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From the Editor

Abdulrazak Abyad
(Chief Editor)

This is the last issue this year and we are highly appreciative of all our authors, readers and reviewers and editorial board. As you know the journal has been very successful and the journal is well known all over the world so much so that the name has been changed to World Family Medicine Journal. At the end I would like to extend my appreciation for the production staff headed by Lesley Pocock for their continuous support and help.

In this issue a paper from Libya described the main points about medical ethics practice and introduces its Islamic scopes and moral character in many medical dilemmas. It also brought into light some ethical problem facing in Libya, and hopefully has drawn some insights on how to overcome those obstacles and tackle them positively in order to improve the delivered medical care.

A paper from Iran reviewed the Abuse and Violence against Women and Children. The authors stressed that research indicates that those that reported abuse through public information were low in number only at 4.5 percent, which is indicative of poor education and people participation. In the services that were provided to the victims, counselling and psychotherapy were the highest number, and it is necessary to raise the number of legal services provided for the victims (3%), in order to realise the rights of the individual.

Another paper from Iran presented a practical guide for medical writing. The author provides a practical step by step guide for the health care professionals about how to prepare a manuscript for publication that survives the editorial peer review process. This practical guide consists of 10 interrelated questions that a given author or authorial team should ask before submitting the article for publication.

A cross sectional study from Qatar attempted to elucidate pregnant females knowledge, attitude and practice of complementary and alternative medicines during pregnancy. The authors found that the majority of pregnant women (65%) resorted to (family/friends) as the primary source of information for CAM usage during pregnancy This preliminary study confirms the need of exploring knowledge attitudes, and practice of CAMs among pregnant women, in order to develop educational and counseling strategies focusing on CAM use during pregnancy.

A retrospective survey from Jordan evaluated the importance of using Calcium and vitamin D in order to lower the incidence of Premenstrual syndrome. The authors found that the high intake of Vitamin D and Calcium is effective in reducing the incidence of Premenstrual syndrome.

Mohammadi S and Dadkhah A, looked at coping mechanisms of the Iranian adolescent population. A negative relationship between Solving Problem and Reference to Others coping styles and severity of behavioural disorder were observed. The results indicated that solving Problem and Non-productive Coping styles (and consequently coping strategies of these two coping styles) can significantly predict severity of behavioural problems.

A paper from Nigeria looked at the association between hypertension and sexual dysfunction amongst persons with diabetes mellitus. Four hundred and fifty DM subjects were assessed for sexual dysfunction. The authors concluded that hypertension is significantly associated with sexual dysfunction. Persons with DM who also have hypertension have a higher risk of developing sexual dysfunction than those without hypertension.

A CROSS SECTIONAL STUDY FROM IRAQ aimed at measuring the mean time spent by students to finish their medical examination. It was found that females spent more time during the examination than male students in many subjects ($P < 0.05$). The authors concluded that there was no solid and consistent association between gender and time, and the scores obtained by students.

A paper from Iran looked at a Subsidized Drug E-Distribution Plan for Iran. The authors discussed the importance of the system. They present a plan for an ICT-base subsidized drug E-distribution for Iran. And provide an E-distribution protocol and give detail on the required infrastructure and planning.

Does Vitamin D and Calcium Affect the Incidence of Premenstrual Syndrome

ABSTRACT

Objectives: To evaluate the importance of using Calcium and vitamin D in order to lower the incidence of Premenstrual syndrome.

Material and methods Retrospective surveys of cases of Premenstrual syndrome in the period from the 1st of January 2004 to the 31st of December 2005. All cases were collected from the Gynecological Department at Prince Rashid Bin Al-Hassan military hospital in the north of Jordan as well as Princess Haya Al Hussein military hospital in the south. Over this period the selected patients for this study had been given a food-frequency questionnaire, to compare dietary data with the incidence of Premenstrual syndrome.

Results Five hundred and fifty cases had entered this survey over a period of two years, divided into two groups. There was significant difference between the two groups; North group (n= 470) and the South one (n= 80). The analyses of the questionnaire revealed a 30 -40 % lower risk in developing PMS in women with the highest intake of calcium and vitamin D from dietary sources (south group).

Conclusion The high intake of Vitamin D & Calcium is effective in reducing the incidence of Premenstrual syndrome.

Key words PMS, Vitamin D, Calcium.

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Introduction

Hippocrates[1] mentioned Premenstrual syndrome as early as the fourth century BC, and physicians in Victorian times were aware of menstrual madness, hysteria and ovarian mania. Its recognition by Frank[2] makes it a nineteenth-century event, and he was the first to describe the premenstrual tension in 1931. In *1953 Green and Dalton*[3] extended the definition to 'premenstrual syndrome'.

Many doctors do not believe there is such a condition as Premenstrual Syndrome (PMS), and consequently fail to recognize and treat it, although PMS is widely recognized as one of the most common disorders in women. This disorder is characterized by the cyclic recurrence of symptoms during the luteal phase of the menstrual cycle as seen in Table (1)[4,5,6], and is manifested by emotional and physical symptoms in the second part of the menstrual cycle, which subsides by the beginning of the menstrual period[7]. It is estimated that at least 75% of women experience premenstrual symptoms[8], and up to 40% experience symptoms severe enough to affect life[9].

The etiology of PMS remains unknown and may be complex and multifactorial. The role of ovarian hormones is unclear, but symptoms are often improved when ovulation is suppressed[10]. Hormonal causes such as excessive circulating oestrogen, increased or decreased levels of progesterone or an imbalance between them has been proposed[11]. The current consensus is that PMS is the result of non-hormonal, biological and environmental changes in susceptible women.

The management of PMS is often frustrating for both patients and physicians. Initially, all patients with PMS should be offered non-pharmacological therapy[12.] These non-pharmacological interventions for PMS include patient education, supportive therapy and behavioral changes[4,5,6]. Therapies for PMS vary in their efficacy and risk of adverse events. Some therapies, such as eating a healthy diet, are known to have a variety of health benefits with very low risk of adverse events, and should be recommended to virtually all women. Pharmacologic therapies carry a greater risk of adverse events, and this must be considered when selecting such therapy, and should be only offered to patients with persistent symptoms of PMS.

Aim and objective:

To evaluate the effect of dietary calcium and vitamin D in the incidence of PMS.

Methods and Materials

This cross-sectional study was A retrospective survey was carried out in two hospitals of the Royal Medical Services in Jordan (Prince Rashid Bin Al-Hassan military hospital in the north of Jordan as well as in Princess Haya Al Hussein military hospital in the far south); in the period between the 1st of January 2004 until 31 of December 2005. All collected data was taken from hospital records. Every woman who entered this survey was registered in hospital record files as having mild, moderate or severe PMS. Women with PMS, were distributed according to their residency and in this study according to climate

(sunny weather in south Badia), tradition and food habits (milk and cheese) and different types of job. Jordan was divided, theoretically, into two parts: north and south. Over a period of 24 months, the selected patients for the study had been given a food-frequency questionnaire, to compare dietary intake data between the two parts (north and south) with the incidence of PMS.

Results

During the study period five hundred and fifty cases had entered this survey. They had been distributed according to their residency in Jordan (North, South). There was significant difference between the North group (n= 470) and the South group (n= 80) in the incidence of PMS (93% in the North compared with 7% in the South). The analyses of food frequency questionnaire revealed that women with the highest intake of Calcium and Vitamin D from dietary sources (in the South of Jordan) had a 30 - 40 % decreased risk of developing PMS than women with the lowest intake (in the North).

Discussion

The normal menstrual cycle is characterized by physiologic fluctuations of pituitary gonadotropins, ovarian steroid hormones and also their influence on the levels of micronutrients; specifically calcium and vitamin D. There is convincing evidence that PMS is related to hormonal fluctuations of the menstrual cycle and it occurs only in women with ovulatory cycles. PMS does not occur prepubertally or at menopause[13]. Research suggests that a variety of nutrients may have an important role in the phase-related mood and behavioral disturbances of the PMS and there is scientific evidence specifically for calcium and vitamin D, supporting their cyclic fluctuations during the phase of menstrual cycle. Estrogen regulates calcium metabolism, intestinal calcium absorption and parathyroid gene expression and secretion, triggering fluctuations across the menstrual cycle[14].

Alterations in calcium homeostasis (hypocalcaemia and hypercalcaemia) have long been associated with many affective disorders in mood[15] and such symptoms as depression, anxiety and the dysphoric states make the relation between PMS and hypocalcaemia remarkable. Evidence to date indicates that women with PMS have an underlying calcium dysregulation and vitamin D deficiency, and calcium has been shown to relieve both the physical and emotional symptoms associated with PMS.

Three clinical trials demonstrated the efficacy of calcium treatment. In 1989, a randomized, double-blind crossover trial was conducted to assess the effectiveness of calcium in women with PMS[16]. At the end of the trial, 73% of the women cited global improvement of symptomatology on calcium compared to placebo. In 1993, Penland et al conducted a metabolic study of calcium and manganese nutrition in ten women with premenstrual and menstrual distress symptomatology[17]. The high dietary calcium intake in the amount of 1336 mg per day was found to benefit mood, behaviour, and pain and water retention symptoms significantly during the menstrual cycle. In 1998, a prospective, multicenter, randomized double-blind placebo controlled parallel-group clinical trial was conducted in women with moderate to severe PMS to determine the efficacy of calcium in symptom reduction[18]. By the third treatment cycle, calcium effectively resulted in an overall 48% reduction in total symptom scores. Recently an article was published citing a study conducted by the university of Massachusetts in Amherst that stated women with a higher intake of calcium and vitamin D are at lower risk for the anxiety, depression, headaches and abdominal cramps associated with premenstrual syndrome.

Conclusion

In this study, we found that a diet high in calcium and vitamin D is not only a simple and effective measure in reducing the risk of Premenstrual Syndrome, but may help to prevent its initial development.

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Table 1. Common symptoms of Premenstrual Syndrome (4, 5, 6)

Behavioural symptoms Fatigue, insomnia, dizziness, changes in sexual interest, food cravings or overeating.
Psychologic symptoms Irritability, anger, depressed mood, crying and tearfulness, anxiety, tension, mood swings, lack of concentration, forgetfulness, restlessness, loneliness, decreased self-esteem.
Physical symptoms Headaches, breast tenderness and swelling, back pain, abdominal pain and bloating, weight gain, water retention, swelling of extremities, nausea, muscle and joint pain.

Knowledge, Attitude and Practice of Complementary and Alternative Medicine (CAM) among Pregnant Women: A Preliminary Survey in Qatar

ABSTRACT

Introduction The study aims to elucidate pregnant females' knowledge, attitude and practice of complementary and alternative medicines during pregnancy.

Methodology A cross sectional study of pregnant females attending primary health care antenatal clinics in Doha - Qatar was conducted between Jan - Feb 2009 utilizing a multistage stratified cluster sampling design. A previously validated and reliable semi-structured questionnaire (7) was completed via a face-to-face interview lasting an average 15 minutes.

Results Response rate was (87%). Mean age of respondents was (28.5 + Years); most pregnant females were (multiparous (66.7%). The majority of respondents (58%) declared to have used one or more (CAM) during their lifetime, however only, (29%) advised taking (CAM) during the current pregnancy. The majority of pregnant women (65%) resorted to (family / friends) as the primary source of information for CAM usage during pregnancy , while they referred to (herbalist) (23.4%) when not conceiving. Additionally in previous pregnancies females consulted their gynecologist (28.9%) for information regarding CAM.

Conclusion This preliminary study confirms the need for exploring knowledge, attitudes, and practice of CAMs among pregnant women. In order to develop educational and counselling strategies focusing on CAM use during pregnancy.

Keywords Complementary and alternative medicine, pregnant women, Qatar.

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Introduction

Complementary and alternative medicine (CAM) is defined as biologic, energy , spiritual and mind - body therapies that are not prescribed within the boundaries of convention health care systems[1] including a variety of ingested therapies, herbs, vitamins and homeopathic medicine[2]. Traditionally complementary & alternative medicine (CAM) use has been associated with developing countries, but recently complementary medicine has boomed worldwide, with a staggering increase in the use of (CAM) observed in Australia, Europe and the USA[3]. Although the use of (CAM) among females was higher than males in studies done in developed countries, most of the these studies fell short in their capacity to highlight racial/ethnic differences in (CAM) use[4]. Cultural factors arising from religious beliefs can translate into practice thereby having a profound impact on health especially among followers of the Islamic faith, Christianity and Hinduism[5].

Qatar, an Arabian Gulf state has witnessed a rapid socio-economic transition over the last 2 decades resulting in an influx of expatriates mainly from the South East Asian region harnessing the three faiths above. Pregnant females in particular have used (CAM) for a variety of reasons ranging from pregnancy related disorders including, nausea and vomiting, induction of labour, up to the other end of the spectrum that is, treating cancer. Many people including pregnant females have a perceived "natural status" attached to herbal medicine in particular and (CAM) in general leading them to draw the conclusion that (CAM) therapies are not associated with adverse side effects. Thereby, it is imperative that health practitioners re-evaluate the format and extent of history to encompass the potential for diverse and substantial CAM usage.

Additionally, health care profession has yet to assume a concentrated effort in education, research, guidelines and public policy to address this global phenomenon.

Research Design and Methods

This is a cross sectional study of pregnant females attending primary health care antenatal clinic in Doha, Qatar.

This study was designed to determine the prevalence of CAMs use among adult pregnant females in Qatar. The survey was conducted between January to February 2009.

A multistage stratified cluster sampling design was developed using the administrative divisions of the Qatari primary health care center antenatal clinics in regions that had approximately equal number of inhabitants in Qatar. Each person is entitled to primary care that is free at the point of access and is delivered by the primary care team. The primary care physicians caring for pregnant females act as gate keepers for indicated cases that require referral to specialist care such as high risk pregnancies including recurrent abortions, twins and diabetic females.

Pregnant females register at their respective health centers via a booking visit by a family practitioner trained to care for pregnant females.

At the booking visit and after confirming pregnancy via blood test, socio-demographic details are recorded, including a detailed obstetrical and gynecological history, physical examinations including vital signs, weight and height and blood pressure, and fundal height with routine blood investigations, which consist of complete blood count, blood group, Rh - group, R.P.R, hepatitis screening and GGT in high risk cases. High risk cases such as twin pregnancy, threatened and recurrent abortions and diabetic patients are referred to hospital after the initial visit. Education is delivered by the visiting health educator.

The follow up continues at primary care level until 34 weeks of gestation then patients are referred to hospital.

All females registered at antenatal clinics across the country were potentially eligible for inclusion in the study. The source for identification of subjects was the computerized antenatal clinic register.

The total population of pregnant females for the year 2008 included on the register was 18,376, excluding those who were followed up in private sectors and those jointly looked after between primary and secondary care, diabetic patients and high risk cases including twin pregnancy and threatened abortions.

Power calculation

The existing literature suggests a likely prevalence of CAM use in pregnancy of up to 47%[6] and the likely response of the total sample of pregnant females was estimated to be ~ 80%. At this range of prevalence and level of response, the precision of a prevalence based on ~ 480 responders at (95% CI) is within + 5% (absolute), which is a level of precision judged to be adequate[7]. An estimated sample size of 383 would be required to meet the specific objectives of the study. Of the total of 22 primary health care antenatal clinics available, 8 were selected at random, of these 4 were located in urban and 4 in semi urban areas of Qatar. During the study period 450 subjects were approached, of whom 393 agreed to participate, giving a response rate of 89%.

Data collection

Trained family physicians, four in total, administered a previously validated and reliable semi-structured questionnaire[7] via a face-to-face interview lasting an average 15 minutes. Prior explanation of CAM was offered to participating subjects. CAM was defined as a broad domain of healing practices, theories and beliefs other than those intrinsic to the politically dominant health system of a particular society or culture in a given historical period[8]. The questionnaire contained 20 items divided into three sections utilizing closed and open ended questions.

The first section contained socio demographic data, presence of chronic medical disease, use of CAMs in previous or outside pregnancy. The second section assessed the use of CAMs during current pregnancy and it's relation to each trimester. The third section assessed pregnant female opinion regarding safety and efficacy of CAMs use during pregnancy. Translation of the questionnaire was followed by an independent back translation to compare the source with the translated text, which was carried out to determine if questions were phrased unambiguously.

Data analysis

The chi-square (x^2) test was used to analyze categorical variables which were expressed as percentage values.

On the other hand continuous variables were reported as mean value + standard error of mean (SEM) and analyzed using ANOVA or the t- test.

A P-value <0.05 was considered statistically significant. All analyses were performed using SPSS for Windows, version 14.0 (Chicago Inc., Illinois, USA).

Results

Pregnant females approached numbered 450 subjects and a total of (393) pregnant females agreed to participate, with a response rate of (87%).

The mean age of the final sample (393 pregnant females) was (29 + years); most women were multiparous (66.7%).

Educational attainment level was as follows; (74.6%) pregnant females had a (university) degree, (21.9 %) had a secondary school degree and 3.5% had primary education ninety eight (24.5 %) subjects reported suffering from chronic disease:

Diabetes (25 cases), hypertension (10 cases), Low back pain (25 cases), Osteoarthritis (10 cases), Asthma (12 cases), hepatitis (6 cases), Chronic headache (8 cases), hypothyroidism (2 cases). The majority of participants (67.5 %) reported to have used CAM during the first trimester, (37.7%) during the second and (28.9%) during the third trimester (Figure 1). With regard to modalities of CAM used, the majority (65.2%) of pregnant females used herbal remedies, (26.1%) used food supplements, (6.5%) oil massage, (1.1%) multivitamins and (1.1% cupping (Figure 2).

Questionnaire's validity and reliability

The questionnaire's reproducibility exceeded 0.7 for every item by computing all K- values using test - to - retest evaluation[1].

CAM usage outside and/or in previous pregnancies

(58%) of females reported to have used CAMs during previous pregnancies. The characteristics of pregnant females, divided into "users" or "non-users" of CAM are illustrated in Table (1).

x^2 - and t - test did not show any difference among all variables except for secondary and high school education see Table (1).

CAM usage during current pregnancy

The characteristics of subjects, according to CAM utilization in current pregnancy are illustrated in Table (2). Subjects who had used CAM in current pregnancy is reported at a (29%) prevalence versus (41.6%) non-use, P <0.001. Therefore the only characteristic included in the model which was statistically significant in both current and previous users was high level of education (P<0.001).

Percentage of herbal varieties used

Among pregnant females (24%) used herbal mixes, (17%) used ginger, (1%) aniseed, (9%) fenugreek, (9%) mint and (8%) used thyme, sage and lemon, whereas (6%) used chamomile (Figure 3).

Information source

The primary source of information for pregnant subjects during gestation was their friends/family (65%), magazine/ TV/ newspaper (13%), internet (7%), general practitioner (4%), gynaecologist (4%), others (4%), herbalist (2%) and pharmacist (1%) (Figure 4). In our study gynaecologists represented only (4%) unlike in studies conducted in Europe. In previous pregnancy females relied mainly on (gynaecologist) for information (28.9%), general practitioner (26.3%), internet (24.1%), friends/ family (11.7%), whereas outside pregnancy, herbalists were the main source for information (23.4%), followed by family/friends (17.9%), internet (16.2%), TV/ magazine (13.7%), general practitioner (13.3%), pharmacist (9.7%) and gynecologist (5.8%) (Figure 5).

Pregnant female opinion about safety of CAMs

With regards to safety (52.4%) of pregnant females thought that CAM was safer than traditional medicine, (25.7%) less safe, (10.4%) equally safe and (11.5%) had a don't know response (Figure 6).

Pregnant females opinion about efficacy of CAMs

Efficacy on the other hand was as follows ; (56.2%) of pregnant females thought CAM was more efficacious than traditional medicine, (37.7%) thought it was less effective and (6.1%) equally effective (Figure 7).

Reasons for different CAM used is variable according to pregnant females' belief which is influenced partially by cultural factors as well as others see Table (3).

Discusscion

This is the first Qatari study investigating knowledge, attitude and practice of CAMs in pregnant women, and is also the first work conducted with the aim of characterizing CAM users. These results emphasize that the use of CAMs during pregnancy is a common habit among pregnant women. In fact 58% of the surveyed subjects used at least one CAM during their lifetime and 29% in their current pregnancy. The reliability and validity of the questionnaire has been established in a previous study[8]. The prevalence of CAM use seems to be higher in Qatari than what is reported in studies performed in the USA and in other European countries. Most research on drug use in pregnancy report a prevalence of between 3.6 and 15.9% CAM use (including homeopathic and herbal drugs)[9-11]. (A)Furthermore, previous epidemiological studies conducted in Italy mainly dealt with the use of herbal remedies. *Zaffani et al*.[12] conducted a research on 1,044 randomly selected Italian women where 47.0% of the sample reported using at least one herbal product, including utilization in pregnancy or to treat their children's disease. Herbal products were mainly taken in combination with conventional drugs or homeopathic remedies.[4]

Although the prevalence of CAM use during pregnancy reported in the present study is (29%) nevertheless, in our sample, no significant difference was present in socio-demographic variables between CAM users and non-users including parity, nationality, co-morbid conditions and income, except among highly educated women, aged 29-34 years confirming previous results of studies performed in other countries[13,14]. However, it is worth mentioning that these studies were focused on phytotherapy, while the present study was aimed at exploring the use of any CAMs. So these socio-demographic features may therefore pertain to subjects seeking a phytotherapeutic approach, while the use of CAMs appears, in general, to be less restricted to social classes. The importance of studying CAM use in pregnancy underlies the possible maternal and foetal risks of some non-conventional medications. The safety profile of Ginseng, Valerian, St. John's Wort, Gingko, Propolis, and Chamomile is not clearly defined[15,16] and for some of them, their use in pregnancy is contraindicated because of the potential harm for the mother and/ or foetus as well as the potential adverse effect affecting childbirth[17-23]. Consistently, fenugreek, ginger, chamomile, consumed by 21% of the participants, are not supported by adequate information on their safety profile in pregnancy, and women could use these preparations without knowing their actual formulation. On this topic a fatal case report of anaphylaxis due to chamomile tea during pregnancy has been reported[24-26]. Finally ginger was also in common use among pregnant females. Ginger (Zingiber officinale Roscoe) contains many volatile oils, starch, triglycerides, niacin and vitamins. Ginger has many pharmacological actions including being an antiemetic, positive inotropic, carminative, promoting secretion of saliva and gastric juices. Ginger is thought to increase the effects of anticoagulants and may interfere with anti diabetic and cardiac therapies. Therefore its use in early pregnancy is not recommended.[27]

Although our survey reported the use of chamomile among pregnant females during their current pregnancy,chamomile however has been reported to have the potential to interact with anticoagulants thereby increasing bleeding tendency[28] and anaphylaxis. On the other hand sage (Salvia officinalis) with prolonged use may lead to epileptiform convulsions[29], hence some authors recommended regular blood glucose testing when this product is used[30]. Sage is also known to enhance the effects of anti-hypertensive and anti-diabetic medications[31]. Furthermore, fenugreek is known to have the potential of interaction with antihypertensive medications and anticoagulants thereby requiring therapeutic monitoring including serum glucose level and coagulation profile. The increased percentage (67.5%) of taking CAMs during the first trimester of pregnancy is quite alarming knowing the potential for

interaction and teratogenicity and more than half of pregnant women seem to be confident with CAMs and consider CAMs safer than conventional medicines. A positive note emerging from these data is that pregnant women refer primarily to gynecologists and general practitioners as their principal source of information for CAM use during pregnancy. However, only 28.9% of participants consulted gynaecologists, confirming the risk that CAMs could be used without an accurate clinical control.

Limitations

Firstly, the items that investigated the previous use of CAMs could be affected by recall bias. Secondly, not including females attending hospital and private clinic in Qatar may affect the generalizability of our finding to the whole population.

Conclusion

Given the high prevalence of CAM use among pregnant females in pregnancy and especially in the first trimester and the relative lack of evidence of either harm or efficacy, it is imperative that health care workers do enquire about CAM use as part of routine work up. Secondly, pregnant females should have preconception counseling regarding different CAMs available in the market especially where safety and efficacy are concerned.

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Table1. Population characteristics of 393 women according to lifetime use (n=229) or non-use (n=163) of CAMs. (58%)

Variables	Lifetime use		P-Value	x^2
	Users	Non-Users		
Age	29.11±5.6	27.21±5.4	0.001	-
Week of amenorrhea	21.26±7.6	21.18±7.8	0.921	-
Chronic Disease				
Yes	56(24.5)	34(20.7)	0.386	0.750
No	173(75.5)	130(79.3)		
Level of Education				
Primary School	9(3.9)	20(12.2)		
Secondary & High School	60(26.2)	81(49.4)	<0.0001	39.83
University Degree	160(69.9)	63(38.4)		
Parity				
Nulliparae	66(28.8)	52(31.7)		
≥ 1 Previous pregnancies	163(71.2)	112(68.3)	0.538	0.379
Nationality				
Qatari	37(16.2)	33(20.1)		
Non-Qatari	192(83.8)	131(79.9)	0.311	1.026
House Income				
< 5000	27(11.8)	27(16.5)		
5000 - 10000	109(47.6)	80(48.8)	0.328	3.447
10000 -15000	61(26.6)	42(25.6)		
>15000	32(14.0)	15(9.1)		

Table 2. Population characteristics of 393 women according to use (n=114) or non-use (n=279) of CAMs during current pregnancy. (29%)

Variables	Current Pregnancy		P-Value	x^2
	Users	Non-Users		
Age	29.05±5.7	28.00±5.5	0.092	-
Week of amenorrhea	21.61±7.2	21.06±7.9	0.526	-
Chronic Disease				
Yes	30(26.3)	60(21.5)	0.303	1.061
No	84(73.7)	219(78.5)		
Level of Education				
Primary School	4(3.5)	25(9.0)		
Secondary & High School	25(21.9)	116(41.6)	<0.0001	20.952
University Degree	85(74.6)	138(49.5)		
Parity				
Nulliparae	38(33.3)	80(28.7)		
≥ 1 Previous pregnancies	76(66.7)	199(71.3)	0.360	0.836
Nationality				
Qatari	16(14.0)	54(19.4)		
Non-Qatari	98(86.0)	225(80.6)	0.211	1.565
House Income				
< 5000	14(12.3)	40(14.3)		
5000 - 10000	60(52.6)	129(46.2)	0.713	1.269
10000 -15000	27(23.7)	76(27.2)		
>15000	13(11.4)	34(12.2)		

Table 3. Reason for CAMs use.

Variables	Reason
Oil Massage	Stomach & Head Ache Bone Strength, foetal movements
Sage (Meramieh)	Indigestion, Cold & Flu
Mint	Cold & Flu, Tension Relief , Indigestion
Ginger	Vomiting, Kidney problems, Abdominal Cramps, Infection
Fenugreek (Helba)	UTI,
Aniseed (Yansoon)	Constipation , Influenza, Stomach pain
Thyme (Zaatar)	Vomiting, Gases, Influenza, Abdominal Cramps
Cupping	Good for Health

Table 4. CAM use during current pregnancy.

Variables		Age	Week of Amenorrhea
Lifetime use			
	User	29.11 ± 5.6	21.26 ± 7.6
	Non-User	27.21 ± 5.4	21.18 ± 7.8
Current Pregnancy			
	User	29.05 ± 5.7	21.61 ± 7.2
	Non-User	28.00 ± 5.5	21.06 ± 7.9

Figure 1. CAM use in relation to Trimmester Period

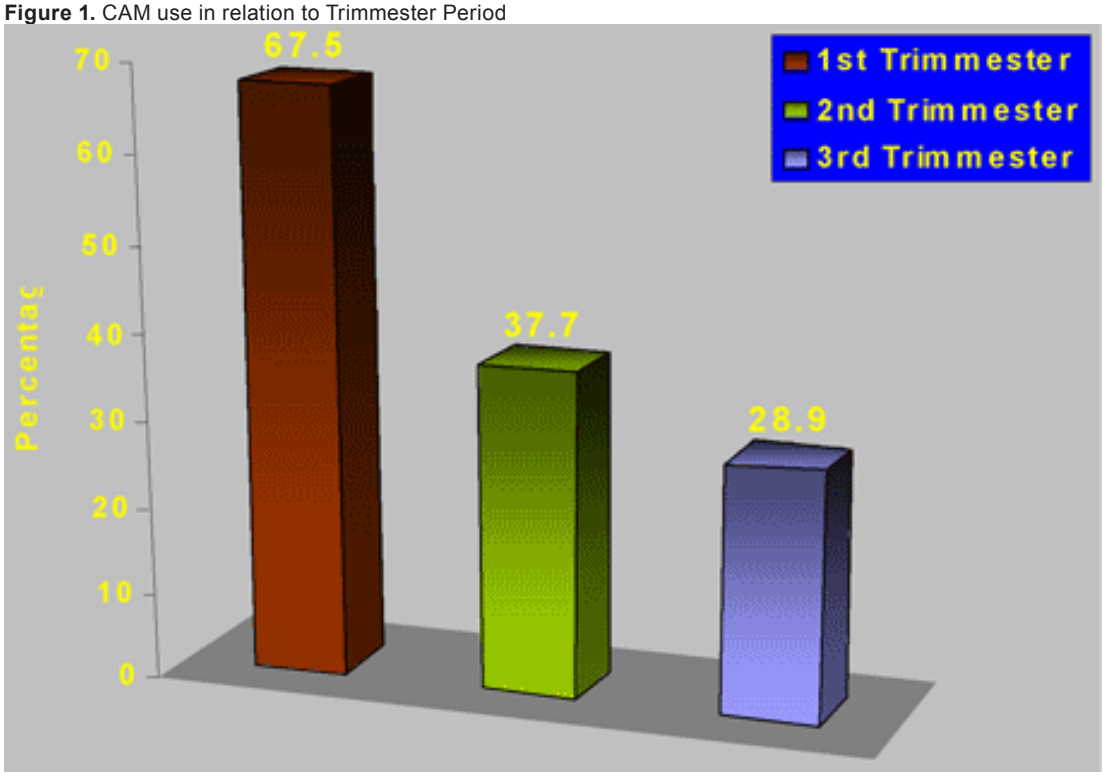


Figure 2. Modalities of CAM used

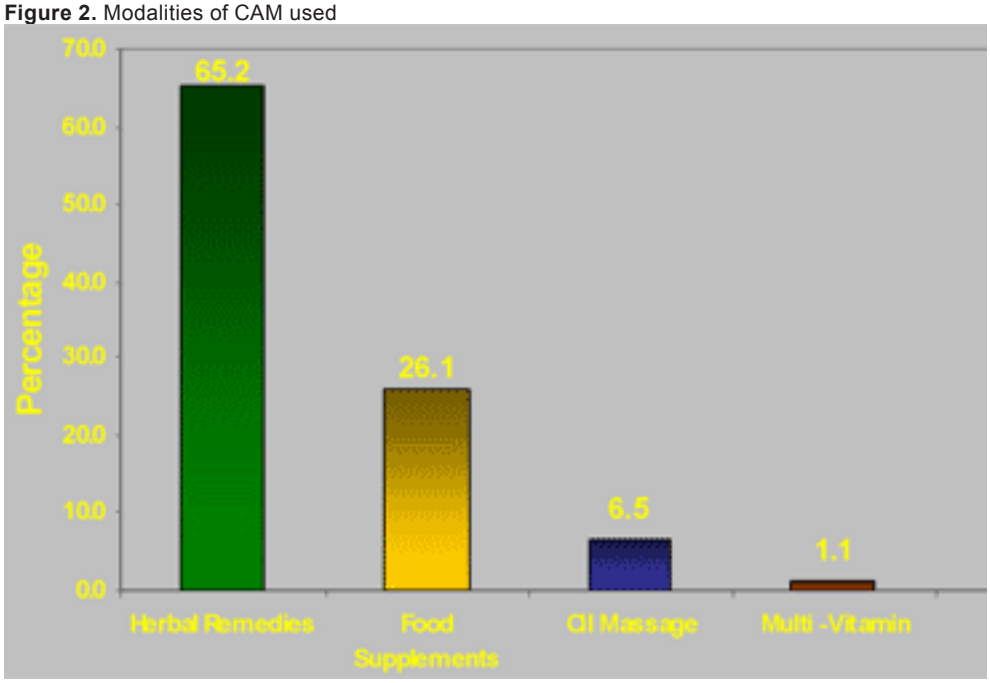


Figure 3. Percentages of herbal varieties used

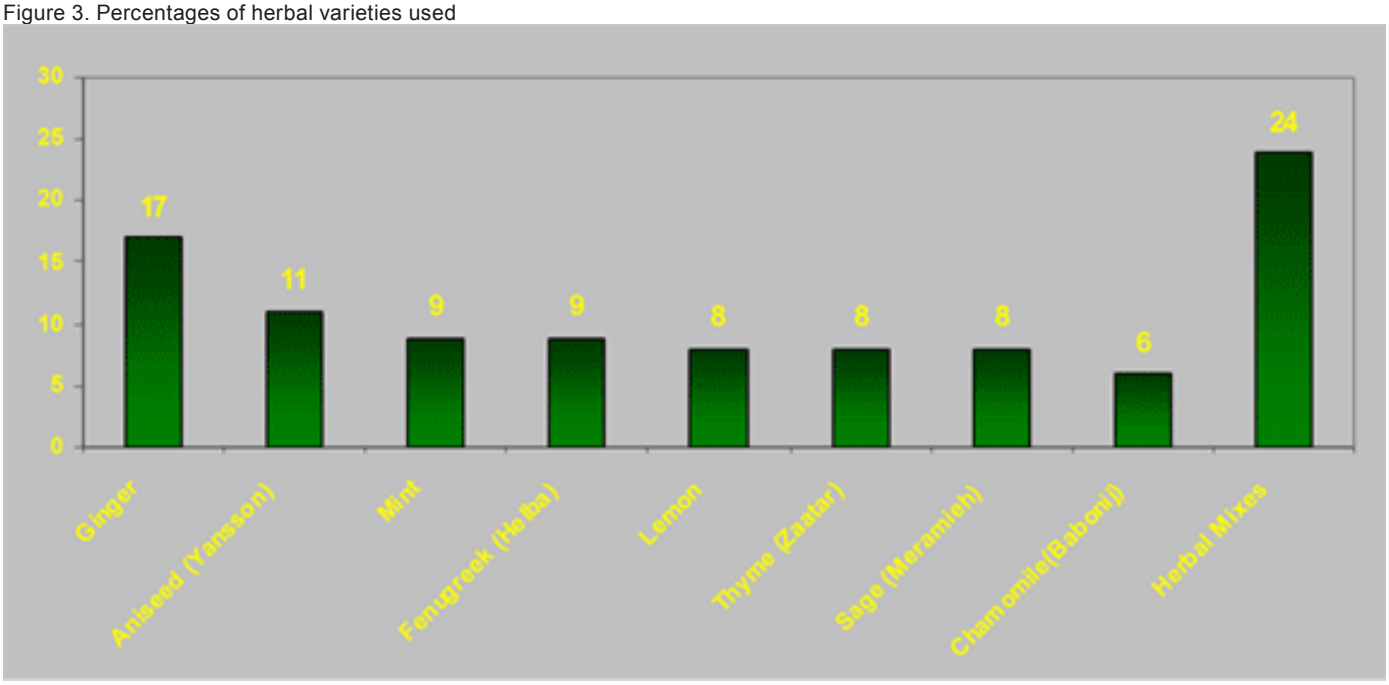


Figure 4. sources on CAM during current pregnancy (n=114)

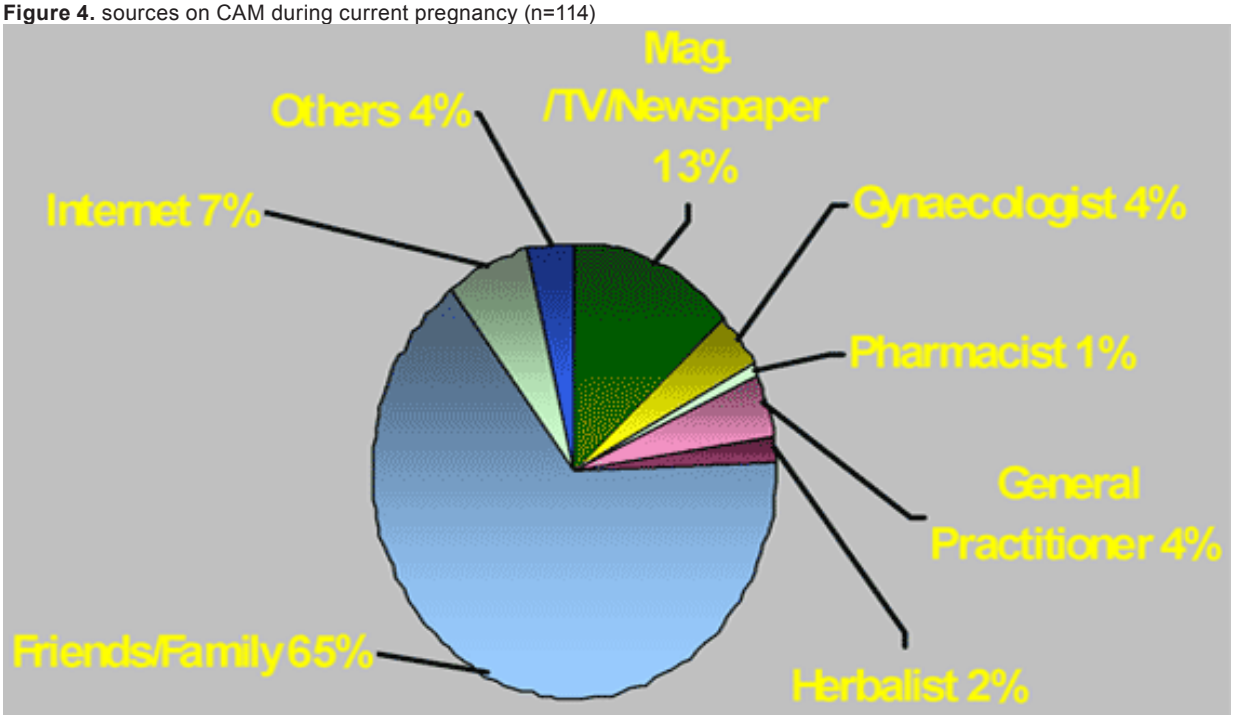


Figure 5. Information sources on CAM in previous pregnancy or outside of pregnancy (n=114)

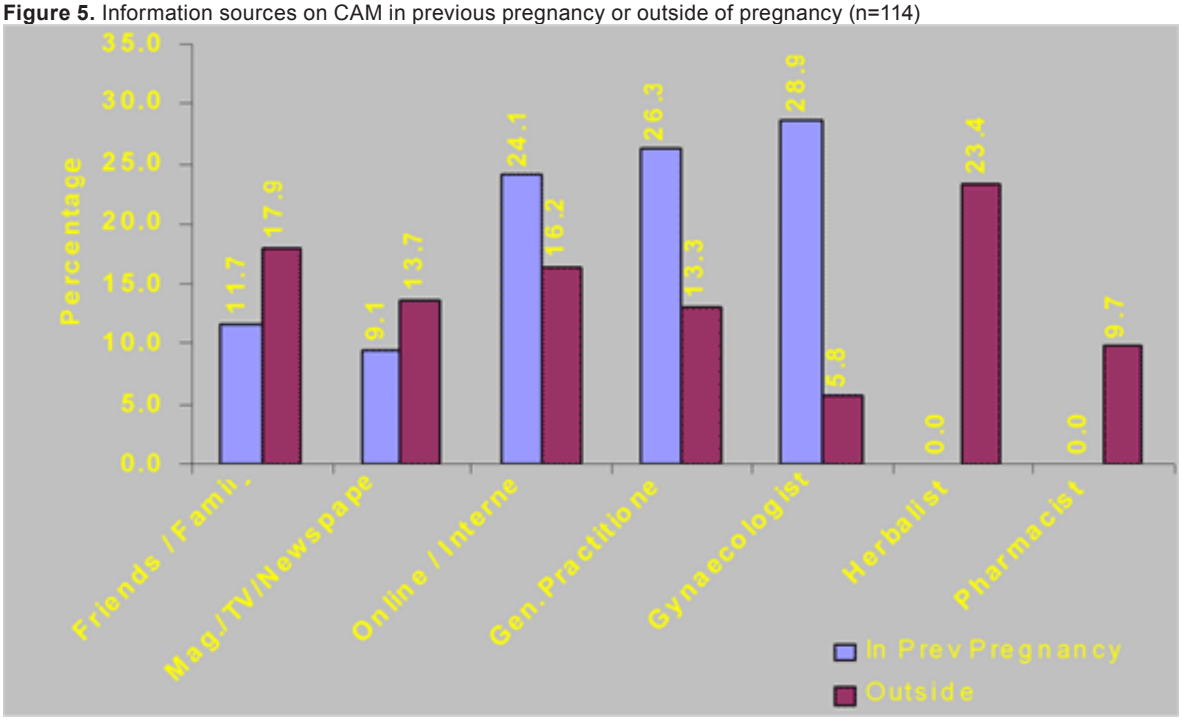


Figure 6. Pregnant women's opinions about safety of CAM when compared with traditional medications (n=114)

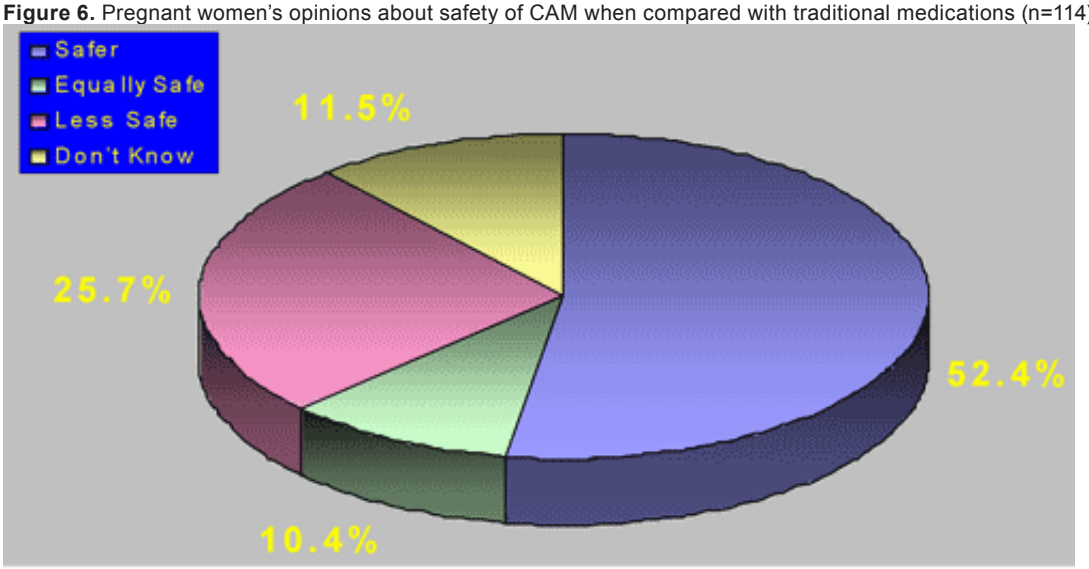
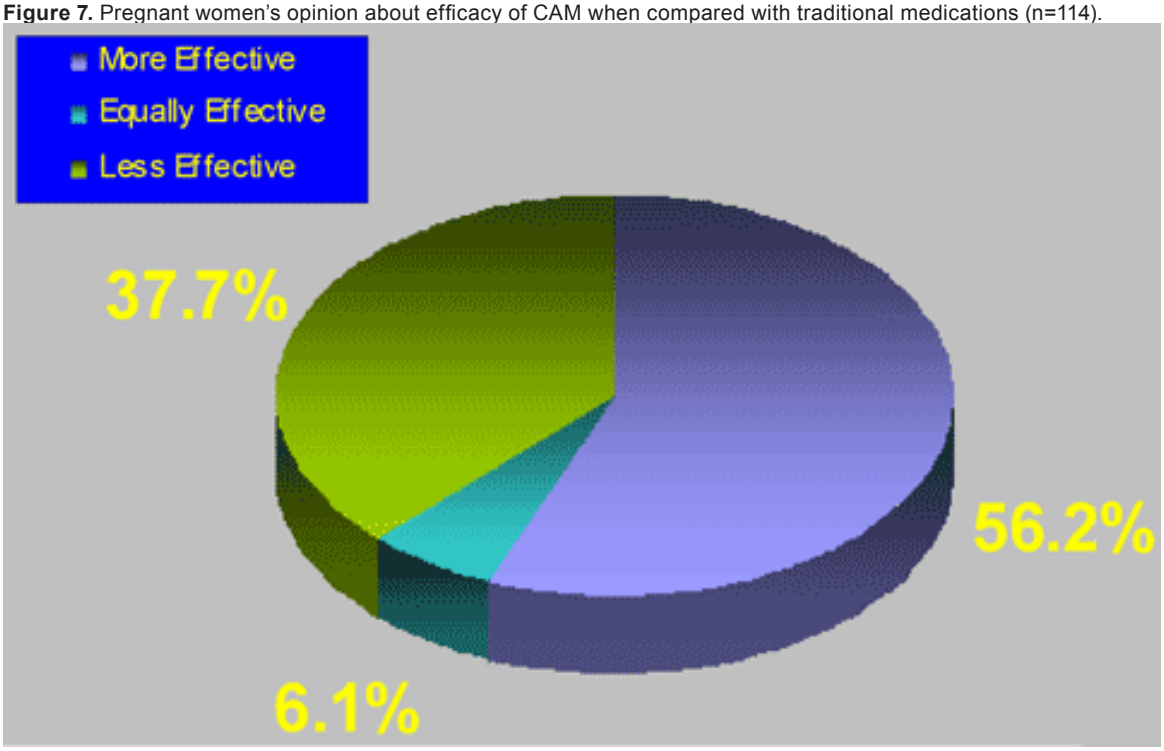


Figure 7. Pregnant women's opinion about efficacy of CAM when compared with traditional medications (n=114).



Association between Hypertension and Sexual Dysfunction amongst Persons with Diabetes Mellitus in Benin City, Nigeria

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ABSTRACT

Background and Objectives
Hypertension and Diabetes Mellitus are both cardiovascular risk factors and when they occur together are associated with accelerated microvascular and macrovascular complications. Atherosclerosis of the pudendal and carvernosal arteries from hypertension and diabetes mellitus causes arterial insufficiency leading to sexual dysfunction in the affected individual. This study set out to find out, if there is any association between hypertension and sexual dysfunction amongst persons with diabetes mellitus in Benin City, in the South-south geo-political region of Nigeria.

Materials and Methods Four hundred and fifty DM subjects were assessed for sexual dysfunction using the female sexual function index for female, and international index of erectile function in males. Hypertension was diagnosed using a mercury sphygmomanometer. Other data included age, sex, duration of DM, duration of SD, weight, height, body mass index and waist circumference.

Result One hundred and forty five subjects (130 males, 15 females) had sexual dysfunction. Two hundred and forty four subjects were hypertensive. One hundred and thirty six subjects (93.7%) had hypertension amongst those with SD, while one hundred and eight of those without SD (35.4%) were hypertensive. The mean (+SD) diastolic blood pressure in the SD subjects was 89.8 + 24.5mmHg, while for subjects without SD it was 84.6 +12.6mmHg and it was significant ($p<0.05$). The mean (+SD) systolic BP for those without SD was 148.2+24.5mmHg, and for those without SD was 138.4+ 25mmHg and the difference was significant ($p<0.05$). A significant statistical association was established between Hypertension and sexual dysfunction in this study ($X2 = 135$, $df=1$, $p<0.05$)

Conclusion Hypertension is significantly associated with sexual dysfunction. Persons with DM who also have hypertension have a higher risk of developing sexual dysfunction than those without hypertension. We therefore recommend that hypertension and diabetes be managed optimally in these persons to reduce the risk of developing sexual dysfunction.

Introduction

Hypertension when it occurs in persons with Diabetes Mellitus is associated with accelerated progression of both microvascular (retinopathy, neuropathy and nephropathy) and macrovascular (atherosclerotic) complications[1]. Hypertension and Diabetes Mellitus are independent risk factors for sexual dysfunction, macrovascular disease and microangiopathy, hence good glycaemic and hypertensive control is important in DM persons with hypertension. Macrovascular disease accounts for the majority of deaths in patients with type 2 DM; with coronary artery disease and stroke contributing to the majority of the deaths[1].

Atherosclerosis of the pudendal and cavernosal arterial insufficiency has been shown to be a major cause of sexual dysfunction especially amongst the elderly[2]. Hypertension has been shown in some studies to be a predictor for sexual dysfunction years later amongst subjects with DM[3].

This study set out to find whether there is any association between hypertension and sexual dysfunction amongst persons with DM in Benin City, in the South South geopolitical zone of Nigeria.

The aim of the present study was to assess the prevalence of adverse obstetric and psychiatric outcomes among primigravid teen-aged mothers compared with a matched group of older women in Al-Ahsa, Saudi Arabia.

Subject and Methods

This was a cross sectional, descriptive study. Four hundred and fifty consenting subjects with DM were recruited from the Diabetes clinic of the University of Benin Teaching Hospital, and Central Hospital both in Benin City in the South South geopolitical zone of Nigeria. Patients who were on drugs like beta blockers and centrally acting drugs like alpha methlydopa known to cause sexual dysfunction, were excluded.

Data obtained included age, sex, weight, height, body mass index waist circumference, blood pressure and presence of SD.

The weight obtained was recorded in kilograms (kg) to the nearest 0.1kg and the height recorded in metres (m) to the nearest 0.01m. The body mass index was calculated as the weight in kg divided by the square of the height in metres[4]. The waist circumference was measured using a non-stretch metric tape and taken at the mid point between the rib cage and iliac crest, while hip circumference was taken as the maximal circumference of the buttock[5]. Blood pressure was measured in the sitting position with a mercury sphygmomanometer. Hypertension was diagnosed if the systolic blood pressure was >130mm Hg and the diastolic blood pressure >80mmHg on at least two occasions or the patient was on antihypertensive drugs[6]. Male SD was diagnosed using

the international index of erectile function (IIEF)[7], while female SD was diagnosed using the female sexual function index (FSFI)[8]; both are specific, sensitive and standardized tools for SD. Male SD was diagnosed if the overall score was <60, while female SD was diagnosed if the overall score <30.

Data analysis was done using SPSS version 10 (2000). Comparison of means was done using the student t test, while that of proportion was done using the chi squared test. The level of statistical significance was taking as $p<0.05$.

Results

The clinical characteristics of the study subjects are shown in Table 1. The subjects with sexual dysfunction were older, had higher and anthropometric indexes, had a longer duration of diabetes and hypertension than those without sexual dysfunction and this difference was statistically significant ($p<0.05$). One hundred and forty-five subjects (130 males, 15 females) had sexual dysfunction. Two hundred and forty four subjects were hypertensive. Amongst the 145 subjects with SD, 136 (93.7%) were hypertensive, while of the 305 subjects without SD, 108 (35.4%) had hypertension. The mean (+SD) diastolic BP in the subjects with SD was 89.8 + 24.5mmHg, while for the subjects without SD it was 84.6 + 12.6 mmHg and this was statistically significant ($p<0.05$). The mean (+SD) systolic BP in those with SD was 148.2 + 24.5mmHg and for those without SD it was 138.4 + 25 mmHg and this difference was significant ($p<0.05$). Out of a total of 244 persons with DM and hypertension, 136 (55.7% had sexual dysfunction.

A significant association was found between hypertension and sexual dysfunction in this study (x^2 = 135.05, df = 1, $p<0.05$).

Discussion

Diabetes and hypertension are both independent risk factors for the development of macrovascular complications of DM. Diabetes increases the risk of cardiovascular events two to six fold higher at every level of systolic blood pressure or diastolic blood pressure[9]. In diabetic persons, there is a graded increase in risk across the entire range of blood pressure[10]. Therefore diabetes and hypertension combined, confer a much higher risk than either one alone and hence the control of blood pressure is crucial to the prevention of the complications of diabetes[11]. In part, because of this higher risk, even at high-normal levels of blood pressure, the Joint National Committee on prevention, Detection, Evaluation and Treatment of High Blood Pressure VII (JNCVII) report, recommended beginning drug treatment in diabetic patients if the systolic blood pressure is >130mmHg or the diastolic blood pressure is >85mmHg[6]. The United Kingdom Prospective Diabetes Study (UKPDS) has shown that morbidity and mortality can be greatly reduced if blood pressure is adequately controlled[11]. The goal for blood pressure control in diabetic individuals is therefore recommended to be < 130mmHg systolic and <80mmHg diastolic pressure[6].

Diabetes, hypertension and increasing age are independently associated with an increased prevalence of sexual dysfunction in both men and women[12,13]. Hypertension, neuropathy, vascular insufficiency and psychological problems have all been implicated in erectile dysfunction, impaired ejaculation and decreased libido in men, and decreased vaginal lubrication, orgasmic dysfunction and decreased libido in women[12,13]. *Johannes et al*[14] found that the rate of sexual dysfunction increased with age, and with presence of such factors as diabetes, heart disease and hypertension. It is said that up to 80% of sexual dysfunction has an organic basis with vascular disease being the most common cause[15]. In the much celebrated Massachusetts Male Aging Study (MMAS), an extremely deleterious epidemiological link was shown between coronary artery disease, diabetes and sexual dysfunction[16]. Atherosclerosis is the most common cause of vascular sexual dysfunction and the changes that occur with atherosclerosis include endothelial injury, cellular migration and smooth muscle proliferation. Many factors influence these changes including cytokines, thrombosis, growth factor, antioxidants and metabolic alterations, such as those occurring in diabetes[17]. Sexual dysfunction was found to be three times more prevalent in diabetic subjects than those without diabetes in the MMAS study, and the pathogenesis linked to accelerated atherosclerosis, alterations in corporal erectile tissue and neuropathy[17]. Advanced glycosylated end products have been shown to be elevated in the penile tissue of diabetes with reduced nitric oxide production.

A significant correlation was also established between hypertension and sexual dysfunction in the above study. While Burchadt et al18 reported a higher incidence of severe sexual dysfunction in hypertension than in the general population, hypertension itself as well as antihypertensive drugs used in its treatment were found to be contributory factors.

Sexual dysfunction is often a sentinel manifestation of vascular disease like hypertension and Diabetes. Endothelial cell dysfunction has been shown to precede the formation of atherosclerotic plaques and is common in patients with cardiovascular disease or diabetes[17,19]. Sexual dysfunction itself may be an independent marker for coronary artery disease of which hypertension and diabetes are important risk factors, hence adequate control of hypertension and Diabetes Mellitus must form the cornerstone of primary prevention of SD in diabetic patients.

Some limitations were encountered in this study, the questionnaire used is a self report diagnostic tool and its interpretation may reduce the accuracy of the responses given, and some of the female subjects were not comfortable discussing sexual issues with a male medical personnel and this may also affect the responses.

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Table 1: Clinical Characteristic of Study Subjects

	Sexual Dysfunction (n=145)	**No Sexual Dysfunction (n=305)**	**p-value**
Age	48.8±8.4	47.4 ±11	<0.05
BMI	26.4±3.2	23.9±3.4	<0.05
WHR	0.93±0.07	0.91±0.09	<0.05
Duration of DM	8.09±4.5	7.4±4.9	<0.05
Duration of Hypertension	8.38±4.21	4.14±2.4	<0.05
Systolic BP	148.2±24.5	138.4±25.0	<0.05
Diastolic BP	89.8±24.5	84.6±12.6	<0.05

BMI – Body Mass Index; WHR = Waist hip ratio; DM= Diabetes Mellitus; BP = Blood Pressure

Sex and Time Spent during Examinations as Predictors of Scores among Medical Students

ABSTRACT

Background and Objectives
Background and objectives Written examination is an important method for student's assessment. The study aimed at measuring the mean time spent by students to finish the examination, and comparing it with the proposed time; studying the relation between gender and examination scores; and finding any correlation between time spent during examination and the scores obtained.

Methods A cross-sectional study was carried out in the college of medicine, Hawler Medical University. Data were obtained during the final written examination done in June 2007 for all the students of the college. Then the scores were obtained from the examination committee.

Result Females spent more time during the examination than male students in many subjects ($P < 0.05$). There was no consistent pattern regarding the differences in marks (scores) obtained by males and females. A very weak correlation (whether positive or negative) was obtained between the scores of students in different subjects and the time spent during examination.

Conclusion: There was no solid and consistent association between gender and time, and the scores obtained by students.

Key words Gender differences, examination scores.

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Introduction

Formal teaching curricula usually ends with examination of the students, and whatever the type and method of examination, students have to pass the exam to succeed and shift to another stage. The results and methods of these examinations need continuous evaluation in order to make the examination a valid indicator of the student's level of knowledge and understanding.[1]

The author thinks that the time spent during the written examination is one of the important indicators that reflect the level of the questions. If the time spent is short, it could mean that the questions are easy answered, or the questions are too little and not comprehensive that don't cover the teaching material. On the other hand if the majority of students need extra time to finish, it means that the questions are too long and don't match with the proposed time.

Very few authors studied this factor, and none in Hawler Medical University (Erbil, Iraq). In 2004 Niazi and Isa, studied the relation between the time spent during examination and the scores obtained by students, and the relation between time and gender.[2]

Research work showed that there is a gender difference in performance 3-5 but few articles showed the relation between the time spent during examination and the scores obtained by students, and the relation between time and gender.[2]

The study aims at:

1. Measuring the mean time spent by students (males and females) to finish the examination, and comparing it with the proposed time.
2. Studying the relation between gender and examination scores.
3. Finding any correlation between time spent during examination and the scores obtained.

Subjects and Methods

A cross sectional study was carried out in the College of Medicine, Hawler Medical University. Data collection was carried out during June 2007 where all the students in the college sit the final written ex!mination. All the students &rom grade one to 'rade six were included in the study. A simple form designed by the i.vestigator was used to collect data. It included student's name, gender, grade, subject of examinatIon, and time (in minutes) spent to finish the written exam. The students' namas were take. from the examination committee, and teachers in the examination hall, after providing them with brief instructions, registered the information mentioned above for each student finishing his examination. The clock of the examination hall was used to calculate the time spent by students to finish the exam. The scheduled time to finish the examination was 180 minutes, irrespective of subject and grade.

Scores of the students were taken from the examination committee. Then data were entered into a personal computer using the Statistical Package for Social Sciences (SPSS) version 11.5. Student t test and Pearson Correlation were carried out. Multiple regression analysis was carried out considering the mean marks of the students (all grades, and all

subjects) as dependent variable, and the sex and time spent during the examination as covariates. Male was coded as "1" and females as "0" in the regression analysis. A "P" value of ≤0.05 was considered as statistically significant.

Results

Table 1 shows that females spent more time during the examination than male students in many subjects (P < 0.05), while males, even when they spent more time than females, the differences were not statistically significant.

There was no consistent pattern regarding the differences in marks (scores) obtained by males and females. The mean scores for males were more than females in some subjects, and the reverse is true for other subjects. Sometimes the mean scores for males and females were nearly the same. These differences, even when present were not statistically significant (P > 0.05) (Table 2).

A correlation between time spent during the examination, which was presented in table 1, and th% scores obtained by students, that uere presented in table 2, was done* Almost all phe values of the correlation coefficient (r) indicate that there w!s very weak association bepween the time spent during examination and the marks (scores) obtained by the students. This correlation was 'positive' for some subjects, and 'negative' for other subjects. (table 3).

The mean scores and mean time spent during examinations were calculated for all o" the subjects, Then multiple regression analysis was carried out (considering all the 6 grades together). Results shows (table 4) that the values of the beta coefficients obtained for sex and time were not significant as predictors of students' marks.

Discussion

The process of learning, which includes examinations, is dynamic and needs continuous evaluation in order to obtain the best results. While oral examinations are a subjective method of evaluating students' knowledge and depend on the site of teaching and examination, written examinations are usually conducted for objective student assessment.[5]

Relatively little research has been done into the importance of different factors in association with academic performance in medical education. However, in many instances factors like previous academic ability, learning styles, ethnicity and sex have been assessed for their association with success in medical education and as predictors of academic achievement. Most of these studies had recommended more research work to provide comparative analyses of the effect of such wide variety of factors on students' scores in examinations and as predictors of students' performance in medical education.[5,7,10]

There is very scarce research that has comprehensively studied the effect of gender and time spent in examination on medical students' academic performance. Previous research has mainly focused on studying individual study subjects, specific stages of college or only considered the grade point average of students.[2,5,8,9,11] This study was so comprehensive that it examined the scores of all students from the six stages at medical college for all individual study subjects in relation to gender difference and time spent on each examination.

This study showed that there was no consistent pattern regarding the differences in academic achievement between males and females with no significant difference when it was present. Two other studies from Iraq showed that female medical students slightly outperformed male students in academic performance, but such differences were statistically insignificant.[2,9]

The literature has consistently suggested that females tend to perform better than males in their medical academic performance. However, in most instances these differences were small and reached significance only when the sample sizes were large, which raises doubts about the practical relevance of these sex differences.[4,7,11-13] Only few studies have suggested that men slightly outperformed women, but only in early stages of medical study and these differences disappeared later.[7,10]

Previous research on students' performance in the United States medical licensing examination step 2 clinical knowledge performance suggested that women outperformed men in some content areas, and men outperformed women in others, while more recent studies revealed a somewhat different pattern, with women outperforming men in most content areas.[11,14] This pattern has also been notices in other fields of educations.[15] This suggests that the issue of sex difference in medical education performance is still an outstanding and a debatable issue.

Researchers offer a variety of explanations for sex differences in standardized test scores. Some suggest that the sex differences are the result of biological factors like difference in exposure to hormones. Others suggest that sex differences are largely the result of environmental factors as males and females interact differently with the learning environment. While females' standards and goals are responsive to social and environmental influences, males are relatively indifferent and appraise their performance according to self-set personal standards.[16,17]

The evidence that anxiety may also play a role in explaining sex differences in exam scores is growing. Males and females show a clear difference in the levels of anxiety they experience. Females' greater levels of worry could be beneficial if it leads them to take tests more seriously and to study diligently for them. Students with high level of test anxiety may perform more poorly on cognitive tasks than students with low levels of test anxiety, even when levels of ability are similar. Females' greater anxiety appears to place them at a disadvantage in subjects related to cognitive function and at an advantage in other subjects, e.g. radiology versus psychiatry.[5,6,16]

A growing body of research explores whether different motivational, academic, and demographic factors influence the performance of males and females. Motivation seems to be important as service quality variables like helping others predicted females' grades and individual mastery variables like intellectual growth predicted men's grades.[7]

There is very little research that has evaluated sex difference in terms of time spent in examination rooms and its effect on students' scores especially in medical education field. The finding that females have significantly spent more time during the examination than males in many subjects is consistent with the finding of another study conducted in Iraq.[2] Again females' greater levels of test anxiety may be attributed to having spent more time in examination room trying to provide better and more precise answers and spending more time in reviewing and revising the answers.[16]

In this study, there was generally very weak association between the time spent during examination and students' scores with both sides of effect, i.e. both positive and negative relations. The other study from Iraq showed that students' performance in the exam was affected by the duration of time spent in examination rooms with significant positive correlation,[2] however, such association was weak and this significant finding might be attributed to the large sample size used in that study. On the other hand, research on students' performance in the United States medical licensing examination step 2 suggested that examinees who received more time per item generally outperformed examinees who received less time per item.[14]

There are a number of different factors that can influence the time spent in examination including type and difficulty of questions, type of required answers, students' knowledge and cognitive ability and students' test anxiety. Students with more knowledge and cognitive ability may spend less time in completing examination and achieve higher scores. On the other hand, students better utilizing the time in better p,anning and shapinf the answars and making proper review may also achieve better scores even if they have to spend more time on examination. This may explain the very weak Association between The time spent during examination and the students' scores in this study and the inconsistency of this issue in other studies.

Conclusion

There was no consistent pattern regarding the differences in academic achievement between male and female medical students. While females spent more time during examinations than males, there was generally very weak association between the time spent during examination and students' scores.

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Table 1. Comparison between the mean time spent during examination by males and females according to subject of the examination.

Grade and subject	Sex	N	Mean, minutes	SD	t	df	P	Mean difference	95% CI of difference	
									Lower	Upper
G1 Anatomy	M	54	159.35	29.43	-1.65	116	0.10	-7.10	-15.61	1.41
	F	64	166.45	16.33				-7.10	-16.05	1.84
G1 Chemistry	M	55	132.82	29.51	-2.41	116	0.02	-11.96	-21.79	-2.13
	F	63	144.78	24.37				-11.96	-21.92	-1.99
G1 Biology	M	55	174.38	18.42	-1.52	118	0.13	-3.65	-8.40	1.10
	F	65	178.03	5.51				-3.65	-8.80	1.50
G1 Physics	M	55	126.65	31.62	-2.17	117	0.03	-11.77	-22.49	-1.05
	F	64	138.42	27.45				-11.77	-22.61	-0.92
G2 Anatomy	M	51	113.49	29.14	-1.70	135	0.09	-9.73	-21.06	1.60
	F	86	123.22	34.19				-9.73	-20.62	1.16
G2 Physiology	M	56	148.36	32.19	0.68	142	0.50	3.56	-6.78	13.91
	F	88	144.80	29.57				3.56	-7.01	14.13
G2 Biochemistry	M	56	145.77	37.18	0.73	141	0.47	4.34	-7.45	16.14
	F	87	141.43	33.23				4.34	-7.78	16.46
G2 Embryology	M	52	140.52	30.77	0.56	134	0.58	2.88	-7.36	13.11
	F	84	137.64	28.40				2.88	-7.58	13.34
G2 Histology	M	53	151.94	27.73	1.49	139	0.14	7.39	-2.40	17.17
	F	88	144.56	28.89				7.39	-2.32	17.09
G3 Pathology	M	77	147.38	29.16	-2.46	159	0.02	-10.56	-19.06	-2.07
	F	84	157.94	25.39				-10.56	-19.11	-2.02
G3 Pharmacology	M	76	134.32	33.89	-2.74	159	0.01	-13.39	-23.03	-3.75
	F	85	147.71	27.97				-13.39	-23.14	-3.64
G3 Surgery	M	77	89.27	25.04	-2.65	159	0.01	-10.52	-18.36	-2.69
	F	84	99.80	25.27				-10.52	-18.36	-2.69
G3 Parasitology	M	75	126.96	37.76	-2.54	155	0.01	-13.39	-23.83	-2.96
	F	82	140.35	28.11				-13.39	-23.98	-2.81
G3 Medicine	M	76	133.84	32.23	-2.21	159	0.03	-10.24	-19.41	-1.07
	F	85	144.08	26.62				-10.24	-19.51	-0.97
G3 Microbiology	M	79	136.15	30.50	-2.41	164	0.02	-11.19	-20.35	-2.04
	F	87	147.34	29.22				-11.19	-20.37	-2.02
G3 Community medicine	M	74	158.54	24.46	-2.67	156	0.01	-9.29	-16.17	-2.42
	F	84	167.83	19.22				-9.29	-16.28	-2.31
G4 Medicine	M	84	148.64	30.44	0.18	166	0.86	0.83	-8.34	10.00
	F	84	147.81	29.77				0.83	-8.34	10.00
G4 Surgery	M	84	118.05	30.02	1.70	166	0.09	7.77	-1.24	16.79
	F	84	110.27	29.17				7.77	-1.24	16.79
G4 Pediatrics	M	84	133.05	30.05	-1.07	165	0.28	-5.15	-14.60	4.31
	F	83	138.19	31.80				-5.15	-14.60	4.31
G4 Psychology	M	85	132.33	31.25	-1.90	165	0.06	-8.98	-18.33	0.38
	F	82	141.30	29.90				-8.98	-18.32	0.37
G4 Obstetrics	M	85	150.14	27.52	-0.25	166	0.80	-1.06	-9.36	7.23
	F	83	151.20	26.91				-1.06	-9.35	7.23
G4 Community medicine	M	85	163.44	22.75	-0.28	166	0.78	-0.99	-7.86	5.89
	F	83	164.42	22.38				-0.99	-7.86	5.89
G4 Forensic	M	85	113.26	31.33	0.16	166	0.87	0.81	-8.95	10.58
	F	83	112.45	32.76				0.81	-8.95	10.58

G5 Surgery	M	75	172.33	16.14	-0.03	119	0.98	-0.08	-6.21	6.05
	F	46	172.41	17.18				-0.08	-6.33	6.17
G5 Medicine	M	76	125.72	31.16	-2.08	120	0.04	-11.56	-22.55	-0.56
	F	46	137.28	27.17				-11.56	-22.20	-0.91
G5 Dermatology	M	75	122.97	27.65	-1.18	119	0.24	-6.14	-16.44	4.17
	F	46	129.11	28.00				-6.14	-16.50	4.23
G5 Pediatrics	M	74	147.11	28.80	0.67	117	0.51	3.73	-7.34	14.80
	F	45	143.38	30.81				3.73	-7.56	15.02
G5 Psychiatry	M	75	134.92	26.10	-0.53	119	0.60	-2.58	-12.27	7.11
	F	46	137.50	26.17				-2.58	-12.30	7.14
G5 Gynecology	M	74	140.61	29.55	-0.88	118	0.38	-4.59	-14.86	5.68
	F	46	145.20	24.20				-4.59	-14.40	5.23
G5 ENT	M	71	120.62	26.43	-1.42	115	0.16	-7.27	-17.38	2.84
	F	46	127.89	27.77				-7.27	-17.52	2.97
G5 Ophthalmology	M	74	116.96	28.61	-0.82	118	0.42	-4.15	-14.21	5.91
	F	46	121.11	24.32				-4.15	-13.84	5.55
G6 Medicine	M	72	163.14	17.18	0.32	109	0.75	1.16	-5.98	8.31
	F	39	161.97	19.78				1.16	-6.33	8.66
G6 Pediatrics	M	72	164.89	20.27	0.53	109	0.59	2.15	-5.82	10.11
	F	39	162.74	20.13				2.15	-5.84	10.13
G6 Surgery	M	72	171.21	15.23	-0.65	109	0.52	-1.87	-7.54	3.80
	F	39	173.08	12.68				-1.87	-7.25	3.51
G6 Gynecology	M	72	167.14	16.27	-0.85	109	0.398	-2.63	-8.78	3.52
	F	39	169.77	14.28				-2.63	-8.56	3.30

Table 2. Comparison between mean scores obtained by males and females according to subject of the examination

Grade and subject	Sex	N	Mean marks %	SD	t	Df	P	Mean Difference	95% CI of the Difference	
									Lower	Upper
G1 Anatomy	M	54	55.02	16.20	-0.134	116	0.89	-0.42	-6.67	5.82
	F	64	55.44	17.76				-0.42	-6.62	5.77
G1 chemistry	M	55	53.58	20.26	-0.642	116	0.52	-2.24	-9.17	4.68
	F	63	55.82	17.70				-2.24	-9.23	4.75
G1 biology	M	55	49.06	15.28	-1.196	118	0.23	-3.22	-8.55	2.11
	F	65	52.28	14.19				-3.22	-8.59	2.15
G1 physics	M	55	52.29	14.62	-0.837	117	0.40	-2.26	-7.60	3.08
	F	64	54.54	14.70				-2.26	-7.60	3.08
G2 Anatomy	M	51	63.81	12.28	0.382	135	0.70	0.69	-2.89	4.27
	F	86	63.12	8.82				0.69	-3.22	4.60
G2 physiology	M	56	54.21	13.79	1.348	142	0.18	3.17	-1.48	7.82
	F	88	51.05	13.74				3.17	-1.49	7.83
G2 biochemistry	M	56	53.89	13.19	0.259	141	0.80	0.54	-3.60	4.69
	F	87	53.35	11.58				0.54	-3.73	4.82
G2 embryology	M	52	70.13	13.79	1.000	134	0.32	2.35	-2.30	7.00
	F	84	67.78	13.02				2.35	-2.38	7.07
G2 histology	M	57	52.99	21.19	-0.733	144	0.46	-2.13	-7.87	3.61
	F	89	55.12	13.92				-2.13	-8.43	4.17
G3 medicine	M	76	54.66	13.34	-0.917	157	0.36	-1.92	-6.06	2.22
	F	83	56.58	13.08				-1.92	-6.07	2.22

G3 microbiology	M	77	49.31	10.52	-0.538	159	0.59	-0.99	-4.61	2.63
	F	84	50.30	12.54				-0.99	-4.58	2.61
G3 Parasitology	M	75	52.02	15.07	-0.988	155	0.32	-2.35	-7.04	2.35
	F	82	54.36	14.69				-2.35	-7.05	2.35
G3 pathology	M	76	62.02	10.28	0.090	155	0.93	0.16	-3.31	3.63
	F	81	61.86	11.62				0.16	-3.30	3.61
G3 pharmacology	M	75	49.39	15.75	-0.219	156	0.83	-0.59	-5.88	4.70
	F	83	49.98	17.71				-0.59	-5.84	4.67
G3 surgery	M	77	59.97	14.20	-1.494	159	0.14	-3.52	-8.16	1.13
	F	84	63.49	15.54				-3.52	-8.15	1.11
G3 community medicine	M	75	56.77	14.36	-1.089	156	0.28	-2.54	-7.15	2.07
	F	83	59.31	14.91				-2.54	-7.14	2.06
G4 medicine	M	84	60.09	11.88	1.380	165	0.17	2.49	-1.07	6.05
	F	83	57.60	11.42				2.49	-1.07	6.05
G4 obstetrics	M	85	63.47	12.25	-0.927	166	0.36	-1.59	-4.97	1.79
	F	83	65.06	9.77				-1.59	-4.96	1.79
G4 pediatrics	M	85	61.39	12.86	0.429	166	0.67	0.82	-2.97	4.61
	F	83	60.57	12.00				0.82	-2.97	4.61
G4 psychology	M	85	56.96	11.82	0.403	165	0.69	0.75	-2.92	4.42
	F	82	56.21	12.22				0.75	-2.93	4.42
G4 surgery	M	84	67.05	13.71	1.476	165	0.14	3.13	-1.06	7.33
	F	83	63.92	13.74				3.13	-1.06	7.33
G4 community	M	85	59.76	10.11	1.431	166	0.15	2.23	-0.85	5.30
	F	83	57.53	10.06				2.23	-0.85	5.30
G5 ENT	M	74	67.99	12.21	1.110	118	0.27	2.58	-2.02	7.18
	F	46	65.41	12.62				2.58	-2.07	7.22
G5 Gynecology	M	74	59.57	8.77	-0.741	118	0.46	-1.26	-4.64	2.11
	F	46	60.83	9.58				-1.26	-4.72	2.20
G5 Medicine	M	75	52.25	9.76	1.483	119	0.14	2.59	-0.87	6.05
	F	46	49.66	8.56				2.59	-0.77	5.95
G5 ophthalmology	M	74	71.12	9.24	-0.213	118	0.83	-0.40	-4.12	3.32
	F	46	71.52	11.15				-0.40	-4.31	3.51
G5 pediatrics	M	74	75.83	12.66	1.197	117	0.23	2.75	-1.80	7.29
	F	45	73.08	11.24				2.75	-1.68	7.17
G5 psychiatry	M	75	61.96	12.27	0.599	119	0.55	1.32	-3.04	5.67
	F	46	60.64	10.80				1.32	-2.91	5.54
G5 surgery	M	75	56.87	10.92	0.737	119	0.46	1.54	-2.60	5.68
	F	46	55.33	11.55				1.54	-2.67	5.75
G5 dermatology	M	75	63.55	8.75	-0.957	119	0.34	-1.61	-4.93	1.72
	F	46	65.15	9.30				-1.61	-4.99	1.78
G6 obstetrics	M	72	60.90	11.67	-1.426	109	0.16	-3.25	-7.77	1.27
	F	39	64.15	11.07				-3.25	-7.71	1.21
G6 pediatrics	M	72	58.81	10.14	0.001	109	1.00	0.00	-3.94	3.94
	F	39	58.81	9.75				0.00	-3.91	3.91
G6 surgery	M	72	39.62	4.84	0.377	109	0.71	0.36	-1.54	2.26
	F	39	39.26	4.77				0.36	-1.54	2.26
G6 medicine	M	72	65.11	11.76	1.147	109	0.25	2.70	-1.96	7.36
	F	39	62.41	11.94				2.70	-2.01	7.40

Table 3. Correlation between time spent during the examination and marks got by students in different grades and subjects.

Grade	r	P
Grade one		
Anatomy	0.288	0.001
Chemistry	0.403	0.001
Biology	0.303	0.001
Physics	0.174	0.055
Grade two		
Anatomy	0.231	0.007
Physiology	0.131	0.117
Biochemistry	0.275	0.001
Embryology	0.20	0.02
Histology	0.331	< 0.001
Grade three		
Pathology	- 0.077	0.34
Pharmacology	0.079	0.324
Surgery	0.034	0.672
Parasitology	0.047	0.563
Medicine	0.11	0.167
Microbiology	0.037	0.639
Community medicine	- 0.012	0.882
Grade four		
Medicine	0.261	0.001
Surgery	0.233	0.002
Pediatrics	0.134	0.086
Psychology	- 0.017	0.828
Obstetrics	0.134	0.083
Community medicine	0.232	0.003
Grade five		
Surgery	0.265	0.003
Medicine	0.108	0.237
Dermatology	0.191	0.036
Pediatrics	0.029	0.757
Psychiatry	- 0.133	0.147
Gynecology & Obstetrics	- 0.046	0.619
ENT	0.03	0.751
Ophthalmology	0.073	0.429
Grade six		
Medicine	- 0.147	0. 124
Pediatrics	- 0.03	0.753
Surgery	0.102	0.288
Gynecology & Obstetrics	- 0.018	0.854

Table 4. Multiple regression analysis (SPSS output) between mean scores (as dependent variable) and sex and time.

95% confidence interval for B				Standardized coefficients	Unstandardized coefficients		
Upper bound	Lower bound	Sig.	t	Beta	Std.Error	B	Model
65.733	55.537	0.000	23.351		2.597	60.635	Constant
1.217	-1.935	0.655	-0.447	-0.016	0.803	-0.359	Sex
0.035	-0.034	0.974	0.033	0.001	0.017	0.001	Mean time
Dependent Variable: Mean marks							

Comparative Assessment and Analysis of Medical Ethics and Experiences; A Code of Silence I am Not Leaving and I am Not Staying

ABSTRACT

Medical practice dates back many years, and it is pluralistic and diverse, and differs from one culture to another. Raising awareness and competency are the main focus in establishing good physician-patient relationships. This paper describes the main points about medical ethics practice and introduces its Islamic scopes and moral character in many medical dilemmas. It will also bring into light some ethical problems faced in Libya, and hopefully draws on some insights on how to overcome those obstacles and tackle them positively in order to improve the delivered medical care.

SOURCES: Scientific articles selected by means of searches run on the medical websites PubMed and BMJ using the keywords; medical ethics, Hippocrates oath, medical principles, informed consent, research.

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Introduction

Ethics history

Medical ethics was first founded in academia in the 19 century, and was refined and revised to be a distinct role and duty of doctors and nurses towards their patients. And since that time medical ethics was introduced and considered to be an obligatory module in medical studies. Its main concern is about doctor patient relationships in terms of confidentiality and consent. It also extended to include the concept of Principalism which is applicable widely in the western countries, and that which would emphasise the right and the best course of action required *(Sirkku K. Hellsten, 2008)*.

Ibnosina is the doctor of all doctors, and he defined medicine as the science by which we learn the various states of the human body when in health, and when not in health and the means by which heath is likely to be lost and when not lost, is likely to be restored. He is known as Avicenna in the west. He was extraordinary as he was a scientist, philosopher and physician. He was the foundation of codes of laws of medicine. His doctrines are still taught at many international universities such as Texas, Los Angeles, and Yale University, and many others. He believed that the human body can't be restored to health unless the causes can be defined. Ibnosina was the first to follow the ethical principles in his profession, and was well known globally *(E.H.Aburawi, 2007)*. His secrecy to success was to combine religion, philosophy and medicine.

Ethics had been known for a long time, and the first document dealing with medical ethics goes back in time to Egyptian Papyri (16 century BC), where and when the doctor follows the rules, and is not guilty, should the patient die. If the doctor breaks the rules and the patient dies, so the doctor shall pay his life for that incident. Hammurabi set fees according to patient status in that time, and codes were laid out for physicians and surgeons, and followed precisely.

Development of codes of medical ethics

There are many activities which are under the cover of the medical umbrella. Abandon those activities, which are difficult to reconcile with medical ethics. There should be an avoidance of those medical activities which are undertaken and conducted by non licensed personnel; such as physician assistants, paramedics, physical therapists, pharmacists, physicists, nurses and technicians. That's why there should be a differentiation, namely primarily physician-centred, health care ethics including nurses, and other healthcare providers; clinical ethics which focus on hospital case decisions and aid diverse committees and consultations', and lastly bioethics including general issue of reproduction, fair distribution of organs (organ donations), other scarce life-saving resources, and protection of the biosphere (saving the planet).

This includes many issues which are the source of many debates, and discussion, such as when the doctor should act and take the decision instead of the patient, without consenting for his/ her best interest when applied and urgently needed (physician's paternalistic deception, and violation of patient confidentiality). When the patient has the right to refuse treatment or request assistance in dying, drug experiments, removing vital organs from dying brain stem patients *(Choi EK, Fredland V, Zachodni C, Lammers JE, Bledsoe P, Helft PR., 2008)*, incompetent patients, foetal testing, IVF, genetic engineering, cloning, abortion, and conflicts of interest. This all created a state of meta-ethical questions about the role of professional codes, taking into consideration the religious concepts, ethical theories, committee consensus, moral intuition, clinical experience, and decision of clinical cases. The duty of a doctor can be divided into four main groups; duties toward patients, institutions, community, and meta-ethical issues. Firstly, from the ancient days, medical oaths described a doctor's duties clearly that they should be devoted to their patients bearing in mind their required character, and motives. Doctors should respond to their patient with complete passion and sympathy within the limits of their curative powers, and the harm incurred. Also sometimes patient wishes and treatment choice should be complied with after careful explanation (neo-paternalists). So to conclude this would mean that proper procedure

should be important in medical ethics. Secondly; all these shifts indicate changes in medical practice from home, office, hospital, clinics, and lastly religious backgrounds. So, any decision is delegated by the bioethics committees because it involves many parties, such as nurses, lawyers, non physicians, social workers, chaplains, philosophers, citizen surrogates, patient advocates. The decision taken should be articulate and defensible. Thirdly, this would include restraint in matters of drug prescriptions, elective surgery, in-patient hospital stay, out-patient service. This would raise the issue of physician political and social responsibilities. Because there is a narrow concept for report of communicable diseases, gunshot wounds, signs of child abuse, serious violent intentions. The physician will deal with poor or rich patients, insured and non-insured patients *(Hurst SA, 2009)*. This means reforming and redefining a social contract between doctors and society to educate and license. To sum up, this becomes less iatrocentric expanding to a larger field of health care ethics and clinical ethics. Lastly medical centres are a primary environment for medical ethics as well as medical care. It is where physicians and ethicists are based in medical schools, and their basic audience is medical students. The central concerns of ethics are response to need, dependency, and trust. Medical ethicists are different as they give weight to institutional interests and physician practice, while Bioethicists' concern with creating, saving, or taking life with or without physicians assistance, and this is a major discrepancy of morals.

The concept of brain death was first defined decades ago, and it still presents medical, ethical, and legal dilemmas, despite its widespread acceptance in clinical practice and in law *(Choi EK, Fredland V, Zachodni C, Lammers JE, Bledsoe P, Helft PR, 2008)*.

International ethical codes

There are two main international well-known ethical codes for human experimentation. The Tokyo revision of the declaration of Helsinki of the world medical association (1975), and the proposed international guidelines for biomedical research involving human subjects of the council for international organizations of medical science and the *World Health Organization (1982)*. The former was first adopted in 1964 by the world medical association, and it implies taking into first consideration the health of the patient and nothing else in human experimentation, and emphasised that any physician shall act only in the patient's best interest while supplying medical care which might weaken the physical and mental condition of the patient *(Robert V. Carlson, Kenneth M. Boyd & David J. Webb, 2007)*. The latter must advance diagnostic, therapeutic and prophylactic procedures and the understanding of the aetiology and pathogenesis of disease. In 1949 an international code of medical ethics of the world medical association was adopted in London.

General assembly

Dated back to 13 December 1976, the WHO was invited to construct codes of medical ethics for imprisonment against torture, degradation, inhumanity, and other cruelness. Ethics generally speaking is based solely on moral, philosophic and religious principles of the society in which they are practiced; it can vary from one culture to another *(Rispler-Chaim V, 1989)*. So what sounds legal is not necessarily ethical. A least a level of cultural consciousness is an obligatory requirement for the delivery of care that is culturally sensitive *(Gatrad AR, Sheikh A., 2001)*.

How health should be defined

In 1948 the United Nations ratified the creation of WHO (World Health Organization). After which WHO had set up some fundamental bases of attainment by all peoples of the highest possible level of health.

Health is defined as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity" (Alejandro R Jadad, 2008).

Health is like beauty; it is in the eye of the beholder, and can't be captured. We need to frame the concept of health through services provided to the community, society, and modulate hopes and expectations accordingly with the limited available resources *(Alejandro R Jadad, 2008)*.

Ethics in medicine: the four principles plus scope

An approach developed in the USA by Beauchamp and Childress, is based on four main basic prima facie moral commitments. The word prima facie is a term invented by the English philosopher W D Ross, and it does mean binding unless it conflicts with another moral principle. In that case we have to choose between them. This involves respect of patient autonomy. This is not a matter of attitude, but a way of acting to respect the autonomous act of the patient. Some patients have some religious beliefs *(Orr RD, Genesen LB, 1997)*, and therefore we should not laugh at these or take them for granted. So patients should be informed and we should act accordingly to patient wishes and desires. This is called a prima facie sense.

There are four principles in medical ethics, and moral acts; namely beneficence, non-maleficence, respect of autonomy, and justice, all of which mandate its application when needed in the medical work field. We should have no difficulty in committing ourselves to these four prima facie moral principles *(R Gillon, 1994)*. We should always consider those four principles before giving an answer. Previously Belmont reported three principles in the biomedical research and by this he considered beneficence and non-maleficence together and group them as one entity. Jonsen on the other hand explained that the word principle derived from primum (first) and capere (to take), so this would involve firstly a place in discourse and rules of thinking processes, permitting discussion around itself. To apply solutions, it required an understanding of the basis of principles, and then to apply them on purpose. So principles alone won't lead to ethical solutions, and hence

decisions without doctrines are ethically empty.

Respect of autonomy; is the moral obligation to respect the autonomy of others in so far as such respect is compatible with equal respect for the autonomy of all potentially affected, that is expressed by Dr Gillon in his introductory remark. It is self rule of our thoughts, will, intention and action *(R Gillon, 1994, Walker RL, 2008)*. Kantain terms stated as treating others as ends in themselves and not merely as means, keeping promises is another way of respecting peoples autonomy where it involves running someone's life which relies on that promise, because if not then it's a betrayal of trust *(Pitak-Arnnop P, Schouman T, Bertrand JC, Hervé C, 2008)*. Autonomy is a general indicator of health, therefore it can be considered as a gauge parameter for self health care. Also, when relatives request you not to reveal the fatal truth to the patient who demands the real information. It is also, obligation to keep people's secrets. Also autonomy means not deceiving; also good listening to the patient and good communication is autonomy. So it requires us to obtain patient agreement before we do anything to them. In some cases it can be a complex situation if it is related to some genetic disorders, forexample, a conflict may come up when doctors know that information has implications not only for patients but also for family members but their duty of confidentiality prevents them from disclosing it *(Walker RL., 2008)*. So in this case, two factors can be interacted, in other words a liberal perception of patient autonomy and an overriding practical principle of prevention of harm. So a doctor's legal duty of confidentiality should be reconsidered again when it concerns the family *(Beran RG, 2008)*. Because, after all individual members are integral to the actual patient identity *(Gilbar R., 2007, Hoop JG, 2008)*. It has been presumed that doctors know what is best for their patients, and therefore they can decide for them (paternalistic) because patients are the weak, more vulnerable party in the doctor-patient relationship, and by that medical ethics remain one-sided medical ethics duties *(Heather Draper & Tom Sorell, 2002)*.

Beneficence and non-maleficence; is whatever you offer to a particular patient and not for patients in general to benefit rather than harm them. It is an act for the best interest of a patient without harming them. The traditional Hippocratic moral obligation of medicine stated providing utmost medical benefit to patients with minimal harm. In other words, the Hippocratic injection maxim: strive to help, but above all, do no harm, is the ruling maxim in medical ethics. This would need a vigorous and effective education and training before and during our professional practice and lives *(R Gillon , 1994, van Teijlingen ER, Douglas F, Torrance N, 2008, Chertoff J, Pisano E, Gert B., 2009)*. For example, mastectomy can be a benefit for one woman, and a destruction of feminine identity for another *(R Gillon, 1994)*. So it is the concept of making patients aware of the risks and benefits, and that at least benefits outweigh risks. For instance leaving a patient without treatment could have grave outcomes, so risky treatment should be applied and can be justified in that condition. So in this case non-maleficence is not absolute and must be balanced against beneficence. In some countries euthanasia is accepted as standard medical practice where a medical expert can't offer any further help, and this is applied in order to alleviate patient suffering and misery from incurable aliments. So an argument may ask if euthanasia (mercy killing) is good medical practice or murder. It's morally required when a patient requires it for his/her best interest and it is a respect of his/her autonomy as well as to ease his/her suffering in certain incurable conditions. So is death for the patients benefit? It is still a contradiction though. Killing in itself is a wrong so is whether to allow death to come of its own accord, or mercy killing. So we can't predict what the outcome of some terminal illness is in true life. Noteworthy non-maleficence is cultural and religious and issues can vary accordingly.

Justice; is defined as fair distribution of resources which constitute the heart of any justice, and respect of people's rights and respect for morally acceptable laws *(Prudil L., 2008, Buijsen M, 2008)*. This simply denotes that we physicians should deal with every patient irrespective of some measures; such as socio-economic status *(Hurst SA, 2009)*, refusing to treat patients with chronic bronchitis who smoke, or those who have alcoholic cirrhosis, refusing to give a sickness certificate when a patient can't work, notification of an infectious disease and so privacy of patient is breached *(McCarthy RL, 2008)*. If such are unethical and unacceptable, we don't need to be judgmental, we just need to apply what we have in hand to help the patient out of their misery if possible. Also prescribing an expensive drug or investigation when cheaper ones are available and can help is another unethical issue. We should weigh out all our behaviours and analyse them within the four mentioned principles. The principles of justice, beneficence, and non-maleficence are prescriptions of the Hippocratic Oath.

Those four principles were well known through the Holy Quran and among the sayings of the prophet Mohammed, however with some slight differences of hierarchy between the western and Islamic school of thoughts. As for example, western society gives more stress and priority to autonomy, and Islamic society gives justice the priority *(Kiarash A, 2008)*.

In certain situations and cases, decisions should be taken carefully and should be distinguishable whether as a physician or an organisation, a profession or society makes that decision, for example when to respond to patients' wishes for an abortion, considering hospital policy, society values, religion and law prospectively, hysterectomy in handicapped patients, mentally handicapped young children, ignoring those individuals who are HIV infected, and mercy killing for those in deep pain or incurable coma or illness. In such cases the prima facie should be respected

unless there is a good moral reason not to do so. This can be called empowerment, and this has gained popularity recently, as it combines both respect of autonomy and beneficence, because it acts by doing things to help patient to be more in control of their health *(R Gillon, 1994)*.

Islamic Perspective

Islam is governed and guided by Sharia (jurisprudence) which is based solely on the Holy Quran, and Sunna and Hadith (Prophet Mohammed sayings), and opinion of Scholars (Aimma), *(Athar S., 2008)*. Islam after all permits flexibility, adaptation to the necessities of life, and any shifts in ethics rely on the current culture where applied *(Rispler-Chaim V, 1989, Gatrad AR, Sheikh A, 2001)*.

God has ordered us to look for knowledge and compose discoveries to improve our lives and our surroundings. Its not only that, we should emphasise the importance of Islamic code of medical ethics and thought in the medical curriculum *(Al-Umran KU, Al-Shaikh BA, Al-Awary BH, Al-Rubaish AM, Al-Muhanna FA., 2006)*.

The basic deficiency of the developing countries is that medical ethics do not form a main part of mainstream thinking or that within the medical profession.

Moral foundations

There are many topics where morals and ethics are involved and need a decision of another party to take it forward. These include abortion, ethical issues in pregnancy, female circumcision, timing of childbirth, organ donations and transplantation, stem cell research *(Larijani B, Zahedi F, 2008, Iltis AS, Rie MA, Wall A, 2008)*, cosmetic surgery, treating infertility (in-vitro fertilisation), female and male sterilization, hymenoplasty, cloning, blood transfusion before the era of HIV, narcotics in terminally ill patients, cosmetic surgery, doctor-patient relations, aging group care, geriatrics, psychotherapy, paediatrics problem, medical education and publication, health care for geriatrics with or without dementia, brain stem death, coma, death, the do-not-resuscitate (DNR), and the dying patient and euthanasia, genetic manipulation and engineering, animal experimentation, sex selections, spiritual counselling, removing endo-tracheal tubes in patient with brain stem death *(Cosyns M, Deveugele M, Abbadie B, Roland M., 2008)*, medicines containing alcohol, also ethical issues in immunisation *(Isaacs D, Kilham H, Leask J, Tobin B., 2009)*, and care of cancer patients. All of these create a complicated dispute between the Islamic and non Islamic worlds *(Jonathan E. Brockopp, 2008)*.

The subject of brain death was defined decades ago, and it had a significant impact on the procurement of organs from cadavers. It still presents a major subject of debate for bioscientists, legal experts and religious scholars, as well as for the general public *(Akrami SM, Osati Z, Zahedi F, Raza M., 2004)*.

Islam holds life as sacred and belonging to God and all creatures would die one day, as death is a transition stage between two different lives. Issues like, DNR (Do Not Resuscitate) is acceptable *(Sarhill N, LeGrand S, Islambouli R, Davis MP, Walsh D., 2001, Huddle TS, Schwartz MA, Bailey FA, Bos MA, 2008)*. As well as that of assisted reproduction in Islamic world is accepted (ART, assisted reproductive technology) for couples with infertility of moderate means *(Eisenberg VH, Schenker JG, 1997, Serour GI, Dickens BM., 2001)*.

Another issue, female circumcision was performed long ago by untrained persons, or a local village practitioner for religious and historical beliefs. Nowadays this is unacceptable religiously or medically as it causes violation of human rights and female genital mutilation. This can be banned by education and by imposing legislation *(Abu Daia JM., 2000)*. Female and Male sterilization dates back to the time of Hippocrates for preventing hereditary mental diseases. The first female surgical sterilization was done in 1823 by James Blundell. And the first surgical vasectomy was done in the 19th century in the USA *(Rizvi SA, Naqvi SA, Hussain Z, 1995)*. In that period male vasectomy was considered genocide during Nazi rule in Germany. Sporadically Islam, Christianity, and Judaism references explicitly prohibit contraception. Informed consent is needed for such operations. In the USA it is legal, however in some other countries it is not, and in Africa it is illegal to regulate fertility. It is the will of the couple as to how many children they want and when to stop. Family planning services should be part of any national health care system including the voluntary contraception services *(Rizvi SA, Naqvi SA, Hussain Z., 1995)*.

Ageing population is increasing the prevalence of chronic incurable diseases, which are associated with deaths worldwide and this needs our attention and care especially in the developing countries where it's still missing.

Re-virgination may have fastidious meaning to women considering marriage in cultures where a high value is placed on virginity to restore the condition of female genitals. It can be defined either to be restoration or mutilation. However such females who reach an age of consent, and request such operations, but considering Islamic values and cultural issues, medical and human rights abuses that would make for another opinion and prohibition *(O'Connor M, 2008)*.

A series of papers on organ donations have recently disputed whether non-heart beating organ donors are alive and whether non-heart beating organ donations breach the dead donor rule *(Iltis AS, Rie MA, Wall A., 2008)*. In fact physicians think patients to be dead or not according to physician intention to resuscitate or not. Thus, non-heart beating donors may be declared dead without meeting the criterion of strong irreversibility even though strong irreversibility is implied by the concept of death. Such judgment is learned by physicians as they learn the practice of medicine and may vary according to circumstances. From that

concept physicians can be trusted to determine the eligibility for organ donation for the patient interest and not for increasing the availability of organs *(Huddle TS, Schwartz MA, Bailey FA, Bos MA., 2008)*.

Also a double effect would be taking into consideration when a doctor prescribes morphine to a terminally ill patient, where it alleviates pain and hastens demise of a patient by suppressing respiration.

Stem cell research and cloning ethically created a lot of concern as to whether it is acceptable in Islam or not, bearing in mind the benefits. In Islam acquirement of knowledge is a form of worship, but it should be confined within God's will and laws, because after all there should be a balance between God's creation and any new discovery, or invention whereby egotism can be a big conflict. Any research should follow Islamic ethical basics set forth in the Quran and Sunnah *(Fatima Agha Al-Hayani, 2008)*.

Genetics further intimidates conventional core conceptions and standards, such as those of consent and confidentiality; as it reveals certain information such as identity, and consanguinous relations, which is out of kilter with traditional medical ethics, by human genetic mapping, and disclosing the blue print of a human being (genetic manipulation), *(Sirkku K. Hellsten, 2008)*.

So, any moral goodness and badness can be ruled out by reason on its own, therefore any judgment and decision should involve a broader observation of new definitions and justice established by a valid reason *(Kiarash A, 2008)*.

Immunisation programmes raise concerns about ethical issues as well. Issues are whether to enforce immunisation and how to deal with those parents who fail to comply with that, bearing in mind that those put their children in danger of contracting severe illness (vaccine-preventable diseases), and an access to vaccination programmes and hazards associated with vaccination in terms of vaccine efficacy and safety and credibility (vaccine-related injury) *(Isaacs D, Kilham H, Leask J, Tobin B., 2009)*.

Informed consent: luck or law

The Council for International Organizations of Medical Sciences (CIOMS) suggested the most accepted the well known definition of informed consent, as "a decision to participate in research made by a competent individual who has received the necessary information; has adequately understood the information; and after considering the information, has arrived at a decision without having been subjected to coercion, undue influence, inducement or intimidation". So the doctors should ensure a good understanding of the patient before consenting, and that is called capacity to consent after full disclosure of information (18 years and above, physically and mentally accountable). There must be evidence of choice with a reasonable outcome firstly, and this choice should be based on a good reason, and lastly the patient should be capable of understanding fully the issues of the question before consenting. If the patient was unable or incapacitated, then the law would allocate a person appointed by the patient or their next-of-kin to make the decision for the patient (substituted judgment). Consenting is truth telling, respecting human dignity and related to autonomy. So informed consent is a shared decision process between the investigator/ physician and the participant. The accepted mode for informed consent is writing and if not documented, witnessed *(Pamela Andanda, 2005)*.

Obtaining informed consent for any medical procedure is a foundation of medical practice. Also consenting in medical trials, should state the purpose of the trial, and its benefits to patients and society, and what might be the possible side effects and consequences, and if so what alternatives should be taken forward to combat such side effects *(Joanne Lynn,2006)*. Also it should state the right to refuse or withdraw later from the trial at any time without prejudice.

Confidentiality

It is the patient's conversation with his/ her doctor, and it is called as patient-physician privilege relationship. Privacy is the key component of any individual autonomy (safeguarded patient privacy). Legal protection would not ask the doctor to reveal his/ her patient's complaint. So to disclose any personal information to third parties is prohibited *(Mishra NN, Parker LS, Nimgaokar VL, Deshppande SN, 2008)*. Some exceptional conditions would need doctor cooperation in certain unusual circumstances where the public interest is needed and certified to warrant it, and such situations would be; report a gunshot wound to police, also report a sexually transmitted disease in a patient who refuses to tell the spouse, terminating pregnancy in the underage without acknowledgement to their parents, and abortions *(McCarthy RL, 2008)*. Cultural differences could create a medical ethics problem in terms of their belief. Therefore protection of the privacy and confidentiality of patients is of paramount importance *(Harnett JD, Neuman R., 2009)*.

Prisoner and detainees and medical ethics

According to Tokyo measures and declaration, it stated that no torture or any threat should be inflicted on a prisoner or their members of family, because that is considered as an offence and criminal act to human dignity *(Place RJ., 2006, Halpern AL, Halpern JH, Doherty SB., 2008)*. Torture is defined as severe pain or suffering whether physical or mental, that is inflicted in order to get information or a confession for the third party. From this concept a standard has been structured, and that emphasis is as follows; adopts the principle of medical ethics especially of physicians in order to protect prisoners against torture and degraded actions, calls for all governments to give the principle of medical ethics with consideration to actual resolution to all medical and paramedical professionals, and invites all the intergovernmental organizations, such as the WHO and other NGOs to bring up the principle

of medical ethics to medical and paramedical fields.

Health personnel, especially physicians should provide full care to prisoners, and detainees with similar equality to those not imprisoned or detained *(Pont J, 2008)*. Also they should not apply those clinical trials and any harmful drugs to them unless they wanted to participate with their own will and after explicit explanation. Moreover they should not torture or interrogate them in a manner that might adversely effect their physical or mental state. Also they should not get into any kind of relationship that does not involve evaluation, protection and improvement of their physical or mental health.

Ethics concepts in research involving animals/ humans

Animal experimentation is fundamental to any biomedical sciences and for advancement of human understanding the nature of life and the process of any vital process, and for improvement of any methods and prevention, diagnosis and treatment in humans and animals as well. This is a major exploitation of animals by human beings. Nowadays many countries ban those practices. Also an ethical committee was created to give approval for such actions. A regulatory rule was set where there should be a respect for animals used for any scientific purposes to avoid any discomfort or pain inflicted. This policy would give a frame to the codes of practice and legislation regarding using animals for any scientific purposes *(Pitak-Arnnop P, Schouman T, Bertrand JC, Hervé C, 2008)*.

There is an animal ethical code, which should meet strict ethical requirements. Any human experimentation should be a sine qua non of medical progress, and should follow strict ethical requirements as well (Belmont report), as this was drawn from abuses which were conducted during the second world war on concentration camp prisoners (inhuman Nazi human experimentation) by Dr Josef Mengele; the Nuremberg war crime trials *(van Teijlingen ER, Douglas F, Torrance N, 2008)*. For that, national and international ethical codes and legislation were constructed especially for those with new substances or devices when used for the first time to ensure animal welfare and human being safety; the Nuremberg code *(Shankar G, Simmons A, 2009)*. Those experiments can be either for behavioural, physiological, pathological, toxicological, therapeutic research, experimental surgery, diagnostic, surgical training, testing drugs, biological preparation. Different countries have various policies for animal and human experimentation, and testing which are taken according to their cultural backgrounds *(Chertoff J, Pisano E, Gert B,2009)*. There have been some principles which should be considered in order to improve the means of health and well being and protection of both animals and human beings. All methods should be computerised wherever applicable; selection should follow some rules such as what species to use, and with a minimum number for valid results scientifically. Never fail to treat animals as sentient, nonetheless treat them with proper care and avoid as much as possible pain, distress and discomfort that might be incurred while handling or testing. Always assume those tests that might cause pain in humans, might also cause pain in animals; however perception of pain in animals is still unknown yet. Whenever pain might be caused, always consider applying testing with appropriate sedation, analgesia or anaesthesia. When animals are in chronic pain, and disablement, they should be relieved by painless killing. Provide best possible living conditions with space allocationsfor each animal with adequate standard of hygiene. Veterinarians should be available when needed. In order to conduct procedures on animals, it's obligatory to ensure appropriate qualifications and experience. Quarantine and isolation should be in hand when demanded in an emergency. Entry should be only for authorized persons. Ensure good environmental conditions such as temperature, ventilation, lightening, noise, odour level, disposal of waste. Also ensure a good supply of food in terms of quantity and quality to preserve health with an access to free clean potable water. Keep a record of all kept animals with their testing and progress of testing results and if they died a post-mortem examination. Research would only be justified if there was a well-built possibility that it would contribute to improvements of the human condition, whether trial participants and future patients *(Udo Schüklenk, 2005)*.

Research ethics is fundamentally about the means of ensuring that defenceless people are protected from exploitation and other forms of harm. Therefore they should be informed of every single detail and ensure their understanding of the possible outcomes.

Alternatives

Nowadays the trend is to use isolated cells, tissue or organs in experimentation. This would replace the use of an intact live animal for any experimental procedures. Those alternatives would include non-biological and biological methods. The former would include mathematical modelling of structure activity relationships based on the physio-chemical properties of drugs, and other chemical, computer modelling of other biological process. The latter implies use of micro-organisms, and in-vitro preparations (sub-cellular fractions, short term cellular systems, whole organ perfusion, cell and organ culture, and also retrospective and prospective epidemiological investigation on human and animal populations, represents another approach. The idea of alternatives is adopted to be a complementary technique to the use of intact animals. This in my opinion should be applied and encouraged to use for both scientific and human reasons in order to ease the animal and human being misery and suffering *(Kurosawa TM., 2008)*.

Legal medicine

It is an interface between medicine and law in health care. Reviewing athletes' fitness and ensuring that

prohibited substances are not prescribed, symbolize a growing area of legal medicine. Ethical thoughtfulness of health care should respect legal medicine principles. Migration and communicable diseases are aspects of legal medicine. International meetings must be respected by legal medicine and dictate a physicians' duties. Legal medicine is a medical specialty in its own right *(Beran RG, 2008)*.

Standards of conduct and duties of doctors

Duties should always be purely humane. Doctors must always strive to maintain the highest standard of professional conduct, and should not be influenced by any means by either motives or profits (Judicial Council, 1957). They should always bear in mind the obligation to preserve human life from the time of conception and development. Any abortion which threatens a mother's life should be considered under the conscience of doctors and as statute law permits. Doctors should owe the patient their complete loyalty and the resources of science. They should help when needed especially in emergency situations. A doctor should behave to colleagues as he/she would have them behave to them. A doctor must not entice patients from his colleagues. Doctors should follow the declaration of Geneva, approved by the world medical association in 1948. It is a revision of Hippocrates' oath. It stated that doctors should practice their profession concisely and with dignity, bearing in mind sole consideration to their patients and their professions, and should not refer their patients for some costly treatment, or investigation and take charges for that, as this is unethical *(Judicial Council, 1957)*. Also marketing for some pharmaceutical companies and receiving gifts and food for that is unethical and unacceptable. This means influencing prescribing practice for some companies' products. Doctors should not get involved in a sexual relationship with their patients because this creates ethical conflicts. In some countries such acts and violation would mean deregistration and prosecution. Treat colleagues as your brothers and sisters. Do not allow religion, nationality, ethnicity, age, gender and racial barriers to intervene with your duty to your patient.

Medical futility

Medical futility is a very important topic in medical ethics. How would we as physicians act if a terminally ill patient and his family insist on advanced care. Previously futility meant that a patient might have less than 1% chance of survival. Some of such cases wound up in the courts. So living wills and durable powers of attorney for health care were considered. Therefore in such critical situations, decisions should be made between doctors, and clinical ethics committees or other independent parties to resolve the conflicts about withdrawing or continuing treatment within the legitimate policy *(Miljeteig I, Johansson KA, Norheim OF., 2008, Davis JK., 2008)*.

Health system, misconduct and ethics in Libya

The healthcare system in Libya is still missing its real form and meaning. Some rated the health standards to be extremely poor. This could be attributed to our culture and society. For instance, we never tend to inform the patients of their real illness, instead we tell relatives, and sometimes their neighbour if they were accompanying them. Not only that, we might extend it to a social discussion on the communal events meeting up. Therefore confidentiality and privacy is broken, breached and jeopardised. This would mean breaking rules of the Hippocrates oath; anyway no one could be blamed, because after all I don't recall we had this oath when we graduated. It was stated only once for the first graduate of the medical school. This could be the only reason to be blamed in such critical occasions. Also our patients lost their trust in the Libyan health system and service delivery, due to the following reasons;

- Lack of independent regulatory body within the ministry of health, and professional bodies
- No effective appraisal or revalidation of the medical manpower
- No robust governance body
- Poor environmental setup, for the patient and health providers
- Lack of consistency and continuity of care
- Poor communication systems and patient data records
- Lack of evidence based practice
- Lack of vision and of decision making processes
- Under funding and corruption

The health sector is a very important element for the growth and upholding of any nation. For instance any country would allocate a budget for its health system in order to improve it in terms of productivity. In Libya it is the expenditure and not the production. Whom you need to blame, no one knows. This emphasises and calls for an existence of a concrete, clear, ethical and well-formed discipline to be followed and implemented. Also nowadays our patients tend to go to the neighbouring countries such as Tunisia, Egypt and Jordan for any medical check-up and treatment. This would only indicate losing the trust in the Libyan doctors. Therefore the society and government should unite and provide decent living standards for Libyan doctors to produce and be fruitful. For instance, low income and high living costs would make a serious discrepancy. Furthermore the government raised the doctors and nurses salary as a test for some hospitals and not for everyone, and this creates hatred and discrimination. There isn't any effective health system that would behave in that manner in the whole world. Moreover we tend not to have a registry and medical recoding system per se, and if itexisted, it would be only a pile of files where concise and precise accountable documentation is missing and therefore it would lose its real meaning and application. This is another ethical problem in our health practice in Libya. Therefore for any patient who has travelled abroad for treatment, this would mean a duplication of an unavoidable investigation and treatment again which could be costly as well. Furthermore electronic documentation is still missing. The

old adage is if it's not documented, it was not done. It's a fact and this should be followed and implemented. Libyan doctors tend to be reactive instead of proactive. We need to evolve medical practice in Libya.

We need to voice our opinions and discuss all that matters and consider ethical values and apply them in order to create a healthy society in our community. It's actually a very complicated process as it does involves a lot of factors, and if one is fixed, you can't necessarily fix the rest. This all goes back to our background cultural heritage *(Rispler-Chaim V., 1989)*.

Physicians always face ethical dilemmas when dealing with their patients. They should adopt and conduct moral rules and develop attitudes within the framework of ethical concept, and aims to implement in their normal practice, in order to improve and understand its application.

Ethics is distinctive material specifically because of its widespread acquaintance in all aspects of our life, and therefore any teaching has to start from the concept of ethical understanding to guarantee intellectual respectability.

Recommendations

Implementation of Ethics Review

There should be a taught course on basic ethics and values, and the principles of practice in the medical study years especially when facing clinical medicine. In the Islamic world, medical curricula should embrace the Islamic code of medical ethics. However our religion after all emphasises such values to be implemented, but it seems they are still missing on application. We therefore should urge and stress the need to develop and adopt a universal national guideline for ethics codes learning, exploring and applying, while practising medicine. It would be highly appreciable if a manual for medical ethics is considered in order to serve a guiding tool for both medical students and physicians.

Improving quality of care is a policy objective of health care systems around the world. Advanced quality of care is a doctrine and aim of health care systems around the world. Implementation research is the scientific study of methods to encourage the systematic uptake of clinical study findings into routine clinical practice, and thus to reduce inappropriate care.

Currently our patient receives less than desirable care due to lack of consolidated clinical records, plus the fact that there is no electronic medical data record system. In order to improve any health service quality there must be a clinical research ethics policy, and that should be evaluated thoroughly *(Daw A, Elkhammas EA, 2008)*.

We should develop a review ethics committee board to evaluate and assess medical practice on human beings, and establishing a hospital ethics committee to emphasise the role of the ethicists in the medical curricula. Effective hospital accreditation would require ethical consideration taken into account seriously; otherwise ethics would be in crisis.

Researchers must strictly adhere to the diverse ethical guidelines to ensure the dignity and rights of human participants are correctly upheld in research. Ethics teaching plans to teach physicians to spot and resolve ethical issues; they also should address any ethical concerns and confront each other when debates raise *(Sarah L. Clever, Kelly A. Edwards, Chris Feudtner, Clarence H. Braddock III, 2001)*.

Principles: Time for ethics to face the forthcoming future

There should be some guidelines for medical doctors to practice, and they are briefly as follows:

Listen carefully to patient complaints and worries

1. Respect autonomy
2. Deal with patient with great care and respect
3. Tell the full story and the complete truth to patients
4. Apply basic principles and methods from our Islamic religion
5. Start with yourself, correct your own ethics and commit to improving your own manners in order to improve ethics
6. Develop one committee to teach across the country
7. Follow our precious previous pioneers' footsteps such as Ibn Sina, as they represent the ideal physician to be inspired and followed
8. We need to set up rules and vital points in considering the psychology of patients to make them feel better and improve things for them
9. Pay more attention and care to your patients
10. Try to make availability of standard medical services as a shortage of them would mean the system is imperfect and breached
11. Develop a standard of conduct and approaches, for application of medical ethics

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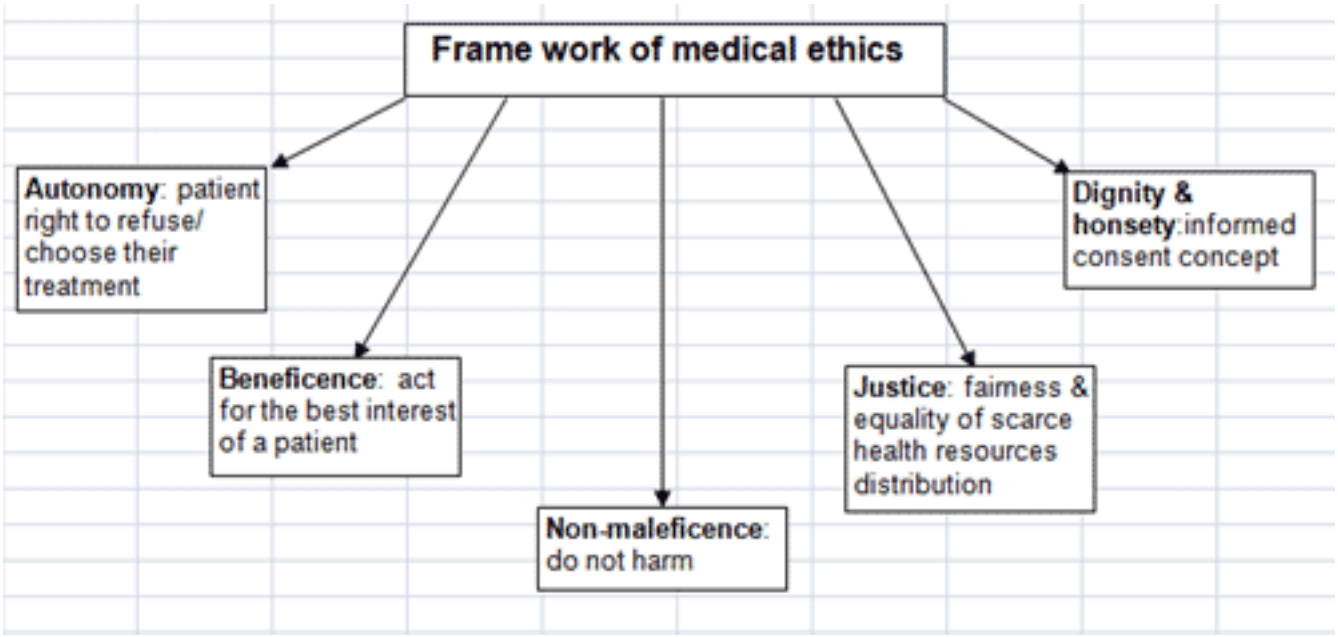
Frame work of medical ethics
Autonomy: patient right to refuse/ choose their treatment
Beneficence: act for the best interest of a patient
Non-maleficence: do not harm
Justice: faimess & equality of scarce health resources distribution
Dignity & honsety:informed consent concept

A Subsidized Drug E-Distribution Plan for Iran

ABSTRACT

This is a plan for an ICT-base subsidized drug E-distribution for Iran. We provide an E-distribution protocol and give the required infrastructure and planning.

Keywords national health system, e-health, e-government.

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Introduction

NHS is an abbreviation for National Health System. Its founding principle is to provide access to care to all on the basis of need (and not the ability to pay)6. The Iranian NHS has a long history and has made many changes all across the country, yet it has many pitfalls. Too often patients have to wait too long. There are unacceptable variations in standards across the country. What patients receive depends too much on where they live and the NHS has yet to fulfil the aspiration to provide a truly national service. Constraints on funding mean that staff often work under great pressure and lack the time and resources they need to offer the best possible service. The challenge is to use the resources available to achieve real benefits for patients and to ensure that the NHS is modernized to meet modern public expectations. The five most urgent challenges that needed to be addressed are partnership; performance; professions and the wider NHS workforce; patient care; and prevention. A master plan which could address these issues, considering the country's vision and long term development program, is referred to as a NHS Plan. Implementing the policies set out in the Plan should calls for an inclusive approach, to ensure that the resources now available really do produce a step change in results.

One of the core concepts in NHS is Drug Distribution Plan (DDP). This includes specific protocols for need estimates, manufacturing, buying, allocation, and distribution of drugs. These protocols become more vital when we deal with subsidized drugs which are usually expensive and associated with life threatening diseases. On the other hand, it should be clear that today, any successful NHS Plan should rely on ICT technology and E-commerce tools.

The issues related to welfare reform has been discussed thoroughly in recent years. There are some concerns about ethical issues[1]. The medicare payments4 and their effect on the poor[8] is considered and analyzed. Some recent work discusses cash benefits and their social effect[9]. One should note that all the proposed schemes and solutions are meaningful in the light of recent advances in health care technologies[7]. Some arguments are proposed to push the solutions towards customer directed schemes[10], but there are yet many political issues to be considered[3].

This paper investigates the basic concepts of an E-distribution plan for subsidized drugs in Iran. In section 2, we review the present drug distribution scheme. Section 3 proposes an E-distribution protocol and section 4 outlines the required infrastructure to realize the proposed E-solution. In sections 5 and 6, we have briefly discussed phasing and feasibility of the proposed plan. The paper concludes with two brief sections devoted to evaluation and future extension of the solution.

Drug distribution now

Everyone - no matter how much they earn, who they are, how old they are, where they come from or where they live - should have the health care they need for themselves and for their families.

Pharmaceutical business for the finished product has a market size as 350,000,000USD in Iran, out of this budget, 55,000,000 USD are the products which are being imported as subsidized products.

Categorizing a product as subsidized has a quite sophisticated procedure. At present there is a comprehensive list of subsidized medications governed by Ministry of Health (MOH) and entering new items to this list is almost out of mind and is just done for very special diseases. Each year, MOH launches a program to renew the list. Currently the subsidized rate is often 5 times cheaper than the stock exchange rate, however the amount of contribution by subsidies to decrease the consumer price is being adjusted by the MOH and there is not a fixed regulation on that. Actually, the MOH tries to keep the consumer price of similar products on the list identical to prevent promoting any product by granting higher subsidies, however this adjusting could be subjective.

In general, there is a considerable price difference between international price and consumer price. In case of subsidized medications, this difference is big enough to create a motive to drain the subsidized products. There is always a threat of leakage of the subsidies from the point of allocation to the hand of real consumer. In such a situation, no one can be sure that 100% of the allocated budget for medication subsidies will

be absorbed by the real consumer and there would be a considerable profit in case of any leakage in the distribution chain of such products.

To decrease such a threat, we have to focus on the distribution channels. In this section we review the existing planning and importation procedures and distribution channels to show the pitfalls.

1 Planning

The demand and the budget to fulfil it is being allocated by the Parliament according to the total budget which has been proposed by the Government. The total allocated budget to each medicine would be based on the previous year's consumption rate and the reflected demand from the market. Actually as almost all subsidized products are being consumed and there is no exact estimation of the ratio between real consumption and the quantity which has been drained out to several outlets, this method could not be without fault. Let's say that it is just experimental and provides no way to be sure about the real demand.

Most of medicines which are receiving subsidized rates are expensive, however the price is not the only criteria for receiving the subsidy and type of the related disease is also considered. In some cases, the existing list of subsidized items lacks reasonable rational. We have some products which are being used just one time for an individual but they are subsidized, whereas there are products that are being consumed regularly and they are life saving but they are receiving no subsidy. Also allocation of subsidies to some products sounds political rather than rational. Keeping a product on the subsidized list is the best way to promote it and keep the rivals from entering the market, hence making the decision on allocation would be quite crucial.

2 Importation

There are few companies which are importing this range of products based on the announced and planned quantity by the MOH. These include private and governmental companies. The importing continues throughout the year to fulfil the announced quantity. The import companies have to give their imports to the pre-specified distribution companies. In the long run, fixing the importers and distributors could a potential source of leakage.

3 Distribution Channels

The distributor companies are delivering the products to special pharmacies, which at the moment are quite limited and are chosen by the MOH. It is very hard to imagine a leakage from the distribution companies. Pharmacies are the most vulnerable point of leakage for this kind of products. At this point, anyone with a prescription can receive the medication, and it is hard to recognize the real consumer from smugglers. This is because the pharmacies which are in charge of distribution of subsidized products are not entitled to evaluate the prescription more than regular products and one who can make the stamp and letterhead of physicians can have the medication as well!

For certain products for which the level of subsidy is very high and the consumption is regular, the patients have dossiers with the pharmacies, however as these kinds of dossiers are local and the control is not restricted, receiving these medications from other pharmacies is quite probable.

Decreasing the number of engaged pharmacies in distribution of subsidized products has had a considerable effect on the leakage decision in distribution of such products, however this has its own disadvantage of decreasing the level of ease of access for the consumer. Summing up, presently the possibility of leakage in the distribution chain is very high and there is no way to keep record of consumption, except for the above mentioned products. Our concern is to make a system for keeping track of consumption to decrease abuse, smuggling, and over-prescription of subsidized medications.

Drug E-distribution

1 E-Distribution Protocol (DEDP)

The main goal of the new drug distribution system is to deliver the right medication to the right patient, at the right time, through the right channel with the right price.

There are four groups of people who are suffering from an old, inadequate, traditional distribution system.

a. Patients who are directly impacted from different aspects. They have no access to the right information at the right time, and they are vulnerable to misuse or over treatment. This can be intensified due to lack of technical information among physicians and health care staff. Traditional distribution systems may cause severe drug shortages which is dangerous indeed for patients who receive these medications.

b. Physicians and health-care professionals who need to access to the most recent scientific information about new treatment methods, new medicines and also need to know which of these medicines are better available for their patients in their living area. They also require having enough information about their patients, their disease and their medical background. Sometimes they also ought to see patients' medical documents, diagrams, and test results to make a perfect decision.

c. Supporting staff like importers, distributors, and pharmacies who should organize their businesses to strike the right balance between good service and optimal profit. Importers need right quantitative

forecasts of distributor requests in advance to decide about quantity and time of importing and to make stock level decisions. Distributor companies must distribute needed medications all over the country but avoid overstocking and/or shortages in different areas. Doing this successfully requires access to a perfect updated database providing consumer and supply information. The most demanding problem of pharmacies is to recognize the right patients from abusers/ smugglers. This is really difficult to perform unless an electronic system is used for patient identification.

d. Health care managers and government officers who are

responsible for subsidizing real patients,

preventing leakage of subsidies in distribution channels and predicting drug shortages and providing

equal chances for all patients to receive their needed medications.

2 Information System

It is obvious that the prerequisite of all of the above mentioned activities is managing information. In our plan, this is done through an information system consisting of five integrated subsystems.

a. Care Recording System (CRS): Delivers an individual electronic record for each patient. Recording information starts when the patient goes to the hospital or is visited by a physician for the first time and continues during his/her life.

b. Electronic Prescription System (EPS): Enables the transferral of electronic prescriptions from the physicians directly to the pharmacy. Using this system, pharmacies will ensure that the patient is a real consumer.

c. Drug Availability Monitoring System (DAMS): Strikes the balance between real consumer's need and availability of products in the supply chain. It collects information from patient's consuming behaviour in a historical basis as well as their current needs and consequently checks possible drug availability for future requests. It helps all the chain members to control time and volume of their purchasing, and the MOH to make the right decision about managing its restricted resources.

d. Digital Picture Archiving System (DPAS): Empowers CRS by adding the pictures, scans, X-rays and MRIs electronically to the patients' folder.

e. Customized Education and Information System (CEIS): provides customized and personalized information and education for patients as well as physicians and other health staff. It could be more helpful for the second group because they are more probable users of network applications. Patients as end customers are located in the heart of the system. They must be traced continuously and the system should be shaped based on their requirements. Identifying and tracing patients which is the core concept of the E-distribution protocol is done by the system.

3 E-card

The concept is to make an Electronic id-card for the consumers of subsidized medications to track their medical history. In our plan, we have considered a card which has a micro-chip containing all personal data of the patient including:

a. Name

b. Age

c. Gender

d. Place of living

e. Disease

f. Related grading (this is very crucial for dose adjustment and level of consumption)

g. In charge physician

Having an E-card, when a patient goes to a medical centre or a physician's office they can retrieve their personal information from the network. Each E-card has a microchip which makes the stations located in different centers able to provide service without need to have online internet connection in case that the service in not operating. Using online connections, they have access to complete information from the Care Recording System (CRS) and could obtain extra data from Digital Picture Archiving System (DPAS).

Physicians and other health staff use Customized Education and Information System (CEIS) to offer updated clinical services to patients and prescribe subsidized medications electronically by Electronic Prescribing System (EPS). Pharmacies and other related centres identify the patient and using EPS ensure that the identified patient is allowed to receive subsidized medications. Prescribed drugs are inputs for Drug Availability Monitoring System (DAMS). Based on DAMS, the supply chain organizes its activities and MOH makes nationwide decisions. To make the plan more efficient, we have divided the subsidized range products into four major categories:

a. Products which are consumed by a certain group of patients on a regular basis, like Tularemia, Hemophilia and Dialysis patients. At the moment, these diseases are recognized as special diseases and have special coverage.

b. Products which have certain regular consumers but have not been recognized as medications of special disease, like Anti Cancer products.

c. Products which have no regular consumption, but are very expensive and used just for acute conditions, like IVIG.

d. Products which are consumed by a fraction of the population, vulnerable to certain urgent conditions, like pregnant women vulnerable to deliver babies with problems such as RDS which needs to be treated by Surfactant.

As the target group of products of type 2 and 3 are potentially the whole population, we eventually have to make a nationwide coverage. Obviously this should take place gradually and based on priority. One possible schedule for this coverage extension is as follows:

i. Making the dossier for all current consumers of subsidized products, like Oncologic medications and issuing an E-card for the groups 1 and 2: the data for this kind of patient could be available easier and the variety of products is more restricted. The fourth group could receive their E-card at the time of breakthrough events, like the time of marriage, where the vaccination for dT and Rubella is a must. We may gradually make E-cards mandatory for young females at the time of marriage as well.

ii. Making the dossier for the acute disease patients who come for the first time to get their prescription.

iii. Making the E-Card for the general population, starting with newborns.

4 Supply Chain

The second question is how the government injects the subsidy inside the population to avoid any leakage through the supply chain and ensures that the right people are

receiving the subsidy. Let's have a look to the supply chain: Importer? Distributer? Pharmacy? Patient

Imagine that the landed cost of an item for importer is 500 EURO and it receives 430 EURO as subsidy from the government, and it will sell the product at 70 EURO to the distributor. The distributor receives its markup and sells it at 77 EURO to the pharmacy and the pharmacy obtaining its markup sells it at 89 EURO to the final consumer which is the patient.

The obvious difference between real price of these medications out of borders and after subsidising prices along the chain is attractive enough to urge people to smuggle. The subsidy may also be paid to distributors and pharmacies but the problem remains unsolved because price difference still exists. Basically patients are the less probable population for smuggling because they are real users of drugs. Moreover, subsidized drugs are used for diseases which are generally a big threat if they are not well treated. Thus the best way is paying subsidy directly to patients. Our proposed E-solution provides a way to identify real patients. It also helps government in managing financial transactions. All of the annual subsidy should be placed in a bank account and as soon as a patient receives his/her medication from the pharmacy, the corresponding portion of the allocated subsidy transfers to the pharmacies' account.

Infrastructure Requirement

In this section we briefly review the required infrastructure for the proposed E-solution for subsidized drug distribution. This infrastructure constitutes

1. Network: The network should cover the whole supply chain presented in section 3.2. In rural areas, pharmacies could be replaced by health centers.
2. System and subsystems: The main information system and its subsystems are explained in section 3.2. The E-Distribution protocol presented in section 3.1 (and its proposed extension in section 8) also relies on the following systems:
   Patient System
   Physician System
   Pharmacy (or Health Center) System
   Government Office System
   Insurance System
3. Hardware: The hardware includes:
   E-card reader and writer
   Network hardware
   Personal computers
4. Software: The software includes:
   Information systems and Decision Support Systems
   Transaction systems
   Databases

Phasing

The phasing should be planned properly to meet the concern regarding the subsidized medication E-distribution and to minimize the deviation from the main objectives and mission. The phasing will be in 3 steps as follows:

a. Planning: In the planning phase the following issues should be covered:

Required IT infrastructure

The system's owner authorities and responsibilities

Stakeholder system requirements Development

b. Design: The design phase includes:

Database design

System architecture

User interface

c. Implementation: The implementation phase shall be planned in 4 steps:

Pilot and applying the required improvement based on the feedbacks

Development in the centres of provinces

Development in cities of over 200,000 population

Development all over the country

The main point is the right selection of pilot which should have the feasibility of infrastructure and readiness of the stakeholder.

1 Pilot

Tehran with a population over 7 million has 12 pharmacies giving subsidized drug services. All of these pharmacies, as well as physicians' offices and a good percentage of patients have access to internet. To pilot our E-solution in Tehran, we could first restrict ourselves to products of type 1 and 2 (in section 3.3) and subsystems 1, 2, and 3 (in section 3.2). The security issues of running the system on internet could be checked and possible leakages and pitfalls could be extracted.

Feasibility and Financial Perspective

Most of the value associated with this system comes from the information it contains. This becomes more crucial if we note that it provides this information in a timely, integrated, concise, and relevant form. The development of this system also forces the relevant organizations to examine their executive information collection and delivery processes. This helps to uncover problems such as poorly defined information requirements, inadequate computing infrastructures, and data management shortcomings. The proposed E-solution facilitates collection and delivery of information by integrating inquiring, collecting, processing, and presenting the transactional data.

The potential benefits from this system fall in four major categories:

a. Better support for accomplishing MOH objectives,
b. Enhancing the effectiveness of senior management team,
c. Focusing management attention on key areas,
d. Upgrading the inquiry, collection, integration, access, and presentation of information.
The value of it depends on the payoff from quicker and better informed decisions. On a national scale, this payoff will be considerable both financially and socially. Some benefits of the new system are:

a. Creating a database for stakeholders,

b. Supervision of subsidized medications prescription and distribution,
c. Supervision of insurance services

d. Spending subsidy for real consumers

e. Managing the subsidy budget.

1 Transactions Margins

In our proposal, we give the subsidy to the customer. When a subsidized medication is prescribed, the physician writes the quantity of prescribed medications on the patient's E-card. By keeping track of actual usage of subsidized medications, the price structure for these medications could be kept the same as regular medications. The transaction margins of subsidized medications which used to be high (see section 3.4) now could be easily adjusted according to the MOH drug policy.

In the example of section 3.4, if the transaction margins are unchanged, an item with landed cost of 500 EURO for the importer is sold 550 EURO to the distributer. The distributer receives its markup and sells it at 605 EURO to the pharmacy and the pharmacy obtaining its markup puts a price of 695 EURO of which around 100 EURO is paid by the patient. In this case, the subsidy is paid to the final customer, and the price could be adjusted by controlling the transaction margins.

2 Allocation of Money in Bank

There is an important financial issue here. Both before and after implementation of the proposed E-solution, the subsidy is allocated in the government account. However, in the E-distribution protocol, the spending of money is based on the end customer request for medication, whereas in the past it was based on the importer application and had to be paid in large amounts. If one considers that the total amount is substantial, this phase difference could be of financial significance.

3 Possible Leakages and Abuse

At the moment, the subsidized drug distribution system is very similar to non subsidized products. The delivery takes place after importation to the warehouse of the distributor company which potentially can provide nationwide coverage for any pharmaceutical. The distributor is delivering subsidized products to special pharmacies, which are entitled to distribute the subsidized items.

The planning for such a distribution is quite hectic and empirical. Each entitled pharmacy is supposed to have a very limited stock of the subsidized products, therefore just by considering the level of sales (regardless of the patient who has received the medicines) the MOH sends daily or weekly plans to distributors to advise them about the quantities that they can deliver to the pre-specified pharmacies. Obviously in case of any malpractice in terms of prescription (like identifying a faked rescription) there is no control by MOH.

Possible leakages in the E-distribution system are as follows:

1. Issuing level: Anybody who can receive a fake card is a potential source of leakage. To prevent this, integration of national data like national card and police records is required. On the other hand, controlling should not be so sophisticated that it causes any difficulties for the patient receiving their medications.
2. Diagnosis and prescription level: In the E-distribution protocol certain doctors or clinics are entitled to prescribe subsidized medications, These are subject to periodic audit and a random based percentage of the visited patient can be re-evaluated by a committee who can assure the accurate diagnosis and prescribing for each patient.
3. Delivery level: At this level, the product is being delivered by pharmacy to the patient. As each patient is receiving the product by prescription, there would be a limited possibility of leakage here.
4. Usage level: Most of the subsidized products are injectable products which should be administrated by a nurse or a doctor and it is basically possible to control the appropriate usage of the medication.

Evaluation

The evaluation of the E-distribution protocol could be done using suitable KPI's which are associated to the corresponding CSF's. The Critical Success Factors of the proposed E-solution, based on the Balanced Scorecard framework, falls into four major categories:

1. Financial Factors: The most important KPI in this category is the total amount of government drug subsidy. This indicator is affected considerably by recovering leakages due to smuggling subsidized medications and giving the subsidy to the real customer.

2. Customer Satisfaction: Customer satisfaction could be measured using indicators such as frequency of availability check. The E-plan can increase customer satisfaction by providing easier access to subsidized medications and needed information, as well as better availability.

3. Internal Processes: Throughout the supply chain, the internal processes could be improved and facilitated using E-solution tools and systems.

4. Learning and Growth Factors: The whole National Health System could benefit from successful

implementation of an E-solution in drug distribution. The growth issue becomes more crucial when it is noted that the plan is proposed in a developing country.

Further Extension

The E-distribution system provides a useful network and electronic infrastructure for health organizations and patients. It also provides practical knowledge about e-systems and perfect experience of observing advantages of electronic services in medical applications. This infrastructure and knowledge are critical for implementing a nationwide E-health system. Expansion of the E-distribution system could be done gradually:

1. Covering all drugs instead of subsidized drugs,
2. Covering all patients,

3. Covering the entire supply chain, including all manufacturers, importers, distributors, and pharmacies.

After these expansions, all of the population could potentially be users of this electronic service. It facilitates moving to an electronic National Health System (NHS) in which lifetime health plans, Hospital Information Systems (HIS), choosing medical services and booking, tele-consultation and finally Medical Decision Support Systems (MDSS) are considered. The E-card users are in contact with insurance companies, banks and other related organizations. Furthermore at the final stage, where all people are users of medical E-cards, it could be transformed into a multi-purpose card.

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Coping strategies in Iranian families: Coping and Severity of Behavioural Problems

ABSTRACT

Objective: The aim of this study is assessment of relationship among severity of behavioural problems, coping strategies and styles and investigation of role of gender differences in coping in the Iranian adolescent population.

Method: From six secondary schools students in three districts in Tehran 420 students were randomly selected. Participants were asked to complete SDQ and ACI scales. The collected data were analyzed with Pearson Correlation, Multiple Regression and Independent Sample T-test.

Results: A negative relationship between Solving the problem and Reference to Others coping styles and severity of behavioural disorder was observed. The results indicated that Solving the problem and Non-productive Coping styles (and consequently coping strategies of these two coping styles) can significantly predict severity of behavioural problems. No gender differences in coping were seen.

Discussion: Role of coping in forming behavioural problems for professionals, education systems and families was discussed.

Keywords: behavioural problems; coping styles; coping strategies; gender differences; adolescents, students, Iran

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Introduction

There is growing interest in identifying young children who are at risk for developing behavioural problems. This interest is largely driven by research evidence that shows young children who exhibit behaviour problems, such as aggression and attention difficulties, are at increased risk for continued behavioural difficulties in later childhood and adolescence *(Campbell & Ewing, 1990; White, Moffit, Earls, Robins, & Silva, 1990)*. Moreover, children who have an earlier onset of conduct problems are more likely to demonstrate an increased chronicity and severity of delinquent behaviours than the youth whose onset of conduct problems appears later *(Lahey et al., 1999; Tolan & Thomas, 1995)*.

Given the early onset and relative stability of certain types of behavioural problems, it is important to identify factors that contribute to the emergence of behavioural difficulties in young children for the purpose of early identification and preventive efforts.

Coping is described by *Lazarus and Folkman (1984)* as effortful cognitive and behavioural responses to stressful situations. Coping responses include actions to alter the stressor (problem-focused coping) and to regulate the emotional arousal associated with or evoked by the stressor (emotion-focusing coping). The successful utilization of coping responses facilitates resilience and adaptation to stressful situations *(Garmezy, 1987)*.

Coping is a multidimensional concept with at least two broad categories: coping styles and coping strategies. Coping styles indicate stable dispositions and patterns of responses that people use to deal with difficulties. Arising from this approach are studies conducted to examine the various typologies of coping styles found in individuals. This approach has been heavily criticized for ignoring the idea that coping responses are more situation-specific and that people cope with different situations using different strategies. Lazarus and Folkman (1984) have suggested two broad types of coping strategies: problem-focused and emotion-focused. Problem-focused coping strategies are used to solve an existing problem by either changing the situation, one's behaviour, or both. Emotion-focused coping strategies are employed to regulate emotional reactions or to make one feel better without actually solving the problem. Other researchers have broadened the concept of coping strategies to encompass at least the following elements: problem solving or direct action strategies, cognitive strategies such as positive thinking, avoidance or resignation strategies, and strategies that draw on resources from others such as help-seeking strategies *(Wong, Leung & On So, 2001)*.

Although every change, whether big or small, is stressful and placing demands on the individuals to cope, these changes are not bad or unpleasant at all times. In fact, it may be said that existence of psychological stressors and even severity of them is not per se dysfunctional and maladaptive; what is important is the way or ways used to cope with stressors. Therefore, the strategies that individuals choose are part of their vulnerability profile. Along with this idea, *Anda et al., (1991)* take the increasing number of adolescents that commit suicide or abuse drugs as evidence of the increasing stress of this group and insufficiency of their coping strategies.

Relationship between coping and mental health is a relatively well-researched topic in the literature; however the relationship between coping and behavioural problems in children and adolescents is less

explored. This is particularly so in Middle East societies.

Some researchers indicated that the use of approach coping, that includes problem-focusing and emotion-focusing, is less related to negative emotions than avoidance strategies *(Gomez, 1998; Halpern, 2004)*. Between approach coping, the relationship between application of emotion focusing strategies and less mental health has been a recurrent finding *(Aldwin and Revenson, 1987)* and in contrast with it, the relationship between use of problem focusing strategies and more mental health *(Aldwin and Revenson, 1987; Herman-Stahl, Stemmler & Peterson, 1995; Kavsek & Seiffge-Krenke, 1996)*. In other words, within one range, problem-focusing coping has been observed to be related to mental health more than emotion-focusing coping which is itself in turn more than avoidance.

It is explored that there are positive links between active strategies such as problem-solving, rational analysis and information seeking with higher mental health *(Herman-Stahl, Stemmler & Peterson, 1995; Kavsek & Seiffge-Krenke, 1996)*, and among passive coping strategies such as avoidance, denial and feeling repression with more life stress *(Kavsek & Seiffge-Krenke, 1996; Simoni & Paterson, 1997; Strivastava, 1991)*.

In the study of Elgar, *Arlett and Groves (2003)* on high school adolescents, there was a positive relation between approach strategies and externalized behavioural problems (such as hyperactivity, aggressive and disruptive behaviors) but no relationship with internalized behavioural problems (such as depression and anxiety). Of course, it should be noted that in this research emotion-focusing and problem-focusing strategies were held under a general class entitled approach strategies. Thus separate relations among all of these strategies with behavioural problems were not assessed. In fact, as approach strategies, whether problem-focusing or emotion-focusing, demand more act and performance on environment than avoidance strategies; if the ways of approaching are maladaptive, such approach strategies can indicate themselves as externalized behavioural problems.

Compas, Maclcarne, and Fondacaro (1988) reported that older children and adolescents who used problem-focused coping in response to self-identified interpersonal stressors had more positive emotional and behavioural outcomes, whereas those who used emotion-focused coping strategies, such as behavioural self-soothing, emotion venting, and aggressive actions, had greater behavioural problems.

The work of *Sandler, Tein, Mehta and Ayers (2000)* showed that for chronic events, avoidant forms of coping may provide immediate relief, but if used exclusively, these strategies are likely to lead to greater internalizing problems. Similarly, *Steele, Forehand, and Armistead (1997)* reported that among children who are coping with parental chronic illness, active/approach coping was related to lower psychological problems, and avoidant coping with increased overall problems and internalizing problems.

Windle and Windle (1996) found a positive link between emotion focusing coping and depression in adolescents. In a research *(Halpern, 2004)* on preschool children, general coping efforts and problem approach coping were negatively related to behavioural problems, but general low score in coping scale was positively related.

Aldwin and Revenson (1987) concluded that problem-focusing coping acts were a psychological buffer against stress. They observed also, that strategies such as avoidance, fantasy and blaming were more related to psychological symptoms. It has also been found that maladaptive coping is related to serious problems such as drug abuse *(Wills & Hirky, 1996)*.

Gender difference in coping has been a well-researched issue in the literature. Although some researchers have found that women use more emotion-focused strategies *(e.g. Davila, Hammen, Burge, Paley, & Daley, 1995; Olah, 1995)* and more avoidance coping *(Gomez, 1998)* than men, other studies have found no gender differences in coping *(Compas, Maclcarne, and Fondacaro, 1988; Armistead et al., 1990; Gore, Aseltine, & Colton, 1992)*. Such inconsistencies between studies underscore the need for further research on whether males and females differ in how they experience and respond to stress.

The first aim of this research was to investigate the relationship between behavioural problems severity, coping styles and coping strategies, thus predicting the effect of coping in severity of behavioural problems. The secondary aim was to assess the role of gender differences in coping.

Methods

Participants. The population of this research was a secondary school in Iran. The secondary school included grades 6 to 9, and ages almost 11-12 until 14-15 years old- students in Tehran city (Capital of Iran). For sampling three areas (areas 1, 6, 16) formed the research sample, each of which three girls and three boy schools were chosen. From each school three classes were chosen and from every class 25 students were selected (all stages in random). In this way, the sample was really comprehensive. Data was gathered from 450 students and questionnaires of 30 students were excluded because of faults in completion. Ultimately data from 420 were analyzed. The sample included 225 (53/6%) females and 195 males (46/4%) and respectively 37/4, 29/3 and 33/3 percent from areas 1, 6, 16 of Tehran.

Tools. An anonymous pencil and paper questionnaire was administered to participants which contained two separate scales for the measurement of behavioural problems and coping:

1) Strength and Difficulties Questionnaire (SDQ): SDQ is a relatively new questionnaire about behavioural problems that was made in 1997 by Goodman according to ICD-10. It has five subscales including emotional symptoms,

conduct problems, hyperactivity-attention deficit, peer problems and pro-social behaviours. It has three forms; teacher, parent and self-report that are used for 3 to 16-year-old children and adolescents. Although it has a shorter life than other recognized questionnaires such as CBCL or YSR, it has the same psychometric characteristics and some advantages such as: fewer items (25), yet holds the same sensitivity (Becker et al., 2004), good correlation with YSR (Koskelainen, Sourander, & Kaljonen, 2000), good reliability *(Becker et al., 2004: Goodman, Meltzer & Bailey, 1998)* and according to ICD-10.

In this research a self-report form was used. Severity of every adolescent's behavioural problems was calculated by adding the psychological signs and/or symptoms that a student affirmed about him/her self. Participants were asked to answer the items about their states during the last six month on a Likert-type scale ranging from zero to two, with zero being "not true", one being "somewhat true" and two being "certainly true".

2) Adolescent Coping Inventory (ACI): ACI was made by *Frydenberg and Lewis (1993)* to assess 12 to 18-year-old adolescents' coping styles and strategies. Rarely is there a coping scale comparable to ACI in comprehensiveness. The form of ACI used in the present research assesses 18 strategies in 3 general styles. The first style, that is called solving the problem, includes eight strategies: seek social support, focus on solving the problem, physical recreation, seek relaxing diversions, invest in close friends, seek to belong, work hard and achieve and focus on the positive. This style of coping indicates an active and adoptive approach to problems. The second style is Reference to Others that includes four strategies; seek social support, seek professional help, seek spiritual support and social action. Use of these strategies shows that a person asks for help from friends, professionals or spiritual powers to overcome his/her problems. The third style is Non-productive Coping that involves eight strategies: seek to belong, worry, wishful thinking, tension reduction, ignore the problem, self-blame, keep to self and not cope. These strategies are those that may be called maladaptive avoidance strategies and are empirically related to inability in adjustment. Frydenberg and Lewis have found 0.44 to 0.84 correlations for test-retest reliability of this test after two weeks. In the present research, Cronbach's alpha of total scale was calculated 0.87 and for three subscales; Solving the Problem, Non-productive Coping and Reference to Others were respectively 0.80, 0.77 and 0.78.

Participants were asked to express how much they used these strategies. They should express their opinion about items on a five Likert-type scale ranging from one "I do not do it" to five "I always do it".

Results

In order to assess the relations among severity of behavioural problems with coping strategies and styles, Pearson correlation was used, and results are shown in Table 1.

As shown in Table 1 there are negative relationships between Solving the Problem coping style and severity of behavioural problems ($r = -0.49$, $p<0.001$) and also between Reference to Others coping style with severity of behavioural problems ($r = -0.32$, $p<0.001$). There are also negative relationships among strategies of these two styles and severity of behavioural problems. Among Non-productive Coping strategies wishful thinking and not cope strategies have negative relationships with severity of behavioural problems. There is also a positive link ($r = 0.21$, $p<0.001$) between tension reduction (a Non-productive Coping strategy) and severity of behavioural problems, but there is no relation between Non-productive Coping style and severity of behavioural problems. In other words, the more use of Solving the Problem and Reference to Others coping styles, and consequently strategies of these two styles, the fewer symptoms of behavioural problems reported by participants.

Multiple Regression Analysis (stepwise method) was conducted to test predicting effect of coping styles on the severity of behavioural problems.

The results are shown in Table 2.

The regressions testing coping styles as predictors (Table 2) are statistically significant for severity of behavioural problems ($R= 0.53$, $F= 83/618$, $p< 0.000$). Selected coping styles are Non-productive Coping and Solving the Problem. Together these predictors contributed 28 % of the variance to the prediction of behavioural problems that, in case of generalization, will be 0.28 ($R2Adj = 0.283$). From these styles, Beta Coefficient of Non-productive Coping is positive ($Beta = 0.223$, $p<0.000$) and that of Solving the Problem is negative ($Beta = -0.591$, $p<0.000$). In summary, the more use of Solving the Problem, the fewer behavioural problems, symptoms, and the greater application of Non-productive Coping, the more behavioural problems symptoms reported by students.

To answer more concisely, that exactly which coping strategies can predict severity of behavioural problems, coping strategies and behavioural problems were analyzed by Multiple Regression Analysis (stepwise method was used) the results of which are shown in Table 3.

As the above table shows, the regressions testing coping strategies as predictors are statistically significant for severity of behavioural problems ($R= 0.55$, $F= 26/117$, $p< 0.000$). Selected coping strategies are physical recreation, work hard and achieve, seek social support, seek relaxing diversions, not cope, focus on the positive and finally tension reduction. Together, these predictors contributed 30 % of the variance to the prediction of severity of behavioural problems that, in the case of generalization, it will be 0.29 ($R2Adj = 0.296$). From these strategies, Beta Coefficients of not cope and tension reduction strategies are positive and for others are negative. In summary, the higher use of physical recreation, work hard and achieve, seek social support, seek relaxing diversions and focus on the positive strategies, the fewer

behavioural problems symptoms reported and the greater application of not cope and tension reduction strategies, the more behavioural problems symptoms. To examine gender differences in coping styles, Independent Sample t-test was used the results of which are shown in Table 4.

As it is shown, there is not any difference between genders in every coping styles or general coping attempts (sum of numbers in all of coping styles).

Discussion

The relationship between coping and behavioural problems found in this research is congruent with the results of many other researchers conducted in children and adolescents (e.g., Compas, Malcarne & Fondacaro, 1988; Gomez, 1998; Halpern, 2004; Windle & Windle, 1996), and also congruent with research that was conducted about the relations between mental health and coping in adults *(e.g., Aldwin & Revenson, 1987; Herman-Stahl, Stemmler & Peterson, 1995; Chang et. al., 2006; Law, 2003; Wong, Leung, & On So, 2001)*. Similar to some of the studies that have assessed gender differences in coping responses to stressful or negative situations *(e.g., Altshuler & Ruble, 1989; Bernzweig, Eisenberg, & Fabes, 1993; Iskandar et al., 1995)*, this study indicates that boys and girls did not differ in their coping responses.

Almost in every way that we want to see coping, we can say that it has two components: a cognitive and a behavioural component. The cognitive component encompasses an interpretative part that includes a person's beliefs system about identity of stress, his/her ability to expose, and the way he/she should apply. Lazarus and Folkman (1984) emphasise the role of appraisal and reappraisal [cognitive component] in the face of stressing situations. They believe that our emotions are results of our receiving information. It is obvious that a person's beliefs about stress and their ability can widely change the way the person responds, that is, his/her behavioural component of their coping responses. According to the above, we can say coping in the first place can moderate between environmental stressors and responses by a cognitive process, although it includes behavioural components as well. As individual's responses to situations can be defined partly as a persons' mental health, and also, as they can result in some consequences related to mental health, we can thus replace our inference by: coping can moderate between environmental stressors and mental health. It is not a new inference and in fact there are findings that support its empirical base *(e.g., Halpern, 2004; Wang & Scott, 2002)*. For example Halpern (2004) found that coping acts as a moderating effect between family conflicts and externalized behavioural problems in children. In other words, it is assumed that the relation between mental health and coping is due to moderation effect of coping on the perception and reaction to environmental stressors. While adoptive coping can cause more adoptive perception and response, maladaptive coping can reverse it.

However coping's effects on mental health, the results of research such as this research implies, that adoptive or maladaptive coping are among important factors concerning child and adolescent mental health. The results of research such as the present research implies to us that the child's inability to generate constructive coping strategies may provide an early risk factor for behavioural problems.

Parents and families should review their duties regarding their children. Parenting duties not only include providing food and clothing, but also includes teaching more efficient strategies to cope better with situations in an increasingly more complex and challenging society. Without opportunities to practice coping skills, children and adolescents may be less equiped to manage the challenges that await them later in life.

These results emphasise also on the role of educational systems, not only as entities that teach reading and writing skills to children, but also help foster a child's aptitudes to grow up with more healthy coping styles and, consequently a more healthy personality.

Results of this research about gender differences in coping replicates results of other studies that have found no gender differences in coping *(Compas, MacIcarne, and Fondacaro, 1988; Armistead et al., 1990; Gore, Aseltine, & Colton, 1992)*. Although no gender difference was found in adolescent's reports of coping in response to stressful events, girls and boys may utilize the same strategies differently in real world in stressing situations. Loss of gender difference in coping in this research can also be related to the age range of the sample of present research. Differential reinforcements have been one of the assumed causes for observing gender differences in coping *(Matheny, Ashby, and Cupp, 2005)*. Adolescent males and females in this research may not have differential reinforcements for using specific coping as much as adults do, because of their lower ages. Therefore, results about gender differences in coping such as in this study may be more age-related rather than generalized. Considering inconsistent results about gender differences in coping, it is possible that, there was more complex relation between coping and gender.

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Table1: Correlations of intensity of behavioural disorder and coping strategies/styles

		Intensity of Behavioural disorder
Coping strategies	seek social support	-0.32**
	focus on solving the problems	-0.15**
	work hard and achieve	
	worry	-0.37**
	invest in close friends	0.07
	seek to belong	-0.19**
	wishful thinking	-0.26**
	not cope	-0.17**
	tension reduction	-0.17**
	social action	0.21**
	ignore the problem	-0.14**
	self-blame	-0.09
	keep to self	0.05
	seek spiritual support	0.05
	focus on the positive	-0.20**
	seek professional help	-0.31**
	seek relaxing diversions	-0.27**
	physical recreation	-0.34**
		-0.38**
Coping strategies	Solving the Problem	-0.49**
	Non-productive Coping	0.03
	Reference to Others	-0.32**

p<0.01, p<0.001***

Table 2: Summary of regression analyses (stepwise method) for coping styles predicting intensity of behavioural disorder

	R	R^2	R^2_{Adj}	B	SEB	Beta	t	p
Variables	0.535**	0.286	0.283					
Constant				28/628	1/632	-	17/537	0.000
1- Solving the Problem				-0.040	0.003	-0.591	-12/911	0.000
2- Non-productive Coping				0.015	0.003	0.223	4/863	0.000

*p<0.000***

Table 3: Summary of regression analyses (stepwise method) for coping strategies predicting intensity of behavioural disorder

	R	R^2	R^2_{Adj}	B	SEB	Beta	t	p
Variables	0.554**	0.307	0.296					
constant				27/244	1/695	-	16/071	0.000
1- physical recreation				-0.039	0.012	-0.16	-3/262	0.001
2- work hard and achieve				-0.055	0.019	-0.142	-2/879	0.004
3- seek social support				-0.063	0.016	-0.174	-4.018	0.000
4- seek relaxing diversions				-0.048	0.013	-0.181	-3/806	0.000
5- not cope				0.042	0.016	0.113	2/539	0.011
6- focus on the positive				-0.038	0.017	-0.108	-2/243	0.025
7- tension reduction				0.037	0.017	0.104	2/239	0.026

*p<0.000***

Table 4: Results of Independent sample t-test between genders in coping styles

variable	sample	mean	standard deviation	t	df	p
Solving the Problem	Male	529/087	81/46	1/721	418	0.086
	Female	515/577	79/11			
Non-productive Coping	Male	442/800	81/95	-0.187	418	0.852
	Female	444/240	75/71			
Reference to Others	Male	256/169	50/24	1/606	418	0.109
	Female	248/640	45/79			
General coping attempts	Male	1228/056	174/63	1/202	418	0.230
	Female	1208/457	159/42			

Step by Step Article Writing: A Practical Guide for the Health Care Professionals

ABSTRACT

The preparation of a manuscript for publication seems to be a daunting task especially for the novice. Before publication of a manuscript by a well-known journal, it should successfully pass a very tough barrier called editorial peer review. This article provides a practical step by step guide for the health care professionals about how to prepare a manuscript for publication that survives the editorial peer review process. This practical guide consists of 10 interrelated questions that a given author or authorial team should ask before submitting the article for publication.

Key words: article, structure, writing, health care professionals

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Introduction

The preparation of a manuscript for publication seems to be a daunting task especially for the novice. Before publication of a manuscript by a well-known journal, it should successfully pass a very tough barrier called editorial peer review1. Editorial peer review is a rather lengthy process in which the submitted article goes through a detailed inspection by the editors of the journals and peers of the authors. Peers of the authors are those people who are familiar with the subject under investigation as much as, or more than, the authors themselves. Sometimes peers might also consist of epidemiologists or biostatisticians as well as subject experts2.

The chief purpose of the editorial peer review process is to detect any flaws within the manuscript before publication and provide the authors with constructive criticism in order to improve the quality of the article3. The process also includes checking that the topic is within the journal's subject, to see that the results are clear, and to make sure the text gives worthwhile information. The outcome of this process could be categorized as immediate acceptance or immediate rejections, which are rather rare. The most common outcome of this process, even for an experienced author, could be revision either with substantial or minor corrections4.

The aim of the present article is therefore, to provide a practical step by step guide for the health care professional about how to prepare a manuscript for publication which successfully survives the editorial peer review process. This practical guide consists of 10 interrelated questions that a given author or authorial team should ask before submitting the article for publication. These questions are as follows:

Does the article add something new to the existing knowledge?

The most important step before writing a manuscript is to ask whether the article is going to add something new to the existing knowledge. This is a fundamental question which editors of a journal and peer reviewers ask of themselves when reviewing a submitted article for publication. Therefore, before anybody else asks this important question the authors should ask it themselves[1].

This question goes back right to the time of the inception of the research project. If the research project is built on a substantial literature review with a critical view, it would be possible that the article which arises from the project will add something new to the existing knowledge.

Does the author select the most relevant journal for topic?

The second most important step before writing a manuscript is to select the most relevant journal for submission[5]. This is a very important step forward since one of the most important reasons for either immediate rejection of a manuscript or sending it back for a major revision is that it does not lie within the scope of the journal, or it does not comply with the standards of that journal[6].

How might one find the most relevant journal for submitting his/her article? One of the best ways to fulfil this demand is to look at your literature review and find out which journal or journals publish similar works. If you find a journal by this approach you might also have a good impact on the editors of that journal because they see that you have cited the articles which they have published in their journal several times. Whenever, you find the most relevant journals do read its instructions for authors carefully and prepare your manuscript entirely based upon them.

Does a comprehensive and clear title indicate the topic in sufficient detail?

The title should be as comprehensive and clear as possible. It should be informative and short. Selecting an excellent title has a positive effect on the editors and peers. Avoid ambiguity and abbreviations as much as you can. If you have carried out a descriptive study you should add the element of time and place within your title. However, if you carried out an analytic study such as case-control, cohort or trials it is wise to add the type of your study somewhere within the title of your manuscript.

On a final note in this section, do remember that when your article gets published most people will read only the title of your article so make it clear and attractive to pursue the readers to go through the other part of your article, or at the very least the abstract.

Does a comprehensive and concise abstract prepare readers for the article?

After the title, abstract is the most important short part of your article, which you have to write using 150 to 250 words. The abstract must stand alone, be concise and also precise therefore, avoid detailed discussion or speculations. Also avoid abbreviations and cite other references if you can[7].

There are usually two forms of abstract i.e. structured and un-structured, depending on the journal that you have already selected. A structured abstract usually has the following subtitles: Background and objectives, Materials and methods, Results and Conclusions, whilst un-structured abstracts have no such subtitles. No matter which abstract you are writing, try to explain clearly within it what exactly you did, how you did it, what were your major results and their statistical significance and of course your conclusions.

Does the article provide a clear introduction?

The introduction should be short but give an adequate account of the background and prior work and end with the aims of the present study5. The first paragraph of the introduction should provide the readers with the importance and the background of the topic under investigation by citing the most important previous studies.

Within the second paragraph try to explain the gap within the existing knowledge, this is very important because it implies what your paper is supposed to add to the current knowledge. Finally, within the third paragraph explain the aims of your study; the questions that you are going to answer or the hypotheses that you are going to test.

Does the article include a complete materials and methods section?

The materials and methods section is the heart of the study once the question to be answered has been specified. The materials and methods should be specified so that any other researcher can replicate the study, to confirm the findings. It is always a possibility that all the shortcomings of a given manuscript in its other areas, no matter how large it is, would be corrected in the revision. However, the major problems within the materials and methods section would not be corrected unless the research was to be carried out for a second time[1]. Therefore, try to write this section in detail and clear so that someone else could repeat the investigation in an identical manner[8]. You may even use subtitles if necessary[5].

Begin this section with the type of study, the reference and sample populations and explain how many samples and by which method did you recruit in your study. These are very important issues since if you have chosen the wrong type of study or recruited a less than needed sample size, your article is not worth publication. There are other important issues that need to be explained in this section. For instance, who carried out the measurements, and how? Have the authors considered, or how they have dealt with, the ethical issues in their research? How have they specified the inclusion and exclusion criteria? Which statistical software and which statistical tests have they applied to answer their questions, or test their hypotheses?

Does the article give the findings in a proper way?

This section must be written based on the aims of the study that you have specified at the end of the introduction section. The findings should be presented so as to lead from the overall structure to more sophisticated methods for fine detail using visual aids such as tables, diagrams, illustrations and maps. Try to very briefly discuss any visual aids that are used and correctly cross reference them within the texts. Furthermore, double-check all your data within the texts and the visual aids[1].

Explain exactly which statistical test has been carried out to test which hypothesis. Do not interpret your results; this is a matter for the discussion section. Outline your findings prior to the discussion section.

Does the article include a complete discussion section?

The direction of discussion section is completely the opposite of the introduction section. Here the authors move from the details of their study to complete the picture and put everything in its proper context. Therefore, you should begin this section with the most important findings of your study whilst avoiding any over-estimations of your results. Then move on to compare your findings with similar studies and discuss the possible mechanism of similarities and dissimilarities1.

You should also point out any limitations of your study and their possible impact on your results. This is good practice because it shows the editors and reviewers that you are well aware of the limitations of your study. You may also provide some suggestions for future studies. At the end of this section you may conclude what your results really mean and how these results should be used in practice. However, be careful not to expand your conclusions beyond what is really supported by your findings.

Does the article acknowledge the efforts?

It is important to acknowledge every person or organisation that helps authors all through their investigation, up to writing the manuscript. This list might include the organisation which provides the researchers with the proper funding, or those colleagues who critically read the earlier drafts of the manuscript. This has a good impression on the editors and peers and if they want you to revise and resubmit your article based on their comments, you may acknowledge their help as well.

Does the article include a complete reference list?

The reference list is among the sections that are first read by the editors and peers (9), therefore, it is vitally important that this list consists of the most up to date and reliable articles in the relevant field. By reliable articles, it is meant as those articles that were published

in the peer reviewed journal. The use of less reliable sources such as websites, theses or articles that were published by the journals without peer review policy should not be used or they should be used as little as possible[1]. It is also suggested not to list reference books within references. However, if you feel that is absolutely vital to do that, you should provide the reader with the exact pages of the book on your reference list[10].

There is no standard rule which says how many references one needs to write an original article. However, the standard rule is that one should use all the relevant and latest literature on the topic under investigation[11]. Therefore, it is always better to use more, rather then less references[8]. It is more desirable that the reviewers and editors ask the authors to decrease the number of their references, than to ask them to increase them in order to contain all the relevant literature. Finally, references should be written well and according to the journal's instruction.

Conclusion

Preparation of a manuscript for publication needs careful considerations. The most important issue is to write only about those topics, which add something new to the current knowledge. The second vital issue is to select the most relevant journal for submission taking into account its instructions. The body of the manuscript should consist of a clear and attractive title, a concise abstract, a well-written introduction, materials and methods, findings and discussion sections. Finish your article with acknowledging those who helped you all through this overwhelming task and also an up-to-date list of references.

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