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engaged local stakeholders and opinion leaders in the colorectal cancer field, as well as international ostomy care and practice guideline experts. Appraising the quality, content and relevance of international ostomy guidelines to different jurisdictions provided opportunity for local practitioners to define and shape best practice. The adapted guideline is expected to promote consistent standards of care and optimal health outcomes for persons with ostomy in a region where cultural and religious values are intricately linked to health beliefs and practices.

A second paper looked at the effect Aerobic Exercise and Major Depressive Disorder. The author stressed that Major Depressive Disorder (MDD) is one of common health problems, and is estimated to affect 121 million adults. MDD is a recurrent illness, with high incidence of returning, and the risk of relapse that increases as the number of previous episodes increase. Hence, the choice of treatment is important to improve the quality of life and to prevent or minimize recurrent episodes. Physical exercise is an example of alternative and complementary therapy that has received considerable and significant attention in treatment of MDD. The efficacy of aerobic exercise approaches is considered and has a place in mental health practice. It is recommended that patients participating in three to five exercise sessions per week, for 30 to 45 minutes per session. Within the range of intensity for aerobic exercise, that achieves a level of heart rate of 70 to 85% of the heart rate reserve. Furthermore, the majority of researches emphasize that the exercise regimen should be continued for at least 10 to 16 weeks to achieve the greatest antidepressant effect.

A second paper from Jordan looked at Uncontrollable Behavior and Restraints Policy Analysis. The aim is to assess and analyze the uncontrollable behavior and restraint policy for National Center of Mental Health in Jordan according to administrative ease, cost and benefits, effectiveness, equity, legality and political acceptability. The use of restraint in psychiatric settings supports putting forward a policy and program on how to deal with uncontrollable behavior as result decrease number of restraint patient. The author concluded that there are many alternatives that effective, safe to patient and staff, legally, easy to apply, and accepted politically used instead of physical restraint.

A paper from Pakistan looks at aspects of nurse training in impoverished areas with special cultural and religious needs. The author highlights the Pakistan approach in terms of Millennium Development Goals.
TRANSCULTURAL ADAPTATION OF BEST PRACTICE GUIDELINES FOR OSTOMY CARE: POINTERS & PITFALLS

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Abstract

Objective: No standardized guidelines for ostomy care exist in the Middle East to support best practice. This contrasts with North America where ostomy guidelines are widely used in health service organizations. It is unknown whether guidelines developed in one country are relevant to other parts of the world. This project sought to assess the relevance of North American ostomy guidelines to a different health system and cultural context in the Middle East. The overall aim was to reach consensus to adopt, adapt or reject.

Methods: A graduate student, enrolled in a Masters of Nursing (MN) program in the Gulf Cooperation Council (GCC) state of Qatar, critiqued two North American guidelines using standardized tools. The process engaged local stakeholders and opinion leaders in the colorectal cancer field, as well as international ostomy care and practice guideline experts.

Results: Results of this critique, combined with input from internal and external stakeholders, resulted in a hybrid guideline that has been used in a Muslim society with different demographic, health system and cultural contexts.

Conclusions: Appraising the quality, content and relevance of international ostomy guidelines to different jurisdictions provided the opportunity for local practitioners to define and shape best practice. The adapted guideline is expected to promote consistent standards of care and optimal health outcomes for persons with ostomy in a region where cultural and religious values are intricately linked to health beliefs and practices.

Key words: Practice Guidelines; Adaptation; North America; Middle East; Ostomy Care.

1. Introduction

International data indicate that colorectal cancer is the third most common malignancy in the world, with 1.4 million new cases diagnosed in 2012 [1]. In the Middle East, the incidence of colorectal cancer is < 10 per 100,000 population; this is substantially lower than North America, Australia and New Zealand [2]. However, higher rates have recently been reported in Israel and Qatar, where age standardized rates range from 30-40 per 100,000 population [1,2]. This is consistent with findings of a study conducted in Qatar at the turn of the century identifying that colorectal cancer rates in this small Arabian Gulf country were higher than other Gulf Cooperation Council (GCC) states, with the most common sites being the sigmoid and descending colon [3]. Despite advancements in oncology surgery in the past decade, ostomy formation remains one of the major treatments for colorectal cancer [4]. As such, stoma formation surgeries are on the rise around the world concurrent with the increase in colorectal cancer.

An ostomy is an opening (stoma) from inside the small or large bowel to the outside [5]. Ostomy can be permanent, when an organ (the small intestine, colon, rectum, or bladder) must be removed. It can be temporary, when the organ needs time to recover. It can be temporary, when the organ needs time to recover. The most common ostomies are a colostomy, ileostomy and a urostomy.

Patients with ostomy have physical, nutritional, spiritual, health education and psychological support needs. It is important for nurses, physicians and other health care providers to understand the comprehensive needs of patients who have undergone ostomy so they can provide responsive care. The goal of health care providers is to assist patients with ostomies to achieve optimal independence, self-care abilities, nutritional health and bio-psycho-social-spiritual well-being. There is a trend to standardize care and management approaches around
Clinical guidelines are systematically developed recommendations to support provider and patient decisions about health practices to achieve high quality care [6]. A facility and literature review undertaken by a graduate nursing student in the GCC state of Qatar revealed that no practice guidelines relevant to ostomy care were in use in the Middle East. Furthermore, no studies could be found that evaluated ostomy care of patients with stomas in this part of the world.

Guideline adaptation is the systematic approach used to customize an existing guideline to suit the local context; it is an alternative to guideline development [7]. Decisions affecting the adaption, adoption or rejection of guidelines are influenced by several variables. These include the quality of the guideline, the scientific evidence supporting the guideline, clinical expertise, patient preferences, policies, culture and budget [8]. Authors of the Abu Dhabi Declaration cite four reasons that practice guidelines developed in one part of the world cannot simply be adopted in other regions. They include: (1) differences in culture, genetics, and environmental factors; (2) variations in patients’ presenting features and stage of disease; (3) differences in health service access such as technology or drugs; (4) evidence supporting the guidelines may be generated from populations or contexts with limited relevance to other jurisdictions [9]. A notable advantage of adapting existing guidelines is to reduce duplication of effort, while allowing health providers to integrate local perspectives into the guideline content [10].

2. Methods
2.1 Purpose
Critiquing North American ostomy guidelines and assessing their relevance to a different geographic and cultural context was the focus of this student-led graduate project. The process engaged local stakeholders and opinion leaders in the colorectal cancer field, as well as international ostomy care and practice guideline experts. The aim was to appraise the potential use of guidelines developed in North America in the local context and to reach consensus to adopt, adapt or reject. Engaging Middle East health professionals in guideline appraisal enabled clinical leaders to assert their critical thinking skills and give input regarding the “fit” with the local health system and the cultural-spiritual beliefs and values of the population.

The following questions served as the focus of inquiry:
1. What practice guidelines currently exist in ostomy care and management to support best practice of nurses and other health care professionals?
2. What are the strengths and weaknesses of existing ostomy care guidelines?
3. What is the relevance of the ostomy care guidelines to the Qatar health care system and population?

2.2 Philosophical Underpinnings
This work was philosophically grounded in the principles of evidence-based practice (EBP) which involves the explicit use of the current best evidence to make decisions about patient care [11]. It involves augmenting health care providers’ clinical expertise with quality research data. Evidence-based nursing (EBN), a subset of EBP, is the application of relevant, valid evidence to inform clinical decisions, with consideration of clinical expertise, patient preferences and conditions, available resources, as well as the judgment and qualifications of the nurse [12]. Besides the widely held view that EBP leads to high quality care and the best patient outcomes [9], experts assert that EBP also reduces practice variations, promotes consistency of care, enhances patient safety, increases self-care capacity and improves provider satisfaction [13,14]. At a system and organizational level, EBP has been shown to improve cost-effectiveness [15].

2.3 Methodological Framework
The CAN-Implement adaptation and implementation planning resource version-3 was the overarching framework used to critique and assess the relevance of the two North American ostomy guidelines, to the Middle East [7]. This comprehensive framework comprises 3 phases: (1) problem identification; (2) solution building and (3) implementation, evaluation & sustainability. It is structured around 9 sequential steps, each designed to assist users to evaluate, adapt and implement guidelines at the point-of-care. Each step consists of specific activities associated with the evaluation of existing practice guidelines and includes strategies for making decisions about their relevance to local contexts (Figure 1 - top of next page).

2.3.1 Critiquing Process -- CAN-Implement Phase 1
Phase 1 of the CAN-Implement framework consists of 7 steps. The initial four steps involve the following activities: (1) identifying a clinical best practice target; (2) establishing an interprofessional team who will participate in the evaluation; (3) describing the strategies to locate existing guidelines; and (4) clarifying the processes, as well as criteria for appraising the guidelines. Activities of steps 5-7 entail seeking input from stakeholders and/or opinion leaders, drafting a document to reflect the consensus of evaluation team members and outlining the plan for ongoing reviews and revision processes. These final 2 steps focus on: (1) identifying policies, stakeholders, resources and an implementation plan and (2) assessing the clinical environment for barriers and facilitators that may influence guideline use, specifying implementation interventions, as well as evaluation and sustainability strategies.
Figure 1: CAN-Implement Guideline Adaptation and Implementation Planning Resource

3. Results of Phase 1 Critique

3.1 Practice Guideline Target
As noted in the introduction, no practice guidelines for ostomy care are currently in use in the Arabian Gulf region. To reduce practice variation and to ensure optimal standards of care and patient outcomes, a practice guideline was deemed necessary. The largest health care corporation serving the major population of Qatar was the target site for this project. In 2013, over 50 new stoma surgeries were performed at this large tertiary care center.

3.2 Guideline Evaluation Group Formed
Led by the graduate nursing student, a guideline evaluation group was formed. The team consisted of the student’s academic supervisor as well as clinical experts, including the physician lead for colorectal cancer services and two advanced clinical nurse specialists (ANCSs) in the GI program.

3.3 International Ostomy Care Guidelines Located
A literature search uncovered a Canadian ostomy care and management guideline published by the Registered Nurses Association of Ontario (RNAO) [16] and an American practice guideline for fecal ostomy developed by the Wound, Ostomy and Continence Nurses Society (WOCN) [17]. From the Association of coloproctology of Great Britain and Ireland (ACPGBI) and the Scottish Intercollegiate Guidelines Network (SIGN), sixteen colorectal guidelines were found; however, none were relevant to stoma care or management. Scrutiny of other data bases, including the World Health Organization (WHO) Guidelines, National Institute for Clinical Excellence (NICE) Clinical Guidelines, National Cancer Care Network (NCCN), Royal College of Nursing, Cumulative Index to Nursing & Allied Health (CINAHL), Pub Med and Google Scholar, resulted in no guidelines related to ostomy care. The two guidelines from RNAO and WOCN were the focus of critique in this project.

3.4 Guideline Appraisal Process Established

3.4.1 Instruments
Literature indicates the Appraisal of Guidelines for Research and Evaluation (AGREE II) instrument is the universally recognized gold standard for evaluating practice guidelines [18]. The AGREE II tool has been translated into 32 languages and is employed widely to assess the quality of guidelines. The World Health Organization, the Council of Europe and the Guidelines International Network recommend this tool for guideline appraisal.

The AGREE II instrument consists of 23 Likert scale items grouped into six domains. These include: scope and purpose, stakeholder involvement, rigor of development, clarity and presentation, applicability, and editorial independence [19]. Domain scores are influenced by the degree to which the guideline development processes are described and the strategies used to reach agreement about recommendations for practice [20]. Besides generating separate quality scores in each domain, the AGREE II instrument enables the appraiser to assign an overall quality rating of the guideline. This global score indicates whether the guideline is accepted for use in practice (e.g. adopted without modification, adopted with alteration(s) or not adopted). Field testing of the AGREE instrument has shown acceptable internal consistency (Cronbach’s alpha .64 to .88) [19].

An additional tool, the Rapid Critical Appraisal (RCA) Checklist for Evidence-Based Clinical Practice Guidelines [21] was also used in the guideline review process. Scoring criteria for this 17-item checklist are grouped into three quality domains: credibility, applicability and generalizability. Two items unique to this brief checklist addressed practice relevance which had not been covered in the AGREE II instrument. As such it offered an enhancement to the AGREE II tool. No publications reporting validity/reliability testing of the RCA tool could be found.

Consultation with the primary author at Ohio State University in USA confirmed the tool has not undergone psychometric testing (email communication B. Melynk, Dec. 13, 2014).

3.4.2 First Level Critique
An independent appraisal of each guideline using the two standardized tools was completed by the graduate nursing student. This was followed by an inter-rater reliability check by the academic supervisor. Revisions were made and results of this first-level analysis were then shared with the two ACNSs on the evaluation team. Rather than completing a comprehensive independent critique, ACNSs reviewed the initial critique, offered recommendations about the guideline quality, relevance and content and gave input about resources and ostomy care issues specific to Qatar.

3.4.3 Second Level Critique
In the ensuing 2nd level analysis, data from the individual critique of RNAO and WOCN guidelines were synthesized by the graduate nursing student and used to inform the recommendation to adopt or adapt elements of one or both guidelines. Strengths and weaknesses of each guideline were appraised specific to content, relevance and quality. A composite summary was created structured around the domains of AGREE II tool [18].

3.5 Recommendation to Adapt Guideline
Adopting a guideline means accepting all of its content, including recommendations [22]. However, if all of the content or recommendations in the guideline are not considered relevant to local contexts, the evaluation team selects information considered applicable and reformat...
it into a new guideline. This is the process of adapting guidelines [22]. Following review and appraisal of both RNAO and WOCN guidelines, a recommendation was made to adopt with revision (adapt), the RNAO best practice guideline (BPG) on ostomy care and management and to adopt select parts of the WOCN guideline.

3.6 Local Guideline Drafted
Following the comprehensive review and critique of the Canadian and American guidelines [16, 17], the graduate student, acting as project lead, recommended adaptation of the RNAO guideline with additions from the WOCN guideline for use in Qatar. The revised guideline included 19 of 26 recommendations from the RNAO guideline and the pre-operative ostomy education component from the WOCN.

3.7 Input from Internal Stakeholders Obtained
As recommended by the CAN-implement authors [7], the adapted BPG was presented to internal stakeholders on the guideline evaluation team for their input and approval. Besides obtaining the perspective of the two ACNSs and senior colorectal-oncology surgeon, advice from clinical pharmacologists was sought. Pharmacists suggested including the generic name, along with the medication category, in the medication flow sheet to ensure patient understanding. Other suggestions included: (1) eliminating sensitive information from the sexual information sheet to avoid cultural inappropriateness; (2) presenting nutritional management tips in user-friendly language to ensure information is understandable to users; and (3) translating the patient information sheets to local languages to be useful to consumers.

3.8 Guideline Revised According to Stakeholder Input
Feedback from internal stakeholders was incorporated into the final guideline adaptation. Final approval to proceed with the implementation of the proposed guideline into local practice was received from the clinical lead of colorectal services and ACNSs.

3.9 Final Document Prepared According to Policy
Preparing the final document for internal use in local contexts required consideration of style, format and branding issues to ensure a standardized appearance with other practice guidelines (BPGs) in the organization.

3.10 Review and Revision Process of Local Guideline Specified
Organizational policy and procedure specific to each health care centre will inform decisions about revision processes. For instance, the organization targeted for ostomy BPG implementation requires that guidelines be reviewed every three years or earlier if new evidence is published, a problem is identified or there is a change in operational, administrative or clinical practice. The graduate student (now employed as an ACNS in the organization), will regularly monitor internal, local, regional and international practices. She will also be on the lookout for new clinical practice guidelines, systematic reviews and randomized controlled trials pertaining to ostomy care and management. Continuing consultation with internal and external experts in ostomy and colorectal cancer care will be essential to ensure the most current evidence from new studies, grey literature and/or unpublished trials is considered in guideline revisions [10].

4. Discussion
4.1 Ostomy Guideline Implementation in the GCC Health System Context
Having completed the phase 1 critique of two international guidelines, the next steps in the CAN-implement model, namely, phase 2 solution building and phase 3 implementation, evaluation and sustainability, require attention to local contextual variables that influence use of the adapted guideline. Priority activities focus on assessing the organizational and cultural context into which the guideline will be introduced.

4.1.1 Organizational Challenges and Opportunities
Careful analysis of organizational policies, stakeholder involvement and resource implications need to be considered before guideline implementation and evaluation can proceed. At the health care corporation in Qatar targeted for guideline implementation, policy approval must be obtained from the quality management department and corporate policy chapter committees (CPCCs). Final decision-making authority regarding the introduction of any proposed guideline (whether new or revised) resides with these bodies. Following signed approval of the CPCC lead officer, the proposed guideline is then submitted to the regulatory, accreditation and compliance services (RACS). At this level, a corporate memo is generated confirming the guideline meets standardized criteria. It is then forwarded to the Chief Executive Officer of the organization where final sanction is obtained before posting on the hospital intranet. These policies are intended to ensure consistent practice regarding guideline approval processes in the organization.

The involvement of clinical experts, opinion leaders and relevant internal stakeholders is critical in all phases of the guideline implementation and evaluation process. Input and expert knowledge of two clinical nurse specialists, two clinical pharmacists and a surgeon from the colorectal team helped to ensure guideline content and implementation - evaluation plans were realistic and practical. External personnel with expert knowledge of ostomy care and implementation science were identified who could provide problem-solving assistance or consultative guidance as required. Throughout this initiative, liaison occurred between the graduate nursing student and international
experts whose resource materials had guided each stage of the project [7, 16, 17].

A budgetary plan specifying implementation and evaluation expenses is integral to any guideline project. This will require consideration of production, distribution, marketing, education and evaluation costs. To promote fiscal responsibility, existing human resources in the organization were identified to support the implementation and evaluation of the adapted ostomy guideline. For instance, nurse educators will be involved in teaching staff on the two surgical floors, surgical intensive care unit (SICU) and operating theatre where most of the ostomy care is provided. The initial training will be delivered in a four-hour intensive workshop. Staffing needs in these units may need to be temporarily increased until the education of all nurses is complete. An evidence-based practice champion (EBPC) on each unit will be identified, who possesses excellent interpersonal skills and knowledge competencies specific to ostomy care. EBPCs will attend a one-day intensive workshop to prepare them to act as unit-based resources. This “train-the-trainer” approach [23] is intended to promote effective resource utilization, as well as staff engagement in the change process. The graduate student (now ACNS) will act as resource to EBPCs who are assuming a leadership and mentoring role in supporting the implementation of the ostomy guideline at the unit level. Recognition and feedback to EBPCs is deemed important at this early stage of guideline implementation as it represents the movement towards a culture of evidence-based practice.

4.1.2 Gap Analysis

After policy, stakeholder and resource issues have been considered, experts suggest an internal gap analysis be conducted to clarify what and how much needs to be changed in existing practices and systems to support effective guideline implementation [7]. A gap analysis involves assessing the degree of congruence between current ostomy care practices and guideline recommendations. Practice variations related to ostomy care uncovered in the analysis will inform planning decisions regarding practice change, educational content, implementation strategies and timelines. On the other hand, current ostomy practices that are consistent with the guideline will shape implementation decisions.

In the preliminary gap analysis, the project lead noted that nurses working in the four units treating patients with stoma do not all have knowledge of ostomy risk factors and peristomal complications. This will become part of the educational content during the guideline training. The gap analysis also uncovered variance between current professional practice and recommendations related to colostomy irrigation and use of suppositories. This content will also be incorporated into the guideline training.

Besides identifying professional practice variance, an organizational gap analysis may also uncover deficiencies related to resources and/or health system capacity. For example, a resource issue apparent in this project was related to the heavy workload of the two ACNSs in the GI and colorectal cancer program. Both provide the ostomy care support in the organization and both have similar roles to that of Enterostomal Therapy Nurses (ETNs). Their role begins pre-operatively and continues throughout the post-operative and follow-up phase of the patient’s care trajectory. A future consideration may be to delegate ostomy care to the wound care team or to hire certified ETNs. Whoever performs the role of ostomy specialist assumes responsibility for ensuring high standards of ostomy care through consultation, education, collaboration and team coordination in order to promote consistency and continuity of care amongst all multidiscipline staff.

With respect to health system capacity, limited information is available about the role of home care services in Qatar related to the post-discharge needs of new ostomy patients. This gap, related to care continuity following hospitalization, represents an important area for further exploration and improvement.

As the change process evolves, it will be important to identify facilitators and enablers likely to foster implementation success. Understanding barriers will enable the team to plan effective strategies to address obstacles that might interfere with effective implementation. Recognizing facilitators will provide insight about the forces likely to result in successful implementation [7]. The implementation strategy for the ostomy care and management guideline for local use will be informed by data obtained from the steps previously described. That is, input from project advisors, budgetary planning, resource availability and unit-based gap analysis, as well as barriers and enablers will shape implementation decisions.

4.1.3 Evaluation/Monitoring

Evaluating the effective use of new guidelines requires consideration of organizational capacity, resource needs and monitoring strategies. To assess the outcomes of the ostomy guideline implementation in the Qatar health care corporation, clinical observations and monitoring activities will be used to evaluate nurses’ compliance with the guideline and skill competencies related to stoma care. Patient outcomes, as assessed by indicators such as stoma complications, infection and readmission rates, will also be monitored, even though it is acknowledged that direct cause-effect inferences cannot be confirmed between nurses’ compliance with the guideline and these outcome indicators.

Process variables associated with the evaluation of the education phase of the guideline implementation may include: (1) number of staff who attended the training sessions; (2) number of units involved in the training; (3) hours spent in training sessions; and (4) resources used in the training process.
Outcome variables that will be assessed related to the education include: (1) staff knowledge and skill related to the guideline content; (2) guideline utilization and provider compliance with the standard of care, (3) staff satisfaction with the teaching/learning process, (4) staff satisfaction with access to resources during regular hours and after hours.

Other potential evaluation methods could include chart audits, informal interviews with staff and patients, as well as anecdotal comments collected in unit log books. These data will provide baseline information that can be used for comparison over time. A mechanism will be established to ensure the tracking, reporting and resolution of problems encountered by staff and to record gaps in guideline content.

4.1.4 Sustainability

Sustainability of the ostomy practice guideline is at risk if knowledge contained within it becomes outdated or irrelevant to current practice and if point-of-care practitioners do not see the value of integrating best practice principles into their daily care giving activities. Sustainable change will be easier to maintain if guidelines are embedded into electronic documentation and decision supports within the organization [24]. The project lead (entry level ACNS) will explore how the ostomy guideline can be linked with the clinical information system currently being implemented in the corporation.

4.2 Ostomy Guideline Implementation in the GCC Cultural Context

As noted previously, rates of colorectal cancer are increasing in Qatar [25, 26] and clinician interest in standardizing treatment practices has become a national priority [2, 9, 27]. Besides considering the health system context, guideline implementation must consider the demographic, cultural and religious context into which the guideline is introduced.

4.2.1 Cultural Challenges and Opportunities

The total population in Qatar is just under 2.5 million [28]. About 80% live in the capital city of Doha and another 10% live in other urban areas of the country [29]. Population demographics reflect a diverse cultural mix. Arab nationals (approximately 0.3 million) comprise less than 15% of the population. The vast majority of the population consists of expatriates from multiple countries. Indians and Nepalese represent the largest groups (1 million combined) and Filipinos and Egyptians (0.4 million combined) are the other most prevalent cultural groups.

Over 75% of people living in Qatar practice the Islamic faith; there is a mix of Arab and non-Arab Muslims. Christians (8.5 - 10%) and other religions, such as Hinduism and Buddhism make up the remaining population. Similar to neighboring GCC countries, Qatar has a high proportion of young male construction workers from low income countries in the Eastern Mediterranean, South-East Asia, Western Pacific and African regions. As a result, there is a disproportionate male:female ratio (75:25) [28].

As Islam is the dominant religion in this culturally diverse country, a challenge for health professionals is to understand how culture and religion influence health, self-concept and response to illness. Authors note that spiritual affiliation and strength of faith are basic elements of one’s cultural identity [30]. Though there is abundant research describing the cultural and religious aspects of caring for Muslim patients [31, 32, 33, 34, 35], there is scarce evidence describing Muslim patients’ stressors and responses to stoma surgery.

In multicultural, Muslim societies such as Qatar, the provision of culturally competent care requires that health professionals provide individualized, holistic care that attends to the spiritual, cultural, psychosocial, interpersonal and clinical needs of all persons [35]. Cultural competence involves integrating cognitive and affective components essential for establishing culturally-relevant relationships between patients and providers [36].

The preliminary gap analysis completed for this local guideline adaptation project, revealed that health care providers, including staff nurses and physicians, do not consistently perform comprehensive patient/family assessments on persons with ostomy. The focus of assessment tends to be on physical aspects of care (e.g. stoma site, signs and symptoms). Less attention is directed to psychosocial, sexual, cultural, spiritual, and religious assessment. Dieticians, pharmacists, physiotherapists and social workers are not regularly involved in patient consultation. Project team members recognized that these disciplines should become part of the colorectal team.

Gap analysis also revealed that all patients may not receive similar information in the pre-operative phase of care. For instance, those who do not speak one of the dominant languages (Arabic or English) may miss formal pre-op education. Self-care practices related to ostomy management may vary within and between cultural groups or religions. Evaluation measures have not been formalized to assess patient/family understanding of self care practices that ensure safe, proficient use of ostomy products and appliances. These issues represent targets for improvement.

Beyond cultural and spiritual factors, other demographic variables challenge the provision of culturally competent care. For instance, language, income and education level are crucial issues to assess in Qatar since a large proportion of the population are migrant workers who do not speak Arabic or English. This may impede the ability of professionals to communicate and deliver consistent information to all patients. Culturally appropriate services (education, counselling, resources, supports) that
consider language and literacy levels must be thoughtfully planned and customized for patients and families. Studies of expatriate workers in Kuwait with cancer revealed that language negatively impacted the adequacy of oncology care for both Arab-speaking and non-Arab speaking patients. This relates to the fact that, similar to Qatar and other GCC countries, many expatriate health care professionals do not speak Arabic or other languages of patients [37, 38].

Literature indicates the main challenges specific to ostomy care and religious beliefs of Muslims evolve around hygiene and prayer, gender and modesty, as well as sexuality and body image. Following stoma surgery, the individual's body image and/or self esteem may be altered; perceptions of attractiveness may have changed and feelings about sexuality may be negatively impacted [16,39]. These issues may be particularly relevant for women, owing to the ideals that society places on them to reflect a positive sexuality and attractive body image [40]. A Jordan study of Muslim women experiencing bodily changes during critical illness distinguished three areas of patient concern: the physical body, the social body and the cultural body [41]. Jordanian women's dependence on health professionals for physical care was perceived as reduced performance and bodily strength which triggered feelings of shame, burden and helplessness. An altered physical condition was seen by the women as an inability to contribute normally to family role functions which induced feelings of social inadequacy. Female Muslim participants also viewed physical illness as a threat to their cultural identity due to Islamic beliefs, customs and expectations regarding women's role in the family and community.

Having an ostomy forces an individual of the Islamic faith to confront and adapt to issues pertaining to religious customs. For Muslims, stoma formation may interfere with their daily prayer rituals. They must ensure the cleanliness of their clothes, physical body and place of prayer (5 times / day); the practice of washing [ablution] prior to prayer, after sexual intercourse, urination and defecation is rooted in Islamic ideology [42]. Muslim patients with ostomy may experience spiritual conflict, not only by the sight of bodily fluids, but by the perception that they are "unclean".

Research has documented that Muslim patients with stoma report a more negative quality of life than non-Muslim patients. This has been attributed to their cessation of daily washing rituals, mosque visits and prayers. Study participants conveyed that physiologic factors, such as uncontrolled flatus and visible faeces, resulted in their inability and/or unwillingness to observe normal religious customs specific to prayer. As a result, they experienced social isolation and decreased quality of life [42]. This reinforces that Muslim patients with ostomy face unique cultural and religious challenges that may induce intense conflict and stress. Guideline content must include comprehensive assessment, as well as resources and services to address the unique psychosocial and spiritual support needs of patients.

Privacy, modesty and dignity issues, important to all people regardless of culture or religion, may have special significance to Muslim patients with ostomy. Muslim custom related to modesty requires that clothing cover the entire body, neck and head and must not be tight, sheer or unduly conspicuous. Muslim apparel and adherence to modest dress standards may be a source of comfort to a person with ostomy, serving to limit public scrutiny or perceived exposure of his/her altered physical body. Islamic modesty rules also place restrictions on privacy, the mention of bodily functions and gender relationships [43]. For example, direct eye contact with the opposite sex outside the family is forbidden for some Muslims and same-sex medical care providers are generally preferred.

Islamic tradition posits that one's privacy is integral to his/her dignity [44]. Evidence indicates that "Muslim women specifically and Arab women in general do not tolerate unnecessary exposure of their bodies" [45]. Externalizing the bowel may have a devastating impact on a Muslim woman's self-image and personal sense of dignity. Because it is not customary for people of the Muslim faith to discuss sensitive issues related to bodily functions [43, 46], psychological, social, and religious supports should be available to assist individuals to disclose feelings about altered body image following stoma surgery [39]. On the other hand, research has shown that strong religious affiliation can have a positive effect on body image, possibly by redirecting judgments about self-worth away from appearance and towards moral and ritualistic pursuits relevant to an individuals' faith [47]. The 21 countries in the Eastern Mediterranean Health Region [48] are Muslim-dominant societies. However, varied geo-political, economic and social factors, coupled with demographic diversity, make it impossible to predict with certainty whether an ostomy guideline adapted in Qatar will be relevant to the entire Middle East region. To assess the relevance of the Qatar ostomy guideline to other areas of the Middle East, clinical stakeholders in those countries should engage in a collaborative interdisciplinary appraisal process similar to that described in this paper. Because Qatar is the first GCC state to take lead in developing and implementing guidelines for ostomy care, this small Arabian Gulf country may become a centre of excellence for best practice in this field, possibly attracting the attention of neighboring countries. We envision that the introduction of an ostomy care and management guideline in Qatar for use by nursing and allied health professionals will be complementary to the medical guideline for colorectal cancer available through the National Institute for Health and Care Excellence (NICE) that serves as a practice standard for GCC and Middle East colorectal surgeons [49]. Integration of both guidelines is expected to be the beginning of a new era of best practice for colorectal cancer and ostomy care consistent with the national vision to create a world class health system [27].
5. Conclusion

Experts all agree that clinical practice guidelines developed in one part of the world may be difficult to implement in another geographic region. This paper has summarized the systematic steps involved in appraising the quality, content and relevance of two different ostomy guidelines developed in North America to the Middle East context. The goal was to produce a guideline for use by health care professionals employed in one major health corporation in the GCC state of Qatar. The process involved systematic procedures, standardized critiquing instruments and input from interprofessional team members. The initiative enabled a graduate nursing student to assert her leadership by actively liaising with international experts in EBP, BPGs and ostomy care. It also provided an opportunity for her to engage locally with interprofessional colleagues and to involve them in decision-making to define and shape best practice. The ultimate goal was to ensure a practice guideline exists to foster the delivery of quality care to patients with ostomy. The resultant guideline adaptation is expected to support optimal health outcomes, healthy adjustment, effective self-care abilities, bio-psycho-social-spiritual well-being and a positive quality of life, thereby helping patients face the challenges of living with ostomy with confidence and independence. The adapted ostomy care and management guideline is intended for use by staff involved in care of patients in the preoperative, postoperative and rehabilitation period. Completing implementation and evaluation of this guideline in the local context is the next immediate step. A future priority will be to assess the need for patient-specific ostomy guidelines.

Acknowledgement

S. Abdul Qader is a new MN graduate working as a clinical nurse specialist in the colorectal program at Hamad Medical Corporation in Doha, Qatar. M.L. King is assistant professor in the faculty of nursing at University of Calgary in Qatar.

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EVIDENCE BASED PRACTICE:
AEROBIC EXERCISE AND MAJOR DEPRESSIVE DISORDER

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Abstract

Major Depressive Disorder (MDD) is one of the common health problems, and is estimated to affect 121 million adults worldwide. MDD is a recurrent illness, with high incidence of returning, and the risk of relapse that increases as the number of previous episodes increase. Hence, the choice of treatment is important to improve the quality of life and to prevent or minimize recurrent episodes. Physical exercise is an example of alternative and complementary therapy that has received considerable and significant attention in the treatment of MDD. The efficacy of aerobic exercise approaches is considered and has a place in mental health practice. According to many studies aerobic exercise is the preferred form of exercise for patients with MDD. Moreover, Aerobic exercise has been proven as an effective treatment for MDD, and there are sufficient studies to help health care providers to prescribe aerobic exercise as a treatment choice for MDD patients. It is recommended that patients participate in three to five exercise sessions per week, for 30 to 45 minutes per session. Within the range of intensity for aerobic exercise, that achieves a level of heart rate of 70 to 85 % of the heart rate reserve. Furthermore, the majority of research emphasizes that the exercise regimen should be continued for at least 10 to 16 weeks to achieve the greatest antidepressant effect.

Key words: Aerobic Exercise; Major Depression.

Introduction

Mental health problems are international challenges that have a significant contribution in illness burden over the entire world (Blake, 2012). Major Depressive Disorder (MDD) is one of the common health problems, and is estimated to affect 121 million adults worldwide (World Health Organization [WHO], 2012). Projections for the year 2030 indicate that MDD will rank second only to coronary heart disease as a cause of illness burden over the entire world (WHO, 2012). Furthermore, WHO, 2012 reported that MDD currently represents a second health problem regarding disability caused by illness in the world.

MDD is associated with significant morbidity, mortality, and disability that burden the individual and his family, and contribute to impaired cognitive skills and deterioration of the individual life aspects (Blake, 2012; Nahas & Sheikh, 2011). Many risk factors are associated with incidence of MDD as genetic factors, life events, sleeping disturbance, alcohol, and some drugs (Townsend, 2011). Symptoms of depression include feeling of hopelessness and helplessness, loss energy, anhedonia, agitation, fatigue, withdrawn, weight loss or gain, fatigue and inappropriate thinking (Townsend, 2011).

MDD is a recurrent illness, with high incidence of returning, and the risk of relapse increases as the number of previous episodes increase (Solomon, Keller, Leon, Mueller, & Lvori, 2000). Hence the choice of treatment is important to improve the quality of life and to prevent or minimize recurrent episodes. For instance, the majority of western guidelines published since 2000 have similar recommendations about all stages of treatment of depression, that is first line treatment is usually serotonin reuptake inhibitor, psychotherapy, or combination of psychotherapy and pharmacotherapy (Gelenberg, 2010). Indeed, no single
treatment for MDD is effective for every patient (Nahas & Sheikh, 2011). Almost half of depressed patients who are treated do not attain full remission of their symptoms of MDD and they remain under risk of residual symptoms and relapse (Solomon et al., 2000). Allopathic therapies could be undesirable options for MDD management illustrated by antidepressant medications having unpleasant side effect, and psychotherapy could be time consuming and expensive (Demyttenaere et al., 2001). Many depressed patients choose complementary alternative medicine instead of allopathic (Solomon et al., 2000). Hence, there is a great interest in development of alternative and complementary therapies to enhance and promote treatment options of MDD (Blake, 2012).

Physical exercise is an example of alternative and complementary therapy that has received considerable and significant attention in treatment of MDD (Blake, 2012). Physical exercise may be a viable treatment because it can be recommended for any patient at any time without suffering a negative social stigma (Nahas & Sheikh, 2011). In general, physical exercise has a significant and clear positive effect on physical health and psychological process in the human body (Blake, 2012). Normal physical health conditions may play a significant role in mental health balance, and maintain biopsychological aspect in the human body (Helmi et al., 2010). A number of studies indicated a consistent association between improving mental health and regular physical exercise (Hassmen, Koivula, & Utela, 2000). In addition, many studies reported that physical exercise might reduce depressive symptoms in the nonclinical population and in patients diagnosed with MDD (Nahas & Sheikh, 2011). At the same time, an association between physical inactivity and higher levels of depressive symptoms in patients with MDD is observed (Helmi et al., 2010).

Concept of physical exercise indicates regular, structured, continuous, rhythmic fashion, and leisure time activity (Hassmen et al., 2010). Specifically, aerobic exercise is a kind of exercise which involves prolonged activity of large muscle groups to produce energy by metabolizing oxygen; such as running, swimming, and aerobic dancing (Reed & Buck, 2009). Unlike aerobic exercise, anaerobic exercise reflects intense, brief, and nonsustainable muscular activities that use the energy to produce activity without inhaling oxygen; such as in weight lifting, and pushing down (Reed & Buck, 2009).

In fact, the majority of healthy people prefer and use this kind of exercise in their life activities, and aerobic exercise is one of the common exercise modalities that is recommended for mental health improvement (Reed & Buck, 2009). Many studies have examined its effectiveness and viability to manage mental disorders (Kanning & Schlicht, 2010). Moreover, the efficacy of aerobic exercise approaches is considered and has a place in mental health practice, but some researchers suggested inconsistent recommendations regarding adoption of aerobic exercise as treatment choice for MDD (Reed & Buck, 2009).

Dose, Frequency, and Technique of Aerobic Exercise for MDD Management

The efficacy of aerobic exercise in treatment of MDD may be affected by age and severity of symptoms, but intensity of exercise programs have a substantial impact on aerobic exercise effectiveness for MDD (Silveira et al., 2013). Determining the type of exercise for people with MDD has to focus on personal interest, physical needs, risk for injury, and adverse effects for current medication. Selecting the convenient exercise is primary for continued consistent exercise intensity (Silveira et al., 2013).

In a report of 2013, American College of Sports Medicine (ACSM) defined many concepts related to intensity of aerobic exercise. In the beginning, ACSM used heart rate reserve term to reflect exercise intensity that is equivalent to the desired percentage of maximal oxygen uptake. Heart rate reserve means the difference between resting heart rate and maximum heart rate. ACSM set maximum heart rate as the highest number of beats per minute during physical exertion, and resting heart rate is the lowest number of heart beats per minute during ful relaxation and without distractions. The intended increase in heart rate reserve means increase in the aerobic exercise intensity (ACSM, 2013). Additionally, ACSM articulated that exercise intensity reflects how much energy is expended when exercising. ACSM clarifies a way to optimize energy expenditure by modifying the intensity of the exercise. It is important to choose mode of exercise that can be regulated to overload the cardio respiratory system and increase the heart rate reserve level, so it will increase exercise intensity (ACSM, 2013).

ACSM (2013) classified exercise mode for MDD treatment regarding energy expenditure into three groups of exercise (a) exercises that provide a consistent intensity and energy expenditure such as walking, jogging, cycling, and stair climbing; (b) in this group the exercise will burn more calories if a person worked harder and longer such as aerobic dancing, bench stepping, and swimming; (c) large muscle contractions with prolonged activities such as basketball, racquet sports, and volleyball are high energy expenditure exercise activities. Moreover, many doses are used to determine energy expenditure in an aerobic exercise program, for instance, public health dose of aerobic exercise that is total weekly energy expenditure of 17.5 kcal/kg/week, and low dose aerobic exercise that is total weekly expenditure of 7 kcal/kg/week (ACSM, 2013). More energy expenditure means more effective exercise practice because of the biophysiological actions of muscle contractions, and hormonal excretion after intensive exercising program (Drevets, 2001).

Aerobic exercise program for MDD. In their study, Dunn et al. (2005) reported that aerobic exercise consistent with public health dose is an effective treatment for MDD, but a lower dose is comparable to no treatment intervention.
Dunn et al. also concluded that there was no difference in result between 3 days per week of aerobic exercise and 5 days per week. Hence, the distinct factor for reduction of MDD symptoms is total energy expenditure not frequency of exercise sessions. In the same way, Blumenthal, Smith, and Hoffman (2012) concluded that no differences between 3 days per week and 5 days per week of aerobic exercise as a therapeutic exercise regimen for MDD, but exercise adherence is the essential factor to profit from the exercise program.

Blumenthal et al. (1999) applied 16 weeks exercise program of 45 minutes session per day for three days every week on MDD participants. The result showed positive outcomes after implementing this method, and the exercise program achieved therapeutic effects (Blumenthal et al., 1999). Another design, which is developed by Davidson (2010) within a guideline for MDD treatment, presented a different aerobic exercise program. Davidson’s program consisted of three times weekly of regular walking and jogging sessions for 10 weeks; each exercise session consisted of 10 minutes of stretching exercise, followed by 45 minutes of continuous walking or jogging to obtain desired exercise intensity by increasing heart to 70-85% of maximum heart rate of MDD participant. A somewhat distinct aerobic exercise program performed by Babyak et al. (2000) and Blumenthal et al. (2007) suggested three exercise sessions per week for 16 consecutive weeks. Every session designate training exercise ranges equivalent to 70-85% of heart rate reserve. Each aerobic session started with 10 minutes warm up period, next followed by 30 minutes of brisk walking or jogging at intensity consistent with assigned heart rate reserve. After that, exercise session concluded with five minutes of cool down exercise. The exercise program achieved positive results in managing symptoms of MDD (Babyak et al., 2000; Blumenthal et al., 2007). A positive outcomes study by Hoffman et al. (2011) applied similar aerobic exercise method within their randomized clinical trial study to reduce MDD symptoms. Hoffman et al. designed program of attending 45 minutes of aerobic exercise of running, jogging, and treadmill each week for four months within target heart rate of 70-85% of heart rate reserve.

Briefly, three days of aerobic exercise sessions per week for consecutive weeks range from 10 to 16 weeks; every session of jogging, running, walking, or treadmill, or any aerobic exercise that the patient is interested in, continued for 30 to 45 minutes, and maintained at 70 to 85% of monitored heart rate reserve. Also consideration should be given to the patients’ abilities for these exercise sessions in regard to their health, time, and willingness for exercise practice, could be an appropriate program for MDD management practice.

**PICO Format**

Evidence-based practice is integration of best research evidence with clinical expertise and patient values (Stuart, 2001). To implement evidence based practice strategies, we can use PICO, which is a method of putting together a search strategy that allows the health care provider to take a more evidence-based approach to the literature searching when searching bibliographic databases (Stuart, 2001).

A clinical question needs to be directly relevant to the patient or problem. It needs to be phrased in such a way as to facilitate the search for an answer. PICO makes this process easier (Stuart, 2001). It is a memorial for the important parts of a well-built clinical question. It also helps formulating the search strategy by identifying the key concepts that need to be in the article that addresses the question. A PICO question consists of four elements (a) population or patients (b) intervention (c) comparison (d) outcome.

At this level, we can clarify current clinical questions that articulate the efficacy of aerobic exercise to manage patients with MDD. Furthermore, it could compare aerobic exercise to antidepressant in managing MDD. PICO questions apply a convenient format that will ease process of answering relevant questions. PICO search strategies will consider the main elements of PICO questions. Proposed PICO questions elements are illustrated in Table 1.

**Table 1**

<table>
<thead>
<tr>
<th>PICO</th>
<th>Clinical Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Population</td>
<td>Patients with MDD</td>
</tr>
<tr>
<td>2. Intervention</td>
<td>Aerobic Exercise</td>
</tr>
<tr>
<td>3. Comparison</td>
<td>No Aerobic Exercise or Antidepressant</td>
</tr>
<tr>
<td>4. Outcome</td>
<td>Reducing MDD symptoms</td>
</tr>
</tbody>
</table>
PICO Questions
Clinical elements are combined through PICO format to formulize PICO questions. The proposed three PICO questions are:

1- In patients with MDD, does aerobic exercise program reduce the symptoms of MDD?
2- In patients with MDD, what is the effect of aerobic exercise program on reducing symptoms of MDD compared to no aerobic exercise?
3- In patients with MDD, how does aerobic exercise program compared with antidepressant reduce symptoms of MDD?

Literature Review
Effects of Aerobic Exercise on People with MDD
In this situation, one systematic review performed by Phillips, Kiernan and King (2003) indicated that aerobic exercise has beneficial effects on patients with MDD, and may increase social integration, successful adaptation, and self esteem of patients with MDD. In addition, Phillips et al. (2003) reported that an aerobic exercise as little as four weeks could beneficially affect people with MDD. Similarly, Lawlor and Hopker (2001) in their systematic review concluded that aerobic exercise may be efficient in reducing symptoms of depression among patients with MDD in the short term, but it is not clear for long term treatment plan due lack of follow up studies.

A number of randomized clinical trials studies examined the effects of aerobic exercise on people with MDD. For instance, Carter, Callaghan, Khalil and Morres (2012) found that sufficient intensity of aerobic exercise has effective outcome on the depressive symptoms of patients who are experiencing MDD. Equally, another randomized clinical trial conducted by Dunn, Trived, Kampert, Clark, and Chamblass (2005) concluded that standard aerobic exercise is an effective treatment for MDD of mild to moderate severity. The authors suggested that participants with MDD who underwent the study showed an improvement in their mental status after implementing a full aerobic exercise program (Dunn et al., 2005). In the same way, in 2007, Blumenthal et al. in their randomized clinical trial study showed that aerobic exercise program for participants with MDD is better than no treatment intervention to improve mood status. In a like manner, one randomized clinical trial reported that MDD patients positively interested in aerobic exercise, showed efficacious response after a modest exercise program (Babyak et al., 2000). Particularly, aerobic exercise is an effective and potent treatment for patients with MDD in case the patients are willing to undergo the exercise program (Babyak et al., 2000). One quasi-experimental study reported that aerobic exercise program decreased the depression scores in Hamilton rating scale among elderly women who experienced MDD (Sayyad, Nazer, ansary, & Khleghi, 2006). Furthermore, in their pilot study Dimeo, Bauer, Varahram, Proest, and Halter (2001) concluded that an improvement in mood status could occur after implementing 10 days of aerobic exercise for patients experiencing mild MDD.

In contrast, one randomized clinical trial conducted by Krough, Videbech, Thomsen, Gluud, and Nordentoft (2012) indicated opposite outcomes to previous studies. Study of Krough et al. concluded that aerobic exercise has no significant effect on patients who experienced MDD. Additionally, Krough et al. reported that duration, frequency, and intensity of aerobic exercise are not substantial to potentiate aerobic exercise performance. Another randomized clinical trial showed that one year of exercise training is not effective for depressive symptoms among residents of care homes and nursing homes who are experiencing MDD (Underwood et al., 2013).

Aerobic Exercise versus Antidepressant Medication
Aerobic exercise may reduce negative side effects of antidepressants, such as fatigue, dizziness, and constipation, thus increasing compliance in medication use (Kruisdijk, Hendriksen, Tak, Beekman, & Rock, 2012). Aerobic exercise could be applied as a single treatment plan or complementary therapy in addition to pharmacological treatment (Kruisdijk et al., 2012). No doubt, adverse effects of aerobic exercise are less than antidepressant, and aerobic exercise is relatively safer than antidepressant with low cost charges (Kruisdijk et al., 2012).

One systematic review showed that aerobic exercise and antidepressant medication are similar regarding reduction of depressive symptoms on the Hamilton depression rating scale in patients diagnosed as MDD (Danielsson, Noras, Waern, & Carlsson, 2013). The same review recommended that people with MDD should be treated with aerobic exercise instead of antidepressant medication (Danielsson et al., 2013). Another meta-analysis concluded aerobic exercise enhances the response to antidepressant treatment for MDD patients, but it is less effective than antidepressant treatment in improving MDD symptoms (Silveira et al., 2013). On other hand, Cooney et al. (2013) concluded in their systematic review that aerobic exercise is slightly more effective than no treatment intervention to reduce depressive symptoms among MDD patients, but is less effective than pharmacological treatment in reducing depressive symptoms or improving quality of life for people with MDD.

Another clinical trial study suggested that the effect of aerobic exercise on MDD remission is similar to antidepressant, and aerobic exercise may enhance the efficacy of pharmacological treatment (Hoffman et al., 2011). This conclusion is supported by another randomized clinical trial conducted by Blumenthal et al. (2007) who found efficacy of exercise treatment similar to antidepressant medications, and both treatments are better than no treatment intervention in patients with MDD. Also, an earlier study completed by Blumenthal et
al. (1999) suggested more positive expectation regarding aerobic exercise which may be considered as alternative treatment to antidepressants to manage MDD. However, some antidepressants may provide rapid onset therapeutic response more than aerobic exercise that enhances position of antidepressant medications as the first line treatment for MDD (Blumenthal et al., 1999).

Discussion

In general, many studies of first level of evidence concluded that aerobic exercise is effective in reducing symptoms of patients with MDD. All studies that reported positive outcomes regarding aerobic exercise efficacy in MDD are summarized in Table 2. However, as shown in Table 3, two randomized clinical trial studies showed that aerobic exercise has no effect in reducing symptoms of MDD. Hence, the clinical questions, which investigate the efficacy of aerobic exercise and compare it to no treatment approaches, could be answered after evaluating all relevant studies.

Searching of literature related to PICO questions that compare aerobic exercise to antidepressant, found high level of evidence as represented in Table 4. The studies reported that aerobic exercise may be similar or less efficient than antidepressant in reducing symptoms of MDD. However, no studies showed opposite outcomes. Similarly, aerobic exercise could not be more effective than antidepressant in reducing symptoms of MDD.

Table 2

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>References</th>
<th>Design</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1a</td>
<td>Phillips, Kiernan and King, 2003</td>
<td>Systematic review</td>
<td>Aerobic exercise (AE) has beneficial effects on patients with MDD</td>
</tr>
<tr>
<td>Level 1a</td>
<td>Lawlor and Hopker, 2001</td>
<td>Systematic review</td>
<td>AE may reduce symptoms of MDD in short term</td>
</tr>
<tr>
<td>Level 1b</td>
<td>Carter, Callaghan, Khalil and Morres, 2012</td>
<td>Randomized clinical trial</td>
<td>Sufficient intensity of AE has effective outcome symptoms MDD</td>
</tr>
<tr>
<td>Level 1b</td>
<td>Dunn, Trived, Kampert, Clark, and Chambliess, 2005</td>
<td>Randomized clinical trial</td>
<td>AE is effective treatment for MDD of mild to moderate severity</td>
</tr>
<tr>
<td>Level 1b</td>
<td>Blumenthal et al., 2007</td>
<td>Randomized clinical trial</td>
<td>AE for participants with MDD is better than no treatment intervention to improve mood status.</td>
</tr>
<tr>
<td>Level 1b</td>
<td>Babyak et al., 2000</td>
<td>Randomized clinical trial</td>
<td>Positively interested MDD patients in AE showed efficacious response after a modest exercise program</td>
</tr>
<tr>
<td>Level 2b</td>
<td>Sayyad, Nazer, Ansary, &amp; Khleghi, 2006</td>
<td>Quasi-experimental study</td>
<td>AE program decreased the depression scores in Hamilton rating scale among elderly women who experienced MDD</td>
</tr>
<tr>
<td>Level 3b</td>
<td>Dimeo, Bauer, Varahram, Proest, and Halter, 2001</td>
<td>Pilot study</td>
<td>Improvement in mood status could occur after implementing 10 days of aerobic exercise for patients experiencing mild MDD.</td>
</tr>
</tbody>
</table>
Summary
According to former studies aerobic exercise is the preferred form of exercise for patients with MDD. Moreover, Aerobic exercise has been proven as an effective treatment for MDD, and there are sufficient studies to help health care providers to prescribe aerobic exercise as a treatment choice for MDD patients. The results showed that patients may experience a relief in depressive symptoms in as little as four weeks after starting exercise.

Although a question whether patients with MDD could actually participate in an aerobic exercise program, the studies suggested that the majority of MDD patients prefer the aerobic exercise rather than antidepressant medication and MDD patients drop out rate from the exercise programs is very low.

It is recommended that patients participating in three to five exercise sessions per week, for 30 to 45 minutes per session. Within the range of intensity for aerobic exercise, that achieves a level of heart rate of 70 to 85% of the heart rate reserve. Furthermore, the majority of research emphasizes that the exercise regimen should be continued for at least 10 to 16 weeks to achieve the greatest antidepressant effect.

Table 3

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>References</th>
<th>Design</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1b</td>
<td>Krough, Videbech, Thomsen, Gluud, and Nordentoft, 2012</td>
<td>Randomized clinical trial</td>
<td>AE has no significant effect on patients who experienced MDD.</td>
</tr>
<tr>
<td>Level 1b</td>
<td>Underwood et al., 2013</td>
<td>Randomized clinical trials</td>
<td>One year of exercise training is not effective for depressive symptoms among residents of care homes and nursing homes who are experiencing MDD.</td>
</tr>
</tbody>
</table>

Table 4

Summary of Studies for Efficacy of AE versus Antidepressant

<table>
<thead>
<tr>
<th>Level of Evidence</th>
<th>References</th>
<th>Design</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1a</td>
<td>Danielsson, Noras, Waern, &amp; Carlsson, 2013</td>
<td>Systematic review</td>
<td>AE and antidepressant medication are similar regarding reduction of depressive symptoms in patients diagnosed as MDD.</td>
</tr>
<tr>
<td>Level 1a</td>
<td>Silveira et al., 2013</td>
<td>Meta-analysis</td>
<td>AE is less effective than antidepressant treatment in improving MDD symptoms.</td>
</tr>
<tr>
<td>Level 1a</td>
<td>Cooney et al., 2013</td>
<td>Systematic review</td>
<td>AE is less effective than pharmacological treatment in reducing depressive symptoms or improving quality of life for people with MDD.</td>
</tr>
<tr>
<td>Level 1b</td>
<td>Hoffman et al., 2011</td>
<td>Randomized clinical trials</td>
<td>AE on MDD remission is similar to antidepressant</td>
</tr>
<tr>
<td>Level 1b</td>
<td>Blumenthal et al., 2007</td>
<td>Randomized clinical trial</td>
<td>Efficacy of exercise treatment is similar to antidepressant medications in reducing symptoms of MDD.</td>
</tr>
</tbody>
</table>
The recommended strategies that may help improve adherence to exercise programs, include asking patients about their favorite type of exercise, and encouraging them by using a group exercise program. In addition, it is recommended also to encourage patients to engage in at least some exercise, even if they do not exercise enough to meet current public health dose exercise, they may take a first step in this therapeutic approach.

It is also recommended more research studies should be carried out in this area with emphasis on methodological accuracy, adequate sample size, and follow up research design with long term examination methods.

Conclusion

Aerobic exercise could be part of the treatment plan for patients with MDD even as single treatment therapy, or combined with other allopathic treatment approaches. In addition, the aerobic exercise program could be implemented as planned and structured practice according to available randomized clinical trials methods of aerobic exercise intervention, which reported that aerobic exercise is effective to treat MDD, and potentiate antidepressant medications.

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References


UNCONTROLLABLE BEHAVIOR AND RESTRAINTS POLICY ANALYSIS

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Abstract

Aim: To assess and analyze the uncontrollable behavior and restraint policy for National Center of Mental Health in Jordan according to administrative ease, cost and benefits, effectiveness, equity, legality and political acceptability.

Background: The use of restraint in psychiatric settings supports to restrict policy and program on how to deal with uncontrollable behavior as a result of the decrease in number of restraint patients.

Conclusion: There are many alternatives that are effective, safe to patient and staff, legal, easy to apply, and accepted politically, instead of use of physical restraint.

Key words: Policy, Restrain, Restraint, Patient, Psychiatric Settings, Uncontrollable Behavior

Introduction
Restraint is often used to control the behavior of people with mental conditions in a variety of settings including hospitals and psychiatric treatment facilities (Haimowitz, Urrf, Huckshorn, 2006). Psychiatric settings use medical intervention as a restraint to reduce risk demonstrated by violent patients from harming themselves and others (Regan, Wilhoite, Faheem, Wright, & Hamer, 2006). Restraint is an intervention used in the treatment and management of violent behaviors in psychiatry (McCue, Urcuyo, Lilu, Tobias, & Chambers, 2004).

The objectives of this policy analysis paper are
A) To assess and analyze the uncontrollable behavior and restraint policy for National Center of Mental Health in Jordan, according to administrative ease, cost and benefit, effectiveness, equity, legality and political acceptability.
B) To suggest an alternative that can be applied in the National Center of Mental Health.
C) To discuss possible alternatives according to literature.

The MEDLINE, CINAHL and EBSCOhost database were reviewed for searching the topics; the keywords restrain, restrain policy were used.

Health policy was defined as “a set course of action undertaken by governments or health care organizations to obtain a desired outcome” (Cherry & Jacob, 2007).

Policy analysis is defined as “the systematic study of background, purpose, content, and anticipated or actual effects of standing or proposed policies and the study of relevant social, economic and political factors” (Dye as cited in Mason, Leavitt, & Chaffee, 2007).

Step One: Verify, define, and detail the problem
The term restraint includes either physical restraint or chemical restraint; physical restraint is any manual method or physical or mechanical device, material, or equipment attached or adjacent to the patient’s body that restricts freedom of movement (Regan, et al., 2004). Chemical restraint is a medication used to control behavior or to restrict the patient’s freedom of movement and is not a standard treatment for the patient’s medical or psychiatric condition (Regan, et al., 2006).

Restraints are useful to prevent injury and reduce agitation but the use of restraint in the treatment of mentally ill patients is a highly controversial and potentially dangerous practice (Lewis, Taylor, & Parks, 2009). In addition, it can produce physical and psychological effects on both patients and staff (McCue, et al., 2004).
The improper use of restraints can lead to patient harm and potential civil litigation. The researcher and clinicians have become focused on physical restraint because of lack of consensus within the field about the appropriate use of restraint, damage of therapeutic relationships, in addition it produces significant physical and psychological risk; including death related to asphyxia, aspiration, cardiac events brought on by exertion and medication-interaction (Haimowitz, et al., 2006). In 2005, a case where a woman was admitted to a county hospital psychiatric inpatient unit, guards and technicians restrained her, and during the restraint process, had her face down on the floor for thirteen to fifteen minutes then she died of asphyxiation. Also in 2005, an Alzheimer’s patient was hospitalized and within 24 hours after she was restrained, was found dead related to an accidental asphyxiation (Regan, et al., 2006).

The use of restraint in the psychiatric setting supports putting restrictions on such policy and a program on how to deal with uncontrollable behavior and as a result decrease in the number of restrained patients.

Physicians, nurses, patients, other patients, and their families are concerned about this policy; the nurse who deals with psychiatric patients has high skill and knowledge to assess and observe patients over 24 hours, such nurses have expert power. The physician is the only person who has legitimate power to get a restraining order. Regan et al. (2006) found that other patients and their families often view patient restraints negatively and as traumatic events therefore must be information about the indication of restraint for patients with uncontrollable behavior so they have referent power. Because the patient cannot refuse restraint then he/she has no power.

Step Two: Establishing Evaluation and Implementation Criteria

Title: Uncontrolled behavior and restraints policy

Purpose: To identify how, when, and by whom restraints are applied.

The goal of policy is to assist patients in controlling behavior and preventing physical injury to the patient, other patients, visitors, and health care team.

The major desirable outcomes of behavior and restraints policy are

A) Control patients’ behavior such as anger, aggressions, agitation.
B) Prevent harm to self and harm to healthcare team.
C) Decrease incidence of restraint use.

The undesirable outcomes that may result from this policy are

A) Injury of patients and healthcare providers.
B) Psychological effects to patient, other patients, family and visitors.
C) High cost effectiveness to the organization.

After evaluating the uncontrolled behavior and restraints policy in National Center for Mental Health in Jordan in terms of administrative ease, costs and benefit, effectiveness, equity, legality, and political acceptability it was found that:

A) Administrative ease: ease of applying the procedure by healthcare provider, ease to restrain patient and ease to understanding of instruction by health care team.
B) Cost and benefit: costly; needs restraint team consisting of four to five staff during shift to apply procedure, need training program for staff, time consuming (the patient must be checked every fifteen minutes) and need separate room for patient. However, the benefits of this policy is it uses the same equipment for all patients and uses little equipment for patients.
C) Effectiveness: it is effective by preventing self harm and harm to healthcare team, controlling patient behavior such as anger, aggressiveness and agitation, and it is a clear policy when they are dealing with the patient. However, the patient is isolated.
D) Equity: the policy is safe for patients, nurses and caregivers.
E) Legality: it is legal to apply the policy because it certified by the Ministry of Health and no harm to patient.
F) Political acceptability: unaccepted regarding human rights and human dignity.

The table below summarizes the evaluation of uncontrolled behavior and restraints policy in National Center for Mental Health in Jordan.

<table>
<thead>
<tr>
<th>Administrative Ease</th>
<th>Cost and Benefits</th>
<th>Effectiveness</th>
<th>Equity</th>
<th>Legality</th>
<th>Political Acceptability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ease</td>
<td>Cost</td>
<td>Effective</td>
<td>Yes</td>
<td>Legal</td>
<td>Unacceptable</td>
</tr>
</tbody>
</table>
Step Three: Suggest Alternative Policies
Managing aggressive and violent behaviors has become an important skill for all staff who work with the psychiatric patient (Regan, et al., 2006). After searching for alternatives and solutions instead of use of physical restraint, some alternatives have evidence-based practices and some have not. Regarding uncontrolled behavior and restraints policy in the national center for mental health, it is good but needs to be expanded.

The alternatives are
A) Personal safety plan.
B) Staff visibility in the unit.
C) Staff training.
D) Chemical restraint.

Step Four: Assessment of Alternative Policies
All alternative policies will be evaluated in terms of administrative ease, cost and benefit, effectiveness, equity, legality and political acceptability, which will be summarized in a table in five steps.

A) Personal safety plan is a primary prevention because the health care providers do it before the patient is involved in a distressful situation. The main goal is to gather information about the patient’s response to distress and identify what interventions will be most helpful for him/her to stay in control. It is initiated on admission or when the patient can participate in the planning. If the patients do not participate in the plan, the information is taken from family, care providers, or previous record.

This alternative is effective since it is primary prevention and collects data before involvement in a distress situation, it is legal to use, safe for patient and staff, accepted politically, easy to understand, evidenced based practice.

B) Increased staff visibility in the patient’s environment rather than present in the nurses’ station. It helps the staff to identify the problems and intervene early.

This strategy needs more staff available in the unit, which means it is costly to the organization, effective to observe distressed patients early, safe for patient and staff, legal to use, easy to apply, and accepted politically.

C) Staff training is important to the patients and staff themselves; the patient has the right to be safe when engaging in uncontrollable behavior. This alternative is effective since it deals with patients in a scientific method, is legal to use, easy to apply, safe for patient and staff, but high cost to the organization.

D) Chemical restraint by use of medication to control patient behaviors. Most often medication used in chemical restraint is Diazepam (Valium), Lorazepam (Ativan), and Haloperidol (Haldol). This alternative is highly effective, legal to use, easy to apply through medication in different routes (IM, IV) to the patient, is of cost to the organization, safe for patient and staff, and accepted politically.

Step Five: Distinguish Among Alternative Policies
The table below summarizes the evaluation of the possible alternatives:

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Administrative Ease</th>
<th>Cost and Benefits</th>
<th>Effectiveness</th>
<th>Equity</th>
<th>Legality</th>
<th>Political Acceptability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Safety Plan</td>
<td>Ease</td>
<td>Not cost</td>
<td>Effective</td>
<td>Yes</td>
<td>Legal</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Staff Visibility</td>
<td>Ease</td>
<td>Cost</td>
<td>Effective</td>
<td>Yes</td>
<td>Legal</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Staff Training</td>
<td>Ease</td>
<td>Cost</td>
<td>Effective</td>
<td>Yes</td>
<td>Legal</td>
<td>Acceptable</td>
</tr>
<tr>
<td>Chemical Restraint</td>
<td>Ease</td>
<td>Cost</td>
<td>Effective</td>
<td>Yes</td>
<td>Legal</td>
<td>Acceptable</td>
</tr>
</tbody>
</table>
Step Six: Implementation and Evaluation Plan

After evaluation of this policy and assessing all alternatives one alternative will be chosen; many studies focus on staff training since the staff play a major role in dealing with these patients.

New policy: All staff on the psychiatric setting receive a training program that can help the staff to deal with patients and use their training instead of using restraint.

Purpose: To ensure all staff have important skills and knowledge to deal with these patients.

A program such as crisis intervention, time management, stress management, and development of therapeutic relationships can help the staff to deal with these patients. Staff should receive a training program consisting of lectures, demonstrations and practice when starting a job.

This policy is safe for patients and staff, legal to use, easy to apply, effective to deal with patient, but it costs the organization.

Approval of the policy modification should be obtained from National Center for Mental Health in Jordan, to start to implement the modified policy, after a proper explanation and demonstration of the missing points in this policy, which were modified and added.

The policy evaluation will depend on the number of restraint occurrences after receiving the program.

Recommendations

• The administration for organization should develop policy for assessment and management of uncontrollable behavior and restraints.
• Require training program about how to deal with uncontrollable behavior and manage it.

Summary and Conclusions

The purpose of this paper was to analyse policy used in the psychiatric setting. I chose restraint policy since it is a very important subject, is controversial, and a high-risk procedure.

The use of restraint in the psychiatric setting should be the last choice because the consequence of the procedure sometimes is fatal. There are many alternatives that are effective, safe to patient and staff, legal, easy to apply, and accepted politically instead of use of physical restraint, such as complete assessment of the patient and put into place a personal safety plan that can help the staff to deal when the distress situation occurs. Staff training should give the staff expert power when dealing with the patient, as a skillful and knowledgeable person, and there should be increased staff visibility in the patient environment to help the staff to detect and intervene in the distress situation early.

References

EVIDENCE BASED PRACTICE:
THE EFFECTIVENESS OF GROUP PSYCHOEDUCATION FOR MEDICATIONS ADHERENCE AMONG INPATIENT ADULTS WITH SCHIZOPHRENIA IN PSYCHIATRIC AND MENTAL HEALTH SETTINGS

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Abstract

Objective: One of the greatest barriers to treat clients with schizophrenia is nonadherence to medications regimen, and low levels of knowledge about their medications and side effects. Therefore, this evidence based practice paper examined the effectiveness of group psychoeducation for medications adherence among inpatient Adults with schizophrenia in psychiatric and mental health settings.

Method: Studies were selected by Electronic searches of CINAHL, Pub-med, and MEDLINE, for the years between 2009 and 2013. The criteria of selection were to select all relevant systematic review and randomized controlled trials focusing on the effectiveness of group psychoeducation for schizophrenic clients.

Conclusions: Group psychoeducation for medication adherence has proven to be effective in improving medication adherence among inpatient adults with schizophrenia in psychiatric and mental health settings, and a positive effect on decreased relapses and rehospitalization; and reduction of the length of hospitalization. Furthermore, it increases quality of life, self satisfaction, self-efficacy and self-esteem among these clients.

Key words: group psychoeducation, schizophrenia, group psychoeducation for client with schizophrenia, medication adherence, improve medication adherence.

Introduction

More concern is increasingly being given for those clients with schizophrenic disorder around the world, especially for hospitalized clients with nonadherence for medications and treatment regime. During the period of nonadherence for medication, the risk of relapses of mental health disorders increase among clients with schizophrenic disorder. Therefore, the effectiveness of group psychoeducation for medications adherence among inpatient adults with schizophrenia in psychiatric and mental health settings has become the target of many studies and research.

The term schizophrenia was used for the first time by the Swiss psychiatrist Bleuler to indicate a group of disorders or a major mental disorder (World Health Organization [WHO], 1998). Moreover, Schizophrenia was defined by Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) as abnormalities in one or more of the following five domains: hallucinations, delusions, disorganized thinking (speech), abnormal motor behavior (including catatonia) or grossly disorganized, and negative symptoms (DSM-5, 2013), and impairment of emotion and cognition (Tarrier & Wykes, 2004), with very poor social and occupational outcomes, which resulted in an 80% unemployment rate among patients with schizophrenia (Kuipers et al., 2006; Tarrier & Wykes, 2004).

Around 250,000 people in the United State of America live in prisons or in the streets, and about 46% of them have been diagnosed with schizophrenic or bipolar disorder (Neurobiology Foundation, 2012). In addition, more than 40% of chronic schizophrenia patients attempt suicide many times, because more than 50% of them don't receive treatment (Neurobiology Foundation, 2012). The prevalence of schizophrenia in the world approximately affects seven of 1000 in the adult population (Tusaie & Fitzpatrick, 2012). And about 2.3 million adults suffer from schizophrenia in the United States of America (Neurobiology Foundation, 2012).

Furthermore, there is increase of mortality and morbidity rate among individuals with schizophrenia (Saha, Chant, & McGrath, 2008). The burden of schizophrenia in western countries is expected to increase to 1.6% to 2.6% of total health care burden (WHO, 1998). In addition, it will increase the burden of schizophrenia on the health care system in the United State of America to reach 62.7 billion dollars (Wu et al., 2005).
The antipsychotic medications are considered as the first line in the treatment of clients with schizophrenia (Kuipers et al., 2006; Pilling et al., 2002), in which they have been found to be effective in dealing with acute psychosis and in preventing relapse. However, there is an increasing acknowledgement that pharmacological treatment alone, is insufficient for the best outcome in this disabling condition (Pilling et al., 2002).

The basic treatment for schizophrenia is antipsychotics. Major tranquilizers or antipsychotic often decrease the positive or negative symptoms of schizophrenia and don’t remove the chronic symptoms of disorders (Clark, Finkel, Rey, & Whalen, 2012). Furthermore, there are two types of antipsychotic, first generation and second generation; the first generation is classified to low and high potency according to their affinity for the dopamine D2 receptor. The mechanisms of action for antipsychotic medications in the second generation are dopamine receptor blocking activity in the brain and serotonin receptor blocking activity in the brain (Clark, Finkel, Rey, & Whalen, 2012).

Today’s psychoeducation appears as an essential component of the comprehensive treatment for schizophrenic clients and all clients should be benefiting from psycho-education programs (Aho-Mustonen, 2011). Psychoeducation developed through the past four decades to treat both mental illness in addition to schizophrenia and has proved its usefulness for patients and their families (Bisbee & Vickar, 2012).

Psychoeducation was initiated in the mid-1970’s at Bryce Hospital in Tuscaloosa, Alabama, for education and treatment of patients with schizophrenia in a comprehensive manner about the disease and methods of treatment (Bisbee & Vickar, 2012). Furthermore, Psychoeducation not only enhances the patient’s knowledge but, also teaches the patient and family how to cope with symptoms and increase their skills to prevent relapse and help recover. On the other side it decreases the burden of family and increases quality of life (Bisbee & Vickar, 2012).

Group therapy approach to psychoeducation had a variety of aspects, with a diversity of theoretical orientations. Moreover, groups are offered foundation on reality therapy, gestalt therapy, transactional analysis, client-centered therapy, and other multiple theoretical approaches (Bisbee & Vickar, 2012). The first use of group psychoeducation was by Dr. Joseph Pratt, in 1905 with classes of education to educate tuberculosis patients (Ruitenbeek, 1970).

Non adherence to medications is considered one of the biggest cost issues in health care and quality problems and cause of loss of productivity, high health care costs, and poor clinical outcomes (PHRMA, 2011). In addition, the risk of relapse, negative outcomes and affecting the course of schizophrenia are increasing with poor adherence to client’s medications (Petretto et al., 2013). Furthermore, more than 50% of prescriptions are administered incorrectly. The direct costs of nonadherence to medications in the United State of America is 100 billion dollars, and more than 1.5 billion dollars as indirect costs in addition to 50 billion dollars from lack of productivity (Peterson, Takiya, & Finley, 2003).

Therefore, clients with schizophrenia are considering a high risk group for medication nonadherence, which increases the risk of relapse and health care improvement, in addition to, increasing risk of social, financial, and educational impairment.

Purpose of the Study
The purpose of this paper is to examine the effectiveness of group psycho-education for medication adherence among in-patient adults suffering from schizophrenia in the National Center for Psychiatric and Mental Health (Al-Fuhais), and to determine medications psychoeducation benefits, and how it is applied.

The Study Questions
Is group psychoeducation for medication adherence enhancing medications adherence among adults with schizophrenia in psychiatric settings?
Are adults with schizophrenia who get group psychoeducation for medication adherence having higher medication adherence than adults with schizophrenia who didn’t get group psychoeducation for medication adherence?
Does medication adherence increase among adults with schizophrenia who get group psychoeducation for medication adherence more than adults with schizophrenia who didn’t get group psychoeducation for medication adherence?

Literature Review
The purposes of literature review are to examine the effectiveness of group psychoeducation for clients with schizophrenia and specifically in medication adherence, and determine methods of applications.

Group therapy psychoeducation has a variety of aspects, with a diversity of theoretical orientations. Groups are offered foundation on reality therapy, gestalt therapy, transactional analysis, client-centered therapy, and other multiple theoretical approaches (Bisbee & Vickar, 2012). Group therapy was partly started by Dr. Joseph Pratt, in 1905 as classes of education to educate tuberculosis patients (Ruitenbeek, 1970).

A systematic review was conducted in 2011 in the United Kingdom, to evaluate the effectiveness of medications psychoeducation among adults with schizophrenia and
compare with previous knowledge levels for the clients. The review included 44 trials between 1988 to 2009, all of them randomized control trials, and consisting of 5142 participants. The average duration of the study was around 12 weeks. Findings are increased medication adherence in the short term among the psychoeducation group, decrease of relapse among psychoeducation group, enhancing quality of life and social activities with functional skills (Xia, Merinder & Belgamwar, 2011).

In addition, a systematic review in 2009 included 10 studies with 1125 participants, to evaluate the effectiveness of psychoeducation and compared the results with previous knowledge; search strategy was electronic searches and all research was of experimental design, between 1966 to 1999. Data collection was independently reviewed by more than one reviewer. Psychoeducational intervention was in the form of brief group psychoeducation around one year. Findings were increased medications adherence and decreased rate of readmission or relapse to nine to eighteen months; others results were increased knowledge among interventional patients, increased mental and global functioning, and enhanced emotional expressing (Pekkala & Merinder, 2009).

Furthermore, a study was conducted in Finland in 2011, to examine the effectiveness, feasibility, and clients’ experiences of group therapy. The secondary objectives of the study were to examine their satisfaction and expectations about intervention. The psychoeducation focused on information, participation, support and sharing. The data were collected between 2001 to 2006 in three phases. The study sample consisted of 39 forensic patients with schizophrenia. Findings were clients knowledge about their disorder was enhanced, increased self-esteem, increased awareness of their disorder and increased medication adherence. The psychoeducation appears as holistic treatment (Aho-Mustonen, 2011).

A randomized controlled trial study was conducted in Italy in 2013; the aim of the study was to assess changes in medication adherence with schizophrenic clients. The study was done by comparing the psychoeducation program group with another group of family supportive therapy. The sample of the study included 340 clients with schizophrenia. Methods of research were on psychoeducation and family support therapy for six months and reassessed at six, twelve and eighteen months after intervention. Medication adherence was assessed at 3 months after intervention by using the Medication Adherence Questionnaire, and high pressure liquid chromatography and compared it with essential results. Findings were that, psycho-education enhanced medication adherence and decreased readmissions and relapse (Petretto et al., 2013).

A randomized controlled trial study from the United State of America in 2009 was done to assess the effectiveness of psychoeducation to increase awareness of cognitive dysfunction for schizophrenic clients, increase insight, and increase medication adherence. The study sample of 80 participants with schizophrenia, was divided into two groups, one control and another interventional. The findings were psychoeducation didn’t enhance insight or willingness to participate in treatment or their cognitive deficits, but improved their awareness of cognitive deficit and treatment; the multi-session psycho-education program was more effective (Medalia, Saperstein, Choi, & Choi, 2012).

In addition, a randomized controlled trial study was done by Rabovsky, Trombini, Allemann, and Stoppe from Basel-Switzerland, in 2012, to evaluate the effective of group psycho-education in clients with severe schizophrenia, on medication adherence, readmission, and clinical changes. The sample of the study included 82 inpatients from Basel university hospital who were divided randomly into two groups, one interventional and another control. Relatives of the clients were invited to this psychoeducation program. The intervention program was by measuring of medication adherence, readmission, and clinical changes in the beginning of study, after 3 months and after 12 months as follow-up. The findings of the study indicated increase in medication adherence and decreased suicide rate between clients with severe schizophrenia after 3 months from intervention.

Furthermore, a randomized control trial study from Mexico in 2012 was done to assess the effectiveness of psychoeducation, psychosocial therapy, and pharmacotherapy on clients with schizophrenia. The sample of the study included 73 clients divided into two groups. The intervention group contained 39 participants with pharmacotherapy, psychoeducation, and psychosocial therapy and the control group contained 34 participants with pharmacotherapy only. The assessment of remission of functional and symptomatic aspects were in the beginning of the intervention and after one year. The findings of the study were the functional remission was 3.6% for the control group and 56.4% for the experimental group. Symptomatic remission was 58.8% for the control group and 94.9% for the experimental group. The conclusion of the study indicates decreased rehospitalization and relapse rate, enhancement of psychosocial functioning and symptomatology, an increase of medication adherence and compliance to 85 percent in experimental group, than control group (Valencia, Juarez, & Ortega, 2012).

**Implementation**

The psychoeducation procedure will be using presentation technique in the National Centre for Mental Health (Al-Fuhais). The National Centre for Mental Health (Al-Fuhais) is a center under Ministry of health Umbrella, located between Salt and Amman and about 13 kilometers from Amman. The National Centre for Mental Health provides health care services for
The implementation of group medication psychoeducation for clients with schizophrenia should take the following sessions in order:

Assessment phase: consists of two sessions and will include the purpose and objectives of the sessions; will assess client’s knowledge about their illness, symptoms and medications, and medication adherence for schizophrenia.

Intervention phase: consists of seven sessions and will include enhancing level of knowledge about schizophrenia disorder, symptoms, medications, signs of relapses. Moreover, it is to improve strategies to decrease medications side effects, and prevent schizophrenic disorder relapses. Furthermore, it will be teaching stress coping strategies and problem solving techniques.

Termination phase: consists of one session and will include feedback of clients about interventions, answer any questions about psychoeducation procedure from the clients, and follow up clients.

Recommendations

From the previous studies, the present paper suggests the following recommendations; the principal aim of group psychoeducation for medication adherence is to increase awareness about medications, side effects of medications and illness with determination of signs and symptomatic disorders among clients with schizophrenia. The next generation of group psychoeducation needs to focus on patient-directed psycho-education and, here especially, on integrating the more stable outpatients, who appear to profit more from psycho-education than do symptomatic inpatients, and developing cognitive rehabilitation strategies that target the social and vocational disability of otherwise symptomatically stable patients who are in the recovery phase. It will be both family and patient centered, as well as have individual and group approaches and integrate psychoeducation with other psychotherapy.

One of the group psycho-education limitations is to increase the proportion of attrition between the study samples especially in the follow-up period (Vickar, North, Downs, & Marshall, 2009). There may be increases in the rate of drop-out because of the complexity of the protocol of studies, or the use of methods may hurt some patients, such as blood sample or invasive procedure (Petretto et al., 2013). Therefore, the therapist should pay attention to the cognitive deficits such as poor concentration, poor memory, or poor executive and planning abilities and tailor interventions appropriately. Sessions must be kept short, simple and flexible, increase sample size, and use safe methods to evaluate the effect of group psychoeducation.

In addition, according to Vickar, North, Downs, and Marshall in 2009, more comprehensive larger studies are necessary to prove the effect of group psychoeducation for medication adherence and to help to identify the key elements of the application to be more efficient in the psychiatric setting. Furthermore, as mentioned in Petretto et al in 2013 it is important to use another psychoeducation approach such as control group to assess the most specific effects of group psychoeducation in treatment of inpatients with schizophrenia.

Group psychoeducation that does not focus on behavioral and attitudinal change have more success in enhancing medication adherence (Zygmunt, Olfson, Boyer, & Mechanic, 2002). In addition, the involvement of families in the group psychoeducation plan improves results of psychoeducation, reducing the bias and the application of group psychoeducation on patients with schizophrenia who have a high risk level to non adherence to medications (Zygmunt, Olfson, Boyer, & Mechanic, 2002).

in some clients, improving knowledge about their medications, side effects of medication, and their illness may lead to reduce medication adherence and increase their fear about their medication and treatment strategy (Perkins & Repper, 1999). Therefore, use other psychotherapy to reduce fear and distress, continuous follow-up especially in the first period of therapy, assessment for suicide, the involvement of patients and their families as well as relatives in the treatment plan and psychotherapy program, educate the patients according to their level of cognitive, emotional and judgmental status.

Conclusion

The purpose of this paper was to examine the effectiveness of group psycho-education for medication adherence in treatment of inpatients with schizophrenia, its benefits, and how it is applied.

Group psychoeducation for medication adherence has proven to be effective in improving medication adherence among clients with chronic schizophrenia. In addition, group psychoeducation for medication adherence has demonstrated a positive effect on decreased relapses and rehospitalization; reduction in the length of hospitalization, increase in quality of life, self satisfaction, self-efficacy and self-esteem. Furthermore, studies have indicated some of the positive aspects of group psychoeducation for medication adherence such as being structured, time limited, flexible, cost effective, and group psychoeducation does not require highly trained therapists (Petretto et al., 2013). In addition, it has a significant effect when mixed with pharmaco-psychotherapy.
On the other hand, group psychoeducation has demonstrated certain limitations in managing some cases with schizophrenia, occurrence of complexities in some psychoeducation programs, high rate of attrition and drop-out in the studies, and psychoeducation cannot change certain behaviors, in addition to, decrease of medication adherence among patients with schizophrenia and fear of treatment plan application in some situations.

<table>
<thead>
<tr>
<th>Authors and Year of Study</th>
<th>Objective of the Study</th>
<th>Design</th>
<th>Number of Sample</th>
<th>Results of the Study</th>
<th>Level of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Xia, Merinder &amp; Belgamwar, in 2011</td>
<td>To evaluate the effectiveness of medication psychoeducation among adult with schizophrenia and compared with previous knowledge levels for the clients.</td>
<td>A systematic review (experimental)</td>
<td>5142 in-patients with schizophrenia</td>
<td>Increase medication adherence in the short term among psychoeducation group, decrease of relapse among psychoeducation group</td>
<td>Level I</td>
</tr>
<tr>
<td>Pekkala and Merinder, in 2009</td>
<td>To evaluate the effectiveness of psychoeducation and compared the results with previous knowledge.</td>
<td>A systematic review (experimental)</td>
<td>The total number of participants was 1125 in-patients with schizophrenia</td>
<td>Increase medications adherence and decrease rate of readmission or relapse to nine to eighteen months</td>
<td>Level I</td>
</tr>
<tr>
<td>Aho-Mustonen, 2011</td>
<td>To examine the effectiveness, feasibility, and clients’ experiences of group therapy. Secondary objective was to examine their satisfaction and expectations about intervention.</td>
<td>Randomized control trial</td>
<td>39 forensic in-patients with schizophrenia</td>
<td>Clients enhanced their knowledge about their disorder, increased self-esteem, increased awareness of their disorder and increased medication adherence.</td>
<td>Level I</td>
</tr>
<tr>
<td>Petretto et al., 2011</td>
<td>The aim of the study was to assess changes in medication adherence with schizophrenic clients</td>
<td>Randomized controlled trial</td>
<td>340 in-patients with schizophrenia</td>
<td>Psych-o-education enhancing medication adherence and decreasing readmission and relapse</td>
<td>Level I</td>
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<tr>
<td>Medalia, Saperstein Choi, &amp; Choi, 2012</td>
<td>To assess the effect of psychoeducation to increase awareness of cognitive dysfunction for schizophrenia clients and that lead to increase of insight and increased medication adherence.</td>
<td>Randomized controlled trial</td>
<td>80 in-patients with schizophrenia</td>
<td>Psycho-education didn’t enhance insight of willingness to participate in treatment or their cognitive deficits, but improve their awareness of cognitive deficit and treatment, the multi-sessional psychoeducation program is more effective</td>
<td>Level I</td>
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<td>Rabovsky, Trombin Allemann, and Stopp in 2012</td>
<td>To evaluate the effective of group psychoeducation in clients with severe schizophrenia on medication adherence, readmission, and clinical changes.</td>
<td>Randomized controlled trial</td>
<td>82 in-patients with schizophrenia</td>
<td>Increase the medication adherence and decrease suicide rate between clients with severe schizophrenia after 3 months from intervention</td>
<td>Level I</td>
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<tr>
<td><strong>Tarrier, N. &amp; Wykes, T.</strong> (2004). Is there evidence that cognitive behaviour therapy is an effective treatment for schizophrenia? A cautious or cautionary tale? Behaviour Research and Therapy, 42, 1377 -1401</td>
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</table>
TRAINING COMMUNITY BASED NURSES IN IMPOVERISHED AREAS OF DEVELOPING COUNTRIES: A PRACTICAL SOLUTION TO A RAPIDLY EMERGING GLOBAL SHORTAGE OF HEALTH WORKERS FORCE

Manzoor Butt

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Background

The developing countries of the world face a chronic shortage of medical doctors, nurses and skilled health care workers. This is truer about women’s health care workers because many women do not prefer to be examined and managed by male health workers due to their religious, social and cultural reasons. Health workers are the heart and soul of health systems. A new progress report [1] estimates a global shortage of 7.2 million health workers, with 83 countries facing a health worker crisis. The relative shortages of doctors, nurses and midwives are still most acute in sub-Saharan Africa. This is currently one of the major obstacles to achieving the MDGs [2] and other international health goals including universal health coverage. The following graph depicts fertility and mortality in various regions of the world [3]. If we intend to change the dire situation in Sub-Saharan Africa, South Asia, Middle East & North Africa, and elsewhere, we have to enroll and train existing and new Nurses and other health care workers for primary and secondary health care.

Source: [3]

Pakistan has an organized infrastructure for delivering health care even in small villages but there is an extreme lack of nurses and health care workers. There is one doctor, one nurse and one bed for 1400, 3261 and 1531 people respectively. 76% deliveries occur at home [4]. The main part of budget allocated for health goes to teaching institutions and major hospitals of federal and provincial capitals; very little is left for towns and small villages.
Like many developing countries, ours is a male dominant society where only very few females enjoy full rights and have access to opportunities of even very basic human needs. This is even more true in the health sector, where unfortunately there is a great lack of female doctors and nurses combined with a large number of female ‘quacks’ in the country. The female doctors are neither easily available nor easily affordable and women do not prefer to be examined by male doctors. There are a lot of government hospitals which provide free or low fee treatment to women but those are not preferred because of: [6]

- The casual and offhand behaviour of doctors
- More than one male doctor examining the patient at one time
- The fear of crowds of medical students present at time of examination
- The fear that doctor may misuse this opportunity for some evil deed

Formal and qualified nurses are not willing to work in small cities, towns and villages.

They prefer government hospitals of federal and provincial capitals. This is justified if they work in a proper manner on merit on rotational basis but this seldom happens. They use all means to stay in these hospitals until someone more resourceful replaces them.

Introduction

This article describes the importance of training locally existing non formal nurses / health care workers in developing countries with Pakistan as an example. If we have to overcome the shortage of nurses / health care workers, we have to include those who are already in field. It would be easier to educate and train them as compared to only including new ones. The author has used his own example to indicate and prove that it is possible to include non formal nurses and train them towards formal training course.

Present situation in Pakistan

To understand the exact situation in Pakistan, we have to concentrate on basic health statics. The following figures are taken from Global Health Observatory [5]

### Basic statistics

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Statistics</th>
<th>Year</th>
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</thead>
<tbody>
<tr>
<td>Population (thousands)</td>
<td>182143</td>
<td>2013</td>
</tr>
<tr>
<td>Population aged under 15 (%)</td>
<td>34</td>
<td>2013</td>
</tr>
<tr>
<td>Population aged over 60 (%)</td>
<td>7</td>
<td>2013</td>
</tr>
<tr>
<td>Median age (years)</td>
<td>23</td>
<td>2013</td>
</tr>
<tr>
<td>Population living in urban areas (%)</td>
<td>38</td>
<td>2013</td>
</tr>
<tr>
<td>Total fertility rate (per woman)</td>
<td>3.2</td>
<td>2013</td>
</tr>
<tr>
<td>Number of live births (thousands)</td>
<td>4599.4</td>
<td>2013</td>
</tr>
<tr>
<td>Number of deaths (thousands)</td>
<td>1329.3</td>
<td>2013</td>
</tr>
<tr>
<td>Birth registration coverage (%)</td>
<td>34</td>
<td>2012-2013</td>
</tr>
<tr>
<td>Cause-of-death registration coverage (%)</td>
<td>...</td>
<td></td>
</tr>
<tr>
<td>Gross national income per capita (PPP int $)</td>
<td>4920</td>
<td>2013</td>
</tr>
<tr>
<td>WHO region</td>
<td>Eastern Mediterranean</td>
<td>2013</td>
</tr>
<tr>
<td>World Bank income classification</td>
<td>Lower middle</td>
<td>2013</td>
</tr>
</tbody>
</table>

Source: [5]
The access of people to medical facilities varies greatly from very privileged to absolutely devoid. Both the government and private health services are available to people. Our upper and middle classes have full access to government as well as private health facilities. The real problem is with the masses and the people who live below the poverty line.

What does the term nurse mean in Pakistan
The following categories are usually included under this term;

1) Classified Nurse: The female must have passed high school examination in science to get admission into this course. She takes a four years course in Nursing during which she has to reside in hospital. Due to proper education and training, they work ethically and are aware of importance of working in own limits.

2) Lady Health Visitor (LHV): The female must have passed high school examination in science to get admission into this course. She takes a short course of about two years and she is basically trained in women's health and midwifery.

3) Lady Health Worker (LHW): This type was produced by government to induce health education and create awareness about women's health. They are usually only middle pass and a local resident.

4) Locally Trained Nurses: This is the most available variety. Some of them are high school graduates but most of them are usually middle passed or less. They are neither adequately educated nor properly trained.

5) Midwives or Traditional Birth Attendants (TBA): In Pakistan, TBAs are usually uneducated and non-trained. 81% of deliveries are conducted by them.

6) Community based Midwives: They are enrolled and trained by UNICEF through its partner institutions. They are hope for future.
The health care delivery system and needs of the population are changing rapidly
A major part of our budget goes to defense needs. Despite all efforts for reduction of poverty, more and more people are going below the poverty line. Our population is growing rapidly. There is a rapidly increasing burden on the government funded health care system. There would be an increasing need of health care workers, especially the nurses. We have to shift more care from hospital to primary care; most important in this context is Health Education, Mother and Child Health, Family Planning and Contraception, Immunization, Infection control and other disease control.

The total population of Pakistan (in thousands) was 141,256.2 in the year 2000. It would be 181,384.7 in the year 2010 and 227,781.1 in the year 2020. Total Numbers of people (from age group 0 to 60+ years) requiring daily care was 8,292.1(in thousands) in the year 2000. It is expected to be 10,908.2(in thousands) in 2010 and 14,254.5 (in thousands) in year 2020. This means the total Numbers of people (from age group 0 to 60+ years) requiring daily care would increase by 32% in the year 2010 and 72% in the year 2020 as compared to year 2000 [7]

The role of nurses in the delivery of primary care
The community based nurses and health workers play the largest part in the delivery of primary care. They are the first contact of people who not only seek their help for primary care but also in acute emergencies and accidents.

The emerging challenges to nurses
There is an urgent need to train and organize the nurses and health Workers. They have to play a vital role in the delivery of primary care in coming years because of tendency of people to avoid hospitals. Non formal nurses / health workers lack adequate knowledge and skills especially regarding antenatal care and safe childbirth. They have to address their shortcomings by adopting professional development strategies and CME. The practical way is to induce these trainings at jobs.

What is the solution
The author describes his efforts and strategy to address the problem of shortage of skilled nurses and health care workers in his community in this section. He devised and launched a program for organization and training of local nurses and health Workers in antenatal care in his community-----Shamsabad, Rawalpindi.

Object of the program
1- To evolve a platform for training of existing and new nurses / health workers on CME pattern.
2- To create and maintain a “Data Base” of existing and new nurses / health workers so that all recent knowledge and skills could be conveyed to them.
3- To evolve an easy to understand manual in local language for education and training of existing and new health workers
4- To help the nurses / health workers to evolve their own organizations that could strive for them in accordance with the following guideline principals of WHO ;
  i) Cater for their education & training
  ii) Provide support and protection to them
  iii) Enhance their effectiveness
  iv) Tackle imbalances and inequalities

Who would benefit by this program
Our doors are open for all existing and new nurses / health workers. We are specially focusing on locally available nurses initially but we will help all regardless of their age, gender, race, religion, creed and method of treatment. All health concerns like doctors, nurses, midwives, TBAs, Hakims, Homeopaths, laboratory technicians, dental technicians, and community health workers are welcome.

The strategy for Training
Step 1: Identification and registration of existing and new nurses / health workers for training
Step 2: Determination of Extent of training
Step 3: To impart training
Step 4: To evaluate the candidates after completion of training

The syllabus and extent of training
There are three levels of education and training (Primary, secondary and tertiary) depending upon the extent of curriculum. In author’s opinion, every care provider must have very clear understanding and skills of Monitoring of Vital Signs (Pulse, BP, Temperature and Respiratory rate), weight recording, Cardio-Pulmonary Resuscitation, Sterilization and Asepsis.

Main syllabus
Nutrition, Anemia, Brief Anatomy (maternal & foetal), Brief Basic knowledge about breast examination, Brief Basic knowledge about Menstrual cycle, Family planning (both regular & Emergency), Gynaecological examinations, Antenatal Care, Rhesus incompatibility, Pre-Eclampsia, Eclampsia, CPR, Foetal growth & well being, Vaginal bleeding during pregnancy (Ectopic pregnancy, Miscarriage & abortion, Antepartum Hemorrhage, Post Partum Hemorrhage, Placenta Praevia, accidental Haemorrhage, Hydatidiform mole), Twin pregnancy, Labour (normal & abnormal), Various methods of delivery (Normal delivery, mal-positions, hygene, avoiding trauma, analgesia, and danger signs
and how to manage hemorrhage), Postnatal care of mother (Normal and danger signs such as endometritis, bleeding, Eclampsia), Puerperium, Brief knowledge of D&C, E&C, Resuscitation of newborn, Immediate Postnatal care of the child, breast feeding, vaccination,. Etc

The extent of training

i) Primary Level of Training: This is mean for community health workers. It would be in form of short and basic courses. Incentives for learners: No big incentives are required; just certificates of appreciations would be sufficient.

ii) Secondary Level of training: This is meant for those who intend to adopt it as profession. Incentives for learners: Certain incentives like certificates plus some financial support in form of scholarship are necessary.

iii) Tertiary level of training: This is full and advanced training to evolve life saving nurses. Incentives for learners: Definite incentives like certificates, financial support during learning plus employment opportunity are essential.

Conclusion

35.9% of the population lived in urban areas in 2010. 46.6% or 29.9 million of the urban population live in slums.[8] More people are shifting from rural to urban areas. The government health care system is unable to cater for needs of all, especially for those in rural and sub urban areas. There is shortage of nurses that cannot be overcome by enrolling and training new nurses. In author’s opinion, the practical approach to overcome the shortage of nurses in impoverished areas of developing countries is to include already existing non formal nurses in the community. They should be organized and trained through CME approach and accommodated in health care delivery system at community level. The author has success in addressing women health problems at his community level through locally trained nurses. [9] He also imported same training to community resource persons (CRPs) from remote villages of the northern areas (Chitral) of Pakistan. The results are more promising in the remote areas than in main cities due to more need in those areas. It is also very useful to use more pictographs than text. Non formal nurses / health workers lack education, using simple local language and descriptive images are the vital part of training.

References


5) WHO Statical Profile, Pakistan; available at : http://www.who.int/gho/countries/pak.pdf?ua=1


7) Pakistan, Appendix 3: Sensitivity analysis. Numbers of people requiring daily care, total population, proportion of total population requiring care, and dependency ratio by region, country and year, based on three severest Global Burden of Disease study disability categories (levels 5, 6, 7). Source: www.who.int/docstore/ncd/long_term_care/emro/pak.htm

8) Urban health profile, Pakistan, available at: http://www.who.int/kobe_centre/measuring/urbanheart/pakistan.pdf?ua=1&ua=1

9) Women's Health Problems in Pakistan, Dr Manzoor Butt. Available at: http://www.mejfm.com/Newarchives2013/Women.pdf
points higher than those residing in rural areas. The highest prevalence is observed for women who had their first birth and marriage above the age of 18. It is also interesting to note that women who had their first marriage and birth below the age of 18 years have a low percentage of contraceptive use. However, this might reflect the interaction between early child bearing and no usage of contraception as low contraceptive prevalence leads to earlier birth.

Let us take a look at women’s educational level, which is cited as the most important variable associated with contraceptive use in many countries. It has been observed that better educated women are more likely to use contraception (Rutenberg, N., M. Ayad, L.H. Ochoa, and M. Wilkinson (1999)). The percentage of women using contraception increases consistently with the level of education. The gap between users who attended at least secondary school and those who never attended any type of schooling is enormous (10.2 percentage points). This is somehow also true when the education of their life partners is considered.

Religious differentials in contraceptive use have been confirmed in many societies. With regard to religion, Non-Muslims (75.0 percent) have higher contraceptive use than Muslim women (69.2 percent). In Muslim culture, people believe that God has control over the human reproductive system or that children are a gift from God. Therefore, they should not prevent a child from coming into the world (Omari, 1989). Most women with Islamic faiths are likely to advocate this ideology.

It is observed that women who have electricity in their house tend to have higher contraceptive use rate than those who reported no electricity in their house. This may be due to the fact that electricity is itself an indicator of modernization and may be useful for motivating and familiarization of wives and husbands about the current use of contraception. It is also observed from Table 1 that current use rate is higher among women who have bank account ownership (76.3 percent) than those who did not have bank account ownership (67.7 percent). This may due to the fact that women having bank accounts are more aware.

Contraceptive use is higher among women aged 40-44 years than among women either younger or older than that. Figure 1 presents the contraceptive prevalence by five-year age groups of women. Contraceptive prevalence is lowest for the age group 15-19, increases gradually to reach a maximum at the age group 40-44, after which it decreases consistently to the age group 45-49. The reason of such findings may be due to the fact that younger women are seeking children but the women with edged reproductive span (40-44) might have their desired number of children. Thereafter, some women in the age group 45-49 might have faced menopause and so the contraception-using rate is decreased dramatically.

Contraceptive use rate increase with visits of family planning workers, indicating a positive relationship between family planning workers’ visits to the couple’s house and contraceptive use. The use rate is considerable higher (about 73.9 percent) for those respondents where family-planning workers visit their homes regularly. Again among the women who have discussed family planning with their husbands are more likely to use contraception.

Working status of women is often considered to be a determining factor of contraceptive use. The result demonstrates that working women are more likely to currently use contraception compared to those who do not. The obtained results divulge that the contraceptive use rate is the highest among those...