrupts all aspects of a parent's lifestyle. Sleep problems, anxiety, loneliness, and panic attacks are some of the problems that these parents complain about. In fact, the lifestyle of this group of parents is different from that of parents of children without autism, and all life plans of this group of parents has to be designed according to the needs of their child (Samanta, Mishra, Panigrahi, Mishra, Senapati, & Ravan, 2020). Emotion regulation is another factor that affects parents (Conner et al., 2020) and lack of emotion regulation leads to somatic problems and problems such as sleep disorders, migraines, severe rumination, and mood swings (Tajik-Parvinchi, Farmus, Cribbie, Albaum, & Weiss, 2020).

It is suggested that when face-to-face services are not possible, governments and relevant institutions provide support for parents of children with ASD, and institutions that provide support work to improve the quality of the support they provide. In this process, the investigation of new ways such as online health monitoring, online diagnosis systems, support groups for children and parents, increased telehealth services, teletherapies, and e-health support are recommended. Additionally, after the restrictions imposed by the pandemic are removed, it is important to support children with ASD and their parents in getting reaccustomed to their social lives. Support services, such as counseling and helplines, can be created to help parents share their concerns and receive assistance in dealing with specific situations. Parents should be evaluated in terms of mental health, and professional help should be provided for individuals who need support (Yılmaz, Azak, & Sahin, 2021).

Our study adds to the existing literature on mental health in parents of autistic children. A limitation of the present study is the cross-sectional nature of our study. Another limitation is the small sample size which reduces the potentiality of data generalizability. In addition, using other instruments along with questionnaires can increase the validity of the results. Moreover, although our analyses showed some

reasons for the important role of autism, we note that these results should always be evaluated using a longitudinal design to evaluate the cause and effect relationships. Furthermore, future researchers should consider applying a longitudinal design, using more valid sampling methods, and focusing on other statistical populations to further investigate these findings. Moreover, the use of other measurement instruments for the investigation of additional effects of autism should be considered in future studies.

Conclusion

Our findings clearly demonstrate that somatic symptoms and mental health issues are higher in parents of autistic children than those of children without autism. The need to pay attention to this issue becomes more apparent when parents play a decisive role in the whole family and their mental health affects the health of the whole family. Overall, the findings of this study confirm the results of previous studies on parental health status. In recent years, attention to the services provided to this group of families has been a priority of health management programs.

Conflict of Interests

Authors have no conflict of interests.

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Comparison of Cognitive Emotion Regulation and Psychological Well-being in Working Mothers of Children with Cerebral Palsy and Mothers of Typically Developing Children

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Quantitative Study

Abstract

Background: Raising a child diagnosed with infantile cerebral palsy (CP) is a challenge for families and causes many changes in their lifestyle. This study aimed to compare the cognitive emotion regulation and psychological well-being in working mothers of children with CP and mothers of typically developing children.
Methods: As a retrospective and causal-comparative design, this was a descriptive study. This study was conducted in Tehran, Iran, in 2019; the sample was purposefully selected from working mothers with CP children who have been referred to educational and rehabilitation centers (Tak and Pouya, District 2, Tehran) as well as mothers with healthy children enrolled in kindergartens (District 2, Tehran). The sample number was selected based on previous comparative studies of 100 working mothers with CP children (n = 50) and mothers with healthy children (n = 50) who answered Ryff Psychological Well-being Questionnaire and Cognitive Emotion Regulation Questionnaire (CERQ). In this research, in addition to the Kolmogorov-Smirnov (K-S) normality test, mean, standard deviation (SD), and an analysis of variance (ANOVA) were used by SPSS software.
Results: There was a significant difference between working mothers with healthy children and working mothers with unhealthy children ($F = 115.15$, $P < 0.001$).
Conclusion: This study supports that working mothers of children with CP experienced a low level of cognitive emotion regulation and psychological well-being compared to mothers of typically developing children.
Keywords: Emotion regulation; Well-being; Mothers; Cerebral palsy

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Introduction

There is no known cure for cerebral palsy (CP), an irreversible brain disorder involving permanent brain damage in young children. A study by the Centers for Disease Control and Prevention (CDC) found that CP incidence varied considerably across different geographic regions, but the average prevalence of the disease was found to be 3.3 per 1000 live births and 3.1 per 1000 children aged 8-9 in 2004 and 2008, respectively (Himmelmann, 2019; Darling-White, Sakash, & Hustad, 2018). CP may occur in up to 3 live births out of 1000 births if the child is born in a high-income or low-to-middle-income country or geographical region (Sadowska, Sarecka-Hujar, & Kopyta, 2020). In addition to spastic paralysis, cognitive impairment, chronic pain, speech and visual impairments, as well as digestive and feeding difficulties, a child with CP suffers from several problems. Moreover, they have significant limitations in other self-care functions, including feeding, dressing, bathing, and mobility (Gugala et al., 2019; Patel, Neelakantan, Pandher, & Merrick, 2020). In addition to the usual long-term care required for a typical child, children with developmental disabilities may require long-term care (Surender, Gowda, Sanjay, Basavaraja, Benakappa, & Benakappa, 2016). As a result of the difficulties experienced by children with CP, their parents suffer from higher levels of stress that harm their physical and social health (Nimbalkar, Raithatha, Shah, & Panchal, 2014). Healthcare systems and societal attitudes have changed over the years, resulting in more children being cared for at home by their families rather than in institutions. For families of children with CP, physical rehabilitation is usually an expensive process (Michael, Olufemi, Jasola, Abigail, Adetutu, & Modinat, 2019).

A person with a disability has an effect on the entire family. CP causes psychological anxiety and financial difficulties for the families of affected individuals. Parents tend to feel pressed for time and find it difficult to maintain their social and cultural activities (Park, 2021). In addition to the unique challenges faced by working mothers (Guy & Arthur, 2020), mothers typically have a significant amount of responsibility for caring for children (Smith, 2012; Hertel-Fernandez, 2016). Staying home to take care of a sick child is just not possible for many working mothers (Brody, 2017). Family members who have a child with CP are faced with many challenges and have to change their lifestyle. An unexpected diagnosis can result in feelings of uncertainty and bewilderment, which can be difficult to manage (Fernandez-Alcantara et al., 2015).

Rather than reducing or alleviating the experience of negative emotions, it has been suggested that individuals with higher levels of emotion regulation deficits are more likely to engage in risky behaviors (Extremera, Quintana-Orts, Ssnchez-Alvarez, & Rey, 2019). A model of emotion regulation developed by Garnefski and Kraaij explains that individual differences exist in how people manage negative emotions with adaptive and maladaptive cognitive-emotional strategies (Extremera et al., 2019). Research has demonstrated that cognitive-emotional regulation plays a crucial role in a person's ability to deal with stressful life events (Garnefski, Koopman, Kraaij, & ten Cate, 2009). Chen (2016) demonstrated that cognitive assessment could reduce the emotional experience and the activation of the physiological processes, while the inhibition of expression can reduce emotion-based behavior, whereas physiological response and activation of the sympathetic nervous system were enhanced (Chen, 2016). It was supported by Nezamipour and Ahadi (2016). Emotion regulation and management plays a determinant role in the health

and prevention of mental disorders (Purnamaningsih, 2017).

It is specially common for mothers to experience mental stress, which can be detrimental to their psychological well-being (Cramm & Nieboer, 2012; Findler, Klein, & Gabis, 2016). In addition, parents of children with developmental and mental health issues have a greater responsibility to provide for their children, like having less time to spend with them and more negative parenting experiences (Sloan, Mailick, Hong, Ha, Greenberg, & Almeida, 2020; Panahi, Etebarian Khorasgani, Amiri, & Pouy, 2021). The study by Fritz and Sewell-Roberts (2020) found that parents of children with CP suffered greater stress, less physical well-being, and less psychological well-being than parents with typically developing children (Fritz & Sewell-Roberts, 2020). Generally, mothers with children with CP who work are more likely to experience difficulties in cognitive emotion regulation and psychological well-being than mothers of typically developing children. Further, according to the research literature, no study has assessed cognitive emotion regulation or psychological well-being among working mothers with children with CP. Therefore, the purpose of this study was to assess the cognitive emotion regulation and psychological wellbeing of working mothers of children with CP and mothers of normally developing children.

Methods

It was a descriptive study with a causal-comparative design. This study was conducted in Tehran, Iran, in 2019, and the sample included working mothers with children with CP who have been referred to educational and rehabilitation centers (Tak and Pouya, District 2, Tehran) as well as housewives with healthy children enrolled in kindergartens (District 2, Tehran). The sample number was selected based on previous comparative studies of 100 working mothers with children with CP (n = 50) and housewives with healthy children (n = 50) (Palacio, Krikorian, & Limonero, 2018; Mohan & Kulkarni, 2018). A sample of educational and rehabilitation centers of Tehran was chosen at random (Tak and Pouya, District 2); then 100 participants were selected within the study based on the inclusion and exclusion criteria. Inclusion criteria included children aged 2 to 13, mothers under 25 years of age and over 35 years of age, and also working and housewife mothers. Incomplete answering to the questionnaire and dissatisfaction with cooperation were the criteria for exclusion from the study. When the necessary permissions were obtained, questionnaires were distributed to educational and rehabilitation centers (Tak and Pouya) and kindergartens in District 2 of Tehran. After a brief explanation about the research, the subjects were invited to complete the questionnaires (cognitive emotion regulation and psychological well-being). Collecting data was administered by the researchers, and completing the questionnaires took almost 30 minutes for every participant. For the present study, the ethical codes were obtaining licenses to enter rehabilitation and educational centers and children and kindergartens, explaining the purpose of the research to the relevant unit of these facilities and kindergartens, using voluntary companies in the research, ensuring the confidentiality of personal information, and providing a report from the results of research into children's centers and supplies.. The Kolmogorov-Smirnov (K-S) normality test, mean, standard deviation (SD), and an analysis of variance (ANOVA) were used by SPSS software (version 21, IBM Corporation, Armonk, NY, USA).

Measures

Ryff Psychological Well-being Scale (short form): The Ryff scale was developed in 1989 (Ryff, 1989). This questionnaire has 18 questions, and its purpose is to

evaluate psychological well-being from different dimensions (independence, mastery of the environment, personal growth, positive communication with others, purpose in life, self-acceptance). Its scoring range is based on a Likert scale with six options. Higher scores indicate higher psychological well-being in the respondent and vice versa. For six subscales, the internal consistency coefficients ranged from 0.87 to 0.96 and the test-retest reliability coefficients ranged from 0.78 to 0.97. These results indicate that the scale is applicable to adolescents and adults In Iran, total score of internal consistency of this scale using Cronbach's alpha was 0.82 (Aghababaei & Farahani, 2011).

Cognitive Emotion Regulation Questionnaire (CERQ): The CERQ (Gross, 2001) CERQ is a 36-item scale which assesses cognitive emotion regulation. It is a multidimensional assessment of a person's cognitive strategies and styles following an event (Gross, 2001). From 1 (almost never) to 5 (almost always), each item is rated using a 5-point Likert scale. Scores from each component or cognitive emotion regulation strategies are added up to yield an individual subscale score (from 4 to 20). Scores higher than 20 indicate increased usage of the technique. Internal reliability scores for each strategy ranged from 0.68 to 0.87 (Jermann, Van der Linden, d'Acremont, Zermatten A, 2006). The Persian version of the CERQ (CERQ-P) has strong internal consistency (Cronbach's alpha ranges between 0.76 and 0.92) (Hasani, 2010).

Results

The mean and SD of age of mothers in normal children and children with CP were 34.48 ± 9.12 and 35.16 ± 8.82, respectively. Table 1 shows demographic variables.

Table 1. Demographic variables

Variables		Groups	Frequency
Education state	Diploma	Healthy	9
		Unhealthy	12
	Bachelor of Art	Healthy	31
		Unhealthy	24
	Master of Art	Healthy	10
		Unhealthy	11
	PhD	Healthy	0
		Unhealthy	3
Economical state	Under 10000000 Rial	Healthy	0
		Unhealthy	0
	Between 10000000 and 20000000 Rial	Healthy	4
		Unhealthy	14
	Between 20000000 and 30000000 Rial	Healthy	34
		Unhealthy	27
	Between 30000000 and 40000000 Rial	Healthy	8
		Unhealthy	12
Age (year)	Under 25	Healthy	9
		Unhealthy	7
	25 to 30	Healthy	19
		Unhealthy	19
	30 to 35	Healthy	12
		Unhealthy	17
	35 and higher	Healthy	10
		Unhealthy	7

Table 2. Descriptive statistics of positive and negative emotion variables and psychological well-being by group

Variables	Groups	Mean ± SD	K-S	P-value
Positive emotions	Healthy	1.73 ± 22.44	0.091	0.129
	Unhealthy	2.16 ± 18.22	0.081	0.151
Negative emotions	Healthy	1.75 ± 42.42	1.100	0.142
	Unhealthy	1.64 ± 47.90	0.956	0.115
Psychological well-being	Healthy	1.16 ± 81.32	0.852	0.146
	Unhealthy	2.21 ± 68.22	0.426	0.172

SD: Standard deviation; K-S: Kolmogorov-Smirnov test

Based on the information in table 2 and regarding the distribution of scores of participants with unhealthy children and healthy children in the psychological well-being and emotion regulation test, different descriptive indices and the results of the K-S normality test showed that the distribution of scores of the sample group in both groups in the measured variables tended to the normal distribution.

Based on the calculated ANOVA in table 3 (f = 115.15, degree of freedom (df) = 98, P = 0.001) with a 95% confidence interval (CI) level, there was a significant difference between working mothers with healthy children and mothers with unhealthy children. Therefore, there was a significant difference between the mean level of psychological well-being and the regulation of emotion among mothers with unhealthy children versus those with healthy children. This difference indicates a higher level of emotion regulation in the group of mothers with healthy children compared to the other group.

Discussion

The aim of this study was to compare the cognitive emotion regulation and psychological well-being in working mothers of children with CP and mothers of typically developing children. In general, providing care for a child with these conditions can contribute to a feeling of chronic stress for mothers (Sloan et al., 2020; Panahi et al., 2021; Fritz & Sewell-Roberts, 2020; Masefield, Prady, Sheldon, Small, Jarvis, & Pickett, 2020).

Our results are in line with previous findings in terms of regulation of emotion (Surender et al., 2016; Yang & Kim, 2021; Sloan et al., 2020; Rohder, Willerslev-Olsen, Nielsen, Greisen, & Harder, 2021). In comparison to low-risk babies, high-risk babies tend to be more fretful, less engaged, and less active. Mothers of these infants are at greater risk for being less emotionally involved and less sensitive to the infants, and more likely to inappropriately stimulate their infants more than mothers of developmentally typical infants (Rohder et al., 2021). Thus, the negative emotion of mothers with children with developmental disabilities was especially high, and this may be exacerbated if the child still lives at home.

Table 3. Results of positive and negative emotion analysis of variance (ANOVA) and psychological well-being by group

Variables	Groups	Mean ± SD	df	f	P-value
Positive emotions	Healthy	22.440 ± 1.739	1	115.151	0.001
	Unhealthy	18.220 ± 2.169	98		0.001
Negative emotions	Healthy	42.420 ± 1.750	1	260.275	0.001
	Unhealthy	47.900 ± 1.644	98		0.001
Psychological well-being	Healthy	81.320 ± 1.168	1	1367.477	0.001
	Unhealthy	68.220 ± 2.215	98		0.001

SD: Standard deviation; df: Degree of freedom

Further, for parents of individuals with mental health problems, a longer duration of the condition was associated with higher parental negative emotions (Sloan et al.,

2020). Results from a study showed that mothers with the low emotion regulation profile were significantly more distressed and had poorer global regulation during the cleanup task than mothers with moderate, high, and mixed profiles. Mothers in high and mixed emotion regulation profiles exhibited the least amount of distress, and according to their scores on the global regulation code, they could be classified as mostly or well regulated (Garcia, 2020). Working mothers, in particular, are known to face considerable stress in meeting the needs of their families and work. The majority of working mothers are also involved in household chores and child care and face work-family conflicts. Among working mothers in Iran, spouses and employers showed the least support (Yang & Kim, 2021).

Interestingly, this study also found that mothers of children with CP reported lower levels of psychological well-being than mothers of typical children. Numerous studies have been conducted that support our findings, including Barlow et al. (2006), Irwin et al., (2019), Park (2021), Homan et al. (2020), and Smith and Grzywacz (2014). A study conducted by Barlow et al. (2006) revealed that mothers of children with CP often felt distressed, particularly depressed, and anxious (Barlow, Cullen-Powell, & Cheshire, 2006). In the study, the results revealed that mothers were at low, moderate, and high risk of clinical depression, compared to the population norms, respectively. According to the study, mothers were at low and moderate risk of clinically depressed mood compared with norms. There was an inverse association between anxiety and depression moods and generalized self-efficacy, as well as anxiety and sleeping difficulties. Overall, the levels of maternal psychological well-being are of great concern and warrant exploring interventions that will reduce maternal distress and increase self-efficacy (Barlow et al., 2006). Park (2021) in a study with the title Relationship among Gross Motor Function, Parenting Stress, Sense of Control, and Depression in Mothers of Children with Cerebral Palsy revealed that mothers of children with CP at lower functional levels reported greater stress and lower quality of life than those at higher functional levels. Mothers of children with CP with high self-control were found to have low levels of parenting stress and depression. This lends credence to the belief that self-control can act as a protective variable against stress and depression, even if an individual is placed in difficult situations. Recent systematic reviews and meta-analyses reported that interventions to improve psychological well-being in the parents of children with CP were effective (Irwin, Jesmont, & Basu, 2019). However, the psychological well-being and somatic symptoms of parents of children with mental health issues did not differ from those of compared parents (Sloan et al., 2020). As opposed to previous findings (Homan, Greenberg, & Mailick, 2020; Smith & Grzywacz, 2014), Sloan et al. (2020) found that fathers were more susceptible to the negative effects of caregiving stress than mothers. There is a possibility that fathers have fewer social supports than mothers, and therefore, are less able to cope with the stress of these unique caregiving situations (Sloan et al., 2020).

Due to the limited time, the small sample size, the non-random sampling method, and the self-reported scales which were administered to mothers in District 2 of Tehran, it is impossible to generalize the results beyond the sample. In this study, there were no matched groups based on age, number of children, marital status, and economic status. However, it is still hoped that future studies will take into account the interfering variables and control over them.

Conclusion

Parenting a child with developmental or mental health problems will impact the parental well-being, even into adulthood and when there are fewer children living at home. In addition, these difficulties are nuanced by other factors within individuals, such as age and gender, as well as factors related to the duration and time since a condition was diagnosed. Researchers should consider contextual factors, such as social support and employment stress when investigating how parents with high caregiving stress can cope. It is important to identify malleable factors within this population that might be used for intervention. It would be helpful to know more about how parents in these circumstances cope with daily challenges and stress due to caregiving, as well as what sources of internal and external support are most helpful in minimizing the effects of caregiving stress.

Conflict of Interests

Authors have no conflict of interests.

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An Investigation on Irritable Bowel Syndrome Patients to Evaluate the Effectiveness of Compassion-Focused Therapy

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Quantitative Study

Abstract

Background: Irritable bowel syndrome (IBS) is a gastrointestinal disease characterized by chronic abdominal pain, defecation changes, and lack of organ causes for these symptoms. The present study examined the effects of compassion-focused therapy (CFT) on depression, self-care, and quality of life (QOL) in IBS patients.

Methods: This quasi-experimental study was conducted with a pretest-posttest design, experimental and control groups, and follow-up investigation. Purposive sampling was used to select all IBS patients in Bangkok, Thailand. The 40 patients were randomizes into experimental and control groups. The Beck Depression Inventory-II (BDI-II; Beck, 1996), the Self-Care Questionnaire (Lou, 1996), and the Quality of Life Scale (QOLS; Burckhardt and Anderson, 2003), were the tools that were utilized in the collection of data. The collected data were analyzed using repeated measures analysis of variance (ANOVA) in SPSS software. The significance level chosen for the tests was 0.05.

Results: In the experimental group, CFT significantly improved depression (group*time effect: $P < 0.001$; group factor effect: $P < 0.038$), self-care behaviors (group*time effect: $P = 0.001$; group factor effect: $P = 0.057$), and QOL (group*time effect: $P < 0.001$; group factor effect: $P = 0.043$) in the posttest and follow-up stages. Throughout the length of the trial, the control group's depression levels, self-care practices, and QOL remained unchanged.

Conclusion: CFT can assist patients diagnosed with IBS in terms of sadness, QOL, and self-care habits. CFT can be an effective method for lowering depression, enhancing self-care

practices, and enhancing QOL. This mode of therapy can help patients with IBS by alleviating their psychological issues.

Keywords: Compassion-focused therapy; Quasi-experimental; Irritable bowel syndrome

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Introduction

Irritable bowel syndrome (IBS) is a common gastrointestinal dysfunction that is defined by abdominal pain and changes in bowel habits (diarrhea, constipation, or both) and occurs in the absence of a detectable physical abnormality (Yamamoto, Pinto-Sanchez, Bercik, & Britz-McKibbin, 2019; Wilms et al., 2020). IBS is observed in 25 to 50% of gastroenterology cases (Raes, 2010; Wilson, Mackintosh, Power, & Chan, 2019). This syndrome is the cause of a significant number of visits to general practitioners and the second cause of absence from work, after the common cold (Mackintosh, Power, Schwannauer, & Chan, 2018). Many studies have investigated the role of psychological factors in IBS. The severity of the symptoms of this syndrome varies in different patients and is divided into the three categories of mild, moderate, and severe. These individuals have a high incidence of stress, anxiety, and depression, all of which are associated with the onset and degree of severity of symptoms (Nan et al., 2020). Moreover, people who suffer from anxiety disorders, including generalized anxiety disorder, may be prone to gastrointestinal upset (Frostadottir & Dorjee, 2019; Ghanavati & Joharifard, 2019).

The prevalence of IBS varies in different geographical areas, between 9% and 22% in Europe and the United States, and 6% and 25% in the Middle East (Bluth & Eisenlohr-Moul, 2017; Ferrari, Hunt, Harrysunker, Abbott, Beath, & Einstein, 2019). A previous research showed that 37% of the population with generalized anxiety disorder met the diagnostic criteria for IBS, and in another study, 34% of patients with IBS had a history of generalized anxiety disorder during their lifetime (Barnard & Curry, 2011; Blackie and Kocovski, 2018). About 50 to 90% of patients with IBS seeking treatment have a history of psychiatric disorders during their lifetime (Addante et al., 2019). This disease can affects different aspects of life, including sleep, occupation, sexual function, recreation, and travel (Abdi-Malekabadi, Tavakoli, & Farzanfar, 2019; Farzanfar, Sedaghat, & Zarghami, 2020). Affected people are absent from work and school three times more than non-affected people (Foroozanfar & Ansari-Shahidi, 2020). Self-compassion therapy is one of several techniques for decreasing depression and improving self-care practices in people with IBS (Germer & Neff, 2013). Compassion has three dimensions: kindness to oneself in the face of self-judgment, a feeling of human commonality in the face of isolation, and awareness in the face of growing absorption (Kamalinejad & Amiri, 2019; Glabska, Kolota, Lachowicz, Skolmowska, Stachon, & Guzek, 2021).

Treatment of IBS disorders can reduce medical illnesses such as cardiovascular disease and psychological issues such as depression and anxiety, and increase patients' self-confidence and quality of life (QOL) (Ashworth, Clarke, Jones, Jennings, & Longworth, 2015; Abdi-Malekabadi et al., 2019). Recently, psychologists have presented alternative conceptualizations for a healthy attitude toward and relationship with oneself. One of these components is the concept of self-compassion. Self-compassion is defined as component instruments including kindness to self-judgment, human sharing versus isolation, and awareness of extreme imitation. The combination of these three interrelated components is characteristic of a person who is self-compassionate (Frostadottir & Dorjee, 2019). Compassion-focused therapy (CFT) is an eclectic approach that has evolved from social, evolutionary, evolutionary, Buddhist, and neuroscience psychology, as well as other treatment models with effective intervention in a variety of mental health problems. Research has shown that people with self-compassion have better mental health than people

without self-compassion. Self-compassion, for example, is more common in people with low levels of depression and anxiety. Compassion is itself associated with positive psychological abilities, such as happiness, optimism, wisdom, curiosity, exploration, and emotional intelligence (Navarro-Gil et al., 2020).

CFT was established for persons with complicated mental health issues, shame, and self-criticism, and a challenging life history (Araghian, Nejat, Touzandehjani, & Bagherzadeh Golmakani, 2020). CFT involves internalizing externally soothing thoughts, factors, pictures, and actions. As the mind responds to external stimuli, it relaxes its internalities (Collins, Gilligan, & Poz, 2018). CFT reduces self-criticism and despair, and increases positive feelings and compassion. Self-compassion has been linked to well-being, happiness, psychological flexibility, and mental health, and anxiety and depression (Zamani Mazdeh, Grafar, Davarniya, & Babaei Gharmkhani, 2019).

The number of IBS patients is increasing. They have severe sorrow, are faced with self-care challenges, and many lack the knowledge and skills necessary to handle these issues. IBS patients can benefit from compassion theory and CFT. The few studies in this regard have mostly used classical and traditional therapies in the treatment, recovery, and disorder of patients with IBS. Moreover, the treatment of compassion using various methods seeks to improve observational learning. Therefore, this approach looks at issues from a different perspective. The purpose of this research was to evaluate the efficacy of CFT in treating depression, as well as on self-care behaviors and overall QOL in individuals diagnosed with IBS.

Methods

This quasi-experimental study was conducted with a pretest-posttest design, follow-up investigation, and experimental and control groups. Individuals diagnosed with IBS were selected through purposive sampling method. Thus, 40 patients from Bangkok, Thailand, were randomly divided into two equal experimental and control groups. The number of participants was 20 in each group based on the effect size of 0.40, alpha of 0.08, and power of 0.95. The participants included patients diagnosed with IBS according to the Rome III criteria by a gastroenterologist and no psychiatric therapy in the last 3 months (Yadavaia, Hayes, & Vilardaga, 2014; Kovalenko et al., 2019). The exclusion criteria included gastrointestinal bleeding, fecal hemorrhage, fever, 10% weight loss in the past 6 months, a family history of colon cancer, serious psychiatric disease, and immediate family, or neighbors (Pauley & McPherson, 2010; Navarro-Gil et al., 2020). IBS patients were randomly assigned to experimental and control groups. The 2-month intervention was presented to 2 randomly selected groups of 10 individuals in 8 sessions (1 session per week for 90 minutes). Patients in both groups received routine treatment for IBS by a gastroenterologist, but in addition to routine treatment, the experimental group received CFT designed with an executive protocol. Individuals were assured that their information would be kept confidential and would be used for research purposes only. For privacy reasons, the participants' first and last names were not registered. The procedures were approved by the Medical Research Ethics Committee of Chulalongkorn University (ID: 03/2009). The content of the sessions is presented in table 1 (Shiralinia, Cheldavi, & Amanelahi, 2018).

The Beck Depression Inventory-II (BDI-II), the Self-Care Questionnaire, and the Quality of Life Scale (QOLS) were the tools that were utilized in the collection of data (Van Dam, Sheppard, Forsyth, & Earleywine, 2011; Werner, Jazaieri, Goldin, Ziv, Heimberg, & Gross, 2012). The BDI-II is a self-report questionnaire with 21 questions. Each question is scored on a 4-point scale ranging from 0 to 3.

Table 1. The content of sessions

Sessions	Description
1	Introduction of participants to one another and explanation of the ideas of self-compassion and empathy in general
2	A discussion of the many forms of self-critical education, the benefits of doing so, the drawbacks, the reasons, and the potential remedies to the problem of excessive self-criticism
3	Training on acceptance of one's own shortcomings without condemnation, and discussion on the causes of errors, the drawbacks and repercussions of refusing to forgive, and advice on how to move beyond such setbacks are all part of the process of learning to forgive.
4	Mindfulness training and instilling in students a variety of abilities, including self-examination and deep breathing, learning to persevere through adversity, accepting setbacks, cultivating compassion, and gaining insight into the struggles of others
5	The advantage of self-worth education, the disadvantage of self-esteem education, and strategies for improving low self-worth
6	Learning to produce compassionate and relaxing pictures using mental imagery (color image, locale and compassionate traits) (color image, place and compassionate features) Teaching styles and techniques of showing compassion and utilizing these approaches in everyday life
7	Teaching principles of compassion such as knowledge, attention, logical thinking, warmth, support and kindness, teaching the attributes of compassion, motivation, sensitivity, empathy and kindness
8	Teaching inner conversation between the patient and self-defined, explaining the many aspects of self-existence, learning to write a caring letter to oneself, and obtaining feedback from group members on the ideas taught, and evaluating and summarizing earlier content

The cut-off point on this scale is 13. Its 1-week retest reliability was 0.91 and internal consistency via Cronbach's alpha was 0.89 (Wang & Gorenstein, 2013). The Self-Care Questionnaire includes healthy diet, physical exercise, stress management, smoking, and health awareness. The Self-Care Questionnaire consists of 9 question in 22 items. Each question is scored on a scale ranging from 1 to 5. The average of questionnaire score was 83.9 and Cronbach's alpha of the questionnaire is 0.87 (Loven et al., 2019). The QOLS is a 36-item inventory with questions on a wide range of topics, such as health and happiness. The score of each domain of the questionnaire ranges from 0 to 100. Higher scores suggest a better QOL. The questionnaire's alpha was reported to be 0.8 (Burckhardt & Anderson, 2003). The frequency tables, and mean and standard deviation were utilized. Data were analyzed using repeated measures ANOVA in SPSS software (version 22; IBM Corp., Armonk, NY, USA). The significance level chosen for the tests was 0.05.

Results

The descriptive findings of this study include statistical indicators such as average, standard deviation, number of sample subjects, as well as frequency and percentage table. The variables studied in this research are presented in table 2. The mean of research variables in the experimental and control groups are presented in table 3. Based on the results of this study, it can be said that there was no significant difference between the two groups in terms of gender distribution, marital status, age group, and level of education. It should be noted that the mean age of the participants was 29.64 years.

To evaluate the significant difference among depression score and quality of life and self-care, repeated measures ANOVA was used. Before performing repeated measures ANOVA, to observe the defaults, the results of Box's M and Mauchly's sphericity test were checked. The homogeneity of variance-variance matrices was not rejected since Box's M test was not statistically significant for any of the research variables.

Table 2. Comparison of frequency and comparison of demographic characteristics of the research units

Demography variables	Compassion-focused therapy	Control group	P
Gender			
Male	16	8	0.331
Female	4	12	
Marital status			
Single	5	7	0.872
Married	15	13	
Age (year)			
< 30	10	14	0.402
31-40	6	5	
41-50	4	1	
Education level			
High school	3	0	0.111
Diploma	2	6	
Undergraduate	15	14	

Mauchly's sphericity test results for QOL were significant. Therefore, the hypothesis of equality of variances within the subjects (sphericity hypothesis) was rejected. Therefore, the Greenhouse–Geisser test was used to evaluate the results of univariate test for intragroup effects and interactions. According to the obtained probability values, the averages of the tests were significantly different in terms of the effectiveness of compassion theory training on research variables. The Greenhouse–Geisser test with a value of 0.135 ($p > 0.001$) showed a major difference between the two groups' judgments of the efficacy of compassion theory training in lowering depression, boosting QOL, and fostering self-care.

Table 4 displays the results of ANOVA in the comparison of pretest, posttest, and follow-up in the experimental and control groups. Both the group*time effect ($P < 0.001$) and the group effect ($p = 0.038$) were significant in ANOVA of the depression variable. Moreover, ANOVA indicates that the group*time impact was significant ($P < 0.001$). In addition, ANOVA of the QOL variable was significant for the group*time effect ($P < 0.001$) and group effect ($P = 0.057$), and the self-care behavioral variables were significant for the group*time effect ($P < 0.001$) and group effect ($P = 0.043$).

The Bonferroni post hoc test was used to examine the differences in the pretest and posttest stages and follow-up in each of the variables, the results of which are presented in table 5. According to table 5, the posttest depression scores in the experimental group were significantly lower than their pretest scores ($P = 0.001$). The depression scores in the follow-up stage differed significantly from that in the pretest phase ($P = 0.001$). There was also a statistically significant difference between the posttest and follow-up phases ($P = 0.037$). However, the posttest QOL score in the experimental group was lower than the pretest QOL score ($P = 0.001$). In the follow-up phase, the QOL score was significantly different from the pretest phase ($P = 0.001$). There was also a statistically significant difference between the posttest and follow-up phases ($P = 0.012$) in term of QOL.

Table 3. Mean (SD) of research variables in the experimental and control groups

Variable	Group	Pretest		Posttest		Follow-up	
		Mean	SD	Mean	SD	Mean	SD
Depression	CFT	13.22	1.12	9.87	1.51	10.63	1.43
	Control group	12.10	1.17	12.91	1.20	12.53	1.29
Quality of Life	CFT	159	5.55	166	6.61	168	6.21
	Control group	155	5.58	161	6.23	166	5.96
Self-care	CFT	32	3.71	36.12	4.65	38.13	4.99
	Control group	29	3.88	31.20	4.18	33.57	5.1

Table 4. Repeated measures analysis of variance for comparison of pretest, posttest, and follow-up in the experimental and control groups

Variable	Effect	df	F	P-value	Eta square
Depression	Time	2	162.11	< 0.001	0.88
	Group	1	8.99	0.038	0.31
	Group*Time	2	121.12	< 0.001	0.85
Quality of life	Time	2	159.23	< 0.001	0.80
	Group	1	23.11	0.057	0.81
	Group*Time	2	125.12	< 0.001	0.56
Self-care	Time	2	126.50	< 0.001	0.83
	Group	1	4.23	0.043	0.22
	Group*Time	2	69.13	< 0.001	0.76

In addition, the self-care variable was lower in the experimental group in the posttest stage compared to the pretest and follow-up stages ($P < 0.001$). However, there was a statistically significant difference between the posttest and follow-up phases in terms of this variable ($P = 0.032$). In the follow-up phase, the efficacy of CFT decreased for depression, QOL, and self-care behaviors.

Discussion

This study evaluated the effects of CFT on different aspects of life of IBS patients. A previous study has shown that CFT improves depression. The CFT group had much less depression in the follow-up period than the control group. In fact, in CFT, instead of judging yourself ruthlessly and criticizing yourself for your weaknesses and flaws, compassion allows you to be kind and self-aware when faced with personal problems (Wilson et al., 2019). Who said you have to be perfect? You can change your ways so that you can be healthier and happier. You can achieve this when you value and accept that you are a human being. CFT leads to acceptance of one's true self. In addition, it helps individuals with IBS better deal with their sadness and gives them the opportunity to adjust to the symptoms of their disease. Foroozanfar and Ansari-Shahidi (2020) conducted a research on the benefits of treatment focused on self-compassion training in decreasing psychological disorders, including symptoms of depression.

The findings of the present study are compatible with their findings. Moreover, the findings of this study were compared to those of Ferrari et al. (2019), who investigated the impact of self-centered treatment on elderly patients suffering from dementia, specifically with regard to their levels of anxiety and sadness. Based on the findings of Ferrari et al (2019), it can be seen that CFT has improved the QOL of participants. In addition, the QOL in the follow-up phase in the CFT group increased significantly compared to the control group. To explain this finding, it can be said that self-compassion training can lead to better thinking.

Table 5. Results of the Bonferroni post hoc test for two-way comparison of mean measurement times of the research variables

Variable	Stage	Posttest			Follow-up		
		Mean differences	Standard error	P	Mean differences	Standard error	P
Depression	Pre-test	3.05	0.50	< 0.001	1.47	0.76	< 0.001
	Post-test	-	-	-	0.6	0.60	0.037
Quality of life	Pre-test	1.12	0.59	< 0.001	2.24	0.67	< 0.001
	Post-test	-	-	-	-0.89	0.64	0.012
Self-care	Pre-test	3.42	1.51	<0.001	-1.81	0.69	< 0.001
	Post-test	-	-	-	2.6	0.68	0.032

People learn how to recognize their unreasonable assessments (Hughes, Brown, Campbell, Dandy, & Cherry, 2021). It prepares people to deal with challenging situations and overcome obstacles. This education will very probably be the driving force behind change, including adjustments in attitudes and ideas and improvement in their level of living. Self-compassion education teaches people how to recognize and correct incorrect and unreasonable thoughts. This reduces stress and enhances overall QOL. The nature of group education has the potential to improve QOL. This is due to the fact that bringing together people who have similar physical problems reduces stress and negative mood, and increases acceptance of reality and coping abilities (Frostadottir & Dorjee, 2019). As a consequence, self-compassion education can improve your QOL or your capacity to successfully deal with adversity.

Self-compassion training encourages individuals with IBS to be as compassionate to themselves as they are to others. In addition, the lessons learnt through this mode of therapy cause individuals to act realistically and to renounce the ideal self and the self imposed on them by others, and therefore, help them obtain greater peace of mind (Germer & Neff, 2013). When living situations become challenging and painful, individuals with IBS concentrate on their inner world to soothe themselves, rather than only concentrating on the outer world and attempting to manage or fix the issue. Self-compassion could help to ameliorate one's suffering in to avoid stress. The findings show that CFT has been very effective in improving self-care behaviors. There was no significant increase in self-care behaviors in the follow-up phase in the CFT group compared with the control group. This result is in line with the results of Ghanavati and Joharifard (2019).

Self-compassion is caring for and empathizing with oneself, a non-evaluative attitude toward oneself in the midst of perceived challenges or deficiencies (Pauley & McPherson, 2010). High self-esteem is associated with psychological well-being and protects individuals against stress. It also entails embracing vulnerable emotions, caring for and being nice to oneself, analyzing one's own failures and failures, and acknowledging one's experiences. Compassionate self-therapy shows the limits and highlights the harmful habits that allow one to make adjustments and promote change to increase well-being (Yadavaia et al., 2014**)**. Therefore, it may be assumed that CFT will have an influence on self-care of individuals with IBS.

The primary limitation of the present study is that only those with a diagnosis of IBS were included in the analysis. This study was only carried out on patients located in Bangkok, which is located in Thailand. It is suggested that more research be carried out using a new sample group, and the results be analyzed. Given the positive effects that CFT has on depression, self-care habits, and overall QOL in patients with IBS, psychologists should consider implementing group CFT.

Conclusion

Patients diagnosed with IBS can benefit from CFT in terms of their mood, QOL, and behaviors related to self-care. Therefore, CFT can be an effective method for improving symptoms of depression, behaviors related to self-care, and overall QOL. In order to achieve this goal, this strategy can be utilized to address the psychological issues experienced by people who suffer from IBS.

Conflict of Interests

Authors have no conflict of interests.

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