

A Behavioural & social sciences core curriculum for Egyptian undergraduate medical education at the Armed Forces College of Medicine.

Sabry, W.^{1,2}, ElNaggar Z.^{1,2}, Shourab, E.^{1,2}, Mohamed S.¹, Shehata, M.¹ Morsy, M.^{1,2}, Elkhatib, H.^{1,3}, Bahi Eldin, M.¹, Tohamy, M.¹, Sexton, P.⁴, Hamed, O.^{1,5}

¹ Armed Forces College of Medicine, Cairo, Egypt

² Okasha's Institute of Psychiatry, The WHO Collaborating Center for Mental Health Research & Training, Ain Shams University, Department of Neuropsychiatry, Cairo, Egypt.

³ Misr University for Science & Technology, Psychiatry Department, Cairo, Egypt.

⁴ AT Still University, Kirksville College of Osteopathic Medicine, Kirksville, MO, USA.

⁵ Forensic Department, Cairo University, Cairo, Egypt.

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***Corresponding Author:** (+2) 01212366116; Psychiatry Department, Armed Forces College of Medicine, Cairo, Egypt. Professor of psychiatry, Okasha's Institute of Psychiatry- Department of Neuropsychiatry. Faculty of Medicine -Ain Shams University, Abbasseya, Cairo, Egypt. drsabrywala@gmail.com

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ABSTRACT

Introduction: Medical practice is a highly emotionally and behaviorally demanding occupation. Thus, the design of teaching and learning programs in medical colleges need to be modified to adapt such need. Behavioral and social sciences must be implemented to develop competent medical health care workers. Educational programs in Egyptian medical schools are undergoing a gradual shift toward integration, student-centeredness, and early clinical exposure. The Psychiatry Department & Medical Education Department at the Armed Forces College of Medicine in Egypt in collaboration with the Medical Education Department at Michigan state university; developed behavioral & Social science curriculum by adopting ADDIE's basic five-step model, which includes Analysis, Design, Development, Implementation, and Evaluation processes. The identified curriculum has been split into three divisions: social topics related to behavioral medicine, basic psychology, and clinical medicine related to behavioral science. Twenty-six topics were included in these three divisions and were distributed in the seven selected core competencies. The working team expects to include more sociocultural and anthropology topics in the curriculum in the future. Additionally, it is hoped that more time will be allocated for this module, so it would be more possible to include other teaching & assessment methods for developing global understanding of disorders, and practical skills for behavior modification, as well as, encourage students to consider actual treatment strategies in clinical case scenarios. It is also hoped that students could get the chance for early exposure to hospital-based cases. This will motivate the students by allowing them to come into contact with various real-life settings.

Context: Medical practice is a highly emotionally and behaviorally demanding occupation. Thus, the design of teaching and learning programs in medical colleges need to be modified to adapt such need. Behavioral and social sciences must be implemented to develop competent medical health care workers. Educational programs in Egyptian medical schools are undergoing a gradual shift toward integration, student-centeredness, and early clinical exposure

Aims: The Psychiatry Department & Medical Education Department at the Armed Forces College of Medicine in Egypt in collaboration with the Medical Education Department at Michigan state university; developed behavioral & Social science curriculum. **Settings and Design:** Armed forces College of Medicine. **Methods and Material:** The working team developed behavioral & Social science curriculum by adopting ADDIE's basic five-step model, which includes Analysis, Design, Development, Implementation, and Evaluation processes. The identified curriculum has been split into three divisions: social topics related to behavioral medicine, basic psychology, and clinical medicine related to behavioral science. Twenty-six topics were included in these three divisions and were distributed in the seven selected core competencies. **Statistical analysis used:** Not Applicable. **Results:** Not applicable. **Conclusions:** The working team expects to include more socio-cultural and anthropology topics in the curriculum in the future. Additionally, it is hoped that more time will be allocated for this module, so it would be more possible to include other teaching & assessment methods for developing global understanding of disorders, and practical skills for behavior modification, as well as, encourage students to consider actual treatment strategies in clinical case scenarios. It is also hoped that students could get the chance for early exposure to hospital-based cases. This will motivate the students by allowing them to come into contact with various real-life settings.

Introduction

The bio psychosocial model of health and illness is highly implicated in the development, treatment & prevention of almost all major illnesses. A framework developed by psychiatrist George L. Engel revealed that interactions between biological, psychological, behavioral and social factors determine the etiology, symptoms, signs, and outcome of wellness and disease [1]. In addition, there is growing evidence for mind body interactions and a substantial body of literature has outlined the actual and potential pathways between psychological & social factors and disease end points [2, 3, 4, 5]. Many patients have expressed dissatisfaction with the reductionistic model of medical care that focuses mainly on biological aspects of illnesses and ignores this bio psychosocial interaction. Many across the medical education and practice continua have described increasing demands for providing more humanistic and holistic care. When traditional medicine does not deliver holistic care, many patients turn to alternative and complementary methods of care [6].

This indicates that medical practice is not only an intellectually but also a highly emotionally and behaviorally demanding occupation. It is required that clinicians possess great capacity & skills for dealing with human misery, sufferings & emotional turmoil. Thus, the design of

teaching and learning programs that deliver fundamental subject matter in behavioral and social sciences must be implemented to develop competent medical health care workers.

The behavioral and social sciences (B&SS) are defined as the sciences of behavior, including individual psychological processes and behavioral interactions, and the sciences of social interaction, including familial, cultural, economic, and demographic. The core areas focus on the understanding of behavioral or social processes and on the uses of these processes to predict or influence health outcomes or risk factors [7].

Until recently, review of medical education programs worldwide revealed that the main emphasis was on biological sciences with less emphasis given to behavioral sciences and social orientation. Most programs were divided into a pre-clinical phase, a two to three years introduction to the basic biomedical sciences and a clinical phase of two to three years of core medical specialty rotations [8].

The first department of behavioral & social sciences was established in North America medical school in 1959 [9]. This effort faced huge challenges as it was not globally considered to be the best arrangement and some groups called for establishing separate departments in order to protect B&SS expertise [10].

In subsequent decades medical education curricula started to include contributions from the B&SS in order to produce more comprehensive health care practitioners worldwide including USA, Canada, Australia, Mexico, Thailand, UK, Israel and Saudi Arabia [11, 12]. The acceptance and importance of this integrative way of learning was underscored when B&SS questions were first included into the National Board of Examiners licensing examinations for all medical students in the US in 1972. **Tait (1973; p1007)** [13] stated that 'the broad aims that lie behind efforts to introduce teaching in the behavioral sciences into medical education are almost universally approved'. However structured integration of B&SS was a relatively recent act at that time and attempts to incorporate it with medicine have been met with varying degrees of success [14].

Before 2009, the majority of medical schools in Egypt had adopted discipline-based curricula, in which is divided on two phases the preclinical & clinical in a way similar to the older international models. However, over the last two decades, Egyptian medical programs have responded to a range of changes and challenges internationally requiring significant reforms including for example, globalization, and advances in information technology, best evidence, evidence-based practice, quality practices and quality assurance, and accreditation [15].

The **National Authority for Quality Assurance and Accreditation of Education (NAQAAE)** in Egypt recognized that undergraduate education in Egypt was not properly fit-for-purpose over a decade ago. It urged changes to the medical education focus away from simple factual knowledge acquisition to application of knowledge and skills in medical practice [16]. As a result, the current spectrum of educational programs in Egyptian medical schools can be perceived as undergoing a gradual shift toward integration, student-centeredness, and early clinical exposure.

It was recommended that the B&SS be included in the curriculum on a 'need to know' rather than 'nice to know' basis, and strongly recommended that more emphasis be placed on learning to communicate better. Furthermore, psychological & social materials include a wide range of principal topics such as patient safety, stigma, communication and patient centeredness. The latest revision of **The National Authority for Quality Assurance and Accreditation of Education (NAQAAE, 2016)** [17] emphasized the importance of producing graduates who are safe, practically skilled, ethical and professional medical practitioners.

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There are a few Egyptian medical colleges such as, Suez Canal, New Giza and October Six universities that had incorporated B&SS teaching as a part of their curricula at some point of time, however there was no published data about their programs' contents or outcomes. The rest of Egyptian medical colleges teach only the psychological aspect of B&SS [18].

Inspired by the international trend of assuring quality in medical education and to cope with the higher education reform strategy in Egypt, motivated by the recommendations of National Conference on Higher Education in 2000 and the NAQAAE [17] and using the National Academic reference standards (NARS) [19] for medical education programs, the Armed Forces College of Medicine in Egypt (AFCM) medical education department collaborated with psychiatry department to design and implement B&SS program for undergraduate medical students. This represents one of the national academic quality requirements that the government regards as appropriate and reasonable in order to protect the interests of the students and the community.

Subjects and Methods

The development processes

The Curriculum was developed through the following; adopting ADDIE's basic five-step model, which includes Analysis, Design, Development, Implementation, and Evaluation processes.

1) Analysis/ Assessment of students' needs:

Besides the forementioned needs for incorporating B&SS teaching in study of medicine generally, military life of the AFCM students requires emphasis on acquiring leadership skills and interpersonal & social integration. Generally, it is assumed that these needs only apply to the caring professions such as medicine and counselling. However, military leaders require excellence in social skills and interpersonal understanding. When making plans, military leaders envisage the impact of their plans on their team and subordinates as well as the country. Therefore, military leaders require the ability to consider an action from the perspective of others. Because AFCM students will become both physicians and military leaders, the need is greater.

Thus, the working team identified six main domains for B&SS, which included: (1) mind-body interactions in health and disease, (2) patient behaviour, (3) physician role and behaviour, (4) physician-patient interactions, (5) social and cultural issues in health care, and (6) health policy and economics in Egypt [20]. Based on these domains, the

working team listed the main B&SS competencies, which are needed to be acquired by AFCM undergraduate medical students. These competencies are in line with the broad ACGME core competencies & National academic reference standards in Medicine (NARS), [19] which include professionalism, medical knowledge, patient care, interpersonal skills and communication, systems-based practice, and practice-based learning and improvement [21, 22].

2) Design/selection of the curriculum content:

The committee compiled a list of topics from teaching faculty of behavioural medicine on curricula at their universities. The team also worked to identify core B&SS contents by reviewing expert resources, textbooks, relevant evidence-based articles and reports in the literature and other materials from the Association of American Medical Colleges (AAMC) [20, 21, 22, 23, 24].

Following multiple meetings & extensive discussions, the committee prioritized the list of key competencies that was further refined and finalized. The working team identified seven key competencies:

- 1) Apply critical thinking and analytical skills in their professional practice
- 2) Recognize the importance of the positive value of human diversity and knowledge of special populations who are at-risk of, and /or victims of prejudice and discrimination resulting in oppression
- 2) Illustrate the major psychological functions involved in interactions between individuals, families, groups, and their environment
- 3) Analyse and assess the impact of policy, programs, and services on vulnerable populations
- 4) Use and evaluate a global perspective of the intersection of human needs with the environment and social structures
- 5) Appraise evidence-based theoretical frameworks employed to define interactions among Individuals, between individuals and social systems, between individuals and their environment and the global impact
- 6) Assess and analyse the biological, psychological and social factors that influence human behaviour and development through the life cycle

3) Development & expert review panel & final decision on the curriculum topics

The committee was fully aware that the current AFCM curriculum is extremely full. Therefore, the recommendations were limited to those items believed to be most important to be covered at a relatively early stage in a physician's education. The other materials are reserved

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for later stages of the medical education continuum and / or integrated elsewhere such as within the humanistic module. Thus, the committee recommended 26 main topics for inclusion in the behavioural and social science module.

Next, the working team a panel of experts composed of the head of medical education at AFCM, an internal professor of psychiatry who also teaches with Ain Shams University, faculty of medicine, Cairo, Egypt and external experts from Edinburgh University, Scotland, UK and from the college of medicine and health sciences at the United Arab Emirates University in Al Ain. The topics list was modified according to their recommendations. A final decision on the curriculum topics and overall structure was made and approved by the AFCM curriculum committee.

The identified curriculum has been split into three divisions: social topics related to behavioural medicine, basic psychology, and clinical medicine related to behavioural science (*see Table 1*). Topics included in these three divisions were distributed in the seven core competencies (as illustrated before). Competencies are well defined for the students in their portfolio and study guide in order to examine skill acquisition and basic application of this knowledge to clinical cases and treatment.

After, having successfully completed this module, the students will have the knowledge of basic principles of behavioural & social sciences.

4) Implementation of B&SS module Selection of teaching & assessment methods

Teaching methods

The working team developed a core curriculum and learning module to help students achieve the key competencies before graduating from AFCM. This module is provided to 3rd year students over 4 weeks. The module consists of 30 theoretical Lectures /and 60 Tutorials (total= 90). In addition to 30 non-contact hours in form of research in different topics in behavior and social science through interactive meetings with mentors. Student should summarize the research in a power point online presentation activity

While the module utilizes a spectrum of different learning strategies to enhance the learning experience, the primary teaching strategy in this module is interactive lecture. This goes beyond the traditional lecture format through increasing engagement and introduction of active learning methods. Thus, transforming the students from being passive listeners to active contributors [25].

In addition, tutorial teaching was used in delivering B&SS module to AFCM students. The decision to include tutorials was prompted by the need for students to develop the skills and basic approaches for considering how to apply the knowledge acquired in lectures to clinical cases and treatments. This strategy also provides an opportunity for students to ask questions, express points of view and generally interact and relate with the tutor and peers through discussion and activities such as role-plays, and develop a holistic understanding of disorders as well as practical skills for behaviour modification [26]. The working group also recognized the importance of developing model case scenarios and commentaries for achieving this goal and has proposed a series of case scenarios (Case Based Learning CBL); the majority being real life scenarios. Thus, students will be acquainted with the challenges and various social circumstances (like stigma) to which they will be exposing in their future career. The learners' tasks are to critically analyze the relevance and usefulness of the data, interpret their meaning, and eventually propose a hypothesis. This form of teaching strategy is effective in stimulating critical thinking, problem solving, and other higher order cognitive skills and assisting them going higher in Bloom's taxonomy.

A Student Support and Guidance approach was also implemented as it helps to provide students with clear and timely academic assistance and individual tutorial support. Staff members at AFCM allocated to students, announced office hours as personal tutors to offer general academic guidance and support. Students also shared in practicing simple basic clinical skills through role plays under supervision and interpretation of findings to prepare medical students before their first contact with real patients in clerkship phase

Assessment methods

Learner evaluation:

Assessment of knowledge was done through both formative & summative assessments. The working team devised formative assessment methods including case scenario presentation and interpretation for the majority of topics so that students could learn and acquire the skills and knowledge necessary for student-centered clinical practice (Tsutsumi, 2015) [27].

In addition to skills-based training, students can strengthen their communication skills by receiving feedback on their approaches and attitudes, through role-plays and getting a feedback from their peers & mentors.

Curriculum evaluation

Evaluation of the new curriculum will be done by students & included in their portfolio in a number of ways. First, students will submit surveys about

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1. Applied behaviour & social science topics: What did student learn with regards to this topic's clinical application and what gaps and improvement opportunities were identified,
2. Demonstration of Competency Achievement: students need to list all of their learning outcomes in a designed rubric and to reflect upon each learning objective [28, 29]. This grading rubric was used to rate the degree of how students demonstrate their learned competencies of the knowledge and skills. Rating for assessment ranges from (Poor, Developing, Competent, Excelling, Exemplary),
3. Lecturer Evaluation, which includes the following items: (a) Lecturers stimulated student interest in this course; (b) Lecturers provided opportunities for students to ask questions; (c) Lecturers encouraged student participation; (d) Lecturers demonstrated an enthusiasm for teaching this course. (e) Lecturers encouraged independent thinking; (f) Lecturers were open to diverse points of view; (g) Lecturers provided useful, constructive feedback; (h) Lecturers seemed willing to offer individual help; (i) Lecturers seemed sensitive to and concerned about student progress; (j) Lecturers encouraged students to produce high quality work; (k) Lecturers' explanations were clear.

Course Themes	Main topics
Behavior medicine Basic Behavior Science	<u>Behavioral science domains</u> <ul style="list-style-type: none"> • Behavior sciences • Health related Behaviors • Apply Health Belief Model on health services
Human development	<u>Parameters of Human development</u> <ul style="list-style-type: none"> • Recognize different stages of cognitive, moral and psychosocial development • Apply different developmental theories in clinical setting
Psychological Health and Testing	<u>Mental & Behavioral Health Assessment</u> <ul style="list-style-type: none"> • Psychological Testing • Identify different neuropsychological tests • Indication and applications of psychological tests
Language	<ul style="list-style-type: none"> • Identify the basic milestones and different components of language development.
Psychology	

Intelligence	<ul style="list-style-type: none"> • Intelligence quotient • Emotional intelligence
Attention	<ul style="list-style-type: none"> • Attention and it's Characteristics • Types of Attention • Neuroanatomical basis of Attention
Perception	<ul style="list-style-type: none"> •
Motivation	<ul style="list-style-type: none"> • Different disorders of perception • Functions of the perceptual system • Disorders of perception
Defense Mechanisms	<ul style="list-style-type: none"> • Motivation • Different theories to explain motivation • Classification of Motives
Emotions	<ul style="list-style-type: none"> • Defense Mechanisms • clusters of defense mechanisms • Psychopathology
Memory	<ul style="list-style-type: none"> • Emotions • Theories of Emotions • Frustration
Thinking	<ul style="list-style-type: none"> • Neurobiology of memory • Types and Levels of Memory • Memory disorders • Forgetfulness
Aggression and Violence	<ul style="list-style-type: none"> • Strategies of the problem-solving process • Identify the phases of concept development and the various types of thinking
Personality	<ul style="list-style-type: none"> • Aggression and Violence • Determinants of aggression • Methods for reducing aggression
Learning	<ul style="list-style-type: none"> • Factors affecting personality • Approaches to understanding personality • Personality differences in response to illness and treatment • Psychology of Learning • Types of Learning • Approaches to learning
Sociology	
Social Psychology	<ul style="list-style-type: none"> • Principles of social psychology • impact of social psychology on our daily communication • Different aspects of social interactions.

Stigma	<ul style="list-style-type: none"> • Consequences of Strategies to diminish Stigma • Describe the impact of Stigma on patient with mental health illness • Identify various types of stigma. • discuss strategies to diminish Stigma
Medico legal aspects in relation to Medicine	<ul style="list-style-type: none"> • Mental Capacity • Procedures for Assessing Capacity • Ethical Requirements • Basic Principles of Medical Ethics • Informed consent • Consent for examinations, treatment or operation
Overview of Egypt's Health Care System pathway	<ul style="list-style-type: none"> • Health System Definition • Health System Building Blocks • Health System Egypt • The New Health Insurance & Patient Pathway in Egypt • The social health insurance reform • (New Health Insurance) • Psychiatric intermediate care unit (PICU) • Justice and Health • Relevant Legislations • Egyptian Constitution in relation to medical practice • Human Rights
Clinical medicine related to behavioral science	
Organic disorders	<ul style="list-style-type: none"> • Functions of different brain areas • Major neurotransmitters of the nervous system and outline their functions • Types of Neurocognitive Disorder • Organic disorders
Substance-Related Disorders	<ul style="list-style-type: none"> • Physiology of substance-related disorders • Drugs working in Ventral Tegmental area • Drugs working in nucleus accumbens • Substance-abusing Physicians

Diagnostic Classification in Psychiatry	<ul style="list-style-type: none"> • Psychiatric disorders classification • Mental and Behavioral Disorders • Major categories of psychiatric disease as defined by ICD 10 and DSM 5 and examples of disorders within each category
Sleep	<ul style="list-style-type: none"> • Sleep Facts • Sleep deprivation • Sleep architecture & stages. • Information related to developmental aspects of sleep. • Effects of various medications/disorders on sleep architectures and stages
Patient safety	<ul style="list-style-type: none"> • Patient safety in psychiatric practice • Staff and patient Safety in ER • Quality Improvement
Psychopharmacology	<ul style="list-style-type: none"> • Basic Psychopharmacology • Different types, mechanism of action, indications and contraindications of psychotropic. • Side effects of psychotropic. • Management plan of psychiatric emergencies associated with these side effects

Discussion

Medical education curricula are always subject to adaptation and renewal over time in accordance with changes in social conditions and allocated resources, together with the advances in medical education. The competencies required of medical students will also change in accordance with the demands of society. We expect that more sociocultural and anthropology topics will be included in the curriculum in the future.

Additionally, it is hoped that more time will be allocated to this module, so it would be more possible to include more varied teaching & assessment methods. The working team recommends the use of PBL and TBL methods for developing global understanding of disorders, and practical skills for behavior modification, as well as, encourage students to consider actual treatment strategies in clinical case scenarios. Early clinical exposure is widely employed in Europe, and its educational effectiveness has been reported (30). The working group also hope that students during their Behavioral & social science course; could get the chance for early exposure to *Sabry et al. A Behavioural & social sciences.*

hospital-based cases. This would motivate students by allowing them to come into contact with various real-life settings.

Future evaluation & publication of the AFCM students' perception of the B& SS curriculum is needed to aid in improving the program implementation & assessment.

Conclusion

We believe that behavioral and social sciences are main pillars not only for medical education but also for providing patient's best care; thus, we hope that medical colleges will find this review article to be helpful and add on material that could be a cornerstone for developing a comprehensive curriculum in behavioral medicine in Egyptian undergraduate medical education.

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Conflict of Interest

The authors declare that they have no competing interests

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