Cross-Cultural, Interdisciplinary Health Studies

International Journal of Body, Mind & Culture

eISSN: 2345-5802

Volume 1, Issue 2, 2014

International Journal of Body, Mind & Culture

FaRa Pub

Volume 1, Issue 2, 2014

http://ijbmc.org

ALBERT-LUDWIGS-UNIVERSITÄT FREIBURG
DEPARTMENT OF PSYCHOSOMATIC MEDICINE

http://ijbmc.org

IRANIAN INSTITUTE OF HIGHER HEALTH

International Journal of
Body, Mind & Culture

Cross-Cultural, Interdisciplinary Health Studies

Publisher

Farzanegan Radandish (FaRa) Co.
Po.Box: 81465-1798 Isfahan, IRAN
Telfax: +98 311 224 18 76, +98 311 668 63 02
+98 311 224 19 53
www.farapub.com
Email: f.radandish@gmail.com

Owner

Albert- Ludwigse- Universität Freiburg
Department of Psychosomatic Medicine
&
Danesh-e Tandorosti Institute
Email: ijbmc@uniklinik-freiburg.de
info@ijbmc.org, info@iranianhealth.com

Please visit our website at
http://ijbmc.org

Cover page: The photo by Majid Koorang Beheshti

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

Information for Authors

AIM AND SCOPE

Modern medicine is thought to be in a paradigmatic crisis in terms of the accelerative demographic, epidemiologic, social, and discursive aspects. The ontological, epistemological, and methodological gaps in biomedicine lead to a chaotic condition in health beliefs and behaviors. The *International Journal of Body, Mind and Culture* (IJBMC) is an international, peer-reviewed, interdisciplinary medical journal and a fully "online first" publication focused on interdisciplinary, cross-cultural, and conceptual research. The researches should focus on paradigmatic shift and/or humanizing medical practice.

All interdisciplinary researches, such as social sciences (e.g., sociology, anthropology, and psychology), humanities (e.g., literature, religion, history, and philosophy), and arts (e.g., music and cinema), which have an impact on medical education and practice, are acceptable.

The IJBMC team is based mainly in Germany and Iran, although we also have editors elsewhere in Europe and in the US.

Instruction to Authors

MANUSCRIPTS

The website is updated weekly with IJBMC's latest theoretical and original research, case reports, education, news, and comment articles. All IJBMC research is published with open access and up to 5000 word counts. There is an exception for theoretical papers; they can exceed the word limitation of the journal.

The mission of IJBMC is to lead the debate on health and to engage, inform, and stimulate doctors, researchers, and other health professionals in ways that will design more humanistic health promotion and clinical settings. We aim to help health system managers and therapists to make more integrative decisions.

STUDY DESIGN

We advise authors to design studies based on the appropriate guidelines. In randomized controlled trials, the CONSORT guideline (www.consort-statement.org/consort-statement), in systematic reviews and meta-analyses, the PRISMA (formally QUOROM) guideline (www.prisma-statement.org), in studies of diagnostic accuracy, the STARD guideline (www.stard-statement.org), in observational studies in epidemiology, the STROBE guideline (www.strobe-statement.org), and in meta-analyses of observational studies in epidemiology, the MOOSE guideline (www.consort-statement.org/index.aspx?o=1347) should be used.

HUMAN AND ANIMAL RIGHTS

Researches involving human beings or animals must adhere to the principles of the Declaration of Helsinki (www.wma.net/e/ethicsunit/helsinki.htm).

Types of Articles

- *Review articles, theoretical studies, qualitative studies, quantitative studies, letter to the editor, case reports, and clinical trials* can be submitted by all authors, but *other types* of articles can only be submitted by the journal's editorial board.

SUBMISSION

- Only online submission is acceptable. Please submit online at: *http://ijbmc.org*
- The manuscripts should be divided into the following sections: (1) Title page, (2) Abstract and Keywords, (3) Main text (can be divided into some parts according to the type of manuscript), (4) References, and (5) Figure legends, (6) Appendices, and (7) Tables and (8) Figures (figures should be submitted in separate files) if present.
- Please supply a word count in title page.

• Use normal page margins (2.5 cm), and double-space throughout.

• Prepare your manuscript text using a word processing package (save in .doc or .rtf format). Submissions of text in the form of PDF files are not permitted.

COVER LETTER

A covering letter signed by all authors should identify the corresponding author (include the address, telephone number, fax number, and e-mail address). Please make clear that the final manuscript has been seen and approved by all authors, and that the authors accept full responsibility for the design and conduct of the study, had access to the data, and controlled the decision to publish.

AUTHORSHIP

As stated in the Uniform Requirements for Manuscripts Submitted to Biomedical Journals (http://www.icmje.org/#privacy), credit for authorship requires substantial contributions to: (a) conception and design, or analysis and interpretation of data; (b) the drafting of the article or critical revision for important intellectual content; and (c) final approval of the version to be published. Authors should meet conditions a, b, and c. Each author must sign authorship form attesting that he or she has fulfilled the authorship criteria. There should be a statement in the manuscript explaining the contribution of each author to the work. Acknowledgments will be limited to one page of *International Journal of Body, Mind and Culture* space, and those acknowledged will be listed only once.

Any change in authorship after submission must be approved in writing by all authors.

ASSURANCES

In appropriate places in the manuscript please provide the following items:

• If applicable, a statement that the research protocol was approved by the relevant institutional review boards or ethics committees, and that all human participants gave written informed consent

• The source of funding for the study

• The identity of those who analyzed the data

• Financial disclosure, or a statement that none is necessary

TITLE PAGE

With the manuscript, provide a page giving the title of the paper; titles should be concise and descriptive (not declarative). Title page should include an abbreviated running title of 40 characters, the names of the authors, including the complete first names and no more than two graduate degrees, the name of the department and institution in which the work was done, and the institutional affiliation of each author. The name, post address, telephone number, fax number, and e-mail address of the corresponding author should be separately addressed. Any grant support that requires acknowledgment should be mentioned on this page. Word count of abstract and main text, and number of tables, figures, and references should be mentioned on title page. If the work was derived from a project or dissertation, its code should also be stated.

Affiliation model: Academic Degree, Department, Institute, City, Country.

Example: Associate Professor, Department of Radiology, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran.

ABSTRACT

Provide, on a separate page, an abstract of no more than 250 words. This abstract should briefly describe the problem being addressed in the study, how the study was performed, the salient results, and what the authors conclude from the results, respectively. In total, 3 to 10 keywords may be included. Keywords are preferred to be in accordance with MeSH (http://www.ncbi.nlm.nih.gov/mesh) terms.

CONFLICT OF INTEREST

Authors of research articles should disclose, at the time of submission, any financial arrangement they may have with a company whose product is pertinent to the submitted manuscript or with a company making a competing product. Such information will be held in confidence while the paper is under review and will not influence the editorial decision, but if the article is accepted for publication, a disclosure will appear with the article.

Because the essence of reviews and editorials is selection and interpretation of the literature, the *International Journal of Body, Mind and Culture* expects that authors of such articles will not have any significant financial interest in a company (or its competitor) that makes a product discussed in the article.

REVIEW AND ACTION

Submitted papers will be examined for the evidence of plagiarism using some automated plagiarism detection service. Manuscripts are examined by members of the editorial staff, and two thirds are sent to external reviewers. We encourage authors to suggest the names of possible reviewers, but we reserve the right of final selection. Communications about manuscripts will be sent after the review when the editorial decision-making process is complete. After acceptance, the editorial system makes a final language and scientific edition. No substantial change is permitted by authors after acceptance. It is the responsibility of the corresponding author to answer probable questions and approve the final version.

COPYRIGHT

The *International Journal of Body, Mind and Culture* is the owner of all copyright to any original work published by this journal. Authors agree to execute copyright transfer forms as requested with respect to their contributions accepted by the Journal. The *International Journal of Body, Mind and Culture* has the right to use, reproduce, transmit, derive works from, publish, and distribute the contribution in the *Journal* or, otherwise, in any form or medium. Authors will not use or authorize the use of the contribution without written consent by the Journal Office.

JOURNAL STYLE

Tables

Provide double-space tables and a title for each.

Figures

Figures should be no larger than 125 (height) x 180 (width) mm (5 x 7 inches), and should be submitted in a separate file from that of the manuscript. The name of image or figure files should be the same as the order that was used in the manuscript (fig1, fig2, and etc.). Only JPEG, tif, gif, and eps image formats are acceptable with CMYK model for colored image at a resolution of at least 300 dpi. Graphs must have the minimum quality: clear text, proportionate, not 3 dimensional, and without disharmonic language. Electron photomicrographs should have internal scale markers.

If photographs of patients are used, either the subjects should not be identifiable or the photographs should be accompanied by written permission to use them. Permission forms are available from the Editorial Office.

Medical and scientific illustrations will be created or recreated in-house. If an outside illustrator creates the figure, the *Journal of Body, Mind and Culture* reserves the right to modify or redraw it to meet its specifications for publication. The author must explicitly acquire all rights to the illustration from the artist in order to publish the illustration. Legends for figures should be an editable text as caption and should not appear on the figures.

References

The American Psychological Association (6th ed., 2nd printing) style of referencing should be used. References must be double-spaced.

Units of Measurement

Authors should express all measurements in conventional units, with Système International (SI) units given in parentheses throughout the text. Figures and tables should use conventional units, with conversion factors given in legends or footnotes. In accordance with the Uniform Requirements; however, manuscripts containing only SI units will not be returned for that reason.

Abbreviations

Except for units of measurement, abbreviations are discouraged. Consult the Scientific Style and Format: The CBE Manual for Authors, Editors, and Publishers (6th edition. New York: Cambridge University Press, 1994) for lists of standard abbreviations. Except for units of measurement, the first time an abbreviation appears, it should be preceded by the words for which it stands.

Drug Names

Generic names should generally be used, except for studies on comparative effects of different brands. When proprietary brands are used in research, include the brand name and the name of the manufacturer in parentheses in the Methods section.

For any more detail about the writing style for your manuscripts refer to:

http://ijbmc.org

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

Table of Contents

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

Editorial

Tom Levold, Cologne (Germany)

With this second issue of 'Body, Mind & Culture', the journal is taking the next step forward towards the challenging prospect of transcending the biomedical model in the medical field in favor of an interdisciplinary, or better, transdisciplinary discourse on issues which comprise bodily and mind related and socio-cultural phenomena.

The history of science and its academization in the last century has led to a continuous differentiation of academic disciplines and subdisciplines which developed and followed their own paradigms and methodologies, gained specific (organizational, economic, and legal) forms of institutionalization and careers, formed quite homogenous scientific communities, and produced a corpus of codified, consensus-based, and teachable knowledge. All these processes contributed to the emergence of clear disciplinary identities which are more or less distinguished from other fields of knowledge.

As the history of science shows, this evolutionary process brought about a powerful system of specialized scientific knowledge which accelerated developments in almost all societal domains. However, specialization is not only a vehicle for scientific progress, is also has some serious pitfalls and blind spots.

Today, we are faced with complex scopes of knowledge (ecology, health, globalized communication, and etcetera) which are difficult to examine from a single discipline-specific perspective. Furthermore, and even more problematic, specialization can make it impossible to even recognize certain complex problems, since many specific scientific research procedures do not derive from the nature and the context of their subject, but from the methodological repertoires and competence claims of the respective disciplines.

The famous cybernetician, Heinz von Foerster, once indicated that the etymological core of the word science is the indo-european word 'sky' which means 'to split' (this is also part of the word 'schizophrenia'). As a contrasting term he proposed the concept of 'system' (Greek for entirety, aggregation). A systemic orientation leads to a transdisciplinary approach.

While interdisciplinarity focuses on the communication and the interface between different disciplines, which allows an exchange of different perspectives on shared subjects, transdisciplinarity goes even further. According to Gregory Bateson, transdisciplinarity is the search for "patterns that connect". It deals with circularities which cross the boundaries of matter and energy, of mind and nature. It asks how phenomena in different realms of observation can be brought together in in order to gain a deeper understanding of the complexity of our live.

In the medical field, Thure von Uexküll (1920-2001), a German medical doctor, philosopher, and one of the founders of the biosemiotic approach, can be addressed as a trailblazer of transdisciplinary thinking in psychosomatics. Sima Atarodi, Shahram Rafieian, and Mohammad Salavati visited his Wife, Marina von Uexküll, in her home in Freiburg and talked with her about the scientific life of her husband. Considering alone his references to other researchers and thinkers makes clear how broad his intellectual spectrum was; for example S. Freud, M. Balint, Winnicott, J. Piaget, D. Stern, L. V. Bertalanffy, N. Wiener, F. Varela, H. Maturana, G. Bateson, H. V. Foerster, E. V. Glaserfeld, and others.

Alireza Monajemis' paper on the role of biomedical knowledge in clinical reasoning tackles the 'split' of medical knowledge which is produced between the academic and research field, and the knowledge the experienced clinician takes as a road map for diagnostics and treatment. He suggests that the primacy of clinical practice in medicine vividly shows that it is not possible for medicine to be grounded only in pure science.

In an impressive paper on the placebo response, which cannot be explained within the domain of the biomedical approach alone, Shahram Rafieian uses as an alternative framework a non-dualistic philosophical conception of mind-body-society which refers to the phenomenological work of Merleau-Ponty. The social-relational as well as psychological dimensions of the placebo response are considered by incorporating the concept of semiosis (the process of sign interpretation) as a translator of the flow of information between different domains of experience.

Azadeh Malekian, Gholamhosein Ahmadzadeh, Mohsen Maroufi, Abbas Attari, Amitice Bahramian, and Aleksandar Janca present a replication of a study designed by the University of Western Australia (UWA) which studied the identification of deteriorating mental functioning in an early stage in the form of altered sensitivity to expected rituals and an altered ability to perform the rituals appropriately. Rituals are here understood as the correct performance of culturally based practices of everyday life (personal appearance, dress code, hygiene, eating habits, sense of privacy, and etcetera). They report interesting discussions within the research group on how far you can go in defining deviant behavior in these domains as risk factor for mental disturbances. They conclude: "Cross cultural applicability of the social rituals concept and its applicability in reinterpretation of the concept of prodrome are crucially important in psychiatric diagnosis. It instantly incorporates the idea of 'culture' into prodrome, and hence, psychiatry must reconsider the utility of western diagnostic instruments/techniques in non-western settings or in western settings with non-western people as would be the case in most parts of our increasingly multi-cultural world." This approach is quite delicate, when you do not take a clear understanding of the term 'culture' into account. Although mental disturbances can surely manifest themselves in early 'misperformances' of cultural rules, culture is not a stable object. Particularly, there is always a difference between the 'public' discourse or mindset of culture and the practices of the people who are members of that culture. Cultural evolution, all over the world, occurs through deviations from the cultural paradigms which are -in this respect- not signs of individual pathology. May this paper open up an interesting cross-cultural discourse.

Besides these more conceptual articles, this issue contains some interesting research studies relying more on quantitative data. Fatemeh Asadollahi, Hossein Ali Mehrabi, Hamid Taher Neshatdoost, Mehrdad Kalantari, Hamid Afshar, and Hamed Daghaghzadeh performed 8 sessions of Mindfulness-Based Cognitive Therapy on cases of irritable bowel syndrome in women. They found significant reduction in anxiety, depression, and somatization symptoms after the intervention and in anxiety and obsessive–compulsive disorder (OCD) at follow-up. Interestingly the treatment had no impact on the severity of physical symptoms.

Minoo Yaghmaei, Alireza Monajemi, and Kamran Soltani Arabshahi trained medical students in 10 sessions, each for two hours, with storytelling and use of literature to enhance their ability to empathize with their patients. Evidently, this kind of empathy training needs further evaluation. The authors conclude: "Storytelling courses are possibly effective in maintaining the level of medical students' empathy toward patients and might prevent the reduction of empathy during their educational course."

The last contribution to this exciting issue is a study by Hamidreza Roohafza, Shamila Mosharraf, Ghafour Mousavi, Azam Khani, Elham Andalib, Mitra Reihani, and Ali Abbasalizadeh who collected demographic and psychosocial data of all patients, who had tried to commit suicide during one year (466 cases), of a local hospital of a rural region in central Iran. Interestingly, about one-third of the population was male and two-thirds female, the peak age of suicidal attempts was 15-24 years, followed by 25-34 years. A closer look at the data suggests that this is a most exciting subject for a cross-cultural and transdisciplinary discourse. The authors, for example, suggest "…family conflicts, increased expectations and individualism, and changes in adolescent transitions (particularly the importance of a youth culture that isolates young people from adults and increases peer group influence, more tension between dependence and autonomy, and more romantic relationship breakdowns)" as stressors for suicidal behavior. While this is certainly often the case in different cultures, it is interesting to compare suicidal behavior between different cultures. For example, suicide in Germany is statistically in the first line a phenomenon which occurs later in life (there are no data about suicidal attempts, only suicides). The suicide rate for men from 20-25 years is 11.9 (women 3.2), and for men from 85-90 years 73.2 (women 15.1). Evidently, the reasons are very different regarding social and cultural contexts, and, presumably, the dynamics of cultural stability and change, which marks a demand for further comparative discussions.

We see that producing data may not give immediate answers, but will lead to more and maybe different questions. This is what an interdisciplinary, cross-cultural, and conceptual journal like 'Body, Mind & Culture' is about. Diversity, the broad range of perspectives, the qualitative as well as quantitative data, and the openness to new ways of thinking is what this issue has to offer to all professionals in the medical field who are curious to leave their trodden paths of daily routines.

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

Thure von Uexküll's Contribution to German Psychosomatic and Psychosocial Medicine: An Interview

Sima Atarodi[1], Shahram Rafieian[1], Mohammad Salavati[2]

[1] Researcher, Danesh-e Tandorosti Institute, Isfahan, Iran
[2] Researcher, University of Karlsruhe, Karlsruhe, Germany AND Initiator and Organizer of the Isfahan-Freiburg Partnership and Isfahan and Freiburg Universities Collaboration

Interview

Received: 15 Jul 2014
Accepted: 6 Sep 2014

Thure von Uexküll (1920-2001) was a medical doctor and philosopher who made important contributions to both fields of medicine, especially psychosomatics, and philosophy. In medicine, his main contribution was applying a semiotic understanding to medicine, and developing a theoretical framework for psychosomatic medicine and beyond that to give shape to a theory for an integrated medicine. He has contributed to the development of some important concepts, such as "Endosemiotics" and "Subjective Anatomy" among others. In 1994, Thure von Uexküll was awarded an Honorary Doctorate from the University of Tartu in the field of semiotics and psychosomatic medicine (Kull & Hoffmeyer, 2005). It is the result of his efforts that now psychology, sociology, and psychosomatic medicine are obligatory subjects in the curriculum of undergraduate medical training in Germany (Tuffs, 2004).

In philosophy, he was one of the founders of the school of biosemiotics. He was inspired by the works of his father Jakob von Uexküll who was an influential biologist and philosopher. He had the chance of co-authoring with his father during his life time and after his death tried to further develop his ideas and expand his philosophical framework (Kull & Hoffmeyer, 2005).

In November 2011, during the research stay of the first two interviewers (SR and SA), they had the opportunity of visiting Thure von Uexküell's wife, Mrs Marina von Uexküll at her home in Freiburg. Although her background is not in health and medicine, she is completely aware of the activities and intellectual legacy of her deceased husband. In a short interview, during this meeting, she kindly answered our questions and explained some of the aspects of Professor von Uexküll's legacy. Dr Salavati kindly helped us in interpreting the German parts of this interview.

1. What was the role of Thure von Uexküell (T.v.U.) in the development of psychosomatic medicine (PSM)?

T.v.U. developed his model of psychosomatics based on his experiences as an internist as opposed to Viktor von Weizäcker who approached the field as a psychiatrist and neurologist.

As early as 1955-1964 in Giessen (with

Corresponding Author:
Mohammad Salavati
Email: mohammad.Salavati@aifb.uni-karlsruhe.de

Cremerius), and from 1965-1976 in Ulm (with Thomä and Kächele), T.v.U. tried to incorporate psychoanalysis into an integrated psychosomatic medicine. However, these early attempts failed because the psychoanalysts were rather inclined to merge psychosomatic medicine into psychotherapy.

Therefore, in 1973 T.v.U. founded the German College for Psychosomatic Medicine (DKPM) together with some of his colleagues; A.E. Meyer, P. Hahn, H. Freyberger, and K. Koehle et al. Over time, this association started to treat psychosomatic medicine as a specialist branch of medicine. They even established the official title "Facharzt für Psychosomatik" for a doctor who specialises in psychosomatics. However, this isolation of psychosomatic medicine into yet another specialised branch of medicine was contrary to T.v.U.'s intention. Therefore, in 1992 he founded the Academy for Integrated Medicine (AIM), so that his ideas of an integrated medicine could continue to be developed.

As a member of the 1970 Commission for a new Licensing Regulations for Medical Doctors ("Approbationsordnung"), T.v.U. was able to establish three new mandatory departments in all 25 German medical schools: "Medical Psychology", "Medical Sociology", and "Psychosomatics and Psychotherapy".

2. When and how did he develop his first book about psychosomatic medicine?

His first book on this subject was published in 1963. It was called "Basic questions on Psychosomatic Medicine" (Grundfragen der psychosomatischen Medizin), published by Rowohlt Hamburg and translated into French (1966 by Galimard) and Dutch (1980 by Nimwegen.

The book is based on T.v.U.'s experiences as intern and senior physician with his teacher Gustav v. Bergmann (who wrote Funktionale Pathologie in 1932), and on numerous discussions with his father Jakob v. Uexküell) and his friends Ernesto Grassi and Alexander Mitscherlich.

Dr Uexküll's first book about Psychosomatic Medicine

These discussions were primarily concerned with the relationship of the body with its environment, and the dissociation of the medical sciences into a medicine for the body and a medicine for the mind (psyche). Keywords, among others, were motive, action, and mood. This book influenced many medical students in the 60's and 70's.


Dr. Gustav v. Bergmann and Dr. Thure von Uexküll

3. How well was the English version of his book received in English speaking countries?

T.v.U. further developed the ideas from his first book which became part of his "Lehrbuch der Psychosomatischen Medizin" published in 1979 by Urban & Schwarzenberg, München. This book was the result of collaboration with many of his colleagues at the University of Ulm. In 1997 the fourth edition of the book from 1990 was published in English as "Psychosomatic Medicine". In the meantime, a new German edition had been published in 1996, and the English version was already somewhat outdated when it was published. In England and the USA, the book was moderately successful. Nevertheless, the book was well received in many English speaking countries.

4. Was there any interaction between Uexküll and systemic therapists and thinkers in the course of the development of his ideas?

The three pillars of T.v.U.'s framework -the "bio-psycho-social" model (a term coined by G. Engel), the concept of "individual reality" ("Individuelle Wirklichkeit"), and the "doctor-patient relationship"- are all based on investigations and ideas by T.v.U. that he got when studying a variety of fields. These include his interactions with psychoanalysis (S.Freud, M. Balint, and D. Winnicott), developmental psychology (J. Piaget, and D. Stern), cybernetics (L.v.Bertalanffy, and N. Wiener), system theory (F.Varela, H. Maturana, and G. Bateson), radical constructivism (H.v.Foerster, E.v.Glaserfeld, and J. Piaget), and semiotics (C.S.Peirce, T. Sebeok, and T. Deacon)

5. Was there any special characteristic in the personality of doctor Uexküll in his personal and professional life?

Up to the age of 96 T.v.U. always worked in a much disciplined manner. He gladly discussed emerging problems with others. Discussions always addressed biological questions -concerning the sciences and life- and philosophy. He struggled continuously to develop a theory of humanistic medicine. He stated: "The crisis of medicine is the crisis of its philosophy, which gives a doctor a one-sided model for his actions."

6. How was he influenced by his father's ideas?

Jakob v. Uexküll greatly influenced his son. Even as a child T.v.U. was enthusiastic about his father's research. J.v.U taught his son to see the world from many different perspectives –e.g. the perspective of a blind earth worm that still manages to collect specific leaves. T.v.U. wrote his first publication together with his father "The eternal question: biological variations on a platonic dialogue" ("die Ewige Frage", Hamburg 1944). T.v.U.'s concept of the "Situational-Circle" ("Situationskreis") is a further development of J.v.U.'s model of the "Functional-Circle" ("Funktionskreis"). J.v.U. described, in an impressive way, how every living being lives in a specific environment. T.v.U. described this for humans as "individual reality" ("Individuelle Wirklichkeit"), which means (in reference to G. Bateson) that the "entity of survival" consists of the organism and its environment.

The young Thure and his father

7. If he was alive now, how would the hospital managed be by him?

T.v. Uexküll would probably manage a hospital for internal medicine as he managed the "Zentrum für Innere Medizin" (ZIM) in the early years of the newly founded University of Ulm (published in: Medizinische Klinik 64 (1969), pages 1565-1569). In the ZIM, no specialized wards were present. Patients of all categories were admitted to these wards, and were taken care of by residents and interns in their training for internal medicine. The specialists were called in for advice and they made rounds once or twice a week, visiting all wards of the ZIM. In addition, the wards were regularly visited by the chief and more often by the chief residents. Such an organisation guaranteed an optimal care for the patients and a broad and intensive education in internal medicine for students, interns, and residents. The specialists also saw the patients for possible research.

Today Th. von Uexküll would probably allow a few exceptions of his model, e.g. a special ward for bone marrow transplantation and an intensive care unit (ICU), both of which are in need of specialized doctors and nurses. He would also add a ward of palliative care and management, so that patients in the ICU could die in dignity. In spite of the highly specialized medical competence, psychosomatic consultation is also necessary in these units.

In the past years, the medical system has been optimized economically often at the cost of patients' care and the broad education of physicians.

8. What were his ideas about "narrative medicine" and "constructivist medicine"?

The development of a common reality between doctor and patient was for T.v.U. a prerequisite and basis for a diagnostic and therapeutic alliance. In this regard, he stated: "One point, which should not be forgotten, is that the patients should be allowed to describe their own theories concerning their illnesses....". This provides a "narrative" which allows participation in the "iconicity", and enables the doctor to be involved.

Acknowledgments

We would like to thank Mrs Marina von Uexküll for her participation in this interview.

From left to right, Mohammad Salavati, Marina von Uexküll, Sima Atarodi, and Shahram Rafieian

From left to right, Mohammad Salavati, Marina von Uexküll and Sima Atarodi

Citation: Atarodi S, Rafieian Sh, Salavati M. **Thure von Uexküll's Contribution to German Psychosomatic and Psychosocial Medicine: An Interview.** Int J Body Mind Culture 2014; 1(2): 97-101.

References

Kull, K., & Hoffmeyer, J. (2005). Thure von Uexküll 1908-2004. *Sign Systems Studies*, *33*(2), 487-494.

Tuffs, A. (2004). Thure von Uexküll. *BMJ: British Medical Journal*, *329*(7473), 1047.

von Uexküll, T., Geigges, W., & Herrmann, J. M. (1993). Endosemiosis. *Semiotica*, *96*(1-2), 5-52.

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

The Role of Biomedical Knowledge in Clinical Reasoning: Bridging the Gap between Two Theories

Alireza Monajemi[1]

[1] Department of Philosophy of Science, Institute for Humanities and Cultural Studies, Tehran, Iran

Theoretical Study

Abstract

There has been a long-lasting debate on the role of biomedical knowledge in physicians' clinical reasoning. There are two major views. The two-worlds theory assumes that biomedical knowledge and clinical knowledge are two different worlds and that biomedical knowledge is not involved in clinical reasoning of expert doctors. However, according to the knowledge encapsulation view, biomedical knowledge still has an influential role in doctors' clinical reasoning and medical problem solving. Based on the illness script theory, it can be concluded that these two views have two different definitions for basic science. In the knowledge encapsulation theory, pathophysiology stands for basic science, while in the two-worlds theory, basic science is equal to normal body function and structure. This is because illness script theory clearly highlights the primacy of practice in medicine, and according to this theoretical framework, bridging the gap between two theories becomes possible.

Keywords: Biomedical knowledge, Clinical reasoning, Two-worlds theory, Knowledge encapsulation theory, Illness script theory

Citation: Monajemi A. **The Role of Biomedical Knowledge in Clinical Reasoning: Bridging the Gap between Two Theories.** Int J Body Mind Culture 2014; 1(2): 102-6.

Received: 25 Jul 2014
Accepted: 17 Sep 2014

Introduction

There has been a long-lasting debate on the role of biomedical knowledge in medical education. Especially within the literature, there is a debate about the role of biomedical knowledge in the physician's clinical reasoning. There are two major views on the role of biomedical knowledge: The knowledge encapsulation view and the two-worlds view (Schmidt & Boshuizen, 1993a; Schmidt & Boshuizen, 1993b; Schmidt & Boshuizen, 1992; Schmidt, Boshuizen, & Hobus, 1998; Schmidt, Norman, & Boshuizen, 1990; Rikers, Schmidt, & Boshuizen, 2002a; Rikers, Schmidt, & Boshuizen, 2002b; Rikers, Loyens, & Schmidt, 2004; Rikers, Loyens, Winkel, Schmidt, & Sins, 2005; Van de Wiel, Boshuizen, & Schmidt, 2000; Patel, Arocha, & Zhang, 2005; Patel, Evans, & Groen, 1989a; Patel, Evans, & Groen, 1989b; Patel & Kaufman, 1995; Patel, Arocha, & Kaufman, 1994). In general, the two-world view assumes that biomedical knowledge and clinical knowledge are two different worlds and that biomedical knowledge is not involved in the clinical reasoning of expert doctors. However, according to the knowledge encapsulation view, biomedical knowledge still

Corresponding Author:
Alireza Monajemi
Email: monajemi@ihcs.ac.ir

has an influential role in doctors' clinical reasoning and medical problem solving.

In the present article, the two theories are briefly defined, and then, by introducing illness script theory and making distinction between basic science and pathophysiology, the role of biomedical knowledge in clinical reasoning is investigated in a comprehensive mode. The aim of this study was to resolve the controversy between these two views based on the illness script theory.

Knowledge encapsulation theory

The knowledge encapsulation theory posits that through courses in the basic sciences at the first stages of their medical training, medical students would acquire a network of causal knowledge. Therefore, in order to make sense of patient information, they will use their detailed, elaborated pathophysiological knowledge. Because of this detailed processing and lack of relevant clinical knowledge, the medical student will experience more difficulty in providing an accurate diagnosis. Gradually, by encountering many different patients, the mental structure of the medical student changes and gains more organized knowledge. On the other hand, doctors no longer explicitly refer to the biomedical concepts in their clinical reasoning. An examination of doctors' clinical reasoning process shows that a few clinical concepts like *forward failure* or *venous congestion* were used to explain the case of congestive heart failure (CHF). These concepts are sufficient to understand all relevant signs and symptoms without the need to engage in a detailed biomedical mode as most students do. This is why doctors hardly use any biomedical concepts, and mainly use clinical concepts. As mentioned before, Schmidt and Boshuizen have called these concepts "*encapsulated*" because they summarize such biomedical knowledge under diagnostic labels (e.g., forward failure and pulmonary edema), which are simplified causal models that explain signs and symptoms (Schmidt & Boshuizen, 1993a; Schmidt & Boshuizen, 1993b; Schmidt & Boshuizen, 1992; Schmidt et al., 1998). These encapsulated concepts develop as a result of extensive application of biomedical knowledge and especially through encountering patient problems in medical diagnostic situations (Schmidt & Boshuizen, 1993a; Schmidt & Boshuizen, 1993b; Schmidt & Boshuizen, 1992; Schmidt et al., 1998; Schmidt et al., 1990; Rikers, Schmidt, & Boshuizen, 2002a; Rikers, Schmidt, & Boshuizen, 2002b; Rikers, Loyens, & Schmidt, 2004; Rikers et al., 2005). The studies by Boshuizen and Schmidt (1992, 1993a, 1993b) showed that although encapsulated knowledge is important in developing clinical reasoning skill, only 10% of what internists remember after reaching clinical diagnosis (regarding case description) is pertinent to encapsulated knowledge. Similarly, Rikers et al. (2004) have shown that the recollection of knowledge of basic sciences among cardiologists was 17%, and consequently, this means that 83-90% of their clinical reasoning is related to clinical sciences instead of pathophysiology. To sum up, knowledge encapsulation theory claims that biomedical concepts, in terms of pathophysiology, play a minor role in expert doctors' clinical reasoning.

Two-worlds theory

The two-worlds view, on the other hand, assumes that biomedical knowledge is not involved in the clinical reasoning of expert doctors, as basic science and clinical science are two different worlds (Patel et al., 2005; Patel et al., 1989a; Patel et al., 1989b; Patel & Kaufman, 1995; Patel et al., 1994). This view has questioned the role of well-developed encapsulated knowledge structures in doctors' knowledge based on the misconception of physicians' biomedical explanations. In this sense, clinical knowledge is more likely based on signs and symptoms of diseases; however, basic sciences are made of principles and rules of how the body normally works. Based on the studies by Patel et al., it could be concluded that clinical

medicine and biomedical sciences constitute two distinct and not completely compatible worlds with distinct modes of reasoning and quite different ways of structuring knowledge (Patel et al., 2005; Patel et al., 1989a; Patel et al., 1989b; Patel & Kaufman, 1995; Patel et al, 1994).

Illness script theory

Illness script theory assumes that medical practice-based knowledge is organized in a disease-oriented structure and contains all information needed for patient diagnosis and management.

Based on the illness script view, knowledge encapsulation is not the last stage in the progression towards expertise. Having encapsulated concepts, such as forward failure, is not enough to enable doctors to deal with real patients (Charlin, Tardif, & Boshuizen, 2000; Charlin, Boshuizen, Custers, & Feltovich, 2007; Custers, Boshuizen, & Schmidt, 1998; Custers, Boshuizen, & Schmidt, 1996; Monajemi & Rikers, 2011; Monajemi, Rikers, & Schmidt, 2007). Instead of using biomedical knowledge, the features that characterize the clinical presentation of a disease become the anchor points of reasoning for experts. An expert's knowledge is much richer than encapsulated knowledge, and it contains much more information about all the different facets of diseases; about how diseases are acquired, how they manifest in patients, and which risk factors predispose them. All the information that doctors have about diseases is organized in a structure called the *illness script*. It is an integrated knowledge structure consisting of at least three parts: *faults*, *consequences*, and *enabling conditions* (Charlin et al., 2000; Charlin et al., 2007; Custers et al., 1998; Custers et al., 1996). Faults are pathophysiological malfunctions that constitute the biomedical core of the disease and are usually subsumed under a diagnostic label (e.g., right-sided heart failure and pulmonary edema). Consequences are about the clinical manifestations of a disease such as complaints, signs, and symptoms (e.g., chest pain, dyspnea, and fatigue). Finally, enabling conditions are the patient's background information (e.g., age, sex, medical history, drug history, family history of diseases, occupation, and living environment) that generally make the occurrence of a certain disease more or less likely (Charlin et al., 2000; Charlin et al., 2007; Custers et al., 1998; Custers et al., 1996; Monajemi & Rikers, 2011; Monajemi et al., 2007).

Illness scripts and encapsulated knowledge are formed during the course of years of training and practice; hence, they differ strongly between students and doctors (Charlin et al., 2000; Charlin et al., 2007; Custers et al., 1998; Custers et al., 1996). In the early stages of medical expertise development, biomedical knowledge plays an important role in constructing scripts for diseases. As students begin to practice with actual patients, their biomedical knowledge becomes encapsulated and will be reorganized into illness scripts (i.e., fault section). In this phase, the newly formed illness scripts consist of signs, symptoms, and complaints (i.e., consequences) that are held together by a network of biomedical explanations (Custers et al., 1996). With increasing expertise, the role of biomedical knowledge becomes less important, while, simultaneously, the role of clinical science becomes more important. The integration of clinical science into illness scripts is a consequence of a long period of clinical practice with real patients (Charlin et al., 2000; Charlin et al., 2007; Custers et al., 1998; Custers et al., 1996).

Conclusion

If we take a closer look at the definition of biomedical science or basic science in these two views, i.e. knowledge encapsulation and two-worlds views, it could be concluded that these two views have two different definitions for basic science. In the knowledge encapsulation theory, pathophysiology stands for basic science, while in the two-worlds view, basic science is equal to normal body function and structure, i.e. anatomy, physiology, and etcetera. Basic science like physiology, anatomy, and biochemistry is

the study of normal, healthy bodily function and structure (Whitcomb, 2006). Pathophysiology, on the other hand, is the study of the changes of normal mechanical, physiological, and biochemical functions, either caused by a disease or resulting from an abnormal syndrome. This type of knowledge plays a role in clinical reasoning and is integrated into illness script structure as the fault component. Illness script structure serves as a basis to link these two opposing theories. In most medical schools, medical students usually learn the basic science about a normal and healthy body in the first two years of their education, and after that, pathophysiology becomes the focus of their education. Medical students progress through different stages of knowledge restructuring (i.e., *encapsulation* and *illness script*) in which their knowledge is finely tuned towards practical situations. The integration of the two types of knowledge leads to a more holistic approach to case processing, focusing mainly on the clinical presentation of patients.

Illness script theory clearly highlights the primacy of practice in medicine. According to Schmidt and Boshuizen (1993a, 1993b) the experts' biomedical knowledge has become fully integrated with their clinical knowledge as a result of repeated exposure to a large number of real patients. Consequently, patient encounter, and in other words, clinical practice frames the doctors' knowledge structure and determines the role of basic science. This is why medical students mainly use their extended biomedical knowledge to explain case data, leading to elaborate and detailed case processing. In contrast, biomedical knowledge only plays a minor and implicit role in experts' clinical reasoning.

This primacy of clinical practice in medicine vividly shows that it is not possible for medicine to be grounded only in pure science (Lock, 1990). Medicine remains fundamentally grounded in the meeting between doctor and patient. As the need for this meeting begins with the first acknowledgement by the patient that something is wrong, in each theory about clinical reasoning, the role of patient-doctor encounter must be prominent and this insight must be continuously worked through the process of diagnosis and management (Lock, 1990). Illness script theory not only correctly highlights the primacy of clinical practice, but also shows how this practice frames both the structure of medical knowledge and the role of basic science in clinical reasoning. It seems that besides having knowledge of the diagnosis of the illness and the way it should be managed, clinical practice is the heart of medicine; something that future research may shed further light on.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

I would like to thank Professor Kamran Soltani Arabshahi for his comments on an earlier version of this paper.

References

Boshuizen, H. P. A., & Schmidt, H. G. (1992). On the role of biomedical knowledge in clinical reasoning by experts, intermediates and novices. *Cognitive Science, 16*(2), 153-184.

Charlin, B., Boshuizen, H. P., Custers, E. J., & Feltovich, P. J. (2007). Scripts and clinical reasoning. *Med Educ, 41*(12), 1178-1184. Retrieved from PM:18045370

Charlin, B., Tardif, J., & Boshuizen, H. P. (2000). Scripts and medical diagnostic knowledge: theory and applications for clinical reasoning instruction and research. *Acad.Med, 75*(2), 182-190. Retrieved from PM:10693854

Custers, E. J., Boshuizen, H. P., & Schmidt, H. G. (1996). The influence of medical expertise, case typicality, and illness script component on case processing and disease probability estimates. *Mem.Cognit., 24*(3), 384-399. Retrieved from PM:8718771

Custers, E. J., Boshuizen, H. P., & Schmidt, H. G. (1998) The role of illness scripts in the development of medical diagnostic expertise: results from an interview study. *Cognit.Instruct.*, 16(4), 367–398.

Lock, J. D. (1990). Some aspects of medical hermeneutics: the role of dialectic and narrative. *Theor.Med, 11*(1), 41-49. Retrieved from PM:2339332

Monajemi, A., & Rikers, R. M. J. P. (2011) The role of patient management knowledge in medical expertise development: extending the contemporary theory. *The International Journal of Person Centered Medicine,* 2011, 1(1),109–114.

Monajemi, A., Rikers, R. M., & Schmidt, H. G. (2007). Clinical case processing: a diagnostic versus a management focus. *Med Educ, 41*(12), 1166–1172. Retrieved from PM:18045368

Patel, V. L., & Kaufman, D. R. (1995). Clinical reasoning and biomedical knowledge: implications for teaching. In: Higgs, J., & Jones, M. (Eds.). Clinical reasoning in the health professions (pp. 117-128). Oxford, UK: Butterworth-Heinemann.

Patel, V. L., Arocha, J. F., & Kaufman, D.R. (1994) Diagnostic reasoning and expertise. In: Medin, D. L. (Ed). The psychology of learning and motivation (pp. 187-252). San Diego, CA: Academic Press.

Patel, V. L., Evans, D. A., & Groen, G. J. (1989). Biomedical knowledge and clinical reasoning. In D.A. Evans & V. L. Patel (Eds.), *Cognitive science in medicine: biomedical modeling* (pp. 56-112). Cambridge, MA: MIT Press.

Patel, V. L., Evans, D. A., & Groen, G. J. (1989) Reconciling basic science and clinical reasoning. *Teach Learn Med*, 1(3), 116–121.

Patel, V.L., Arocha, J. F. & Zhang, J. Thinking and reasoning in medicine. (2005). Holyoak, K. J., & Morrison, R. G (Eds.). *The Cambridge handbook of thinking and reasoning (pp. 727-750.)*. Cambridge, UK: Cambridge University Press.

Rikers, R. M., Schmidt, H. G., Boshuizen, H. P., Linssen, G. C., Wesseling, G., & Paas, F. G. (2002). The robustness of medical expertise: clinical case processing by medical experts and subexperts. *Am J Psychol, 115*(4), 609-629. Retrieved from PM:12516530

Rikers, R. M., Loyens, S. M., & Schmidt, H. G. (2004). The role of encapsulated knowledge in clinical case representations of medical students and family doctors. *Med Educ, 38*(10), 1035-1043. Retrieved from PM:15461648

Rikers, R. M., Loyens, S., te Winkel. W., Schmidt, H. G., & Sins, P. H. (2005). The role of biomedical knowledge in clinical reasoning: a lexical decision study. *Acad.Med, 80*(10), 945-949. Retrieved from PM:16186615

Rikers, R. M. J. P, Schmidt, H. G., & Boshuizen, H. P. A. (2002) On the constraints of encapsulated knowledge: clinical case representations by medical experts and subexperts. *Cogn Instruct*, 20(1), 27–46.

Schmidt, H., & Boshuizen, H. (1993). On acquiring expertise in medicine. *Educ Psychol Rev*, *5*(3), 205-221.

Schmidt, H. G., Boshuizen, H. P. A., & Hobus, P. P. M. (1988) Transitory stages in the development of medical expertise: the "intermediate effect" in clinical case representation studies. Proceedings of the 10th Cognitive Science Society; 1988 Aug 17-19; Montreal, Quebec, Canada; Hillsdale, NJ: Lawrence Erlbaum Associates, p. 139–45.

Schmidt, H. G., & Boshuizen, H. P. (1993). On the origin of intermediate effects in clinical case recall. *Mem.Cognit., 21* (3), 338-351. Retrieved from PM:8316096

Schmidt, H. G., Norman, G. R., & Boshuizen, H. P. (1990). A cognitive perspective on medical expertise: theory and implication. *Acad.Med, 65*(10), 611-621. Retrieved from PM:2261032

van de Wiel, M. W. J, Boshuizen, H. P. A, & Schmidt, H. G. (2000). Knowledge restructuring in expertise development: evidence from pathophysiological representations of clinical cases by students and physicians. *Eur J Cogn Psychol*, 12(3), 323–55.

Whitcomb, M. E. (2006). The teaching of basic sciences in medical schools. *Acad.Med, 81*(5), 413-414. Retrieved from PM:16639189.

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

Towards a Sociology of Placebo Response: Body, Emotions, and Semiotics of Healing

Shahram Rafieian[1]

[1] Graduate Doctoral Student, Department of Sociology, School of Social Sciences, Bangor University, Bangor, United Kingdom AND Researcher, Danesh-e-Tandorosti Institute, Isfahan, Iran

Theoretical Study

Abstract

With the emergence of the "sociology of body" and "sociology of emotions" in recent years, and the explosion of research about placebos and the mechanisms of their action, there is enough grounding now to consider the placebo response from a sociological point of view. These new subfields of sociology have provided enough knowledge about the primacy of action and emotions, and the importance of embodied knowledge and feelings in social interactions. Studies in medicine and psychology show that placebo response is a meaning response which develops in the context of interpersonal relationships. In this process, the embodied experience of the patient and health care professionals and their thoughts, beliefs, emotions and feelings are involved. Lines of research in the fields of placebo response, hypnosis research, doctor-patient relationship, and sociology of body and emotion are converging and provide the evidence for the role of interpersonal interactions in the healing process. Critical analysis of the placebo response provides the basis for an alternative framework to the current dominant model of health care which is biomedicine. This model is based on the dualisms and is inadequate to provide a place and explanation for psychosomatic and culture related disorders which are currently categorized under terms like "Medically Unexplained Syndromes (MUS)". A possible new model could be constructed based on our new understandings provided by studies on placebo response. In this new model, interpersonal dynamics, intersubjectivity, and intercorporeality are core issues and in the center of attention for research and enquiry.

Keywords: Placebo response, Intersubjectivity, Intercorporeality, Embodiment, Emotions, Biomedicine

Citation: Rafieian Sh. **Towards a Sociology of Placebo Response: Body, Emotions, and Semiotics of Healing.** Int J Body Mind Culture 2014; 1(2): 107-16.

Received: 30 Jun 2014
Accepted: 3 Sep 2014

Introduction

The critics of contemporary social theories believe that they are generally disembodied and the place of emotions is not clearly defined. Biological and physiological bodily processes are generally considered to be outside the territories of social sciences and the body is only considered as an object of discourses. Rooted in the Philosophical dualisms, body and mind, nature and culture, and emotion and reason are separated. There is a form of cognitivism dominant in today's theories that ignores the integrity of body and emotions in human social life (Lyon, 1997; Williams, 1998; Williams & Bendelow, 1996).

In medicine and related disciplines, the dominant theoretical framework is the biomedical model which considers the human as

Corresponding Author:
Shahram Rafieian
Email: rafieiansh@yahoo.com

a biomechanical machine. This model tends to reduce the causal processes related to health and disease to the physiological and biological level of human existence. However, recent findings in the field of placebo research show the biomedical model to be inadequate to explain the healing processes happening in the clinical context and a need for a new conception(Bendelow, 2010; Rafieian, 2010). Here, first, is a brief review of findings in the field of placebo research.

Placebo and placebo response

Placebo was originally derived from the Latin word *placere* which means "to please". For health care professionals, placebo is a way of pleasing the patients or a non-harmful method for calming them (Kradin, 2004). In fact, placebo, generally, has a negative connotation. It is an inert pill or intervention which is used to make the patient feel better. It is a kind of paternalistic sham or a trick of expectancy used in a situation in which there is no rational and scientific way of treating the patient's problem (Justman, 2011). There is a debate about the ethical issues around prescribing placebos. As it is believed that patients should be informed of their treatment plan and the interventions they receive, using placebos is a kind of deception; it hides the information about the inertness of the treatment they are receiving. In spite of this, placebos are widely used in clinical practice (Bensing & Verheul, 2010). Apart from inert interventions, drugs like antibiotics and vitamins are sometimes applied to problems which are known not to be treatable with these drugs, even when there are negative consequences. In some cases like overprescription of antibiotics, problems like bacterial resistance to antibiotics have emerged and are disadvantageous for the health of the society (Justman, 2011).

Placebos are also important in the context of clinical research. In biomedicine, to prove the effectiveness of an intervention the best method of evaluation is randomized controlled trial (RCT). Since the early days of the use of RCTs, the placebo effect was known as an interfering or confounding factor. Placebo effects were a non-specific and unwanted healing response which was seen even in the group of the patients who had just participated in the study and received an inert intervention instead of the treatment under study. Discriminating between this so-called nonspecific healing response and the genuine effects of the intervention has been a problem in clinical studies. Because of this issue, clinical researchers are usually interested in eliminating placebo response and not in understanding the mechanisms related to its formation. This is another reason for disliking the placebo effect in clinical medicine (Bensing & Verheul, 2010; Thompson, Ritenbaugh, & Nichter, 2009).

Studies on the effects of placebo show that they are effective in treatment of different conditions like depression, anxiety, phobias, post-operative pain, headaches, ischemic pains, tobacco addiction, and asthma (Chóliz & Capafons, 2012). Moerman and Jonas (2002) point to the fact that we know that placebo as a drug or intervention is inert and there is no biochemical or physiological mechanism activated directly by placebo in the body. They believe that the mechanisms involved in producing the healing response are the result of the meaning that the patient assigns to the intervention. Based on this assumption they consider placebo response as a meaning response. In this view, any component of treatment, like the colours, smells, and voices that could have meaning for the patient, could participate in the formation of the healing response. Although the importance of these components is appreciated by placebo researchers, usually, they believe that interpersonal dynamics are the core of placebo response (Kradin, 2011a; Miller, Colloca, & Kaptchuk, 2009). Kradin (2011b) even discriminates between the healing responses developed in contexts other than interpersonal relationship and proposes to categorize them as "placebo-like" responses. Morover, he strictly calls a healing response placebo response when it

is developed under the dynamics of interpersonal relationships. Accordingly, he defines placebo response as "a complex mind–body interaction evoked within a therapeutic dynamic, in which the offer to treat a pre-existing dysphoric condition with inert or ineffective intervention (i.e., a placebo) results in the restoration of well-being" (p. 38).

The importance of the interpersonal relationship in formation of healing response is not an unknown phenomenon. Physician and psychoanalyst Michael Balint (1896-1970) introduced the concept of "doctor as drug" and believed that the most powerful therapeutic tool a doctor has is himself or herself. Interestingly, Bálint states that our knowledge about the pharmacology of this drug is limited. It means that we do not know about the dosage (frequency of visits), addictive properties (the patient's dependence on the doctor), and side effects (the harmful effects of the therapeutic encounter) of this therapeutic agent (Kaba & Sooriakumaran, 2007)

Different mechanisms have been proposed to explain the placebo response. Psychological mechanisms are theories like the expectancy theory and conditioning theory (Price, Finniss, & Benedetti, 2008). Furthermore, affective and emotional modulation and direct embodied response to social and environmental cues have been proposed as the possible mechanisms (Bensing & Verheul, 2010; Price et al., 2008; Thompson et al., 2009). Although all these mechanisms are active in an interpersonal atmosphere, here we consider the embodied experience and emotions in the context of placebo response in more detail.

Embodiment, placebo response, and healer-client relationship

To find the developmental roots of placebo response, Kradin (2011b) explores the interactions between infants and care-givers during their development. He notes that having a secure attachment is not only critical for development of an appropriate sense of self, but also it is important in the formation of the mechanisms for coping with stress, affect regulation and ability to self-soothe. People with a history of abnormal attachment are more prone to develop psychopathology and are more vulnerable to psychosomatic disorders (Waller & Scheidt, 2006). Kradin believes that attachment behaviour is necessary for the development of placebo response. The presence of a physician, therapist, or a care-giver in general, who tries to calm the client and reduce his/her stress, initiates the mechanisms that have been built in a secure attachment since early life.

Accordingly, activation of placebo response can be considered as a common factor of different modes of psychotherapy and an effective clinical encounter in a medical context (Justman, 2011; Kradin, 2011b). Then, it could be judged that communication and rapport are key elements in evoking placebo response. In fact, new developments in the field of doctor-patient relationship research support this idea. Recent findings of placebo research and doctor-patient communication show the importance of rapport in producing placebo effects (Bensing & Verheul, 2010). Insights from attachment research and achievements from doctor-patient relationship studies introduce some factors related to the formation of placebo response. Prompt response to the call for help is an important first step. The presence of the healer as an empathic listener is crucial. The interventions should be well timed including explaining the diagnosis in a compassionate way (Kradin, 2011b). In fact, it is believed by some authors that formulation of a clear diagnosis is an important step in the activation of placebo response. Giving an accurate diagnosis helps the patient make sense of his/her suffering and assigns meaning to the patient's illness experience. In a successful clinical encounter, the illness experience is transformed by providing a meaningful explanation. In this process, narration is essential and the patient tries to put the story of his/her experience in a

sociocultural context with the help of the health care professional (Brody & Waters, 1980; Thompson et al., 2009).

Although considering placebo response as a meaning response is an important step in understanding this phenomenon, some critics believe it should not be considered as the only mechanism involved in the development of healing response in this context. As Thompson et al. (2009) explain, meaning making is a process which is fulfilled by a conscious person; however, there are mechanisms related to placebo which happen unconsciously. These mechanisms are present during the direct embodied experience of clinical encounter and there is no need for conscious meaning making for their development. Many of these mechanisms are affect-regulating and self-soothing mechanisms which are developed in early life and are activated later without the presence of any narrative memory of them. Accordingly, both conscious and unconscious mechanisms are involved in the formation of placebo response during the interpersonal relationships between healer and client. Modulation of emotions is a key mechanism that has been considered as a possible way to activate placebo response.

Emotions and placebo response

Emotions are complex phenomena with both bodily and interpersonal aspects. Each emotion has some physiological characteristics which are seen when that particular emotion is aroused. These physiological changes are the result of the activity of the autonomic nervous system (ANS). The ANS is not controlled by the conscious will of the person and is mainly responsible for vital activities, like change in respiratory and heart rate and in the calibre of the blood vessels. Physiological response seen in a particular emotion is not specific to that emotion and there is an overlap between physiological changes seen in different emotions. For example, accelerated heart rate could be seen in both fear and excitement (Rosenberg, 1990). These facts make the study of emotions difficult because both bodily aspects and relational characteristics should be considered together. Emotions are always experienced during an interaction. Emotions are developed in the intercorporal and intersubjective space and are in essence communicative (Burkitt, 2002). The social constructionist view of emotions regards them merely as the product of social interactions and neglects their biological and bodily aspects. Thus, to have a comprehensive view of the reality of emotions, there is need for a theory that includes both bodily physiological and biological grounds of the emotional experience, and the dynamics of their formation in the context of culture and social interactions (Stets, 2010; Turner, 2009). As Burkitt (2002) correctly states, it is important not to view emotions as static entities. Emotions are process-like entities which are formed in the course of interactions. In other words, emotions are always relational and always emerge in relation to somebody or something in the surrounding world.

In Rosenberg's view (1990), involuntariness of emotional experience is the essential dilemma of human emotional life and it is important in both individual goal achievement and social function. Nevertheless, there are different methods that could be used to control the emotions. Manipulating the body is a possible route. As discussed, control over respiration is one way which has been used in different mystical and self-growth training methods, rituals, and traditions. There are other ways like jogging, aerobics, and muscular relaxation. These are all categorized as "techniques of the body" by Marcel Mauss (1973). He invited anthropologists and sociologists to explore the importance of these techniques in the social life of the society. The change in the body could also be chemical like the effect of alcohol and tranquilizers (Rosenberg, 1990).

In addition, language and culture make important contributions to the formation of emotions. For example, a certain behaviour may

result in the formation of anger in a person in the context of one culture, but might not be annoying in another culture. Moreover, different languages have different vocabularies to describe emotions. This means that a social event could be described differently from an emotional perspective by people with different mother tongues (Burkitt, 2002; Rosenberg, 1990). Hence, the social context of the emotional experience plays a critical role in emotion formation.

Modulation of emotions has been proposed as a possible mechanism for placebo response (Flaten, Aslaksen, Lyby, & Bjørkedal, 2011). From a developmental point of view, emotion regulation is a skill that is learnt from early life. Care-givers always try to reinforce positive emotions and neglect or suppress negative ones in the baby. Any malformation of these abilities for affect regulation could be the source of somatic and mental pathologies later in adulthood (Kradin, 2011b; Vandenberg, 1998).

As mentioned, emotions are always relational and have bodily components which are basically under the control of the ANS. Deregulation of ANS leads to formation of different health problems like asthma and irritable bowel syndrome (Riedl et al., 2008). An effective relationship with a health care professional could result in positive change in the client's emotional profile which may calm the ANS and relieve the symptoms. For example, Lyon (1997) explains that respiration is a mediator between social and interpersonal interactions and internal physiological processes. The respiratory system is usually controlled by the ANS, but any change in emotions could change the pattern of respiration. This pattern could also change in different social contexts, and in this way the internal physiological state and external social context become coordinated.

As mentioned, techniques of the body are used to modulate the emotions. One of these techniques is hypnosis. Essentially hypnotic phenomena develop in an interpersonal relationship. Hypnosis has been used for treatment of many mental and physical disorders. Some researchers of hypnosis believe that there are common mechanisms involved in the formation of healing response in hypnosis and placebo response. Elements like suggestions and expectancy are present in both contexts and they believe that alteration of consciousness or trance experience is not a necessary component for healing formation. This group of researchers, mainly advocates of a sociocognitive theory of hypnosis, believe that hypnosis is a kind of role taking and this role taking is the cause of bodily changes that are experienced in hypnosis. They also believe that this role taking could happen in ordinary clinical encounters and the trance state is not a necessary component of the healing response that is seen in hypnotherapy (Lynn, Kirsch, & Hallquist, 2008; Raz, 2007).

In the context of mental health, the regulation of emotions has a more critical role. With the development of biological psychiatry and neuro-psychiatry, drug therapy has become the dominant way to control emotional distress. The insufficiency of this approach has led to the development of debates in the form of pharmaskepticism which essentially questions the possibility of solving complex psychosocial problems by simplistic means like technical interventions and drug therapy. In spite of the fact that clinical guidelines recommend that sub-threshold and mild depression should not be treated by antidepressants and psychosocial intervention should be used as first-line treatment, this does not happen in practice and antidepressants are prescribed in the first encounter (Bendelow, 2010).

In terms of emotions and their relationship with placebos it has been shown that placebo administration reduces negative emotions. Furthermore, positive emotions are reinforced when placebos are used, and as a consequence, the opioid activity becomes increased. In contrast, when the content of information given to the patient is anxiety-inducing, negative emotions are elicited and a negative effect is imposed on

healing response. This process is called the Nocebo effect (Flaten et al., 2011).

There is also a close relationship between emotions and pain experience which is important for analgesic placebo response. We will consider this relationship briefly.

Pain and placebo response

Evidence from pain research in different disciplines supports the idea that pain is not only a somatic experience, but also has emotional, cultural, and sociological aspects. As neuroscientist, Antonio Damasio (2000) states that the emotional aspect of pain experience is critically important in coping with pain and some techniques, like hypnosis, manipulate this aspect of pain experience and make it more tolerable. Bendelow and Williams (1995) take a sociological point of view to the topic and speak about the need for transcending the dualisms in pain theories. They state that pain lies in the border between biology and culture and could be viewed from a sociological point of view. Evidently, for this exploration there is a need for an embodied social theory in which the interaction between biological body and sociocultural environment is accurately defined. As Bendelow and Williams (1995) explain:

"...pain is, of course, an everyday experience linking the subjective sense of self to the perceived 'objective' reality of the world and other people. In this respect, the impact of culture affects and informs the experience of pain, which constitutes an integral, yet hitherto poorly researched part of health and illness. Moreover, both its exploration and explanation demand the dissolution *of* dichotomous thinking which has impeded a unified understanding and recognition of its cultural and biological elements" (p.162).

These facts make the traditional approach of biomedicine to pain, which only considers it as a biological and physiological experience, insufficient. To have a more comprehensive view, there is also a need for phenomenological and sociological understanding of pain experience. For example Osborn and Smith (2011) explored the phenomenological experience of patients with chronic benign low back pain and the way their sense of body and self is affected by this experience. They showed that pain experience affects the sense of self in this group of patients and "parts of the body that were painful, difficult to control and in conscious awareness were felt to be alien and excluded as 'not me', not part of the preferred self" (p. 221).

In pain experience, especially when it is chronic, negative emotions like feeling of nervousness, fear, and anxiety increase the pain. Placebo analgesia reduces the pain by reducing the negative emotions via the verbal information that the pain will decrease after the intervention. Moreover, any information that increases negative emotions can increase pain (Flaten et al., 2011). This information could be about the meaning of pain in the patient's life, prognosis of the disorder, and the possible ways for managing the problem.

Considering these facts, pain can be managed appropriately only when a multi-dimensional approach is applied. Exploration of the meaning of pain in the individual's life and emotions related to it is critically important in this approach.

Placebo response and biomedicine

As seen in the above discussion, placebos are inert per se and the placebo response develops as a result of mind-body mechanisms which are activated in the context of interpersonal interactions in a clinical setting. This notion could not be well explained by the current dominant model of medicine which is biomedicine. In biomedicine, the main focus is on the biological aspect of human beings. In this model, human subjectivity is considered as a secondary or additional issue and the data gained from this level is considered to be less reliable in comparison to the information gained from biology and physiology. In other words, there is a categorization of hard data and soft data according to the source of information in which the hard data

are objective and reliable and the soft data are subjective and unreliable. This conception is rooted in the Cartesian philosophical tradition which considers the mind as separate from the body. In this model, psychosocial aspects of health and disease are considered as secondary or marginal and biology as central (Bendelow, 2010; Bendelow & Williams, 1995; Kirkengen & Thornquist, 2012; Rafieian, 2010).

To explain the placebo response, there is a need for an alternative framework. As medicine is a practical enterprise, theory is generally neglected in this field, but as Alderson (1998) states theories "powerfully influence how evidence is collected, analysed, understood, and used, it is practical and scientific to examine them. Hypotheses are explicit, but when theories are implicit their power to clarify or to confuse, and to reveal or obscure new insights, can work unnoticed" (p.1007)

As discussed, interpersonal dynamics and mind-body mechanisms are essential to explain the placebo response. To develop such an alternative framework, a non-dualistic philosophical conception of mind-body-society is needed. Merleau-Ponty's (1908-1961) phenomenological tradition is a possible alternative. Merleu-Ponty challenged the basic assumption of the Cartesian tradition that mind is substantially distinctive from the body. In his view, subjectivity is grounded in the body. We experience the world through the body and it is the centre of our experience (Kirkengen & Thornquist, 2012).

In biomedicine, the body is an object; a physiological machine without any connection to memory and meaning. However, in the phenomenology of Merleau-Ponty, the lived body is not just an object. Body has two aspects: it is a biological organism and an incarnate subject (Kirkengen & Thornquist, 2012). In contrast to the Cartesian body which is merely a physical entity, the lived body is a part of the world, inseparably enmeshed and embedded in it. In addition, for Merleau-Ponty, perception is not an inner representation of reality but it is openness to being. Furthermore, perceiving the other is not just formation of a mental representation, but subjects are open to each other. Intercorporeality means that subjects are connected to each other through a similar belongingness to a common world. The embodied thoughts, feelings, intentions, and etcetera are visible to the others and this manner the subjectivity is publicly available (Crossley, 1995).

The main source of knowledge for biomedicine has come from the dissection of the dead body and the studies conducted on animals. Consequently, the abilities and possibilities of the lived body are not considered in biomedical knowledge. The body in biomedicine is free from embodied thought, feelings, and emotions (Twigg, 2006). It is clear that this conception is inadequate to explain the nature of placebo response. Instead, Merleau-Ponty's philosophical framework provides a sufficient grounding on which placebo response could be explored. The lived body, situated in the intersubjective and intercorporeal space, is continuously assigning meaning to her experience, which could result in healing response. History and memories are imprinted in the body and become reactivated through embodied experience. Currently, because biomedicine does not have the necessary theoretical framework to define the lived body, it avoids the placebo response and dismisses it as a non-specific trivial healing response. In fact this model is unable to explain any health condition which is the result of complex interactions of body-mind-society and goes beyond the skin boundaries. Because of this failure, terms like "Medically Unexplained Symptoms" (MUS) have been coined in medical literature to describe these conditions. In fact, changing the theoretical framework might make these unexplained symptoms explainable (Bendelow, 2010).

There is a need to consider subjectivity and phenomenological experience in explaining placebo response. Moreover, to explore the placebo response and other related phenomena,

there is a need for a trans-disciplinary framework. As shown, placebo response is an interpersonal, mind-body, and biological phenomenon and neglecting any one of these aspects results in an insufficient explanation. American psychiatrist George Engel (1980, 1981) was the first theorist who considered this issue and developed a biopsychosocial model based on a systems approach. In this model, the health condition does not only make changes in one of the biological, psychological, and social domains, but any change in one of these domains could impose changes in other domains via downward and upward causation. As a result, to have a comprehensive understanding of a health issue there is need for different domains of knowledge and this understanding should not be confined to one branch of knowledge (not just biology as it is usually seen in biomedicine). For example, in a patient with heart attack, although the primary lesion is in the heart muscles, the patient might become depressed and he or she may not be able to work anymore. Then, his or her psychological and social health is affected as well.

Accordingly, to have a comprehensive understanding of placebo response two aspects should be considered. First, the phenomenological and lived experience of the people involved is important for an accurate formulation of the processes and phenomena. Second, a systemic view is needed in which biological, psychological, interpersonal, and even environmental factors are explored.

Summary and conclusion

Placebo response is a mysterious phenomenon for health care professionals, usually associated with cheating the patient or unwanted effects in clinical trials, and thus, it is usually avoided in research. On the other hand, many clinicians use placebos in their daily practice. It is, therefore, an enigma in medicine and health care. Recent findings in placebo research show that placebo response essentially develops in interpersonal interactions and is a relational process. Both conscious and unconscious processes are involved in the formation of healing response. The conscious processes are mainly in the form of meaning assignment and related to the fact that any intervention has a meaning for the patient. The unconscious processes are the result of the embodied experience of the client and related to the activation of soothing mechanisms that are developed since early life via attachment mechanisms with the care-givers.

Placebo response, like other complex body-mind-social processes, has been neglected in medical research because the dominant model of modern medicine, meaning biomedicine, does not have the necessary theoretical framework to analyze the complex interactions that go beyond one level. A trans-disciplinary method of investigation is needed. For this purpose, the biopsychosocial model which is based on systemic thinking and developed by George Engel is an appropriate model. This model provides a comprehensive view of complex mind-body-society interactions.

As Williams (2006) states, to bring the body into medical sociology, it is not enough to limit our knowledge to biology. Instead he believes that we should deconstruct the unity of biology and think instead in terms of anatomy, physiology, neurobiology, endocrinology, genetics, and etcetera (p.15). An alternative to this approach could be thinking in terms of emerging interdisciplinary branches of knowledge like social psychiatry, psycho-biology, psychoneuro-immunology, and affective neuroscience.

In terms of the theoretical framework needed, it seems that the biopsychosocial model is the best available grounding. Nevertheless, as mentioned, the phenomenological and first-person experience should be incorporated in this model. Uexkull and Pauli (1986) have attempted to further develop the biopsychosocial model by incorporating the concept of semiosis (the process of sign interpretation) as a translator of the flow of information between different domains. Furthermore, semiosis could explain the

phenomenological processes, like imagination and thinking, which occur at the level of first person experience. Brier (2003, 2008) has tried to develop a more elaborated model which is the result of the incorporation of systemic cybernetic and (bio) semiotic concepts. This model is called cybersemiotics. Rafieian (2010) has tried to apply this model to medicine. Further elaboration of this model is beyond the scope of this paper.

Evidently, further development of the theoretical framework needed for explanation of mind-body-social phenomena, like placebo response, would facilitate the improvement of health care systems in the society.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

I would like to thank Professor Howard Davis for his comments on an earlier version of this paper.

References

Alderson, P. (1998). The importance of theories in health care. *BMJ., 317*(7164), 1007-1010. Retrieved from PM:9765175

Bendelow, G. (2010). Emotional health: challenging biomedicine or increasing health surveillance? *Crit Public Health, 20*(4), 465-474.

Bendelow, G. A., & Williams, S. J. (1995). Transcending the dualisms: towards a sociology of pain. *Sociology of Health & Illness, 17*(2), 139-165. Retrieved from http://dx.doi.org/10.1111/j.1467-9566.1995.tb00479.x. Retrieved from Blackwell Publishing Ltd.

Bensing, J. M., & Verheul, W. (2010). The silent healer: the role of communication in placebo effects. *Patient.Educ.Couns., 80*(3), 293-299. doi:S0738-3991(10)00326-5 [pii];10.1016/j.pec.2010.05.033 [doi]. Retrieved from PM:20638817

Brier, S. (2003). The cybersemiotic model of communication: An evolutionary view on the threshold between semiosis and informational exchange. *Triple C, 1*(1), 71-94.

Brier, S. (2013). *Cybersemiotics: Why information is not enough*. Toronto, Canada: University of Toronto Press.

Brody, H., & Waters, D. B. (1980). Diagnosis is treatment. *J Fam.Pract, 10*(3), 445-449. Retrieved from PM:7354290

Burkitt, I. (2002). Relations, feelings and images in emotional experience. In J. Barbalet (Ed.), *Emotions and sociology* (pp. 151-167). Oxford, UK: Blackwell.

Choliz, M., & Capafons, A. (2012). The placebo in the context of scientific theories. *Theory and Psychology, 22*(4), 513-526. doi:10.1177/0959354311432903.

Crossley, N. (1995). Merleau-ponty, the elusive body and carnal sociology. *Body Society, 1*(1), 43-63. doi: 10.1177/1357034X95001001004.

Damasio, A. (2000). *The feeling of what happens: body and emotion in the making of consciousness*. New York, NY: Mariner Books.

Engel, G. L. (1980). The clinical application of the biopsychosocial model. *Am J Psychiatry, 137*(5), 535-544. Retrieved from PM:7369396

Engel, G. L. (1981). The clinical application of the biopsychosocial model. *J Med Philos., 6*(2), 101-123. Retrieved from PM:7264472

Flaten, M. A., Aslaksen, P. M., Lyby, P. S., & Bjorkedal, E. (2011). The relation of emotions to placebo responses. *Philos.Trans.R.Soc Lond.B.Biol.Sci, 366*(1572), 1818-1827. doi:366/1572/1818 [pii];10.1098/rstb.2010.0407 [doi]. Retrieved from PM:21576139

Justman, S. (2011). From medicine to psychotherapy: the placebo effect. *Hist Human.Sci, 24*(1), 95-107. Retrieved from PM:21491788

Kaba, R., & Sooriakumaran, P. (2007). The evolution of the doctor-patient relationship. *Int.J Surg., 5*(1), 57-65. doi:S1743-9191(06)00009-4 [pii];10.1016/j.ijsu.2006.01.005 [doi]. Retrieved from PM:17386916

Kirkengen, A. L., & Thornquist, E. (2012). The lived body as a medical topic: an argument for an ethically informed epistemology. *J Eval.Clin Pract, 18*(5), 1095-1101. doi:10.1111/j.1365-2753.2012.01925.x [doi]. Retrieved from PM:22995016

Kradin, R. L. (2004). The placebo response: its putative role as a functional salutogenic mechanism of the central nervous system. *Perspect.Biol.Med, 47*(3), 328-338. doi:S1529879504303285 [pii]. Retrieved from PM:15247500

Kradin, R. L. (2011a). Placebo response: a consideration of its role in therapeutics. *Curr.Psychiatry Rep., 13*(1), 37-42. doi:10.1007/s11920-010-0158-y [doi]. Retrieved from PM:20878506

Kradin, R. (2011b). The placebo response: an attachment strategy that counteracts the effects of stress-related dysfunction. *Perspect.Biol.Med, 54*(4), 438-454. doi:S1529879511400119 [pii];10.1353/pbm.2011.0046 [doi]. Retrieved from PM:22019533

Lynn, S. J., Kirsch, I., & Hallquist, M. N. (2008). Social cognitive theories of hypnosis. In M.R. Nash & A. J. Barnier (Eds.), *Oxford handbook of hypnosis* (pp. 111-140). Oxford, UK: Oxford University Press.

Lyon, M. L. (1997). The material body, social processes and emotion: techniques of the body' revisited. *Body Society*, *3*(1), 83-101.

Mauss, M. (1973). Techniques of the body. *Economy and Society*, *2*(1), 70-88. DOI:10.1080/03085147300000003.

Miller, F. G., Colloca, L., & Kaptchuk, T. J. (2009). The placebo effect: illness and interpersonal healing. *Perspect.Biol.Med*, *52*(4), 518-539. doi:S1529879509400036 [pii];10.1353/pbm.0.0115 [doi]. Retrieved from PM:19855122

Moerman, D. E., & Jonas, W. B. (2002). Deconstructing the placebo effect and finding the meaning response. *Ann.Intern.Med*, *136*(6), 471-476. doi:200203190-00011 [pii]. Retrieved from PM:11900500

Osborn, M., & Smith, J. A. (1998). The personal experience of chronic benign lower back pain: An interpretative phenomenological analysis. *British Journal of Health Psychology*, *3*(1), 65-83. Retrieved from http://dx.doi.org/10.1111/j.2044-8287.1998.tb00556.x. Retrieved from Blackwell Publishing Ltd.

Price, D. D., Finniss, D. G., & Benedetti, F. (2008). A comprehensive review of the placebo effect: recent advances and current thought. *Annu.Rev Psychol*, *59*, 565-590. doi:10.1146/annurev.psych.59.113006.095941 [doi]. Retrieved from PM:17550344

Rafieian, Sh. (2010). Cybersemiotic medicine: A framework for an interdisciplinary medicine. *Cybernetics and Human Knowing 01/2010; 17:65-93.*, *17*(3), 65-93.

Raz, A. (2007). Hypnobo: perspectives on hypnosis and placebo. *Am J Clin Hypn.*, *50*(1), 29-36. Retrieved from PM:17685242

Riedl, A., Schmidtmann, M., Stengel, A., Goebel, M., Wisser, A. S., Klapp, B. F. et al. (2008). Somatic comorbidities of irritable bowel syndrome: a systematic analysis. *J Psychosom.Res*, *64*(6), 573-582. doi:S0022-3999(08)00061-5 [pii];10.1016/j.jpsychores.2008.02.021 [doi]. Retrieved from PM:18501257

Rosenberg, M. (1990). Reflexivity and emotions. *Social Psychology Quarterly*, *53*(1), 3-12.

Stets, J. E. (2010). Future directions in the sociology of emotions. *Emotion Review*, *2*(3), 265-268. doi: 10.1177/1754073910361975.

Thompson, J. J., Ritenbaugh, C., & Nichter, M. (2009). Reconsidering the placebo response from a broad anthropological perspective. *Cult.Med Psychiatry*, *33*(1), 112-152. doi:10.1007/s11013-008-9122-2 [doi]. Retrieved from PM:19107582

Turner, J. H. (2009). The sociology of emotions: basic theoretical arguments. *Emotion Review*, *1*(4), 340-354. doi: 10.1177/1754073909338305.

Twigg, J. (2006). *The body in health and social care*. Palgrave MacMillan: Basingstoke, UK.

Vandenberg, B. (1998). Hypnosis and Human Development: Interpersonal Influence of Intrapersonal Processes. *Child Development*, *69*(1), 262-267. Retrieved from http://dx.doi.org/10.1111/j.1467-8624.1998.tb06147.x. Retrieved from Blackwell Publishing Ltd.

Von Uexkull, T., & Pauli, H. (1986). The mind-body problem in medicine. *Advancement of Health*, *8*(4), 158-174.

Waller, E., & Scheidt, C. E. (2006). Somatoform disorders as disorders of affect regulation: a development perspective. *Int.Rev Psychiatry*, *18*(1), 13-24. doi:N7567324726L33M7 [pii];10.1080/09540260500466774 [doi]. Retrieved from PM:16451876

Williams, S. J. (1998). Modernity and the emotions: corporeal reflections on the (IR) rational. *Sociology*, *32*(4), 747-769. doi: 10.1177/0038038598032004007.

Williams, S. J. (2006). Medical sociology and the biological body: where are we now and where do we go from here? *Health (London.)*, *10*(1), 5-30. doi:10/1/5 [pii];10.1177/1363459306058984 [doi]. Retrieved from PM:16322041

Williams, S. J., & Bendelow, G. A. (1996). The `emotional' body. *Body Society*, *2*(3), 125-139. doi: 10.1177/1357034X96002003007.

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

Replication of the "Social Rituals and Mental Health: A Novel Approach to Early Intervention in Mental Illness" Project in an Iranian Setting

Azadeh Malekian[1], Gholamhosein Ahmadzadeh[2], Mohsen Maroufi[2], Abbas Attari[3], Amitice Bahramian[4], Aleksandar Janca[5]

[1] Psychiatrist, Psycho-Somatic Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
[2] Associate Professor, Behavioral Sciences Research Center AND Department of Psychiatry, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
[3] Professor, Behavioral Sciences Research Center AND Department of Psychiatry, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
[4] Resident Medical Officer, Sir Charles Gairdner Hospital, Medlands, Western Australia
[5] Professor, Department of Psychiatry, School of Psychiatry and Clinical Neurosciences, University of Western Australia, Crawley, Australia

Qualitative Study

Abstract

Background: The present study is a replication of a study designed by the University of Western Australia (UWA). The hypothesis examined is that the deteriorating mental functioning which occurs during early stages of mental illness is recognizable in the form of altered sensitivity to expected rituals and an altered ability to perform the rituals appropriately. The present study aimed to evaluate the cultural applicability and feasibility of the Social Rituals Interview Schedule (SRIS) within the Iranian culture, and to assemble a culture-specific repertoire of social rituals in Iran. In addition, it aimed to examine the extent to which disturbances in everyday expected social rituals can be used for the early identification of individuals, families, and communities who have, or are at risk of soon developing, poor mental health.

Methods: The SRIS domains of social rituals were discussed in an expert focus group discussion and during key informant interviews with mental health patients and their care-givers.

Results: The concept of social rituals was acknowledged as being applicable and relevant in detecting early alterations in one's mental health condition. All domains of the SRIS were also confirmed as culturally applicable in the Iranian setting. A new domain named "Religious Rituals" was added to the domains already identified by UWA researchers as a significant and culturally sensitive domain of the social rituals in Iran. A culturally modified Farsi version of the SRIS -applicable and valid for use within the Iranian culture- was produced.

Conclusion: Both the social rituals concept and the produced Farsi version of its Interview schedule were regarded as culturally applicable to provide a foundation for planning prospective tools for early recognition of mental health deterioration in Iranian settings.

Keywords: Social rituals, Mental illness, Early recognition, Prodrome

Citation: Malekian A, Ahmadzadeh Gh, Maroufi M, Attari A, Bahramian A, Janca A. **Replication of the "Social Rituals and Mental Health: A Novel Approach to Early Intervention in Mental Illness" Project in an Iranian Setting.** Int J Body Mind Culture 2014; 1(2): 117-26.

Received: 23 Jun 2014
Accepted: 5 Sep 2014

Corresponding Author:
AzadehMalekian
Email: malekian@med.mui.ac.ir

Introduction

This is a project designed and conducted in the Mental Health Unit of the University of Western Australia (UWA) -a WHO collaborative center- supervised by Professor Alexander Janca -an international epidemiologist psychiatrist. The project was based on the hypothesis that the deteriorating mental functioning, which occurs during the early stages of mental illness, is recognizable in a reduced sensitivity to social rituals, and an impaired ability to perform these rituals in the appropriate manner.

Social rituals are ordinary activities and common behaviors such as greetings, giving thanks, taking leave, polite eating customs, or the wearing of conventional clothing. They are an essential and expected part of everyday life in most cultures. Social ritual is a term originally used by Anthropologists to describe behaviors associated with everyday activities. Ritualistic behavior differs from other forms of social behavior by having a clearly defined set of rules attached and being subject to social sanctions. These take the form of approval or acknowledgment when the ritual is performed correctly or disapproval in the form of criticism or social exclusion when it is not.

Social rituals constitute a large part of the fabric or structure of everyday life. Apart from their manifest function, they have a more important latent function in confirming relationships or renegotiate the status and roles of members of a family or group. For example, the manifest function of asking people "How are you?" is to elicit information about their physical or mental health, while the latent function is to demonstrate concern for their wellbeing and an interest in maintaining the relationship with them, and to elicit a response acknowledging this and seeking a reciprocal expression of care (Merton, 1957).

The term social ritual has recently gained interest in the field of psychiatry because it is believed that ritualistic behavior between members of a group/family provides the ongoing mutual recognition and support for the group to function as a self-sustaining social unit. Each member's performance of prescribed ritualistic behavior confirms his/her role and maintains the equilibrium of the group as a unit. Importantly, social rituals should be distinguished from ritualistic behaviors that are symptomatic of mental illness-like obsessive-compulsive disorder- such as debilitating checking behaviors- and from ritualistic activities that may be performed within some societies to enact rites of passage or traditional healing (Hollander & Bezaquen, 1997; Turner & Blodgett, 1992; Van Gennep, 1961).

This study examines the connection between changes in ritualistic behavior and pre-diagnostic signs of mental illness. The prodromal phase of psychiatric illness precedes the onset of the characteristic manifestations of the fully developed mental illness or a period of disturbance that represents a deviation from a person's previous experience and behavior (Yung & McGorry, 1996). Disregard or disrespect of the socially expected activities and behaviors may be related to an emerging mental health problem or a symptom of mental illness. The hypothesis examined is that the deteriorating mental functioning which occurs during early stages of mental illness are recognizable in the form of altered sensitivity to expected rituals and an altered ability to perform the rituals appropriately.

The original UWA project comprised 4 phases. This is the 1st phase of the Iranian study and a replication of phase IV of the Australian study which is aimed to:

1. Evaluate the cultural applicability and feasibility of the Social Rituals Interview Schedule (SRIS) within Iranian culture.
2. Assemble a culture-specific repertoire of social rituals in Iran.
3. Examine the extent to which disturbances in everyday expected social rituals can be used for the early identification of individuals, families and communities who have, or are at risk of soon developing, poor mental health.

Methods

In the original project, phase I was the development of an instrument called "Social rituals Interview schedule (SRIS)". After extensive analyses of anthropological literature, Australian researchers in UWA have identified 10 social rituals as being universal (Brown, 1991).

Having developed the schedule in the first three phases of the study, in phase IV of the UWA study, the instrument was investigated in terms of cross-cultural validity among three groups of non-Australian nations inside and outside Australia (Taffa, Haimanot, Desalegn, Tesfaye, & Mohammed, 1999). Iran, as a Middle Eastern country with a unique culture, could also be a valuable source of data for this study. Thus, the 1st phase of the Iranian study was conducted as a replication of phase IV of the original one.

The Schedule

The instrument is a semi-structured, conversational-style interview that measures changes which occur in ritualistic behaviors during the pre-diagnostic stages of a mental illness. The degree of change is assessed across ten life domains that are representative of rituals that are common to almost every culture, as well as in the domains for "Other Rituals" (any changes not mentioned in response to the 10 set domains) and "Global Impact" (overall rating of the change observed). Following these domains, there is a "Clinical Observations" section wherein the interviewer can record any comments. Each domain opens with an introductory sentence that defines the social ritual and gives typical examples, and encompasses probe questions to help elicit accurate responses. Along with the quantitative rating, the interviewer should elicit qualitative data in the form of specific examples and comments made as the interviewee answers each question.

The SRIS domains of social rituals were discussed in an expert focus group discussion as well as during key informant interviews with mental health patients and their care-givers. The sample (n = 22 persons) consisted of 12 mental health experts who participated in the focus group discussions and 5 mental health patients in addition to 5 care-givers of the same patients who participated in the patient interviews and the key informant interviews. The focus group participants consisted of 6 psychiatrists and academic members of the Department of Psychiatry of Isfahan University of Medical Sciences (IUMS), 2 psychiatrists from Tehran University of Medical Sciences (TUMS), 3 psychologists from IUMS (a family therapist, a health psychologist, and a clinical psychologist), and a research expert from the international affairs office of the IUMS.

Patients were 2 inpatients recently hospitalized in the psychiatric ward of a general university hospital affiliated to MUI and 2 outpatients referred to the day-clinic of the same hospital. Other participants were 5 care-givers of the same patients.

The inclusion criteria for the patients required that the individual

- be of Iranian cultural background;
- be diagnosed for the first time as suffering from a mental illness which was not drug induced, the result of trauma, or a personality disorder;
- had their illness onset or first contact with the mental health services recently (up to 3 years) for the interviewee to have reliable memories of his/her "pre-morbid behavior";
- had relatives/friends who have had daily/regular contact so to act as reliable observers of changes in appearance/behavior prior to first contact with mental health services;
- agree to give informed consent for a relative/friend to be interviewed about personal aspects of his/her life.

Interviews with the patients and the key informants were conducted by the two psychiatrists among the focus group participants who were trained in the administration of the Farsi translation of the UWA original version of SRIS. All of the patients and key informants

provided informed consent to their involvement.

A mixture of opinions was derived about the applicability of the concept of social rituals in Iranian culture and the structure and wording of the Social Ritual Interview Schedule. All discussions of the focus group and also all interviews were recorded as video and audio files and the discussions were later derived and written on paper. The schedule was then modified according to derived opinions and suggestions expressed by participants. Moreover, a refined Iranian version of the SRIS was produced for use in the next step.

Results

A mixture of ideas and opinions was provided about the intercultural applicability of the SRIS domains by the focus group discussions of the expert group, and the patients' and the care-givers' groups, which is summarized hereunder.

The summary report from the focus group

The focus groups aimed to investigate the cross-cultural applicability of the social rituals concept and instrument within the Iranian culture.

The participants were asked to discuss the whole concept of social rituals and then each SRIS domain in respect of its applicability in our culture as a distinct domain of social rituals and a domain of social rituals that the changes observed in individuals' respect or performance of it may indicate their emerging mental health problems. Their suggestions for modification in SRIS to improve its cultural relevance included adding a new domain and making some minor changes in the examples and introductory sentences of the domains which are explained as following:

1. The most appropriate Farsi term was agreed upon to accurately reflect the intended meaning of "social rituals".

2. The focus group made elaborated discussions on the cultural applicability of the idea that changes observed in one's caring for social rituals might be an indicator of his/her emerging mental health problems. The hypothesis was admitted by the participants as being culturally relevant. There were some challenging discussions about how the concept would actually be applied for early detection of mental health problems. Some concerns were expressed by the expert group about the "recall bias" and the extent it can be justified through the concept of "Sanction". Another challenging discussion was about the issue of cultural sensitivity of each domain in its applicability in detecting early mental health alterations. The overall idea of the first challenge was to emphasize that our judgment about the cultural relevance of the social rituals concept is based upon our clinical retrospective observations. Consequently, we need to investigate how reliable and culturally sensitive those behavioral changes would be in each domain for predicting or detecting mental health problems early in their process.

Another concern was about occasions in which a person may make purposeful and intentional changes in the way she/he performs some of the rituals in order to make changes in his/her life conditions or to achieve identifiable gains. For example a person who makes changes in his/her appearance to declare a different ideology or insists on his/her right for independence (not necessarily limited to adolescents), or one who makes intentional changes in her/his appearance and/or in performing some other domains of rituals believing that it might increase his/her chance of achieving a better job opportunity as she/he perceives the society where she/he lives might discriminate people based on their political or ideological inclinations. The reliable observant then needs to be one whose relationship with the person is certainly close and confidential enough to allow him/her to be aware of the person's innermost feelings, intentions, or purposes. These are examples to show that potential considerations would be needed to avoid possible stigmatization once the concept is going is applied prospectively.

All of the SRIS domains were agreed upon as culturally relevant social rituals the changes of which are potentially observable before other

evident presentations of a mental health problem in Iranian individuals. However, participants believed that in Iran, the cultural relevance and sensitivity of the domains would be very different compared with each other when talking about their relationship to emerging mental health problems. Thus, participants agreed to rate the cultural sensitivity of each domain using a Likert scale.

A new domain named "religious rituals" was added to the domains because 100% of the study participants believed that this is not only a manifest and distinct social ritual domain in Iran, but also could be one of the most culturally sensitive ones when linked to mental health issues. The expert group also believed that the changes in this domain are frequently described by the families as the first observed changes in their patients' behaviors before getting diagnosed with a psychiatric disorder. Therefore, it should be investigated as a potentially sensitive domain in respect to early detection of mental health problems in the Iranian culture. Although some aspects of religious rituals may be somehow included in other domains, like personal appearance, the whole extent of this domain of rituals was believed to be distinctly important enough in our culture to deserve to be labeled as a separate domain.

Following, there is a brief report of ideas and opinions about each domain discussed by participants of the study:

1. Personal appearance

This domain was readily agreed upon to be an important area of social rituals the changes of which may indicate early mental health problems. Several clinical examples were described by the participants. Some important cultural aspects were discussed and some modifications were suggested to be made in the introductory sentences of the domain in the SRIS. Needless to mention, Iranian women obey Islamic rules about the female appearance and dressing in public. Furthermore, in some rural areas there is a rather limited diversity in the shape and the colors of the clothing people (especially women) wear. Among many other implications this may have, attentions are readily attracted toward the changes that one makes in his/her form of dressing or in her/his clothing colors. Wearing abnormal clothes or clothes with abnormal colors in the public are frequently observed as the early behavioral changes in those who will later manifest important mental health problems. Especially in women, changes in personal appearance are sometimes perceived as associated to the changes in their bonding to religious rituals. Iranian psychiatrists frequently visit a female patient referred to them by her family for resisting to wear her veil, neglecting the Islamic covering or having made overt changes in her personal appearance. This also includes wearing clothes which are inappropriate or not in accordance to one's social and ethno-familial religious background. These changes can sometimes –not always– be associated with impaired judgment and an overt carelessness about the social consequences of such behaviors. There are also some simple ornaments which are Islamic or religious symbols (e.g. wearing a thin green band over the wrist as a symbol of turning toward the holy Imams or wearing a ring with an agate stone as a symbol of reliance on God's help). Unexpected recent inclination toward excessive use of such ornaments is sometimes observed by the family as the early changes the patient had presented before being diagnosed with a mental illness. These aspects of appearance have explicit overlaps with the religious rituals domain. However, there was a consensus about making slight modifications in the introductory sentences of this domain in order to provide a better coverage of the important culture-specific examples of the personal appearance.

2. Personal hygiene

This was also readily accepted as being a culturally relevant domain of social rituals. Although there are two different specific terms to mean showering and bath taking in Farsi

language, suggestions were made to modify the introducing sentences for this domain, as the two terms are frequently used interchangeably in daily life in Iran. Some participants suggested adding the menstrual period hygiene to the introductory examples of the domain, because not infrequently a family reports it, retrospectively, as an early observed change in a mentally ill family member. Moreover, any disregard for their routine shaving habits was believed to be one of the first observable changes in the personal hygiene rituals in men.

3. Communication

The name for the communication domain was meticulously discussed in order to choose the best Farsi translation which meets the intended meaning. This domain was considered as an important social rituals domain and as one of the most culturally relevant to get potentially linked to early changes in mental health in an Iranian individual. Slight modifications were suggested to be made in introductory sentences to provide a more comprehensible description of the domain in SRIS. The suggestions included adding more examples of verbal communication like talking more or less than usual, the change in the speech tone and volume, and unusual conversations.

4. Eating habits

This domain was accepted as a culturally relevant social rituals domain, but the group believed it to be less sensitive in our culture than the first three domains in relation to early changes in mental health. The most culture-specific aspect of this domain in Iran was believed to be "eating meals together with the family" because the changes made in this routine seems to be more readily observable by others and would be more readily regarded as an abnormal behavior. To specify this example, an easy to understand culture-specific idiom was added to the introductory sentence of the SRIS for this domain.

5. Sleeping habits

This domain was also accepted as a culturally relevant domain, but as one of the least sensitive. According to culturally familiar routines, slight modifications were made in the Farsi translation of the introductory sentence.

6. Sense of privacy

This domain was accepted by all groups as a very important domain, changes of which in an individual may be a very sensitive indicator of his/her mental health problems. In the Iranian culture, respecting one's own and others' sense of privacy is a very important and respected aspect of cultural characteristics.

Any disregard or carelessness about culturally defined privacy rules (which may be a result of impaired 'sense of privacy) is strictly recognized and rejected by the family or the society (the concept of sanction seems highly relevant in this regard). The changes in one's sense of privacy or one's respect toward others' sense of privacy might be observed and noticed readily by others and frequently judged by the family as an abnormal behavior. The group believed that this domain might be regarded as the most culturally sensitive domain in detection of early mental health problems. As religious-cultural rules, in the family and the society, female privacy is carefully cared for by herself and others. A Moslem woman is supposed to veil herself in front of males other than more intimate individuals like husband, father, brother, uncle, and son and son-in-law. Any change in a woman's routine way of acting in this regard -both increased and decreased care for veiling among many other issues- can sensitively indicate changes in her mental health status. In addition, both men and women are supposed to adjust their behaviors in front of the other sex according to their degree of intimacy or closeness. This is somehow more important for women. One can assume that in our culture, privacy, especially but not exclusively for the female, is somewhat broader than that in non-Muslim countries.

Culture-specific additional examples were added to the description of personal modesty. Moreover, the example of 'eating with the mouth closed' was changed, because the focus

group believed that in our culture it could not be a typical example related to this domain. On the other hand, 'eating with the mouth closed' could be considered as a rule of etiquette or politeness.

7. Sexuality

The distinctness and prominence of this domain as a social ritual domain in Iran was agreed upon, and so was the relevance of the domain in reflecting early mental health changes. Some questions were raised about the intended area which is supposed to be covered by this domain. However, most of the questions could be explained by describing the previous steps of revision in the original schedule.

The examples were slightly modified to better cover the concepts of sexual behaviors, attitude, and function and gender role. Participants believed that increased or decreased sexual desire and activity are the most readily observable changes in this domain. Because of a cultural taboo in any overt expression of sexual behaviors, the whole domain has a significant overlap with the sense of privacy domain. This means that the changes in one's sexual activity, behaviors, and attitude are mostly observable by others only when they have already been combined with a decreased sense of privacy or decreased inhibition in sexual issues. The most frequent clinical observations in early mental health problems -which may belong to this domain- were believed to be less shame in asserting one's sexual needs, less inhibition in sexual activities which may have negative social and legal consequences, overt insisting on the need for getting married, less inhibition in marriage suggestion to others, promiscuity and increased masturbating in anxious young girls and boys who cannot otherwise satisfy their increased sexual desire. In the married, the changes in the sexuality domain may be observable by the spouse even if not accompanied by a decreased sense of privacy. However, in most other situations, observations of such changes mostly depend upon an associated impaired sense of privacy. However, when recognized by others, some kinds of change in ones way of acting in this domain are very likely to be regarded as an important and sensitive indicator of mental health problems. The group believed that this domain has a specific linkage with mental health as its changes are commonly reported as the early retrospective changes before the full manifestation of a psychiatric disorder. Introductory sentence and examples were modified according to many cultural considerations in order to present a better introduction of the intended domain as a distinct area and to decrease its overlap with the 'sense of privacy' domain.

8. Avoidance

This domain, as understood by the introductory sentences, was approved as a social ritual domain in Iran, and as a relevant domain in respect to mental health changes. However, the term "avoidance" does not seem to describe any social rituals category in Iran. Because this idea does not seem to be a culture-specific issue, the group decided to offer it as a question to be answered by the UWA and a suggestion for choosing a better name. However, no need for modification in the sentences and examples was felt.

9. Greeting and leave taking

This domain was readily accepted as a social ritual and as a culturally-sensitive one in reflecting mental health changes. The appropriate Farsi translation of the name of the domain was approved by the group. The examples were slightly modified to better represent the most typical examples of this ritual in the Iranian culture.

10. Rules for polite behavior

According to the focus group and interviewees, this domain is an important daily social ritual in our culture. The Farsi name which could accurately reflect the intended meaning was selected. Minor changes were made in the introductory sentence.

11. Religious Rituals

The need for adding this domain was admitted

by all participants. This domain represents a distinct, specific, and important domain of daily social rituals in Iran. Rituals of praying, religious ceremonies, religious aspects of one's general appearance and communications, among many others, are important social rituals in Iran. Any observed changes in one's quantity and quality of religious activities and caring for religious rituals are very likely to be remembered and mentioned as the early behavioral changes in the mentally ill. Some of the frequent early presentations of mental illness in this domain might include: recent over-inclination or over-bonding toward some special religious rules, less tolerance toward others' disregard for those rules, and concretization in aspects of religious thinking or behaving. The religious rituals domain was added to the Iranian version of SRIS in the same format of the other domains. The introductory sentences and examples were assembled according the group discussions.

A Farsi version of the SRIS, applicable and valid for use within the Iranian culture, was produced and revised by the group of experts. Moreover, it will be assessed for inter-rater reliability in the next step of the study.

Discussion

The concept of social rituals and all of the domains of the SRIS were confirmed to be culturally applicable to the Iranian setting. Hence, both the concept and the schedule can be regarded as a base for planning prospective tools for early recognition of mental health deterioration. Although prodromal research has a long history, it has increased dramatically in the last two decades (Bleuler, 1950; Hopkinson, 1965; Kraepelin, 1921; Kraeplin, 1896; Meares, 1959; Sullivan, 1994). This is perhaps due to the prospect of using prodromal symptoms to aid the early identification and intervention of mental illness. Much of the research before that of the UWA project had been focused upon psychoses (Henry, Harris, Amminger, Yuen, Harrigan, Lambert, & et al., 2007; Larsen, Friis, Haahr, Joa, Johannessen, Melle, & et al., 2001; Lieberman Perkins, Belger, Chakos, Jarskog, Boteva, & et al., 2001; Olsen & Rosenbaum, 2006; Yung & McGorry, 1996). However, prodromal intervention has been critically evaluated across the spectrum of disorders, including Alzheimer's disease, eating disorders, post-traumatic stress disorder, and mood disorders (Bryant, 2007; Correll, Penzner, Lencz, Auther, Smith, Malhotra, & et al., 2007; Fava, 1999; Fava & Kellner, 1991; Le & Loeb, 2007; Leifer, 2003). There are critics of early intervention typically concerned with ethical issues and dangers of misdiagnosis (Bentall & Morrison, 2002; Morley, Hall, & Carter, 2004). Nevertheless, there is evidence illustrating that early intervention improves the prospect of recovery for those diagnosed with a mental disorder (Hauser, Pfennig, Ozgurdal, Heinz, Bauer, & Juckel, 2007; Kisely et al., 2006; Marshal, Lewis, Lockwood, Drake, Jones, & Croudace,, 2005; Perkins, Gu,H., Boteva, & Lieberman, 2005). It has been upon such evidence that the original study was developed by the UWA research group.

Not all "at risk" individuals inevitably "convert" to psychosis, and such people need to be guarded from the potential risks of interventions. Primarily, because so far a rather low conversion rate to psychosis has been found, early intervention into mental disorders such as schizophrenia is a much debated topic (Cannon, Cornblatt, & McGorry, 2007). It permits risk assessment, but this must be differentiated from a diagnosis which will dramatically change the patient's life and the actions of third parties (experience of stigma and discrimination); it allows prompt medical care, but medication may have unintended consequences; it currently serves symptomatic and well-defined prodromal populations, but the likely shift toward a younger and less symptomatic population may bring about costly false positives or destroy the period of normalcy prior to the onset of symptoms (Corcoran,

Malaspina, & Hercher, 2005). Furthermore, there is confusion about what symptoms comprise the prodromal phase (Olsen & Rosenbaum, 2006). However, logically, the stricter the prodromal features guiding the detection process, the higher the conversion rate, which is why studies like the UWA study will contribute towards more effective intervention during the prodromal phase of mental disorders.

Regardless of any possible role in explicit diagnosis of a prodromal phase, the concept of Social Rituals -when linked to mental health- would also be useful in increasing professionals' insight toward the early attention toward psychological/mental health problems.

Cross-cultural applicability of the social rituals concept and its applicability in reinterpretation of the concept of prodrome are crucially important in psychiatric diagnosis. It instantly incorporates the idea of 'culture' into prodrome, and hence, psychology must ask about the utility of western diagnostic instruments/techniques in non-western settings or in western settings with non-western people, as would be the case in most parts of our increasingly multi-cultural world. A Subsequent value of the SRIS is one of general orientation for diagnosis, treatment, and etcetera (i.e. alerting psychiatrists –regardless of patient's cultural background– to domains that are important to investigate in a psychiatric evaluation).

The next stage of this research in Iran would be evaluating the inter-rater reliability of the produced Iranian SRIS.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

The authors would like to extend their thanks toward Dr. Sorour Arman, Dr Gholamreza Kheirabadi, Dr. Aliakbar Nejatisafa, Dr. Mohammad Arbabi, Dr. Mahmood Pirmoradi, Dr. Mohammadreza Bagherian, Dr. Ahmad Pedram and Dr.Amirhoushang Zargarzadeh for their useful comments and discussions. Also we are very much grateful toward MS Jane Ventouras from UWA for her kind guidance and clarification.

References

Bentall, R. P., & Morrison, A. P. (2002). More harm than good: the case against using anti-psychotic drugs to prevent severe mental illness. J Ment Health, *11*(4), 351-356. doi:10.1080/09638230020023723

Bleuler, E. (1950). *Dementia praecox; or, The group of schizophrenias*. New York, NY: International Universities.

Brown, D. (1991). *Human universals*. New York, NY: McGraw-Hill Humanities.

Bryant, R. A. (2007). Early intervention for post-traumatic stress disorder. *Early.Interv.Psychiatry*, *1*(1), 19-26. doi:10.1111/j.1751-7893.2007.00006.x [doi]. Retrieved from PM:21352105

Cannon, T. D., Cornblatt, B., & McGorry, P. (2007). The empirical status of the ultra high-risk (prodromal) research paradigm. *Schizophr.Bull.*, *33*(3), 661-664. doi:sbm031 [pii];10.1093/schbul/sbm031 [doi]. Retrieved from PM:17470445

Corcoran, C., Malaspina, D., & Hercher, L. (2005). Prodromal interventions for schizophrenia vulnerability: the risks of being "at risk". *Schizophr.Res*, *73*(2-3), 173-184. doi:S0920-9964(04)00218-X [pii]; 10.1016/j.schres. 2004.05.021 [doi]. Retrieved from PM:15653260

Correll, C. U., Penzner, J. B., Lencz, T., Auther, A., Smith, C. W., Malhotra, A. K. et al. (2007). Early identification and high-risk strategies for bipolar disorder. *Bipolar.Disord.*, *9*(4), 324-338. doi:BDI487 [pii];10.1111/j.1399-5618.2007.00487.x [doi]. Retrieved from PM:17547579

Fava, G. A. (1999). Subclinical symptoms in mood disorders: pathophysiological and therapeutic implications. *Psychol Med*, *29*(1), 47-61. Retrieved from PM:10077293

Fava, G. A., & Kellner, R. (1991). Prodromal symptoms in affective disorders. *Am J Psychiatry*, *148*(7), 823-830. Retrieved from PM:2053620

Grange, D.L. & Loeb, K.L. (2007). Early identification and treatment of eating disorders: prodrome to syndrome. *Early.Interv.Psychiatry*, *1*(1), 27-39. doi:10.1111/j.1751-7893.2007.00007.x [doi]. Retrieved from PM:21352106

Hauser, M., Pfennig, A., Ozgurdal, S., Heinz, A., Bauer, M., & Juckel, G. (2007). Early recognition of bipolar disorder. *Eur.Psychiatry*, *22*(2), 92-98. doi:S0924-9338(06)00135-0 [pii];10.1016/j.eurpsy.2006.08.003 [doi]. Retrieved from PM:17142013

Henry, L. P., Harris, M. G., Amminger, G. P., Yuen, H. P., Harrigan, S. M., Lambert, M. et al. (2007). Early Psychosis Prevention and Intervention Centre long-term follow-up study of first-episode psychosis: methodology and baseline characteristics. *Early.Interv.Psychiatry*, *1*(1),

49-60. doi:10.1111/j.1751-7893.2007.00008.x [doi]. Retrieved from PM:21352108

Hollander, E., & Benzaquen, S. D. (1997). The obsessive-compulsive spectrum disorders. *Int Rev Psychiatry*, *9*(1), 99-110.

Hopkinson, G. (1965). The prodromal phase of the depressive psychosis. *Psychiatr Neurol.(Basel.)*, *149*, 1-6. Retrieved from PM:14291279

Kisely, S., Scott, A., Denney, J., & Simon, G. (2006). Duration of untreated symptoms in common mental disorders: association with outcomes: International study. *Br.J Psychiatry*, *189*, 79-80. doi:189/1/79 [pii];10.1192/bjp.bp.105.019869 [doi]. Retrieved from PM:16816310

Kraepelin, E. (1921). *Manic-depressive insanity and paranoia*. Edinburgh, Scotland: E. & S. Livingstone.

Kraeplin, E. (1896). *Psychiatric.* Barth, Germany: Leipzig.

Larsen, T. K., Friis, S., Haahr, U., Joa, I., Johannessen, J. O., Melle, I. et al. (2001). Early detection and intervention in first-episode schizophrenia: a critical review. *Acta Psychiatr Scand.*, *103* (5), 323-334. doi:acp131 [pii]. Retrieved from PM:11380302

Leifer, B. P. (2003). Early diagnosis of Alzheimer's disease: clinical and economic benefits. *J Am Geriatr.Soc*, *51*(5 Suppl Dementia), S281-S288. doi:10.1046/j.1532-5415.5153.x [doi]. Retrieved from PM:12801384

Lieberman, J. A., Perkins, D., Belger, A., Chakos, M., Jarskog, F., Boteva, K. et al. (2001). The early stages of schizophrenia: speculations on pathogenesis, pathophysiology, and therapeutic approaches. *Biol Psychiatry*, *50*(11), 884-897. doi:S0006322301013038 [pii]. Retrieved from PM:11743943

Marshall, M., Lewis, S., Lockwood, A., Drake, R., Jones, P., & Croudace, T. (2005). Association between duration of untreated psychosis and outcome in cohorts of first-episode patients: a systematic review. *Arch Gen Psychiatry*, *62*(9), 975-983. doi:62/9/975 [pii];10.1001/archpsyc.62.9.975 [doi]. Retrieved from PM:16143729

Meares, A. (1959). The diagnosis of prepsychotic schizophrenia. *Lancet*, *1*(7063), 55-58. Retrieved from PM:13621637

Merton, R. K. (1957). *Social theory and social structure*. Glencoe, IL: Free Press.

Morley, K. I., Hall, W. D., & Carter, L. (2004). Genetic screening for susceptibility to depression: can we and should we? *Aust.N.Z.J Psychiatry*, *38*(1-2), 73-80. doi:1300 [pii]. Retrieved from PM:14731197

Olsen, K. A., & Rosenbaum, B. (2006). Prospective investigations of the prodromal state of schizophrenia: review of studies. *Acta Psychiatr Scand.*, *113*(4), 247-272. doi:ACP697 [pii];10.1111/j.1600-0447.2005.00697.x [doi]. Retrieved from PM:16638070

Perkins, D. O., Gu, H., Boteva, K., & Lieberman, J. A. (2005). Relationship between duration of untreated psychosis and outcome in first-episode schizophrenia: a critical review and meta-analysis. *Am J Psychiatry*, *162*(10), 1785-1804. doi:162/10/1785 [pii];10.1176/appi.ajp.162.10.1785 [doi]. Retrieved from PM:16199825

Sullivan, H. S. (1994). The onset of schizophrenia. 1927. *Am J Psychiatry*, *151*(6 Suppl), 134-139. Retrieved from PM:8192188

Taffa, N., Haimanot, R., Desalegn, S., Tesfaye, A. & Mohammed, K. (1999). Do parents and young people communicate on sexual matters? The situation of family life education (FLE) in a rural town in Ethiopia. *Ethiopian Journal of Health Development*, 13, 205-210.

Turner, E., Blodgett, W., Kahona, S., & Benwa, F. (1992). *Experiencing ritual: a new interpretation of African healing*. Philadelphia, PA: University of Pennsylvania Press.

van Gennep, A., Vizedon, M. B., & Caffee, G. L. (1961). *The rites of passage*. Chicago, IL: University of Chicago Press.

Yung, A. R., & McGorry, P. D. (1996). The prodromal phase of first-episode psychosis: past and current conceptualizations. *Schizophr.Bull.*, *22*(2), 353-370. Retrieved from PM:8782291.

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

The Effect of a Storytelling Course on Medical Students' Empathy toward Patients

Minoo Yaghmaei[1], Alireza Monajemi[2], Kamran Soltani-Arabshahi[3]

[1] Associate Professor, Department of Obstetrics and Gynecology, School of Medicine, Shahid Beheshti University of Medical Sciences, Tehran, Iran
[2] Assistant Professor, Department of Philosophy of Science, Institute for Humanities and Cultural Studies, Tehran, Iran
[3] Professor, Center for Educational Research in Medical Sciences, Iran University of Medical Sciences, Tehran, Iran

Quantitative Study

Abstract

Background: Empathy is a cognitive characteristic defined as the ability to understand people's experiences, interests, and viewpoints and the capacity to share this understanding. Empathy constitutes the foundation for the patient-physician relationship, leading to both the patients' and physicians' satisfaction, and is effective on the patients' cooperation and clinical outcomes. Many studies have shown that the level of empathy decreases in students during their clinical course. Learning literature and art is theoretically one of the methods to increase empathy in clinical environments. We aimed to assess the efficacy of storytelling on medical students' empathy toward patients.

Methods: This quasi-experimental study with a nonequivalent group pretest-posttest design was performed during 2010-2011 in Zahedan, southeast Iran. We initially invited all fourth and fifth-year medical students studying at Zahedan University of Medical Sciences to participate in our study. The volunteers were asked to complete the Persian version of the Jefferson Scale of Physician Empathy-students version (JSPE-S) plus questions regarding their demographic data and the field in which they would like to continue their education. The case group was enrolled in 10 sessions of storytelling, each lasting for 2 hours. Part of a book was initially selected by the researcher and the students were unaware of the story. The participants then discussed the story recited by the researcher.

Results: After the intervention, a decrease was observed in the mean of JSPE-S score of the control group, and an increase in the mean score of the case group. The participants did not differ significantly in terms of sex, age, duration of training course, and intended field of study. We found that the empathy score was not significantly related to the participants' sex ($p = 0.086$), duration of training course ($p = 0.210$), age ($p = 0.902$), and tendency to study in different fields ($p = 0.815$).

Conclusion: Storytelling courses are possibly effective both in maintaining the level of medical students' empathy toward patients and in preventing the reduction of empathy during their education.

Keywords: Empathy, Literature, Medical students

Citation: Yaghmaei M, Monajemi A, Soltani-Arabshahi K. **The Effect of a Storytelling Course on Medical Students' Empathy toward Patients.** Int J Body Mind Culture 2014; 1(2): 127-34.

Received: 15 June 2014
Accepted: 1 Sep 2014

Corresponding Author:
Minoo Yaghmaei
Email: yaghmaeim@yahoo.com

Introduction

Empathy is mainly a cognitive characteristic which is defined as the ability to understand people's experiences, interests, and viewpoints accompanied by the capacity to share this understanding (Hojat, 2009). Empathy constitutes the foundation for the patient-physician relationship, leading to both the patient and physicians' satisfaction, and is effective on the patients' cooperation and clinical outcomes (Chen, Lew, Hershman, & Orlander, 2007).

Empathy is fundamentally a clinical manner and a personal characteristic that cannot be taught easily (Hardee, 2003; Hojat, Gonnella, Nasca, Mangione, Vergare, & Magee, 2002). However, currently, researchers in the field of education believe that empathy is a skill that can be taught, and consequently, learned (Hardee, 2003). For instance, as stated in the reports of the American Medical Colleges' Association on the aims of medical colleges, medical colleges are expected to train compassionate physicians that empathize with their patients and treat them humanely (Hojat et al., 2002).

Many studies have shown that the level of empathy decreases in students during their clinical course (Chen et al., 2007; Sherman, & Cramer, 2005; Mangione, Kane., Caruso, Gonnella, Nasca, & Hojat, 2002; Hojat, Mangione, Nasca, Rattner, Erdmann, Gonnella, & et al., 2004). Some researchers state that learning literature and art is one of the methods to increase empathy in clinical environments through familiarizing students and healthcare employees with the values and experiences of these environments (Hojat, 2009). Therefore, we aimed to assess the impact of storytelling on medical students' empathy toward patients. If storytelling is proven to be effective, it can be used to enhance the patient-physician relationship.

Methods

This quasi-experimental study with a nonequivalent group pretest-posttest design was performed during 2010-2011 in Zahedan, southeast Iran. We initially invited all fourth and fifth-year medical students studying at Zahedan University of Medical Sciences to participate in our study. In order to avoid bias in selecting the groups, we did not initially explain the aim of our study and the content of the course to the students in our invitation. We included all students who were in their fourth or fifth year of medical education and were willing to participate in the study. Students who were absent from more than one session were excluded from our study.

The volunteers were initially asked to complete the Persian version of the Jefferson Scale of Physician Empathy-student version (JSPE-S) plus questions regarding their demographic data (except their name) and the field they would like to continue their education in (group 1: internal medicine, family medicine, pediatrics, neurology, physiotherapy, psychiatry, emergency medicine, gynecology, ophthalmology, dermatology; group 2: pathology, surgery, radiology, oncology, radiotherapy, anesthesiology, orthopedics, neurosurgery; and group 3: other fields).

This questionnaire is the first specific tool for measuring the level of empathy among medical students and physicians and has been used in different studies (Shariat, Eshtad, & Ansari, 2010). It was designed by Mohammad Reza Hojat et al. in 2001 in America (Hojat, Mangione, Gonnella, Nasca, Veloski, & Kane, 2001). Different researchers have reported a reasonable amount of validity and reliability for this questionnaire (Hojat et al., 2002; Shariat et al., 2010; Hojat, Gonnella, Nasca, Mangione, Veloksi, & Magee, 2002). This questionnaire has 20 items and the students state their agreement or disagreement with each item using the corresponding scales of 1-7 for each item (1: completely disagree; 2: completely agree).

In the next stage, the case group was enrolled in 10 sessions of storytelling, each lasting for 2 hours. In these sessions, a part of a book was initially selected by the researcher and the students were unaware of the story. The participants then

discussed the story recited by the researcher. The stories were selected from the literature and were mainly about human conditions concerning illness and suffering. At the end of the course the students were asked to complete the JSPE-S) again.

Students who had answered less than 80% of the items (16 items) were excluded from the study and their questionnaires were not considered for data analysis. When the students had not answered 4 or less items, the mean score of the total answered items was considered as the score of the unanswered items. The total score of each questionnaire was obtained from the total sum of all scores (maximum score: 140) (Hojat et al., 2002).

Data were analyzed using SPSS for Windows (version 11; SPSS Inc., Chicago, IL, USA). For comparing the participants' age and duration of study in both groups, Student's independent t-test was used. Moreover, we used the chi-square test to determine the relationship between sex and the desired field for continuing their education among the participants. In order to compare empathy scores between both groups at the beginning and end of the study, and the empathy scores of each group at the beginning and end of the study separately, Student's independent t-test was used. We used the Pearson's correlation coefficient to assess the relationship between the empathy scores, and age and duration of elapsed training. In addition, we used t-test to determine the relationship between desired field of study for the future and sex, and the empathy scores. Moreover, the mean changes of each item in both groups, total reliability, and the effect of deleting each item on total reliability was determined by calculating Cronbach's alpha.

Results

All participants who voluntarily registered in case (n = 16) and control (n = 25) groups finished the study. The results showed that although the participants were enrolled in the study non-randomly and voluntarily, they did not differ significantly in terms of sex, age, duration of training course, and intended field of study (Table 1).

Moreover, by comparing the mean total score of the students in both groups at the beginning and at the end of the study, and the total score of the students in each group at the beginning and end of the study, we found no significant difference (table 2).

Table 1: Demographic data of the participants

Variables	All participants	Case group	Control group	P value
Age (years)	23.7 ± 1.15	23.7 ± 1.20	23.3 ± 0.92	0.279
Sex (% Female)	63.4	75	56	0.322
Duration of training (months)	15.1 ± 5.28	16.9 ± 4.18	13.9 ± 5.62	0.061
Intended field of future study				
Group 1	48.8	56.3	44	
Group 2	41.5	31.3	48	0.498*
Group 3	9.8	12.5	8	

* P-value was calculated after omitting group 3 because of its low frequency

Table 2: Mean ± SD total scores of the participants in both groups

Groups	Beginning of study	End of study	P-value
Case	106.7 ± 12.78	107.6 ± 11.32	0.809
Control	105.8 ± 15.24	100.12 ± 14.04	0.154
P-value	0.989	0.95	

Table 3: Mean ± SD of each question's score of JSPE-S in case and control groups

Questions	Case group (before intervention)	Case group (after intervention)	P-value	Control group (beginning of study)	Control group (end of study)	P-value
1	5.4 ± 1.63	4.60 ± 2.16	0.305	6.0 ± 1.5	5.0 ± 1.70	0.019
2	6.5 ± 0.89	6.0 ± 0.45	0.669	6.4 ± 0.82	6.1 ± 1.41	0.468
3	4.6 ± 1.63	3.9 ± 1.54	0.196	5.0 ± 1.57	4.2 ± 1.44	0.038
4	5.7 ± 1.08	6.2 ± 0.91	0.184	5.8 ± 1.59	5.4 ± 1.22	0.119
5	5.4 ± 1.41	5.0 ± 1.83	0.696	5.0 ± 1.4	5.1 ± 1.66	0.7
6	4.2 ± 1.56	3.8 ± 1.52	0.515	4.4 ± 1.87	4.3 ± 1.49	0.768
7	6.3 ± 0.77	5.7 ± 1.3	0.239	6.0 ± 1.55	5.6 ± 1.66	0.251
8	4.6 ± 1.63	4.9 ± 1.36	0.724	4.2 ± 1.88	4.6 ± 1.71	0.549
9	4.7 ± 1.66	4.6 ± 2.13	0.985	5.4 ± 1.38	4.6 ± 1.71	0.078
10	6.3 ± 0.87	5.8 ± 1.56	0.539	5.9 ± 1.19	5.7 ± 0.75	0.135
11	6.5 ± 0.63	6.1 ± 1.15	0.468	5.6 ± 1.96	5.8 ± 1.42	0.651
12	5.6 ± 1.26	5.8 ± 0.83	0.926	5.2 ± 1.97	5.0 ± 1.83	0.571
13	4.9 ± 1.45	5.5 ± 1.32	0.287	5.3 ± 1.60	4.0 ± 1.26	0.193
14	5.6 ± 2.0	6.0 ± 1.55	0.642	5.6 ± 1.69	5.1 ± 1.79	0.292
15	5.9 ± 1.59	6.1 ± 1.00	0.985	5.6 ± 1.32	5.2 ± 1.38	0.216
16	60.0 ± 0.97	6.0 ± 0.97	1	5.8 ± 1.4	5.4 ± 1.08	0.099
17	3.1 ± 2.03	4.8 ± 2.29	0.043	4.2 ± 1.59	3.4 ± 1.67	0.102
18	2.8 ± 1.33	3.5 ± 1.46	0.239	2.4 ± 1.29	2.9 ± 1.36	0.202
19	6.3 ± 1.39	6.6 ± 1.02	0.515	5.9 ± 1.88	6.1 ± 1.64	0.860
20	6.1 ± 1.57	5.9 ± 1. 5	0.642	5.6 ± 1.29	5.6 ± 1.15	0.992

Table 4: The effect of deleting each question on the total reliability (0.787)

Question	Cronbach's alpha	Question	Cronbach's alpha
1	0.765	11	0.763
2	0.782	12	0.778
3	0.785	13	0.778
4	0.786	14	0.763
5	0.782	15	0.769
6	0.775	16	0.772
7	0.762	17	0.796
8	0.801	18	0.796
9	0.762	19	0.769
10	0.777	20	0.764

The mean ± SD initial scores were 109.4 ± 12.5 and 100.5 ± 15.51 in the women and men, respectively. In group 1, group 2, and group 3, the mean ± SD initial scores were 107.3 ± 12.86, 106.2 ± 14.71, and 100 ± 20.46, respectively. The Student's independent t-test and chi-square test showed that the empathy score was not significantly related to the participants' sex ($p = 0.086$), duration of training course ($p = 0.210$, $r = -0.203$), age ($p = 0.902$, $r = 0.021$), and tendency to study in different fields ($p = 0.815$).

Only the mean scores of items 1 and 3 in the control group, and item 17 in the case group differed significantly at the beginning and end of the study (Table 3). Moreover, the total reliability of the questionnaire was 0.767, which is reasonably good, and the omission of none of the items affected the total reliability. The highest amount of change in total reliability was obtained by deleting item 8 (Table 4).

Discussion

This study assessed the efficacy of a storytelling course on medical students' empathy toward patients by JSPE-S. We found that the mean total score of the participants in both groups at the

end of the study, and the total score of the participants in each group at the beginning and end of study did not differ significantly. However, the mean score of the control group decreased from 105.8 ± 15.24 to 100.12 ± 14.04 (about five points) and the mean score of the case group increased from 106.7 ± 12.78 to 107.6 ± 11.32 (about one point). Therefore, the final score of both groups differed by about 6 points. This shows that although the effect of the intervention was not statistically significant, we cannot disregard the resulting numeric changes.

Some researchers in the field of education believe that clinical education could have a negative effect on the students' or residents' empathy toward patients. In 2006, a cross-sectional study was conducted in Boston on all freshman and senior medical students to determine the amount of change in the students' level of empathy toward patients. The duration of the study at this university was 4 years; consisting of 2 years of pre-clinical education (with limited contact with patients) and 2 years of active clinical education. The researchers found that the freshman students had the highest level of empathy (118.5) while the seniors had the lowest (106.6). The scores of the first and second year students, as well as the third and fourth year students differed significantly ($p < 0.001$) (Chen et al., 2007). The reduction of empathy toward patients was also observed in dental students as they took more responsibility during their educational course (Sherman, & Cramer, 2005). The results of another study in America showed that 5 months after the beginning of the training course, the rate of anger, depression, and fatigue had increased among the participants while their empathy had reduced. These changes were consistent throughout the course (Bellini, Baime, & Shea, 2002). The scores of some variables such as anger and fatigue returned to their initial state during residency, but the empathy scores continued to decline (Bellini, & Shea, 2005).

It seems that occupational constraints, such as long working hours and sleep disorders, relying on modern technology for diagnosing diseases, and the shortened length of hospital admission and the time spent talking with patients has led to the decreased level of empathy toward patients (Chen et al., 2007). Other possible causes are the emphasis of modern medical education on the physicians' emotional detachment, maintaining emotional distance from patients, clinical impartiality, and the lack of role models and educational experiences (Hojat et al., 2004).

Evidence exists on the relationship between the level of empathy in medical students and their intended field of study for higher education. In 1989, Harsch rejected such a relationship and stated that students with higher or lower scores of empathy might be interested in any medical field of study (Harsch, 1989). This is consistent with the results of our study. Newton et al. found that students intending to study in fields such as radiology and pathology have lower empathy scores compared with those students intending to study in fields such as pediatrics and family medicine (Newton, Savidge, Barber, Cleveland, Clardy, Beeman, & et al., 2000). Another study on 704 physicians showed that the mean empathy score of 462 physicians working in human-centered fields, such as gynecology, emergency medicine, and psychiatry, was higher than those working in technology-centered fields, such as anesthesia, pathology, radiology, and orthopedics, (121 ± 11.6 vs. 117.2 ± 12.1, $P < 0.001$) (Hojat, Mangione, Gonnella, Nasca, Veloski, & Kane, 2001). The difference in the scores of different fields might be caused by the fact that different people with different communicational skills (which are evident in their empathy scores) might tend towards certain fields, or the emphasis on interpersonal communication skills might differ from field to field (Harsch, 1989; Hojat et al., 2002). The possible reason for the inconsistency of our findings might be our small sample size.

Hojat et al. found that the mean empathy

scores were 119.1 ± 11.8 and 120.9 ± 12.2 in the men (n = 507) and women (n = 179) in their study, respectively, with a close-to-significant difference (p = 0.08) (Hojat et al., 20024). Another study also confirmed that the empathy scores are higher among female medical students compared with male students (116.5 vs. 112.1, p < 0.001) (Chen et al., 2007). Researchers believe that women receive emotional signals better than men and this leads to better empathetic communication (Hojat, Gonnella, Mangione, Nasca, Veloski, Erdmann, & et al. 2002). Our small sample size could be the reason for the inconsistency of our findings with the previously mentioned studies.

We found that only the mean score of item 17 (physicians should try to think like their patients in order to provide better services for them) had a significant difference at the beginning and end of the study. Since in our medical schools' physicians decide based on their personal clinical experiences and not the patients', the students might have accepted that they should not think like their patients as a clear principle at the beginning of intervention. Only after the intervention had they understood that thinking like their patients might enhance giving services to them.

There are contradictory findings on whether empathy can be taught or not. Some researchers believe that empathy is a personal state, the level of which can decrease during a medical student's course of study; however, the student can enhance his/her level of empathy using targeted educational activities. Others believe that empathy is a personal characteristic that cannot be taught easily (Hojat et al., 2002). Several approaches have been presented for increasing the level of empathy in healthcare environments such as enhancing interpersonal communication skills, use of audio/visual cassettes or CDs about the method of coping with patients, use of role models, role playing, and use of literature and drama (Hojat, 2009). Feighny et al. studied the effect of education on the level of empathy and found that educating students in their initial years of study can enhance their empathetic behavior (not their emotional or cognitive empathy) and communication skills (Hojat et al., 2004).

Some researchers believe that paying attention to emotions expressed in artwork can teach individuals how to express their feelings (Oatley, 2004). Listening and seeing artwork exposes individuals to a rich source of knowledge and insight on human pain and suffering and other people's viewpoints, which in turn could enhance the capacity to form empathetic relationships (Acuna, 2000; Kumagai, 2008).

In 2001, a four-week training course about concepts such as empathy, death, weakness, addiction, and the patient-physician relationship was held for senior medical students. This course aimed to enhance critical reading and writing skills, and understanding of the relationship between medicine and literature through poetry, drama, short stories, novels, films, and other dramatic art. The results showed that this course had the highest effect on increasing the level of empathy in the students (Lancaster, Hart, & Gardner, 2002). Another study also showed that the level of empathy and tendency towards human sciences increased among freshman medical students after 8 sessions of reciting and discussing poetry, drama, and short stories. This qualitative and quantitative study also showed that the participants developed a more extensive and complex understanding of the patients' viewpoints and the students stated that reading literature had helped them adjust to the tensions of their educational course (Shapiro, Morrison, & Boker, 2004).

Human sciences remind healthcare workers that they are dealing with very complex individuals with unique needs. Sinclair states that "literature has a lot to teach the healthcare world about medicine. Literature is messy. There's no black and white answer. So much of

the expectations on them are black and white, to have an answer. This helps them fit into that hard space, of not necessarily knowing the answer" (Zagier, 2010).

However, some studies have reported inconsistent findings. Markham reported that taking humanities courses in medical schools does not increase the level of attention medical students pay to patients as human beings. Of course, this inconsistency could be because the level of empathy was measured by a non-specific tool, or due to the lack of clarity in educational goals (Hojat et al., 2004).

One of the limitations of our study was that scoring was done by the students themselves and not by observing their behavior. Therefore, the scores students give to themselves, are not necessarily indicative of their amount of empathy during practice. Of course, researchers have reported significant relationships between the scores students give themselves in the JSPE-S questionnaire at the beginning of their third year of education and the scores residency program managers give them three years later, which indicates the long-term predictive value of this questionnaire (Hojat, Mangione, Nasca, Gonnella, & Magee, 2005). Other limitations are the small sample size and the fact that the study was limited to only one medical school. Furthermore, the results might be affected by the novelty of the study in the research setting, and if the study is repeated in the same setting, different results might be reached.

Conclusion

Storytelling courses are possibly effective in maintaining the level of medical students' empathy toward patients and might prevent the reduction of empathy during their educational course. We suggest similar studies be done in other medical schools and on a larger sample of students in order to discover whether storytelling is effective in increasing the level of empathy toward patients in Iran's cultural setting. Following the participants to find whether these courses are still beneficial after graduation is also suggested.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

This study was part of the researchers' MSc thesis in medical education in Shahid Beheshti University of Medical Sciences, Iran.

References

Acuna, L. E. (2000). Don't cry for us Argentinians: two decades of teaching medical humanities. Med Humanit., 26(2), 66-70. Retrieved from PM:12068907

Bellini, L. M., Baime, M., & Shea, J. A. (2002). Variation of mood and empathy during internship. JAMA., 287(23), 3143-3146. doi:jrf10011 [pii]. Retrieved from PM:12069680

Bellini, L. M., & Shea, J. A. (2005). Mood change and empathy decline persist during three years of internal medicine training. Acad.Med, 80(2), 164-167. doi:80/2/164 [pii]. Retrieved from PM:15671323

Chen, D., Lew, R., Hershman, W., & Orlander, J. (2007). A cross-sectional measurement of medical student empathy. J Gen.Intern.Med, 22(10), 1434-1438. doi:10.1007/s11606-007-0298-x [doi]. Retrieved from PM:17653807

Hardee, J. T. (2003). An overview of empathy. The Permanente Journal, 7(4), 51-55.

Harsch, H. H. (1989). The role of empathy in medical students' choice of specialty. Acad.Psychiatry., 13(2), 96-98. doi:10.1007/BF03341267 [doi]. Retrieved from PM:24431039

Hojat, M., Mangione, S., Gonnella, J. S., Nasca, T., Veloski, J. J., & Kane, G. (2001). Empathy in medical education and patient care. Acad.Med, 76(7), 669. Retrieved from PM:11448817

Hojat, M., Gonnella, J. S., Nasca, T. J., Mangione, S., Veloksi, J. J., & Magee, M. (2002). The Jefferson Scale of Physician Empathy: further psychometric data and differences by gender and specialty at item level. Acad.Med, 77(10 Suppl), S58-S60. Retrieved from PM:12377706

Hojat, M., Gonnella, J. S., Nasca, T. J., Mangione, S., Vergare, M., & Magee, M. (2002). Physician empathy: definition, components, measurement, and relationship to gender and specialty. Am J Psychiatry., 159(9), 1563-1569. Retrieved from PM:12202278

Hojat, M., Gonnella, J. S., Mangione, S., Nasca, T. J., Veloski, J. J., Erdmann, J. B. et al. (2002). Empathy in

medical students as related to academic performance, clinical competence and gender. Med Educ., 36(6), 522-527. doi:1234 [pii]. Retrieved from PM:12047665

Hojat, M., Mangione, S., Nasca, T. J., Rattner, S., Erdmann, J. B., Gonnella, J. S. et al. (2004). An empirical study of decline in empathy in medical school. Med Educ., 38(9), 934-941. doi:10.1111/j.1365-2929.2004.01911.x [doi];MED1911 [pii]. Retrieved from PM:15327674

Hojat, M., Mangione, S., Nasca, T. J., Gonnella, J. S., & Magee, M. (2005). Empathy scores in medical school and ratings of empathic behavior in residency training 3 years later. J Soc Psychol, 145(6), 663-672. doi:10.3200/SOCP.145.6.663-672 [doi]. Retrieved from PM:16334513

Hojat, M. (2009). Ten approaches for enhancing empathy in health and human services cultures. J Health Hum.Serv.Adm., 31(4), 412-450. Retrieved from PM:19385420

Kumagai, A. K. (2008). A conceptual framework for the use of illness narratives in medical education. Acad.Med, 83(7), 653-658. doi:10.1097/ACM.0b013e3181782e17 [doi];00001888-200807000-00009 [pii]. Retrieved from PM:18580082

Lancaster, T., Hart, R., & Gardner, S. (2002). Literature and medicine: evaluating a special study module using the nominal group technique. Med Educ., 36(11), 1071-1076. doi:1325 [pii]. Retrieved from PM:12406268

Mangione, S., Kane, G. C., Caruso, J. W., Gonnella, J. S., Nasca, T. J., & Hojat, M. (2002). Assessment of empathy in different years of internal medicine training. Med Teach., 24(4), 370-373. doi:10.1080/01421590220145725 [doi]. Retrieved from PM:12193318

Newton, B. W., Savidge, M. A., Barber, L., Cleveland, E., Clardy, J., Beeman, G. et al. (2000). Differences in medical students' empathy. Acad.Med, 75(12), 1215. Retrieved from PM:11112725

Oatley K. (2004). Scripts, transformations, and suggestiveness of emotions in shakespeare and chekhov. Rev Gen Psychol, 8 (4), 323-340.

Shapiro, J., Morrison, E., & Boker, J. (2004). Teaching empathy to first year medical students: evaluation of an elective literature and medicine course. Educ.Health (Abingdon.), 17(1), 73-84. doi:10.1080/1357628031000165619 6 [doi];FN1UEGJY2UW9T39V [pii]. Retrieved from PM:15203476

Shariat, S. V., Eshtad, E., & Ansari, S. (2010). Empathy and its correlates in Iranian physicians: A preliminary psychometric study of the Jefferson Scale of Physician Empathy. Med Teach., 32(10), e417-e421. doi:10.3109/0142159X.2010.498488 [doi]. Retrieved from PM:20854147

Sherman, J. J., & Cramer, A. (2005). Measurement of changes in empathy during dental school. J Dent.Educ., 69(3), 338-345. doi:69/3/338 [pii]. Retrieved from PM:15749944

Zagier, A. S. Book clubs for doctors show human side of medicine. The Guardian home. Available from: http://www.guardian.co.uk/world/feedarticle/8985949. Accessed 2012 Mar 12.

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

Can Mindfulness-Based Cognitive Therapy Reduce the Symptoms of Irritable Bowel Syndrome in Women?

Fatemeh Asadollahi[1], Hossein Ali Mehrabi[2], Hamid-Taher Neshatdoost[3], Mehrdad Kalantari[2], Hamid Afshar[4], Hamed Daghaghzadeh[5]

[1] PhD Student, Department of Psychology, School of Psychology and Education Science, University of Isfahan, Isfahan, Iran
[2] Assistant Professor, Department of Psychology, School of Psychology and Education Science, University of Isfahan, Isfahan, Iran
[3] Professor, Department of Psychology, School of Psychology and Education Science, University of Isfahan, Isfahan, Iran
[4] Associate Professor, Psychosomatic Research Center AND Department of Psychiatry, School of Medicine, Isfahan University of Medical Sciences, Isfahan, Iran
[5] Associate Professor, Integrative Functional Gastroenterology Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

Quantitative Study

Abstract

Background: Irritable bowel syndrome (IBS) is a functional disorder of the lower gastrointestinal (GI) tract caused by stress, which may benefit from a biopsychosocial treatment such as mindfulness-based cognitive therapy (MBCT). The thrust of the study was to examine the efficacy of MBCT on physical and psychological symptoms of women who suffered from IBS. It was hypothesized that MBCT patients would experience greater reduction in overall IBS symptoms in comparison to control patients.

Methods: This survey was conducted in Isfahan, Iran, to investigate the impact of MBCT on a group of Iranian women diagnosed with IBS. In this quasi-experimental study 20 women with the diagnosis of IBS were randomly and equally assigned to experimental and control groups. Severity of IBS was measured by the IBS Severity Scoring System (IBS-SSS) while the patients' psychopathology was assessed by Symptom Checklist 90-R (SCL-90-R). The experimental group was exposed to 8 sessions of MBCT on a weekly basis; each session lasting 90 minutes. Data were analyzed using SPSS software and MANCOVA.

Results: A significant reduction was noted in anxiety, depression, and somatization symptoms after the intervention and in anxiety and obsessive–compulsive disorder (OCD) at follow-up ($p < 0.05$). However, during the follow-up there was no significant progress in the level of somatization and depression. Apparently our treatment modality did not have any impact on the severity of physical symptoms.

Conclusion: Psychological symptoms of IBS can be managed largely with the help of MBCT, resulting in the promotion of mental health in women afflicted by this disorder.

Keywords: Irritable bowel syndrome, Physical symptoms, Psychological symptoms, Mindfulness-based cognitive Therapy

Citation: Asadollahi F, Mehrabi HA, Neshatdoost HT, Kalantari M, Afshar H, Hamed Daghaghzadeh MD. **Can Mindfulness-Based Cognitive Therapy Reduce the Symptoms of Irritable Bowel Syndrome in Women?** Int J Body Mind Culture 2014; 1(2): 135-41.

Received: 20 Jun 2014
Accepted: 5 Sep 2014

Corresponding Author:
Fatemeh Asadollahi
Email: fh.asadollahi@yahoo.com

Introduction

Irritable bowel syndrome (IBS) is a functional gastrointestinal (GI) disorder characterized by abdominal pain and abnormal bowel function. The diagnosis of IBS is based on symptom description, as no organic, biochemical, or structural abnormalities are present (Hillilä, 2010). A higher proportion of women are affected by this disorder compared to men (Spiller, Aziz, Creed, Emmanuel, Houghton, Hungin, & et al., 2007). The etiology of IBS is multifactorial with altered visceral sensitivity, altered gastrointestinal motility, and psychosocial factors influencing symptom generation (Hillilä, 2010). For IBS, the most frequent comorbid psychiatric disorders seen include: 1. Anxiety disorders (panic and generalized anxiety disorder (GAD)); and 2. Mood disorders (major depression and dysthymic disorder) and somatoform disorders (hypochondriasis and somatization disorder) (Drossman, Creed, Olden, Svedlund, Toner, & Whitehead, 1999). There are also evidences regarding the presence of depression and anxiety among individuals with IBS (Sun Cho, Myung Park, Hyun Lim, Kyung Cho, Seok Lee, WooKim, & et al., 2011; Ladep, Obindo, Audu, Okeke, Malu, 2006; Tosic-Golubovic, Miljkovic, Nagorni, Lazarevic, Nikolic, 2010).

Given the increased stress response associated with viscerally related events, poor or inappropriate coping responses to GI-related events, psychosocial adjustment to illness, and the limited success of current medical treatments, psychological treatments have been investigated to address symptoms of IBS (zernicke, Campbell, Blustein, Fung, Johnson, Bacon, & et al., 2012). Cognitive behavioral therapy (CBT), psychodynamic interpersonal therapy, hypnotherapy, and relaxation training are psychological treatments used for patients with IBS (spiller et al., 2007). CBT, dynamic psychotherapy, and hypnotherapy, but not relaxation therapy, are more effective than usual care methods in relieving global symptoms of IBS (Brandt, Chey, Foxx-Orenstein, Chiller, Schoenfeld, Spiegel, & et al., 2009).

Mindfulness-based approaches are increasing in psychological management of IBS. Mindfulness-based cognitive therapy (MBCT) was manualized by Segal, Williams, and Teasdalin 2002 based largely on Kabat-Zinn's (1990) mindfulness-based stress reduction (MBSR) program. MBCT incorporates elements of cognitive therapy that facilitate a detached or decentered view of one's thoughts (Baer, 2003). The efficacy of MBCT in the reduction of depression and anxiety is well documented. (Evans, Ferrando, Findler, Stowell, Smart, & Haglin, 2008; Barnhofer, Crane, Hargus, Amarasinghe, Winder, & Williams, 2009; Foley, Baillie, Huxter, Price, & Sinclair, 2010).

Compared to CBT, MBCT focuses on attitude with nonjudgmental acceptance of inner experiences rather than changing and modifying them. Since somatic symptoms and psychological pain are common in patients with IBS, attention with openness, curiosity, and acceptance can help these patients connect with their somatic symptoms, thoughts, and feelings in a different way. Despite the efficacy of MBCT in IBS treatment, not much attention has been paid in Iran to approach the psychological and physiological symptoms associated with IBS. The present study aims to investigate the efficacy of an MBCT program in improving physical and psychological well-being, and IBS symptoms in a sample of women who met the Rome III diagnostic criteria.

Methods

The study design was pre-post experimental and the population under investigation consisted of women with the diagnosis of IBS. The sample study comprised of women who referred to the urban primary health centers in Isfahan, Iran, during autumn 2012. The inclusion criteria included diagnosis of IBS based on the Rome III diagnostic criteria, adherence to the treatment regime prescribed by the IG specialist, studied at least 9 grades of high school, and aged 20-50.

Patients with the signs and symptoms of psychosis and personality disorders as per the DSM-IV criteria were excluded from the study.

Considering the inclusion and exclusion criteria, only 24 women fulfilled the requirements; however, two of them dropped out and the remaining 20 persistently cooperated with us throughout the study.

The severity of IBS was determined with the help of the IBS Severity Scoring System (IBS-SSS). This instrument is sensitive to change in symptoms over time. The score of the system is based on five items and uses visual analogue scales. The symptom severity score was calculated by summing the five items of pain severity, pain frequency, distension, bowel habit dissatisfaction, and life interference. Patients were classified as having either mild IBS (75-174), moderate IBS (175-299), or severe IBS (300-500) (Francis, Morris, Whorwell, 1997). Scores below 75 indicate remission or normal bowel function (Zernicke et al., 2012). Administration of this scale on a sample of 30 patients yielded a Cronbach's value of 0.71, which is acceptable.

The Symptom Checklist 90-R (SCL-90-R) is a widely applied self-assessment instrument for a broad range of mental disorders and assesses the subjective symptom burden. Moreover, the high acceptance and extensive worldwide application of this instrument as an outcome instrument in the treatment of patients with physical and psychological disturbances should also be noted. This instrument contains 90 items which assess a broad range of psychopathologic symptoms including somatization, obsessive-compulsive disorder (OCD), interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, psychoticism.

Results

Participants' Select Characteristics

In this study, more than 50 eligible patients were assessed. In total, 24 patients completed baseline measures. They were randomized into treatment conditions (Experimental: n = 12; Control: n = 12). Two cohorts were conducted, and within each class, there were 10 patients. In terms of sex, they were all women. The average age for the experimental group was 35.75 and for the control group was 33.81. Educationally, about 67% of the patients in the experimental group were undergraduates and slightly more than 33% were high school students for the control group, about 91% were undergraduates and less than 10% had studied about 9 grades of high school.

Symptom Severity Change

Table 1 shows that by and large there are considerable changes in anxiety, depression, somatization, and OCD in the experimental group after the intervention (Table 1).

Table 1: Mean Difference in Severity of Symptoms at Baseline, Post-MBCT, and 2-Month Follow-Up; Experimental Versus Controls

Variable	Baseline	Post-MBCT	Follow Up
Experimental Group			
IBS-SSS	337.5 ± 76.7	268.0 ± 117.1	214.5 ± 59.3
Anxiety	14.2 ± 9.1	10.0 ± 9.7	12.6 ± 10.3
Depression	18.6 ± 10.9	12.9 ± 11.8	17.2 ± 13.2
Somatization	20.2 ± 11.4	18.5 ± 11.5	22.2 ± 12.9
OCD	14.3 ± 8.1	12.0 ± 9.7	14.0 ± 9.5
Control Group			
IBS-SSS	227.0 ± 115.8	210.8 ± 117.8	180.8 ± 90.9
Anxiety	12.4 ± 8.8	12.6 ± 8.3	13.3 ± 8.9
Depression	23.5 ± 11.7	20.0 ± 11.0	18.6 ± 11.9
Somatization	18.8 ± 10.2	17.0 ± 9.1	16.6 ± 10.6
OCD	18.0 ± 9.2	14.8 ± 8.7	14.9 ± 10.2

MBCT: Mindfulness-based cognitive therapy; IBS-SSS: Irritable bowel syndrome-Severity scoring system; OCD: Obsessive–compulsive disorder

Table 2. Means and Standard Errors and Effect Sizes for Total Scores of Outcome Measures in MBCT Treatment and Control Groups

Variable Outcome	Assessment Phase	d.f	Mean Square	F Value	Sig Value	Effect Size	Statistical Power
IBS_SSS	Post-MBCT	1	62214.00	11.95	0.01	0.52	0.88
		1	21672.90	4.16	0.07	0.28	0.46
	Follow-Up	1	9999.23	1.68	0.22	0.13	0.22
		1	1905.06	0.32	0.58	0.03	0.08
Anxiety	Post-MBCT	1	187.01	6.96	0.02	0.39	0.67
		1	245.46	9.13	0.01	0.45	0.79
	Follow-Up	1	253.40	6.60	0.03	0.38	0.65
		1	205.03	5.33	0.04	0.33	0.56
Depression	Post-MBCT	1	44.40	0.65	0.44	0.06	0.11
		1	531.27	7.72	0.02	0.41	0.72
	Follow-Up	1	2.31	0.03	0.88	0.01	0.05
		1	294.78	3.26	0.10	0.23	0.39
Somatization	Post-MBCT	1	159.27	3.95	0.07	0.26	0.44
		1	223.43	5.54	0.04	0.34	0.57
	Follow-Up	1	10.62	0.13	0.73	0.01	0.06
		1	133.41	1.58	0.24	0.13	0.21
OCD	Post-MBCT	1	87.68	1.62	0.23	0.13	0.21
		1	239.88	4.43	0.06	0.29	0.48
	Follow-Up	1	170.69	4.64	0.05	0.30	0.50
		1	258.80	7.03	0.02	0.39	0.68

MBCT: Mindfulness-based cognitive therapy; IBS-SSS: Irritable bowel syndrome-Severity scoring system; OCD: Obsessive–compulsive disorder

Results of the covariance analysis showed that by controlling the effect of variables such as education and duration of illness, there were significant differences between the two groups in terms of anxiety, depression, and somatization before and after the intervention ($p < 0.05$). However, for patients who attended the entire course and completed the classes, from post-MBCT to 2-month follow-up, there were significant changes in the levels of anxiety and OCD ($p < 0.05$). Further analysis shows that, in order of importance, MBCT could reduce the level of anxiety by 45.4%, depression by 41.2%, and somatization by 33.5% in the experimental group after the first phase of intervention. A main effect time was observed for the SCL-90-R scores in anxiety domain ($F = 9.129$, $p = 0.012$) as well as OCD domain ($F = 7.03$, $p = 0.023$), indicating the momentum of lowering the anxiety and OCD levels continued from post-MBCT to 2 months follow-up (Table 2).

Discussion

The primary aim of this study was to evaluate the impact of an MBCT program on the somatic and psychological symptoms in women with IBS. In this study, we found that MBCT reduced self-reported psychological symptoms such as anxiety, depression, somatization, and OCD in female IBS patients. Moreover, the results showed that this treatment does not have any effect on somatic symptoms. Lack of efficacy of MBCT on somatic symptoms is inconsistent with results of Gaylord, Palsson, Garland, Faurot, Coble, Mann, and et al. (2011); Zernicke et al. (2012); Moghtadaei, Kafi, Afshar, Ariapouran, Daghaghzadeh, and Pourkazem (2013); and Zomorod, Rasoulzadeh Tabatabaei, Arbabi, Ebrahimi Daryani, and Fallah (2013).

Zernicke et al. (2012) studied the effect of MBSR on 90 patients with IBS; the results showed improvement in symptom severity in the MBSR group. Furthermore, 75 female

patients participated in the study by Gaylord et al. (2011). However, in the current survey, only 20 IBS patients participated, and MBCT was used as the main treatment. Regarding lack of efficacy of MBCT on somatic symptoms, we can say that this treatment may have effect on the patient's perception of pain rather than severity of somatic symptoms. In other words, MBCT may have increased patient's acceptance and reduced their sensitivity to the symptoms, but it did not change the nature and severity of symptoms.

Our observations in psychological symptoms reinforce earlier findings. The effectiveness of MBCT on anxiety is consistent with the studies by Evans et al. (2008), Foley et al. (2010), and Hofmann, Sawyer, Witt, and Oh (2010). The effectiveness of MBCT on depression is also consistent with the studies by Evans et al. (2008), Foley et al. (2010), Kaviani, Javaheri, and Bahyraei (2005), and Masomi (2011). In addition, the findings in OCD are in line with the study by Singh, Wahler, Winton, and Adkins (2004). Sustained, nonjudgmental observation of anxiety-related sensations, without attempts to escape or avoid them, may lead to reductions in the emotional reactivity typically elicited by anxiety symptoms (Baer, 2003). During mindfulness exercise, participants are encouraged to attend their inner experiences such as sensations, thoughts, and feelings at present and any moment. In MBCT, individuals are trained to be aware of their thoughts and feelings and to connect with them in a different way (acceptance). This awareness can lead to improvement in emotional processing and coping skills in chronic diseases. In other words, mindfulness techniques target rumination, worry, and poor emotional regulation resulting in increasing of positive effects and reducing of negative effects.

The failure to retain the momentum of reducing psychological symptoms, such as depression and somatization, at the follow-up phase can be attributed to the lack of time and severity of physical symptoms of the participants. The benefit from the MBCT depends on persistency and adherence to the practical exercises. It is possible the study participants did not perform the exercises a sufficient number of times, partly due to their physical symptoms and environmental stresses which surrounded them. MBCT deals with old habits and ways of life; thus, it is unrealistic to believe that over a short span of time it can perform a miracle and cause fundamental changes in the patient who suffers from chronic IBS.

While the current study extends previous research by using a randomized controlled design and blind assessments, there are a number of limitations that need to be taken into account. First, and most importantly, this study is based on a small sample of female patients. Because of this, the study is potentially more vulnerable to spurious effects and generalizability of its findings is more uncertain. Another limitation of the study is that the main outcome variables are based on self-reports, which are liable to subjective biases. Ideally, these measures would have been complemented by observer-rated measures of symptom severity. As such the study simply relied on structured interviews to assess the physical and psychological states of the study participants before and after the intervention.

Despite all these limitations, findings of this study pave the way to undertaking larger research studies, which embody a larger population of both men and women with IBS across different social strata. The findings provide preliminary evidence suggesting that using mindfulness meditation is feasible in the treatment of IBS, providing valuable addition to already established interventions. Further research into the effects of mindfulness meditation will help to tailor the MBCT program more specifically for IBS patients with more reliable psychological symptoms. We not only need to replicate the study, but also use more extensive follow-ups given the high risk of IBS.

Conclusion

The results of this study showed that MBCT can reduce psychological symptoms, but it does not affect the severity of somatic symptoms. Therefore, this intervention can be used for reduction of psychological symptoms in patients with IBS.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

We would like to thank the Digestion Health Center and all the respected people who helped us conduct this study.

References

Baer RA. (2003). Mindfulness training as a clinical intervention: a conceptual and empirical review. *Science and Practice, 10*(2), 125-143.

Barnhofer, T., Crane, C., Hargus, E., Amarasinghe, M., Winder, R., & Williams, J. M. (2009). Mindfulness-based cognitive therapy as a treatment for chronic depression: A preliminary study. *Behav Res Ther, 47*(5), 366-373. doi:S0005-7967(09)00033-3 [pii];10.1016/j.brat.2009.01.019 [doi]. Retrieved from PM:19249017

Brandt LJ, Chey WD, Foxx-Orenstein AE, Chiller LR, Schoenfeld PS, Spiegel BM et al. (2009). An evidence-based position statement on the management of irritable bowel syndrome. *Am J Gastroenterol,* 104(Supple 1), 8-35.

Drossman, D. A., Creed, F. H., Olden, K. W., Svedlund, J., Toner, B. B., & Whitehead, W. E. (1999). Psychosocial aspects of the functional gastrointestinal disorders. *Gut., 45(Suppl 2),* II25-II30. Retrieved from PM:10457041

Evans, S., Ferrando, S., Findler, M., Stowell, C., Smart, C., & Haglin, D. (2008). Mindfulness-based cognitive therapy for generalized anxiety disorder. *J Anxiety.Disord., 22*(4), 716-721. doi:S0887-6185(07)00156-9 [pii];10.1016/j.janxdis.2007.07.005 [doi]. Retrieved from PM:17765453

Foley, E., Baillie, A., Huxter, M., Price, M., & Sinclair, E. (2010). Mindfulness-based cognitive therapy for individuals whose lives have been affected by cancer: a randomized controlled trial. *J Consult.Clin Psychol, 78*(1), 72-79. doi:2010-00910-011 [pii];10.1037/a0017566 [doi]. Retrieved from PM:20099952

Francis, C. Y., Morris, J., & Whorwell, P. J. (1997). The irritable bowel severity scoring system: a simple method of monitoring irritable bowel syndrome and its progress. *Aliment.Pharmacol.Ther, 11*(2), 395-402. Retrieved from PM:9146781

Gaylord, S. A., Palsson, O. S., Garland, E. L., Faurot, K. R., Coble, R. S., Mann, J. D. et al. (2011). Mindfulness training reduces the severity of irritable bowel syndrome in women: results of a randomized controlled trial. *Am J Gastroenterol, 106*(9), 1678-1688. doi:ajg2011184 [pii];10.1038/ajg.2011.184 [doi]. Retrieved from PM:21691341

Hillilä M. (2010). *Irritable bowel syndrome in the general population : epidemiology, comorbidity and societal costs. [Thesis]*. Helsinki, Finland: University of Helsinki.

Hofmann, S. G., Sawyer, A. T., Witt, A. A., & Oh, D. (2010). The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review. *J Consult.Clin Psychol, 78*(2), 169-183. doi:2010-05835-004 [pii];10.1037/a0018555 [doi]. Retrieved from PM:20350028

Kaviani H, Javaheri F, & Bahyraei H. (2005). The effectiveness of mindfulness-based cognitive therapy in reducing negative thoughts, dysfunctional attitudes, depression and anxiety: a 60-day follow up. *Adv Cogn Sci 7*(1), 49-59. [In Persian].

Ladep, N. G., Obindo, T. J., Audu, M. D., Okeke, E. N., & Malu, A. O. (2006). Depression in patients with irritable bowel syndrome in Jos, Nigeria. *World.J Gastroenterol, 12*(48), 7844-7847. Retrieved from PM:17203531

Masomi F. (2011). *The survey on the effectiveness of mindfulness training on reduction of depression and anxiety of students in Mahalat. [Thesis]*. Isfahan, Iran: Isfahan University. [In Persian].

Moghtadaei K, Kafi M, Afshar H, Ariapouran S, Daghaghzadeh H, & Pourkazem T. (2013). Effectiveness of mindfulness-based cognitivegroup therapy on somaticsymptoms inwomen withirritable bowel syndrome. *J Res Behav Sci, 10*(7), 698-708. [In Persian].

Singh NN, Wahler RG, Winton ASW, & Adkins AD. (2004). A mindfulness-based treatment of obsessive-compulsive disorder. *Clinical Case Studies -, 3*(4), 275-287.

Spiller, R., Aziz, Q., Creed, F., Emmanuel, A., Houghton, L., Hungin, P. et al. (2007). Guidelines on the irritable bowel syndrome: mechanisms and practical management. *Gut., 56*(12), 1770-1798. doi:gut.2007.119446 [pii]; 10.1136/gut.2007.119446 [doi]. Retrieved from PM:17488783

Sun Cho, H., Myung Park, J., Hyun Lim, C., Kyung Cho, Y., Seok Lee, I., Wookim, S., et al. (2011). Anxiety, depression, and quality of life in patients with irritable bowel syndrome, Gut and Liver, 5(1), 29-36.

Tosic-Golubovic, S., Miljkovic, S., Nagorni, A., Lazarevic, D., & Nikolic, G. (2010). Irritable bowel syndrome, anxiety, depression and personality characteristics. *Psychiatr.Danub.*, *22*(3), 418-424. Retrieved from PM:20856185

Zernicke, K. A., Campbell, T. S., Blustein, P. K., Fung, T. S., Johnson, J. A., Bacon, S. L. et al. (2013). Mindfulness-based stress reduction for the treatment of irritable bowel syndrome symptoms: a randomized wait-list controlled trial. *Int.J Behav Med*, *20*(3), 385-396. doi:10.1007/s12529-012-9241-6 [doi]. Retrieved from PM:22618308

Zomorod S, Rasoulzadeh Tabatabaei SK, Arbabi M, Ebrahimi Daryani, N., & Fallah PA. (2013). Comparison of the effectiveness of cognitive behavior therapy and mindfulness based therapy on the decrease in symptoms of patients who suffer from irritable bowel syndrome. *Govaresh*, *18*(2), 88-94.

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

The Prevalence and Determinants of Suicidal Behaviors in the Central Region of Iran

Hamidreza Roohafza[1], Shamila Mosharraf[2], Ghafour Mousavi[3], Azam Khani[4], Elham Andalib[4], Mitra Reihani[2], Ali Abbasalizadeh[5]

[1] Assistant Professor, Department of Mental Health, Isfahan Cardiovascular Research Center, Isfahan Cardiovascular Research Institute, Isfahan University of Medical Sciences, Isfahan, Iran
[2] Research Assistant, Department of Midwifery, Islamic Azad University, Falavarjan Branch, Isfahan, Iran
[3] Associate Professor, Behavioral Sciences Research Center, Isfahan University of Medical Sciences, Isfahan, Iran
[4] Research Assistant, Isfahan Cardiovascular Research Center, Isfahan Cardiovascular Research Institute, Isfahan University of Medical Sciences, Isfahan, Iran
[5] Assistant Professor, Psychosomatic Research Center, Isfahan University of Medical Sciences, Isfahan, Iran

Quantitative Study

Abstract

Background: Today, there are great concerns about the high frequency of suicidal attempts which are a major health problem. Identifying the prevalence of suicide and its predisposing elements could be helpful in preventing suicide.

Methods: This prospective study was conducted in an emergency ward of a local hospital in a small city in the central region of Iran. The study duration was one year from 8 April 2011 to 7 April 2012. We collected demographic, psychosocial, and suicide characteristics, and the time of referral of a total of 466 patients who had referred to the hospital due to suicidal attempts.

Results: The mean age of suicidal patients was 24.97 ± 10.05 years. Participants' who were between 15 and 24 years of age had the highest rate of suicide attempt regardless of age. The suicidal attempt rate during the study period was 300.1 and 153.5 per 100.000 in females and males, respectively. Most attempted suicide patients were single and undergraduated. Approximately 60.8% of male and 63.3% of female subjects had depression with different severity. We observed higher frequency of stressors in males compared to females ($p = 0.007$). Moreover, the main cause of suicide was relational problem in both genders. Suicidal thought was reported in about 41.5% of patients before attempting suicide. In 4.7%, 12.2%, and 12.9% of our study subjects a positive past history, plan for suicide, and family history of suicidal attempt were reported. Nearly 75.9% of suicidal attempts occurred between 1 pm to 12 am. The highest rate of suicidal attempts was observed in summer and the lowest rate in winter.

Conclusion: Given our findings regarding specified suicide determinants in the present study, we believe interventions need to target young age groups and focus on providing social support settings in places such as schools and referral centers with educated individuals on communication and problem solving skills.

Keywords: Suicide, Prevalence, Iran

Citation: Roohafza H, Mosharraf Sh, Mousavi Gh, Khani A, Andalib E, Reihani M, et al. **The Prevalence and Determinants of Suicidal Behaviors in the Central Region of Iran.** Int J Body Mind Culture 2014; 1(2): 142-53.

Received: 1 Jul 2014
Accepted: 10 Sep 2014

Corresponding Author:
Hamidreza Roohafza
Email: roohafza@crc.mui.ac.ir

Introduction

Suicidal behavior is a major public health problem in all societies. Suicide is among the 10th leading causes of death in all age groups in most countries for which information is available (World Health Organization, 2009).

According to the World Health Organization (WHO), the act of suicide is defined as self-harm with the conscious intention of causing one's own death. Suicide may also be defined briefly as an act of aggression directed toward one's self (Atay, Eren, & Gundogar, 2012).

Every year, approximately 1 million people die from suicide, which is equivalent to one death every 40 seconds. Suicide attempts occur almost 20 times more frequently than a completed suicide. One of the strongest risk factors for a completed suicide is suicidal attempts.

On the one hand, a variety of factors are associated with an increased risk of attempted suicide. These include psychiatric disorders, feelings of hopelessness and impulsivity, history of previous suicide attempts, age, sex, marital status, occupation, comorbidity, adverse childhood experiences, and family history (Alberdi-Sudupe, Pita-Fernandez, Gomez-Pardinas, Iglesias-Gil-de-Bernabe, Garcia-Fernandez, Martinez-Sande, et al.). On the other hand, the effects of modernization especially in developing nations have led to changes in the socioeconomic and cultural aspects of an individual's life and are greatly adding to life tensions leading to higher rates of suicide (Vijayakumar, Vijayakumar, Nagaraj, & John, 2004.; Lester, 2008).

To our knowledge, based on official reports, the rate of suicide is lower in Iran than many western countries, but it is higher than other countries in the Middle East (Ghoreishi, & Mousavinasab, 2008).

It is very important to identify predisposing factors and determinants of suicidal attempts especially in young people (Haukka, Suominen, Partonen, & Lonnqvist, 2008).

The purpose of the current study is to determine the rate of suicide attempts in addition to demographic and psychosocial variables associated with suicidal attempts in the population admitted to an emergency unit of a general hospital in a county in the central region of Iran.

Methods

We conducted a prospective study in the emergency ward of Imam Khomeini Hospital in the city of Falavarjan, Iran. Patients who referred to the hospital due to suicidal attempts over a period of one year (from April 8th, 2011 to April 7th, 2012) were included in the study.

Falavarjan is a county with a population of 208,101 located in the central region of Iran and is part of the Isfahan province.

Imam Khomeini Hospital is the only local hospital in the city. All attempted suicide patients would be referred to this hospital first hand. To ensure no cases was referred to another nearby hospital which is located about 10 km outside of the county, we checked their admission list and found no suicidal cases from Flavarjan. We selected the data from all reported suicidal attempts of patients aged 10 years or older who were admitted to the emergency ward during the study period. Data on 466 attempted suicides was collected by trained nurses. Consecutive cases of attempted suicide were evaluated within 24 hours by the consultant psychiatrist. During the course of the study, two of the patients died and only their demographic data existed. The present study was approved by the Ethical Committee of the Behavioral Sciences Research Center, Isfahan University of Medical Sciences, Isfahan, Iran. Consent forms were signed by all participants and their families. It should be noted that the questionnaires were filled anonymously.

We recorded the following sociodemographic information on all patients: age, marital status, age at marriage, sex, place of residence (urban/rural), occupational status (whether self-employed, unemployed, housewife, student, or retired,), salary and income level (< 300.000 IRR,

300.000-500.000 IRR, or > 500.000 IRR), educational level (< 6 years, 6-12 years, or > 12 years), and time and date of attempting suicide.

We recorded past medical history of patients, including any physical and mental illnesses. Depression status was determined based on the Patient Health Questionnaire (PHQ-9). Social support score and stressful life events were measured based on the Multidimensional Scale of Perceived Social Support (MSPSS) and Stressful life events (SLE) questionnaire, respectively.

First, we collected data on suicide characteristics including suicidal thought (Yes/No), suicide plan (Yes/No), past history of suicide attempt (Yes/No), number of suicide attempts, first degree family history of suicide attempt (Yes/No), and main causes of suicide attempts. Main causes of suicide attempts were recorded according to what participants noted. Secondly, we coded suicide causes as relational, financial, and emotional causes, others, and no reason (Table 1).

Table 1: Details of suicide causes

Code	Suicide causes
Relational	Quarrels with spouse and divorce
	Conflict with parents
	Troubles with children
	Quarrels with spouse's relatives
	Troubles with boyfriend or girlfriend
Financial	Major financial problems
	Unemployment
Emotional	
Others	Death of a close family member
	Educational stressors
	Social problems
	Illnesses
	Being influenced by TV and Satellite programs
No reason	Those who had not answered or noted any reason

PHQ-9 is a self-administered tool that scores each of the 9 criteria for major depression of the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV). The score of each criteria range from 0 (not at all) to 3 (nearly every day). PHQ-9 scores of 5 to 9, 10 to 14, 15 to 19, and ≥ 20 represented mild, moderate, moderately severe, and severe symptoms of depression, respectively (Kroenke, Spitzer, & Williams, 2001).

The MSPSS is intended to measure an individual's perceived social support from three sources: significant others (Items 1, 2, 5, and 10), family (Items 3, 4, 8, and 11), and friends (Items 6, 7, 9, and 12). The MSPSS is a brief, easy to administer self-report questionnaire which contains 12 items rated on a 5-point Likert scale with scores ranging from 'very strongly disagree' to 'very strongly agree' (World Health Organization, 2009; Lester, 2008). A high score indicated increased levels of perceived social support (Zimet, Dahlem, Zimet, & Farley, 1988).

The SLE questionnaire is comprised of 46 stressors with 11 domains, including home life, financial problems, social relations, personal conflicts, work conflicts, educational concerns, job security, loss and separation, sexual life, daily life, and health concerns, that measure the frequency of stressors. It also measures self-perceived intensity of stressful life events by 6-point Likert scales (0 = never, 1 = very mild, 2 = mild, 3 = moderate, 4 = severe, and 5 = very sever). If participants had not experienced any stressful life events, they would answer never. If any subjects had experienced stressful life events during the previous year, the intensity score would range between 1 and 5 (Roohafza, Ramezani, Sadeghi, Shahnam, Zolfagari, & Sarafzadegan, 2011; Sali, Roohafza, Sadeghi, Andalib, Shavandi, & Sarrafzadegan, 2013).

All collected data were entered into and analyzed with SPSS for Windows (version 15; SPSS Inc., Chicago, IL, USA). Data are presented as mean ± standard deviation for continuous variables and frequencies reported with percentages for categorized variables. Age-adjusted suicide rate was computed per 100.000 population, and 95% confidence interval (CI) was computed for rates. Student's independent t-test and χ^2 were used to compare variables for males and females. A P-value of less than 0.05 was considered statistically significant for all analyses.

Results

Rate of suicide attempt

We found the rate of suicide attempt over the study period to be 300.1 and 153.5 per 100.000 in females and males, respectively. Participants aged 15-24 had the highest rate of suicide attempt in both sexes. Table 2 shows the rates and 95% CI of suicide attempt in males and females in addition to different age categories. Two deaths occurred in the study population during the study period. One was a 30 year old, self-employed, single male with low level of education who had committed suicide by poison and the second case was a 9 year old, male student, who had hanged himself.

Demographic, Psychosocial and Causes of Suicide

Of the 466 suicidal attempt cases, 166 (35.6%) were male. Mean age for all cases was 24.97 ± 10.05 years. Most cases (62.7%) lived in rural areas (291 out of 446).

Most female cases were housewives (59.7%), whereas most male cases were employed or students. Among the males, 33 (20.0%), 45 (27.3%), and 42 (25.5%) were salary-employed, self-employed, and students, respectively; however, most females (179; 59.7%) were housewives. Nearly 80% of cases of suicidal attempts were between 15 to 34 years old. Other demographic characteristics that were divided by gender are shown in table 3.

Our observation indicates that only 9 men (5.4%) and 32 women (10.4%) had past history of mental illness (p = 0.07). Mean depression score in our subjects was 9.05 ± 7.72. Mean score for social support in all cases was 39.27 ± 12.35. There were statistically significant differences in frequencies of stressors between males and females. Men with suicidal attempt reported more stressors in their life compared to females (p = 0.007).

Based on results of the SLE questionnaire, severity of perceived stressors in regards to financial problems (p = 0.001), conflicts in the work place (p ≤ 0.001), and lack of job security (p ≤ 0.001) were reported to be significantly higher in males compared to females.

Severity of sex life stressor (p = 0.009) was reported to be significantly higher in females compared to males.

Suicidal thought was reported by 193 (41.1%) subjects as shown in table 3. In addition, 60 subjects (12.9%) reported past history of attempted suicide. Frequency of past attempted suicide in our study subjects was once in 36 (7.8%), twice in 14 (3.0%), and three times in 10 (2.2%) cases. Main causes of suicidal attempt were significantly different in males and females (p < 0.001); economic issues in 33 (19.9%) males and 13 (4.3%) females, relationship conflicts in 55 (33.1%) males and 129 (43.0%) females, and emotional issues in 37 (22.3%) males and 96 (32.0%) females (Figure 1).

Chronological Pattern

In approximately 75.9% of cases the time of suicidal attempt was between 1:00 pm to 12:00 am. We observed the highest number of suicidal attempts in summer, especially in August (13.9%), and the lowest number of attempts in winter (Table 4).

Table 2: Rate of suicide attempt per 100.000 in different age groups by sex of suicide attempter

Age group	Total	Male (n = 166)	Female (n = 300)
5-14y	77.77 (76.92-78.62)	61.26 (60.32-62.19)	94.81 (93.33-96.29)
15-24y	513.92 (509.34-518.49)	323.25 (319.20-327.31)	707.98 (699.02-716.93)
25-34y	251.65 (249.45-253.84)	198.19 (195.79-200.58)	309.55 (305.65-313.44)
35-44y	130.17 (128.79-131.54)	74.78 (73.70-75.85)	195.59 (192.55-198.64)
45-54y	46.91 (46.28-47.54)	43.21 (42.43-44.00)	51.30 (50.28-52.32)
55-64y	46.36 (45.48-47.23)	74.56 (72.56-76.55)	18.45 (17.96-18.94)
≥ 65y	48.24 (47.31-49.17)	36.56 (35.59-37.53)	61.29 (59.58-63.02)

Table 3: Demographic, psychosocial, and suicide characteristics by sex of suicide attempter

Variables	Total (n = 466)	Male (n = 166)	Female (n = 300)	P-value	Range
Age (mean ± SD)	24.97 ± 10.05	26.37 ± 11.41	24.2 ± 9.14	0.03	9-80
Age at marriage	18.93 ± 3.25	19.95 ± 3.41	18.50 ± 3.09	0.002	9-34
Educational year	9.62 ± 3.39	8.81 ± 3.68	10.08 ± 3.13	0.000	0-19
Residency [n (%)]					
Urban	173 (37.3)	67 (40.4)	106 (35.6)	0.31	
Rural	291 (62.7)	99 (59.6)	192 (64.4)		
Occupation [n (%)]					
Salary-employed	38 (8.2)	33 (20.0)	5 (1.7)		
Self-employed	50 (10.8)	45 (27.3)	5 (1.7)		
Housekeeper	179 (38.4)	0 (0.0)	179 (59.7)	0.000	
Retired	10 (2.2)	9 (5.4)	1 (0.3)		
Unemployed	48 (10.3)	42 (25.5%)	6 (2.0)		
Student	140 (30.1)	36 (21.8)	104 (34.7)		
Age category [n (%)]					
5-14y	25 (5.4)	10 (6.0)	15 (5.0)		
15-24y	249 (53.4)	79 (47.6)	170 (56.7)		
25-34y	127 (27.3)	52 (31.3)	75 (25.0)		
35-44y	45 (9.7)	14 (8.4)	31 (10.3)	0.17	
45-54y	10 (2.1)	5 (3.0)	5 (1.7)		
55-64y	5 (1.1)	4 (2.4)	1 (0.3)		
≥ 65y	5 (1.1)	2 (1.2)	3 (1.0)		
Marital status [n (%)]					
Married	204 (43.8)	62 (37.3)	142 (47.3)	0.04	
Single	262 (56.2)	104 (62.7)	158 (52.7)		
Income [n (%)]					
< 3.000.000 IR	78 (16.7)	24 (14.5)	54 (18.0)		
3.000.000-5.000.000 IR	301 (64.6)	103 (62.0)	198 (66.0)	0.12	
> 5.000.000 IR	87 (18.7)	39 (23.5)	48 (16.0)		
Educational level [n (%)]					
< 6y	63 (13.5)	31 (18.7)	32 (10.7)		
6-12y	362 (77.8)	123 (74.1)	239 (79.9)	0.049	
> 12y	40 (8.6)	12 (7.2)	28 (9.4)		
Past history of physical illness [n (%)]	20 (4.3)	8 (4.8)	12 (4.0)	0.67	
Past history of mental illness [n (%)]	40 (8.6)	9 (5.4)	31 (10.4)	0.07	
Depression score (mean ± SD)	9.05 ± 7.72	8.79 ± 7.96	9.19 ± 7.59	0.59	0-27
Depression categories [n (%)]					
No depression	175 (37.6)	65 (39.2)	110 (36.7)		
Mild depression	87 (18.7)	32 (19.3)	55 (18.3)		
Moderate depression	79 (17.0)	22 (13.3)	57 (19.0)	0.64	
Moderately severe depression	69 (14.8)	26 (15.7)	43 (14.3)		
Severe depression	56 (12.0)	21 (12.7)	35 (11.7)		
Social support score (mean ± SD)					
Family	13.46 ± 4.58	13.71 ± 4.88	13.32 ± 4.42	0.37	4-20
Friend	12.23 ± 4.61	12.62 ± 4.82	12.02 ± 4.48	0.18	4-20
Other	13.58 ± 4.45	13.94 ± 4.73	13.38 ± 4.28	0.19	4-20
Total	39.27 ± 12.35	40.27 ± 12.98	38.72 ± 11.97	0.19	12-60
Frequency of stressors	13.75 ± 7.86	15.07 ± 8.52	13.02 ± 7.39	0.007	0-37

Table 3: Demographic, psychosocial, and suicide characteristics by sex of suicide attempter (Continue)

Variables	Total (n = 466)	Male (n = 166)	Female (n = 300)	P-value	Range
Domain of stressors (intensity)					
Home life	6.02 ± 6.27	5.63 ± 5.92	6.23 ± 6.45	0.320	0-35
Financial problems	8.17 ± 7.69	9.74 ± 7.54	7.31 ± 7.65	0.001	0-25
Social relations	6.90 ± 5.07	6.76 ± 4.83	6.98 ± 5.21	0.660	0-20
Personal conflicts	7.30 ± 5.86	6.89 ± 5.79	7.53 ± 5.89	0.270	0-25
Work conflicts	1.37 ± 3.36	2.50 ± 4.73	0.74 ± 2.04	> 0.001	0-20
Education concerns	2.50 ± 4.37	2.41 ± 4.44	2.56 ± 4.33	0.730	0-20
Job security	5.39 ± 6.87	8.62 ± 7.74	3.61 ± 5.60	0.000	0-25
Loss and separation	1.60 ± 2.98	1.55 ± 2.87	1.63 ± 3.05	0.79	0-20
Sexual life	0.70 ± 1.81	0.41 ± 1.14	0.86 ± 2.08	0.009	0-20
Health concerns	0.82 ± 1.68	0.97 ± 1.85	0.74 ± 1.58	0.160	0-10
Daily life	1.63 ± 2.12	1.66 ± 2.12	1.62 ± 2.13	0.840	0-10
Suicidal thought [n (%)]	193 (41.4)	64 (38.6)	129 (43.0)	0.350	
Suicide planning [n (%)]	57 (12.2)	20 (12.0)	37 (12.3)	0.930	
Past history of suicide attempt [n (%)]	60 (12.9)	21 (12.7)	39 (13.0)	0.910	
Number of suicide attempts [n (%)]					
1	36 (7.8)	11 (6.7)	25 (8.4)		
2	14 (3.0)	7 (4.2)	7 (2.3)	0.610	
3	10 (2.2)	3 (1.8)	7 (2.3)		
Family history of suicide attempt [n (%)]	22 (4.7)	10 (6.0)	12 (4.0)	0.320	

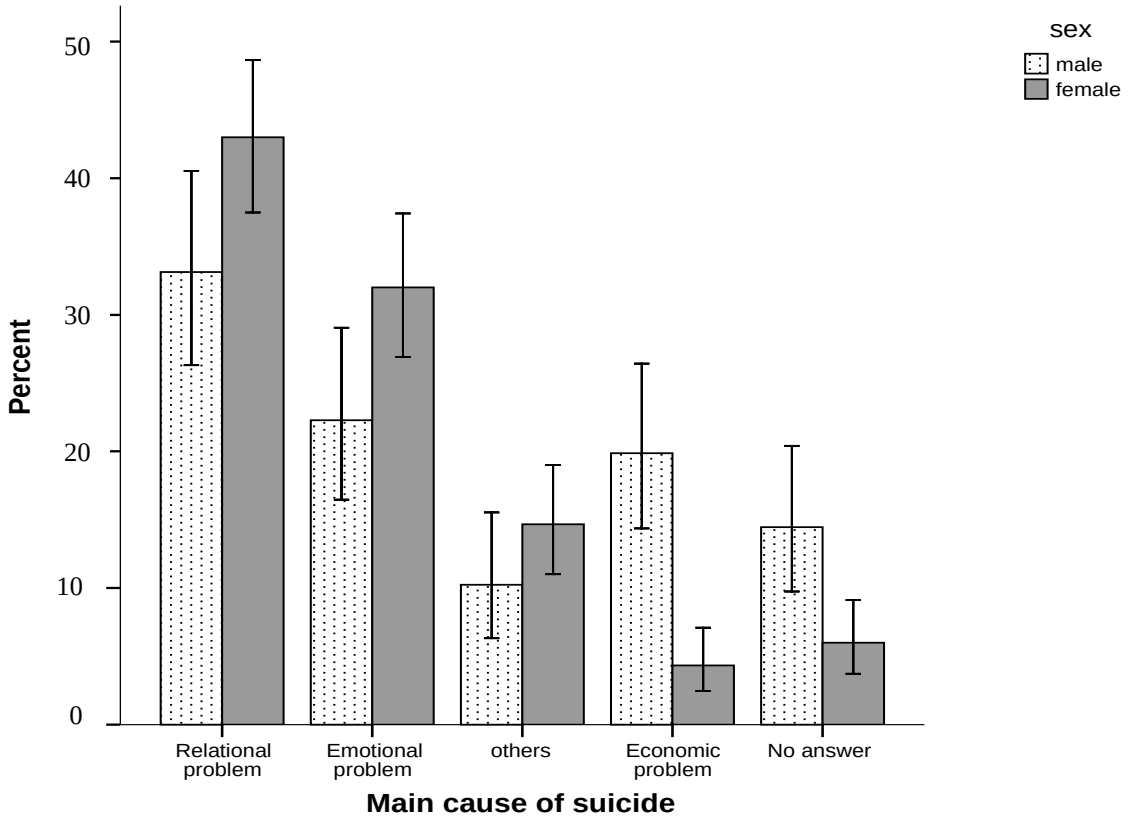

Figure 1: Main cause of suicide by sex of suicide attempter

Table 4: Time pattern by sex of suicide attempter

Variables	Total (n = 466)	Male (n = 166)	Female (n = 300)	P-value
Time of suicide [n (%)]				
01:00-06:00	36 (8.1)	18 (11.3)	18 (6.3)	
07:00-12:00	71 (16.0)	28 (17.5)	43 (15.1)	0.25
13:00-18:00	139 (31.3)	47 (29.4)	92 (32.4)	
19:00-24:00	198 (44.6)	67 (41.9)	131 (46.1)	
Month of suicide [n (%)]				
April	54 (11.6)	22 (13.3)	32 (10.7)	
May	30 (6.4)	8 (4.8)	22 (7.3)	
June	35 (7.5)	9 (5.4)	26 (8.7)	
July	26 (5.6)	6 (3.6)	20 (6.7)	
August	65 (13.9)	27 (16.3)	38 (12.7)	
September	46 (9.9)	23 (13.9)	23 (7.7)	0.16
October	39 (8.4)	14 (8.4)	25 (8.3)	
November	32 (6.9)	9 (5.4)	23 (7.7)	
December	44 (9.4)	20 (12.0)	24(8.0)	
January	34 (7.3)	9 (5.4)	25 (8.3)	
February	41 (8.8)	11 (6.6)	30 (10.0)	
March	20 (4.3)	8 (4.8)	12 (4.0)	
Season of suicide [n (%)]				
Spring	119 (25.5)	39 (23.5)	80 (26.7)	
Summer	137 (29.4)	56 (33.7)	81 (27.0)	0.28
Fall	115 (24.7)	43 (25.9)	72 (24.0)	
Winter	95 (20.4)	28 (16.9)	67 (22.3)	

Discussion

The current study was performed in the central area of Iran where we could see a culture identical to that of other regions in Iran. Hence, we could extrapolate our results to the whole country.

We investigated the prevalence of and potential main causes of suicide in a small town and further evaluated demographic and psychosocial factors' casual association with suicidal attempts.

The highest rate of suicidal attempt was observed in 15-24 and 25-34 year old individuals, respectively. Our results are similar to that of other studies conducted in the north west of Iran which demonstrated the highest rate of attempted suicide among 15-24 year old individuals (Mohebbi, & Boushehri, 2006; Moradi, Moradi, & Mostafavi 2010).

Another study in Turkey, reported the highest rate of suicidal attempt in females between 15 to 19 years of age (255.08 per 100.000) and in 20 to 24 years of age (186.44 per 100.000) (Devrimci-Ozguven, & Sayil, 2003).

As can be seen from the above studies, attempted suicides occur more often in adolescents and youth. It is evident that young adulthood is a stressful developmental period filled with major life changes in physical, emotional, and mental aspects, and etcetera. In addition, this period is defined by confusion, fear, and uncertainty about the future which have great impact on the problem solving and decision making abilities of the youth (Hosseinpour, Ghaffari, & Mehrabizadeh, 2004). In addition, family conflicts, increased expectations and individualism; and changes in adolescent transitions (particularly the importance of a youth culture that isolates young people from adults and increases peer group influence, more tension between dependence and autonomy, and more romantic relationship breakdowns) will occur in this period of life. This issue is mostly related to the culture of developing countries (Eckersley, & Dear, 2002).

We observed that females had more frequently attempted suicide. Attempted suicides in females are reported 2-3 times higher than in men in most countries (Janghorbani, & Sharifirad, 2005). Therefore, in many studies being a female is considered as an independent predictor of suicidal attempt (Janghorbani, & Sharifirad, 2005; Nojomi, Malakouti, Bolhari, & Poshtmashhadi, 2007). Sheikholeslami et al. investigated the main causes of suicidal attempts in northern Iranian females. They concluded that the high rate of suicidal attempts in females may be due to economical dependence, family insecurity, lack of self-confidence, and lack of social support systems (Sheikholeslami, Kani, & Ziaee, 2013). Cultural attitudes towards the woman's role in the family place pressure on them and result in rejection by their family, separation from their children, staying married even in abusive relationships, and etc. Consequently, any vulnerable individual may show suicidal behaviors to avoid dealing with these situations (Douki, Zineb, Nacef, & Halbreich, 2007).

It is known that suicidal behaviors in females are mostly associated with seeking help rather than the intention of dying (Atay, Eren, & Gundogar, 2012; Bhugra, & Desai, 2002).

During the study, two male subjects, who had chosen lethal and violent methods for suicide, died. A plausible explanation could be that males are more impulsive and violent, and therefore, more likely to use violent methods or lethal deliberate self-poisoning (Aghanwa, 2004).

Those who attempted suicide were more likely single and undergraduated. Similar studies have been conducted in other societies (Aghanwa, 2000). In a 13-year follow-up study in Baltimore, in the USA, after adjusting all the demographic variables, younger age groups, those in the lowest socio-economic status, and those widowed or separated/divorced were all independently associated with new suicide attempts reported at follow-up (Kuo, Gallo, & Tien, 2001).

Another important determinant of suicide is the set of psychosocial factors. We found that subjects who attempted suicide were likely to have past history of mental illness. This was more frequently observed among females than males. Mental illnesses affect a person's thought processes, perception of reality, emotions, or judgment, and could be the cause of disturbed behavior. People with mental illness may be dealing with negative life events and other difficult life circumstances as well as the symptoms of their illness. Therefore, interaction between these factors may result in suicidal behavior (Phillips, 2010). In the present study, two-thirds of participants had depression with different severity. According to an integrated analysis of suicide attempters' data, about half of the people who attempted suicide had a history of mental disorders and approximately one-third of them had been diagnosed with depression (Janghorbani, & Sharifirad, 2005; Shirazi, Hosseini, Zoladl, Malekzadeh, Momeninejad, Noorian, et al. 2012). Trends in the US emergency department visits for attempted suicide and self-inflicted injury showed that depression is the main predictor of suicidal ideation. Between 40-80% of suicide attempters meet the diagnostic criteria for depression at the time of the attempt (Ting, Sullivan, Boudreaux, Miller, & Camargo, 2012).

The frequency of negative life events in our subjects was significantly different between males and females. We found that the rate of financial problems and job-related stressors were higher in males, while the rate of relationship- and family-related issues such as sexual problems were higher in females. This result was consistent with previous studies (Mohebbi, & Boushehri, 2006; Keyvanara, & Haghshenas, 2011).

It has been shown that almost all patients who have attempted suicide had experienced stressful events prior to the attempt. This was also proven true in our subjects. Our findings support the idea that compared to women, men

feel more strongly responsible for the economic maintenance of their families. These circumstances have been well explained and discussed from a sociological viewpoint elsewhere (Zhang, McKeown, Hussey, Thompson, & Woods, 2005).

In the present study, almost half of the participants had suicidal thoughts and, in total, nearly 13% had past history of suicidal attempt. Passing from suicidal thought to suicide planning occurred in 32% of subjects and from suicide planning to suicide attempt in 72% of subjects. Previous reports showed that 24% of people who have suicidal thought will attempt suicide (van Heeringen, 2011). Some studies reported that individuals who have difficulty finding a solution to their problems impulsively attempt suicide without any actual willingness to die (Atay, Eren, & Gundogar, 2012). Some studies reported that somewhere from 24% to 40% of individuals spent less than 5 min planning to attempt suicide (Wei, Liu, Bi, Li, Hou, Chen, et al., 2013).

Self-perceived cause of attempted suicide, in our subjects, was reported to be relationship-related problems, whether relationship between friends, parents and children, couples, or relatives. This observation is consistent with other studies that reported relational conflicts and dysfunctional family condition, respectively, as the first and second most common triggers and underlying reasons of attempting suicide (Dieserud, Gerhardsen, Van den Weghe, & Corbett, 2010).

A study conducted in the south of Iran (city of Ahwaz) demonstrated that emotional-relational issues and difficulties were the most important factors for attempting suicide in Ahwazi adolescents (Hosseinpour, Ghaffari, & Mehrabizadeh, 2004). According to an integrated analysis of a study conducted in Iran from 1981-2007, the most common reasons of suicidal attempt have been family difficulties, emotional or relational issues, employment difficulties, and educational problems (Shirazi, Hosseini, Zoladl, Malekzadeh, Momeninejad, Noorian, et al., 2012). Another study conducted in Tehran, Iran, from 1997 to 2007 reported communicative disorders and family conflicts as the main reasons of attempted suicides. Communicative disorders in females were reported higher than in males (Pajoumand, Talaie, Mahdavinejad, Birang, Zarei, Mehregan, et al., 2012). This was in agreement with our study. One cause of relational problems among people is cultural conflict. Culture is a system of meanings and symbols that defines how people see the world and their place in it. Thus, individuals may understand their surrounding environment differently and this causes cultural conflict. Individuals who are in conflict with their own culture may choose to take the route of self-harm to avoid dealing with that conflict (Bhugra, & Desai, 2002)

Although attempted suicide has been observed in all ages with different demographic factors, high prevalence of suicide attempt among youth who are experiencing negative life events and having relational problems (their self-perceived cause of attempted suicide) causes us to believe that the real problem could be an identity crisis in youth. Individuals with an identity crisis cannot resolve the issue of identity versus role confusion during the teenage years (Portes, Sandhu, & Longwell-Grice, 2002).

Individuals with identity crisis are unable to solve problems and cope with negative life events. They do not have the necessary skills to communicate with friends, family, and others. These individuals will have mood instability as a result of high stress load and are susceptible to depression all of which are considered as risk factors for suicide.

Suicide attempts may be considered, labeled, or tolerated differently in different cultures. Even if a behavior is recognized as problematic, cultural factors may affect decisions about whether to seek mental health assistance. Moreover, suicide attempters may not expose all

the reasons behind their suicide attempt (Keyvanara, & Haghshenas, 2011). Cultural barriers and the presence of a strong stigma on suicide may prevent help seeking and be a barrier to accessing suicide prevention services in Iran and Middle Eastern countries (Goldston, Molock, Whitbeck, Murakami, Zayas, & Hall, 2008; Malakouti, Nojomi, Bolhari, Hakimshooshtari, Poshtmashhadi, & De, 2009).

We observed that most suicide attempts occurred in the afternoon and evening. Perhaps, the mental energy of normal and psychopathological individuals is reduced in the evening and at night (Shirazi, Hosseini, Zoladl, Malekzadeh, Momeninejad, Noorian, et al., 2012; Rezaeian, & Sharifirad, 2008). The highest number of suicidal attempts occurred in August in both males and females. This finding seems consistent with other studies (Rezaeian, & Sharifirad, 2008; Valtonen, Suominen, Partonen, Ostamo, & Lonnqvist, 2006). This may be due to increase in social communications in the summer. The socializing aspect of summer could predispose those who have a sensitive spirit and are disturbed by dealing with others to suicide attempts. Rise in temperature and increased length of day light in the summer are drastic environmental changes that could lead to changes in the human body and could also be predisposing factors in suicide.

Limitation of the study

A major limitation of the current study is that we were only able to identify hospital-treated attempted suicides. To our knowledge, no country in the world has collected official statistics on attempted suicides. Because the database we used was based on attempted suicides that were diagnosed and recorded in a hospital discharge registry, it is possible that we missed patients who had actually attempted suicide before hospitalization but whose attempt had not been recognized by healthcare personnel. The generalization of these findings may be limited because of variations in health-care practices and strategies in different countries. Without studying on subjects who have died due to a completed suicide, many important aspects of suicidal behavior cannot be addressed.

Conclusion

Attempted suicide occurs more often in younger age groups, females, and undergraduated and unmarried individuals who mostly have past history of mental illness. Most individuals who attempted suicide had experienced negative life events specially relational and/or emotional difficulties. We believe cost-effective strategies to educate people on effective ways of communication and problem solving skills could help individuals, especially those who are more susceptible, to find other solutions for their conflicts rather than suicide. Interventions that can help connect people to each other and improve an individual's self-worth can play a role in lowering potential suicidal risks. These interventions could be included in different settings in societies or even better in the school curriculums to provide a supportive social care network.

Conflict of Interests

Authors have no conflict of interests.

Acknowledgments

We wish to acknowledge Imam Khomeini Hospital personnel in the city of Falavarjan for their kind and sincere cooperation and all individuals who participated in this study.

References

Aghanwa, H. (2004). The determinants of attempted suicide in a general hospital setting in Fiji Islands: a gender-specific study. *Gen Hosp.Psychiatry*, *26*(1), 63-69. doi:S0163834303000987 [pii]. Retrieved from PM:14757305

Aghanwa, H. S. (2000). The characteristics of suicide attempters admitted to the main general hospital in Fiji Islands. *J Psychosom.Res*, *49*(6), 439-445. doi:S0022-3999(00)00193-8 [pii]. Retrieved from PM:11182438

Alberdi-Sudupe, J., Pita-Fernandez, S., Gomez-Pardinas, S. M., Iglesias-Gil-de-Bernabe, F., Garcia-Fernandez, J., Martinez-Sande, G. et al. (2011). Suicide attempts and related factors in patients admitted to a

general hospital: a ten-year cross-sectional study (1997-2007). *BMC.Psychiatry., 11*, 51. doi:1471-244X-11-51 [pii];10.1186/1471-244X-11-51 [doi]. Retrieved from PM:21453478

Atay, I. M., Eren, I., & Gundogar, D. (2012). The prevalence of death ideation and attempted suicide and the associated risk factors in Isparta, Turkey. *Turk.Psikiyatri.Derg., 23*(2), 89-98. doi:842 [pii]. Retrieved from PM:22648871

Bhugra, D., & Desai, M. (2002). Attempted suicide in South Asian women. *Adv Psychiatr Treat, 8*, 418-423.

Devrimci-Ozguven, H., & Sayil, I. (2003). Suicide attempts in Turkey: results of the WHO-EURO Multicentre Study on Suicidal Behaviour. *Can.J Psychiatry, 48*(5), 324-329. Retrieved from PM:12866338

Dieserud, G., Gerhardsen, R. M., Van den Weghe, H., & Corbett, K. (2010). Adolescent suicide attempts in Baerum, Norway, 1984-2006. *Crisis, 31*(5), 255-264. doi:N53704180722V433 [pii];10.1027/0227-5910/a000030 [doi]. Retrieved from PM:21134845

Douki, S., Zineb, S. B., Nacef, F., & Halbreich, U. (2007). Women's mental health in the Muslim world: cultural, religious, and social issues. *J Affect.Disord., 102*(1-3), 177-189. doi:S0165-0327(06)00428-9 [pii];10.1016/j.jad.2006.09.027 [doi]. Retrieved from PM:17291594

Eckersley, R., & Dear, K. (2002). Cultural correlates of youth suicide. *Soc Sci Med, 55*(11), 1891-1904. doi:S0277953601003197 [pii]. Retrieved from PM:12406459

Ghoreishi, S. A., & Mousavinasab, N. (2008). Systematic review of researches on suicide and suicide attempt in Iran. *Iran J Psychiatry Clin Psychol, 14*(2), 115-121.

Goldston, D. B., Molock, S. D., Whitbeck, L. B., Murakami, J. L., Zayas, L. H., & Hall, G. C. (2008). Cultural considerations in adolescent suicide prevention and psychosocial treatment. *Am Psychol, 63* (1), 14-31. doi:2007-19520-002 [pii];10.1037/0003-066X.63.1.14 [doi]. Retrieved from PM:18193978

Haukka, J., Suominen, K., Partonen, T., & Lonnqvist, J. (2008). Determinants and outcomes of serious attempted suicide: a nationwide study in Finland, 1996-2003. *Am J Epidemiol., 167*(10), 1155-1163. doi:kwn017 [pii];10.1093/aje/kwn017 [doi]. Retrieved from PM:18343881

Hosseinpour, M., Ghaffari, S. M., & Mehrabizadeh, M. (2004). A study on the incentives of suicide attempts among adolescents referred to Golestan hospital of Ahwaz in 2000-2001. *Jundishapur Sci Med J, 4*(41), 24-30.

Janghorbani, M., & Sharifirad, G. (2005). Completed and attempted suicide in ilam, iran (1995-2002): incidence and associated factors. *Arch Iran Med, 8*(2), 119-126.

Keyvanara, M., & Haghshenas, A. (2011). Sociocultural contexts of attempting suicide among Iranian youth: a qualitative study. *East.Mediterr.Health J, 17*(6), 529-535. Retrieved from PM:21796972

Kroenke, K., Spitzer, R. L., & Williams, J. B. (2001). The PHQ-9: validity of a brief depression severity measure. *J Gen Intern.Med, 16*(9), 606-613. doi:jgi01114 [pii]. Retrieved from PM:11556941

Kuo, W. H., Gallo, J. J., & Tien, A. Y. (2001). Incidence of suicide ideation and attempts in adults: the 13-year follow-up of a community sample in Baltimore, Maryland. *Psychol Med, 31*(7), 1181-1191. Retrieved from PM:11681544

Lester, D. (2008). Suicide and culture. *World Cultural Psychiatry Research Review, 3*(2), 51-68.

Malakouti, S. K., Nojomi, M., Bolhari, J., Hakimshooshtari, M., Poshtmashhadi, M., & De, L. D. (2009). Prevalence of suicide thoughts, plans and attempts in a community sample from Karaj, Iran. *Community Ment.Health J, 45*(1), 37-41. doi:10.1007/s10597-008-9173-4 [doi]. Retrieved from PM:19051014

Mohebbi, I., & Boushehri, B. (2006). Effect of stressors on attempting suicide with chemicals: a review of 400 cases. *Urmia Med J, 219*(225).

Moradi AR, Moradi R, & Mostafavi E. (2010). A survey of the rate and effective factors on suicide in Bahar. *J Res Behav Sci, 10*(1), 50-58.

Nojomi, M., Malakouti, S. K., Bolhari, J., & Poshtmashhadi, M. (2007). A predictor model for suicide attempt: evidence from a population-based study. *Arch Iran Med, 10*(4), 452-458. doi:007 [pii];07104/AIM.007 [doi]. Retrieved from PM:17903049

Pajoumand, A., Talaie, H., Mahdavinejad, A., Birang, S., Zarei, M., Mehregan, F. F. et al. (2012). Suicide epidemiology and characteristics among young Iranians at poison ward, Loghman-Hakim Hospital (1997-2007). *Arch Iran Med, 15*(4), 210-213. doi:007 [pii];012154/AIM.007 [doi]. Retrieved from PM:22424037

Phillips, M. R. (2010). Rethinking the role of mental illness in suicide. *Am J Psychiatry, 167*(7), 731-733. doi:167/7/731 [pii];10.1176/appi.ajp.2010.10040589 [doi]. Retrieved from PM:20595422

Portes, P. R., Sandhu, D. S., & Longwell-Grice, R. (2002). Understanding adolescent suicide: a psychosocial interpretation of developmental and contextual factors. *Adolescence., 37*(148), 805-814. Retrieved from PM:12564830

Roohafza, H., Ramezani, M., Sadeghi, M., Shahnam, M., Zolfagari, B., & Sarafzadegan, N. (2011). Development and validation of the stressful life event questionnaire. *Int.J Public Health, 56*(4), 441-448. doi:10.1007/s00038-011-0232-1 [doi]. Retrieved from PM:21327856

Sali, R., Roohafza, H., Sadeghi, M., Andalib, E., Shavandi, H., & Sarrafzadegan, N. (2013). Validation of the revised stressful life event questionnaire using a hybrid model of genetic algorithm and artificial neural networks.

Comput.Math.Methods.Med, *2013*, 601640. doi: 10.1155/2013/601640 [doi]. Retrieved from PM:23476715

Sheikholeslami, H., Kani, C., & Ziaee, A. (2013). Survey of presipitating factors of suicide attempts in prsons who referred to emergency department. *J Guilan Univ Med Sci*, *17*(65), 77-87.

Shirazi, H. R., Hosseini, M., Zoladl, M., Malekzadeh, M., Momeninejad, M., Noorian, K. et al. (2012). Suicide in the Islamic Republic of Iran: an integrated analysis from 1981 to 2007. *East.Mediterr.Health J*, *18*(6), 607-613. Retrieved from PM:22888617

Ting, S. A., Sullivan, A. F., Boudreaux, E. D., Miller, I., & Camargo, C. A., Jr. (2012). Trends in US emergency department visits for attempted suicide and self-inflicted injury, 1993-2008. *Gen Hosp.Psychiatry*, *34*(5), 557-565. doi:S0163-8343(12)00103-X [pii];10.1016/j.genhosppsych.2012.03.020 [doi]. Retrieved from PM:22554432

Valtonen, H., Suominen, K., Partonen, T., Ostamo, A., & Lonnqvist, J. (2006). Time patterns of attempted suicide. *J Affect.Disord.*, *90*(2-3), 201-207. doi:S0165-0327(05)00360-5 [pii];10.1016/j.jad.2005.12.004 [doi]. Retrieved from PM:16412521

van Heeringen, K (2001). Understanding suicidal behaviour: the suicidal process approach to research, treatment and prevention. London, UK: Wiley.

Vijayakumar, L., Pirkis, J., Huong, T. T., Yip, P., Seneviratne, R. D. A., & Hendin, H. (2008). *Socio-economic, cultural and religious factors affecting suicide prevention in Asia. Suicide and Suicide Prevention in Asia*. Geneva, Switzerland: World Health Organization, 19-30.

Wei, S., Liu, L., Bi, B., Li, H., Hou, J., Chen, W. et al. (2013). Comparison of impulsive and nonimpulsive suicide attempt patients treated in the emergency departments of four general hospitals in Shenyang, China. *Gen Hosp.Psychiatry*, *35*(2), 186-191. doi:S0163-8343(12)00333-7 [pii];10.1016/j.genhosppsych.2012.10.015 [doi]. Retrieved from PM:23260336

World Health Organization. (2009). *Suicide prevention*. Geneva, Switzerland: WHO.

Zhang, J., McKeown, R. E., Hussey, J. R., Thompson, S. J., & Woods, J. R. (2005). Gender differences in risk factors for attempted suicide among young adults: findings from the Third National Health and Nutrition Examination Survey. *Ann.Epidemiol.*, *15*(2), 167-174. doi:S1047-2797(04)00245-5 [pii];10.1016/j.annepidem.2004.07.095 [doi]. Retrieved from PM:15652723

Zimet, G. D., Dahlem, N., Zimet, S. G., & Farley, G. (1988). The Multidimensional scale of perceived social support. *J Pers Assess*, *52*(1), 30-41.