Hypochondriasis among Nursing Students at Islamic University of Gaza

Abstract

Background
Many studies claim that infertility leads to a negative effect on psychosocial functioning, emotional distress and marital problems. Very little is known about the level of marital adjustment among infertile women and its relation with some variables (age, level of income, level of education, and occupational status) in North Gaza-Palestine.

Objectives
To identify the level of Hypochondriasis among nursing students at Islamic university and its relations with some variables (gender, and study level).

Methods
Descriptive design was used in this study. A questionnaire to measure the level of Hypochondriasis was applied to (288) nursing students, (171) male students with average (59.4%), and (117) female students with average (40.6%) at Islamic university of Gaza registered for the year 2006/2007. Analysis of variance (One-Way ANOVA), T test, Sheffe test, and frequency distribution were used.

Results
The level of Hypochondriasis among nursing students was of relative mass (43.29 %). The rank of Hypochondriasis dimensions according to relative mass was: isolation and anxiety (56.46 %), emotional symptoms (52.11 %), negative feelings (51.32 %), physical symptoms (40.47 %), obsessive anxiety on health status (34.63 %), obsessive concern of health and prevention (30.37 %). There are significant differences between male and female students in total level of Hypochondriasis, and the first and sixth dimension(physical symptoms and isolation and anxiety) toward female students, while there are no significant differences in other dimensions. There are significant differences between study levels in the level of Hypochondriasis and some dimensions toward the third and fourth study levels.
Conclusions
Symptoms of Hypochondriasis were present moderately with a relative mass (43.29%) among nursing students in IUG. Other study is needed to investigate the effect of a program on decreasing the level of Hypochondriasis among nursing students.
Key words: Hypochondriasis, nursing students, IUG

Introduction
Writing about family is varied in social sciences, starting by describing family life and determining its cores. Family was called it as institution as it is unofficial organization with an authority on its members controlling their daily behavior, social links and economical advancement. Then it was determined as social cell for reproduction, then was described as social unit for modern and industrial societies because of its small size and decreasing of control on its members (Omer, 2000: 5).

Marriage is a response for hidden instinct in tendency of male to female, and female to male. It is considered the most modern mechanism of control created by human mind to familiarize sexual instinct among human beings and giving it the holiness (Omer, 2000: 6). Marriage which unifies men and women for full life (nearly) has a great value in human life, it is the base in family existence and first cornerstone in society, and the place in which the children spend most of their times (Imam, 1996: 25).

To accomplish the goal of marriage life, accommodation and adjustment between husband and wife is needed. The success or failure of marriage life depends on the level of marital adjustment, so marital adjustment is not only the hope of every couple, but the goal of everyone who is planning for marriage (Ladaa, 2002: 2). Adjustment is a condition of accommodation and understanding between couples in different subjects that related to couples and ability to deal successfully with marital life problems. Some expressed it as marital satisfaction (Kfafi, 2002: 25).

This marital life could be affected by different factors as -one of most important- infertility which may lead to dissatisfaction among couples (Baddah, 2005). A common thread in the literature identifies the fact that infertility can be devastating for a couple desiring a child. For many couples, procreation represents a highly significant and emotional bond...a public display of their 'coupledom'...to be frustrated or thwarted in this enterprise of making a baby together is a major insult as well as, potentially, a major loss (Leiblum, 1966). The experience can stress a couple's personal relationship, diminish sexual satisfaction, deplete
financial resources, threaten perceptions of masculinity and femininity and cause psychological stress. The experience of infertility is unanticipated, and often represents a challenge to or loss of a primary life goal for a couple (Forrest & Gilbert). Andrew et al (1991) suggest that infertility places an enormous burden on the marital relationships and is associated with negative effects on marital relationship.

Coping strategies among infertile couples are different (Brennan, et al, 2005; Caren & Tracey, 1999). Poor marital adjustment may lead to results affect marital life and its continuity, and could lead to psychological symptoms as depression, anxiety or physical as hypertension, cardiac problems and diabetes, and socially as family discord (Moti, Dasonki, 1998).

For all of that, the research tendency was to identify the level of marital adjustment among infertile women, and if there is any effect some variables on this adjustment.

**Objectives**
The main objectives of this research study are to identify the level of Hypochondriasis among nursing students in IUG, and its relations with some variables (gender, and study level).

**Methods**
**Selection of study population**
Gaza Strip is an area of 360 square kilometers with five different governorates (Gaza North, Gaza City, Mid-Zone, Khan Younis, and Rafah). ****thousand are living in North Gaza, while there are two main hospitals: one is governmental (Kamal Odwan) with ***** beds and different clinics including infertility clinics, and the other is nongovernmental (Al Awda) hospital with ***** beds and different clinics including infertility clinics. The study population was selected from these infertility clinics. The total sample was 90 subjects as infertile women between the age of 20 to 50 years old selected randomly by using systematic way by selecting every fifth woman came to clinics of (Kamal Odwan) and (Al Awda) hospitals for treatment and follow-up. All of them were informed of the purpose of the study, were assured of confidentiality, and gave informed consent.

**Inclusion criteria**
Nursing students who are studying nursing in faculty of nursing at Islamic
university of Gaza from different levels of study (from first to fourth year of study). Male and female students were included in this study.

**Exclusion of cases**
Forty subjects out of (125) subjects were excluded from the study: () subjects participated in the pilot study to reduce response bias; () subjects were upgrading nurses; () subjects refused to participate in the study;

**Study design**
Non-experimental descriptive design was carried out to observe, describe, and document aspect of situation as it naturally occurs. This design is common and an important method to describe the relationship among variables (Agha, 1997).

**Pilot study**
To test feasibility, validity and reliability of the instruments a small-scale study was carried out by using a small sample consisting of () infertile women. All the subjects who participated in the pilot study were excluded from study population.

**Measures**
A questionnaire was used in this study to measure the level of Hypochondriasis among nursing students in IUG which was developed by the researcher. The first part of questionnaire deals with information about (age, income, education, and occupational status). To enhance the validity of the instrument, an examination of face and content validity was done by submitting the questionnaire to experts and knowledgeable persons. To enhance the reliability of the instruments, a pilot-study was undertaken and a test-retest was done by re-administering same questionnaire to the same group.

**Hypochondriasis questionnaire**
Prepared by the researcher, and after addition, omission, and modification, the questionnaire consisted of (55) items, and divided into (8) dimensions as follows:
Marital stability: (13) items, Human treatment: (8) items, Emotional development: (11) items, Marital satisfaction: (3) items, Personal relationships between couples: (6) items, Accountability: (3) items, Dealing with parents: (3) items, and finally, Marital conflicts: (8) items.
Operational definition
Non-experimental descriptive design was used to identify the level of Hypochondriasis among nursing students in IUG and its relations with some variables. Hypochondriasis was defined as a female registered breast cancer patient without history of other diseases (hypertension, diabetes, and heart diseases), who has a malignant tumor of the breast and treated with chemotherapy and or hormone treatment for more than one year, and the diagnosis of breast cancer confirmed by physician and breast biopsy. Nursing student was defined as the extent to which the patient has the ability to make a suitable and modification (physical, psychological, social, community and family) to the new condition. Religion can be viewed as a specific set of beliefs and practices associated with a recognized religion or denomination.

Statistical Analysis
Simple statistics and frequency distributions were generated for a comparison between the subjects regarding age, level of income, level of education, and occupational status. To identify the level marital adjustment, and to identify the relation of this issue with some variables among infertile women in North Gaza, Analysis of variance (One-Way ANOVA), T test, Sheffe test, frequency distribution were used. For calculations, the SPSS statistical system was used.

Results
Characteristics of the sample
The total sample consisted of (288) nursing students, distributed by variables as follows and as shown in table(1):

By gender
171 male nursing students (59.4%), 117 female nursing students (40.6%). This indicates that sample of male students was larger than female students. This goes with similar percentage of the whole population of nursing students in IUG.

By study level
95 nursing students (33%) with first year, 54 students (18.81%) with second year, 82 students (28.5%) with third year, 57 students (19.8%) with fourth year.
Table (1) Distribution of the study population by gender, and study level

<table>
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<tr>
<th>Age</th>
<th>Frequency(N)</th>
<th>Percentage(%)</th>
<th>Valid Percentage (%)</th>
</tr>
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<td>59.4</td>
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<td></td>
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<td>First year</td>
<td>95</td>
<td>33</td>
<td>33</td>
</tr>
<tr>
<td>Second year</td>
<td>54</td>
<td>18.8</td>
<td>51.8</td>
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<tr>
<td>Third year</td>
<td>82</td>
<td>28.5</td>
<td>80.3</td>
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<td>Fourth year</td>
<td>57</td>
<td>19.7</td>
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<tr>
<td>Total</td>
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</table>

Level of adjustment and its dimensions
To measure the level of marital adjustment and its dimensions, frequency distribution among different dimensions, means, SD, relative mass, and rank was used. This indicates that (8th dimension - Isolation and anxiety) occupied the first rank with a relative mass (56.4), (3rd dimension - Emotional symptoms) occupied the second rank with a relative mass (52.11), (2nd dimension - Negative feelings) occupied the third rank with a relative mass (51.32), (4th dimension - Physical symptoms) occupied the fourth rank with a relative mass (40.47), (5th dimension - Obsessive anxiety on health status) occupied the fifth rank with a relative mass (34.63), (6th dimension - Obsessive concern of health and prevention) occupied the sixth rank with a relative mass (30.37). The relative mass for total Hypochondriasis was (43.29), which is considered moderate level. This indicates that the highest level of Hypochondriasis dimensions was (Isolation and anxiety), and the lowest level of Hypochondriasis dimensions was (Obsessive concern of health and prevention). Table (2) clarifies this:
Table (2) Frequency distribution among different dimensions of Hypochondriasis by: mean, standard deviation, relative mass, and rank (No.=288)

<table>
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<tr>
<th>Dimension</th>
<th>Items No.</th>
<th>Sum of Responses</th>
<th>Mean</th>
<th>SD</th>
<th>Rel. Mass</th>
<th>Rank</th>
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<td>51.94</td>
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Hypochondriasis and gender
To measure the level of Hypochondriasis and its dimensions by age, One Way ANOVA was used to compare means. This indicates there are significant differences in total level of Hypochondriasis and first and sixth dimensions due to gender toward female students, while there are no significant differences in other dimensions. Table (3) clarifies this:
Table (3) One Way ANOVA to compare means between marital adjustment dimensions by age (No. 90)

<table>
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<th>Dimension</th>
<th>Gender</th>
<th>Frequency</th>
<th>Mean</th>
<th>SD</th>
<th>T.</th>
<th>significance</th>
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</table>

Hypochondriasis and study level
To measure the level of Hypochondriasis and its dimensions by study level, One Way ANOVA was used to compare means. This indicates that there are significant differences in total level of Hypochondriasis and first and sixth dimensions due to study level toward the third and fourth study level. Table (4,5) clarify this:
<table>
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<th>Sum square</th>
<th>Degre e of freedo m</th>
<th>Mea n square</th>
<th>F.</th>
<th>Level of significan ce</th>
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Table (4) One way ANOVA to compare means between Hypochondriasis dimensions by study level (No.288)

Table (5) Sheffe test: the difference Hypochondriasis dimensions (6th dimension-Physical) by study level of

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</table>

Discussion

The level of marital adjustment among infertile women was poor and with a relative mass (47.49), which can be interpreted by that the problem of infertility is considered a major problem among infertile women especially if we know the level of fertility in Gaza is one of the highest level in the world (Afifi, & Afifi, 2005). This ensures what (Kfafi, 2002) concluded in his study that infertility is considered one of reasons of poor marital adjustment and marital satisfaction. Monga, et al (2004) concluded that women in infertile couples reported poor marital adjustment and quality of life. Pepe & Byrne (1991) found that marital satisfaction was decreased for couples presenting for infertility treatment. Abdel Moati & Dosogi (1993) conclude that (63%) of marital discord reasons are due to poor marital adjustment, and (Moh'd, 1998: 47) considered that presence of children helps in relieving tension among couples. In this study, age didn't play a significant role in marital adjustment, and this could be interpreted by: infertility is considered a big problem regardless the age of women. The women will be under two conditions of threat of anxiety both of them lead to poor marital adjustment, first if the woman is small and infertile, she will be afraid that her husband will get another wife or divorce her. Second, if the wife is elder, her anxiety will increase especially the hope of pregnancy will decrease and she is running towards the menopause period which lead to poor marital adjustment. This study indicated that 'Income' variable was not an important factor in determining levels of marital adjustment in total and seven dimensions and could be referred that: most of sample members were from the low to mild income, and a little were from the high income which affect the result of study. This shows that sample members were closed economically, so clear
differences due to income didn't appear. This also could be related to that when the income is low, we'll find that the man will think much before doing anything especially that the subject of marriage is strategic one in man life and needs deep thinking. If someone has low income, he will have difficulty to decide to get new wife, which maybe reflected positively on woman.

Also, this study indicated that level of education didn't play a significant role in marital adjustment level, and all dimensions except in the eighth dimension. This could be interpreted that: woman-how much is educated-can't get out feminity frame motherhood instinct and loving children. This instinct was created with women either she is educated or not, which is reflected on marital adjustment. Being infertile-educated or not educated-makes the woman under mercy of jealousy and fear that her husband will get married another one, which is common in Palestinian society. This result of study doesn't agree with study of (Hashi, et al, 2006) and study of (Ritu, et al, 2005) which indicated that women with more education showed better marital adjustment.

The last main result concluded that there was significant difference in level of marital adjustment due to occupational status towards. Many studies assured that working of women is playing a big role in the level of marital adjustment, as study of (Ahmad, 1994) which revealed that nonworking women showed a better marital adjustment than working women. Also, study of (Hasmi, et al, 2005) showed that working women face problems in their marital life more than nonworking women, while study of (Ritu, et al, 2006) indicated that working women showed better marital adjustment.

Conclusions
Level of Hypochondriasis among nursing students in IUG was moderate. Gender and study level played a significant role in the level of Hypochondriasis. Other study is needed to investigate the effect of a program based on relieving the level of Hypochondriasis among nursing students.

References
Psychiatric disorders among children attending cancer unit in El-Naseer pediatric hospital Gaza

Introduction
Research background
Globally, cancer is and will be become an increasingly important factor in the global burden of disease in the decades to become, the estimated number each year is expected to rise from 10 million in 2000 to 15 million by 2020. Some of all these new cases will occur in the less developed parts of the world. A national control program is a public health program, designed to reduce cancer incidence and mortality to improve quality of life of cancer patient (PCR 2000). The systematic and equitable implementation of evidence based strategies for prevention, easily detection, diagnosis, treatment, and palliation, making the best use of available resources.
Cancer is the third leading cause of death among Palestinian after cardiovascular disease, and it is the major cause of mortality among Palestinian population. Health efforts aimed to reducing many of environmental and behavioral factors that associated with the onset of cancer.
Cancer is the leading cause of death due to illness in childhood and adolescence, except in infancy (Vaughan, 1987).
Malignant neoplasm was the leading cause of death for 30 child aged 0-18 years in 2003, 15 child aged from 0-4 years and 15 child aged from 5-18 years old (Ministry Of Health, 2004).In United States, cancer causes more deaths than any other disease of children between the ages of 15 years (Behrman, 1992. Most of cancer children have periods of anxiety and depression during the course of their illness, e.g. acute lymphatic Leukemia, Myeloid Lymphatic Leukemia and Hodgkin's diseases. For many of children anxiety relates to procedures receiving chemotherapy or even anticipating going to the hospital. A child may appear depressed during acute exacerbation. They may feel better when there is physical improvement. Children may also be depressed and having hospital thereby and missing regular daily activities or not seeing friends (Selter, 1990). A fore most consideration should be psychological and emotional support for patient and family.
Cancer ranks among the most dreaded of disease, a diagnosis can cases extreme fear, helplessness, and psychological trauma. The outcome of the treatment compounds the anxiety and leads of patients feeling powerless cancer is the product of cumulative lifestyle and environment factors that place everyone at risk. In the United States each year, approximately 1.3
million cancers are diagnosed, and so it is the second leading cause of death (Weaver, 2004). WHO (2004) stated that mental health is an important as physical health to the overall well-being of individuals, societies, and countries. Yet only small minorities of the 450 million people suffering from a mental or behavioral disorder are receiving treatment. Advances in neuroscience and behavioral medicine have shown that, like many physical illnesses, mental and behavioral disorders are the result of a complex interaction between biological, psychological, and social factors. Mental and behavioral disorders have a basis in the brain; affected people of all ages in all countries. Mental and behavioral disorders estimated to account for 12% of the global burden of disease, yet the mental health budgets of the majority of countries constitute less than 1% of their total health expenditures. The relationship between disease burden and disease spending is clearly disproportionate. More than 40% of countries have no mental health policy and over 30% have no mental health programs. Over 90% of countries have no mental health policy that includes children and adolescents. A child with major psychiatric disorder has a very serious illness affecting several areas of his or her life. These areas may include emotional, social, and intellectual ability and the use of language. Children with major psychiatric disorder may also have physical problems. Major psychiatric disorder often last along time and may be lifelong. However, when children with cancer begin treatment early, their health and ability to perform everyday tasks usually improve (McKesson, 2002). The psychological aspects of cancer in childhood and adolescence, taking a longitudinal perspective, chronic physical illness in childhood is established risk factor for psychological disturbance (Pless, and Nolan, 1989), thus all pediatric patients with cancer would be expected to be at increased risk of psychiatric disorder, and important subpopulations may be especially vulnerable. Improved survival from cancer in childhood and adolescence has come at the expense of increased treatment toxicity, which may include second malignant neoplasm's, Gonadal dysfunction, growth failure, and Hobbies, 1986)

Definitions
Cancer is a complex of diseases arising from alterations that can occur in a wide variety of genes. Alterations in normal cellular processes such as signal transduction, cell cycle control, DNA repair, cellular growth and differentiation, translational regulation, senescence, and apoptosis (programmed cell death) can result in a malignant phenotype (Worth, 2000).
Anxiety is one of the feelings all of us experience when we are under stress, physical, social, economic and psychological. Anxiety results in a feeling of impending doom, fear, (which can be intense), dryness of mouth, sweating, restlessness, racing heart, butter flies in the stomach, itching and tingling all over the body, shortness of breath, having to visit bathroom repeatedly, inability to concentrate, make decisions, carry out work, eat a sleep (WHO 2001).

Depression is the experience of feeling blue, low and worried at times but if these feelings become pervasive, being there all the time, and intense. It can include disturbances of sleep, appetites, feeling self-guilty and worthless and deserving of punishment, feeling weepy, and complaining of difficulty with memory (WHO 2001).

PTSD is exposure to an extreme traumatic stress involving direct parasol experience of an event that involves actual or threatening death or serious injury, or other threat to one's physical integrity, or witnessing an event that involve death, injury, or violent death, serious harm, or threat of death or injury experienced by a family member or other classed associate (DSM-IV 2005).

Aim of the study
To study the rate of psychiatric disorders such as anxiety, depression, and PTSD among cancer children, compared with other children attending pediatric hospital.

Research objectives
1. To compare the prevalence rate of psychiatric disorders in cancer children comparative to other children attended pediatric hospital.
2. To find gender differences between cancer children and control group according to different psychiatric disorders.
3. To assess the relationship between the type of cancer and psychiatric disorder.
4. To determine differences between sociodemographic factors (age, family income, place of residence) that may contribute to psychiatric disorders in cancer children.
5. To recommend programs for improving psychiatric disorders for cancer children and other children attended pediatric hospital for chronic disease.
Study Justification
The importance of this study comes from the professional observation of Palestinian children treated in pediatric hospital in oncology department for cancer children specially anxiety, depression and PTSD to achieve good life for the cancer children and their families.

WHO (2004) the world is suffering from an increasing burden of mental disorder, and widening "treatment gap". Today, 450 millions people suffer from a mantel or behavioral disorder, yet only small minorities of them receive even the most basic treatment. Globally, many are victimized for their illness and become the targets of stigma and discrimination. Further mental disorders represent four of the 10 leading causes of disability worldwide. This growing burden amounts to a huge cost in terms of human misery, disability and economic loss (WHO, 2004).

Although, the increase number of cancer as a serious disease (MOH 2005), and consequences of psychiatric problems in the children, and their parents in our society and so to make attention to psychiatric disorders.
The researcher need for this study, arise from the observation that children in oncology department report behavioral and emotional problems from those children who are suffering during their hospitalization in the pediatric hospital, and their inability to deal with such conditions. it was arise from my experience in psychiatric hospital and multiple counseling to children cancer in oncology department in pediatric hospital to fulfill psychological needs for helping children to treatment and coping.

To the researcher knowledge, there are no studies or previous experience about psychiatric disorders among cancer children, in professional level as I am working in psychiatric hospital for the last 23 years, I observed that Palestinian cancer children are needed to be helped psychological in order to integrate them socially regarding to their diseases.

Literature review
Psychological aspect in cancer children
Pediatric oncology patients must endure prolonged and endless treatment protocols, severe side effects caused by treatment, and uncertainty regarding progression of their disease Yeh and Wong (2004). Since major advances in cancer treatment has dramatically improved survival rates for cancer patients. Western studies have not yet shown conclusive findings of long-term behavioral or emotional problems in children with cancer.
The studies suggest a link between cancer treatment toxicity and psychological outcome. Mulhern et al. (1989b) using the Child Behavior Checklist, reported that administration of prophylactic cranial radiation, known to produce cognitive impairment (Fletcher and Copeland, 1988) was predictive of psychological disturbance in long-term survivors, and Greenberg et al. (1989) found that the severity of several adverse medical late effects, including cognitive impairment, predicted depression and poor self-concept in survivor.

**Anxiety and Depression in children with cancer**

Koocker and O'Malley (1991) the study aimed to investigate psychiatric disorder among childhood cancer survivors Compared to a control group of children with chronic, non-life-threatening illnesses, comprehensively assessed 114 long-term childhood cancer survivors retrospectively, using self-report measures of anxiety, depression, and self-esteem, and assignment of "a combined adjustment rating" from independent interview data of a psychiatrist and psychologist. In this study, 53 of the 114 subjects (47%) were judged to exhibit at least "mild" psychological symptoms. Of the total, 26% had "mild" symptoms without functional impairment, 10% were moderately symptomatic and unimpaired, and 11.2% had moderate or severe symptoms and functional impairment. Psychiatric interviews revealed more anxiety and depression and lower self-esteem in the 47% judged "poorly adjusted" than in the 53% judged "well adjusted." Paralleling the interview findings, among several psychological and demographic variables assessed using standardized measures, levels of depression and anxiety and low self-esteem accounted for the greatest proportion of the variance in overall adjustment. Compared to a control group of children with chronic, non-life-threatening illnesses, the group of cancer survivors exhibited significantly poorer overall adjustment and lower self-satisfaction. Founding that is well-adjusted survivors in this study used denial adaptively and were more likely to have been informed promptly of their diagnosis of cancer.

Engel and Romy (2000) in the study aimed to explore the factors associated with children's psychological adjustment with cancer, including gender, treatment status, reciprocity of parent-child coping, and family functioning variables. Participants were 40 children with cancer, 7-16 years of age, who completed the Child Behavioral Style Scale (CBSS), and their parents who completed the Personality Inventory for Children (PIC), Monitoring/Blunting Behavioral Scale (MBSS), State-Trait Anxiety
Inventory (STAI), Family Adaptability and Cohesion Scale-11 (FACES 11), and the Dyadic Adjustment Scale (DAS).

**Studies of anxiety**

Gershon, et al (2004) the study was aimed to pilot and test the feasibility of a novel technology to reduce anxiety and pain associated with an invasive medical procedure in children with cancer. Method: Children with cancer (ages 7-19) whose treatment protocols required access of their subcutaneous venous port device (port access) were randomly assigned to a virtual reality distraction intervention, a non-virtual reality distraction, or treatment as usual without a distraction. The researchers obtained assessments of the child's pain and anxiety from the parent, child, and un-blinded nurses. Pulse rate was monitored throughout the procedure, and behavioral indices of distress were recorded, as observed by the researchers. Results: Reductions in pain and anxiety were found for children who used the virtual reality distraction in comparison with the no distraction condition as evidenced by lower pulse rate and reports of pain by nurses. No significant differences were found for the non-virtual reality condition versus the no distraction condition on pulse rate. The results was suggest that virtual reality may be a useful tool for distraction during painful medical procedures, but further studies are needed to test potential efficacy and feasibility during other, more distressing medical procedures with larger sample sizes.

**Studies of PTSD in cancer children**

The nature of childhood cancer as a trauma is that it is not discrete, it is repetitive (diagnosis and treatments) and chronic in the form of follow up visits, medical late effects, and the risk of recurrence or second cancers (Stuber, et al 1998). Furthermore, childhood cancer is a life threatening trauma, experienced by children and their parents with fear, horror, and helplessness (Kazak, et al 1998). Given the nature of this traumatic experience short and long-term, responses to childhood cancer can be understood as trauma responses and symptoms of posttraumatic stress identified. This study assessed the prevalence of posttraumatic stress symptoms in young adult survivors of childhood cancer and the association of posttraumatic stress with anxiety, adjustment, perceptions of illness and treatment, and medical data extracted from oncology records. Patients and Methods: Seventy-eight young adults (ages 18 to 40 years) who had been treated for childhood cancer completed questionnaires and psychiatric interviews assessing posttraumatic stress, anxiety, perceptions of their
illness and treatment, and symptoms of psychologic distress, data on treatment intensity and severity of medical late effects were collected via chart review. Results: Of the patient sample, 20.5% met American Psychiatric Association Diagnostic and Statistical Manual criteria for posttraumatic stress disorder (PTSD) at some point since the end of their treatment. Clinically significant levels of intrusive (9%) and avoidant (16.7%) symptoms were reported. Participants also reported elevated state and trait anxiety. Participants with PTSD reported higher perceived current life threat, more intense treatment histories, and higher (and clinically significant) levels of psychologic distress than those who did not have PTSD. Conclusion: One-fifth of this sample of young adult survivors of childhood cancer met criteria for a diagnosis of PTSD, with clinically significant symptoms of intrusion and avoidance reported. As in other samples, PTSD in young adult survivors was associated with anxiety and other psychologic distress. Survivor's perceptions of treatment and its effects were more highly associated with posttraumatic stress than were more objective medical data. The data suggest that cancer-related posttraumatic stress may emerge in young adulthood and may affect the achievement of developmental milestones and orientation toward health care.

Meeske, et al (2000) this study aimed to examines the association between Posttraumatic stress disorder (PTSD), long-term quality of life and psychological outcome in young adult survivors of childhood cancer. The sample of 51 childhood cancer survivors (18-31 years of age, mean time of treatment =11years) 20% met full criteria for PTSD using the Structured Clinical Interview for DSM IV PTSD. The survivors with PTSD reported clinically significant levels psychological distress on all Brief Symptom Inventory subscales, while the survivors without PTSD reported symptoms levels well within the population norms. The survivors with PTSD also reported a poor quality of life on all subscales of the Rand SF-36 compared to the survivor's without PTSD. The incidence and association of parental and child posttraumatic stress symptoms in pediatric patient. The study examined, the incidence rates and determinants of posttraumatic stress symptoms PTSD and postramaic stress disorder PTSD in the patient and with their mothers and fathers and also the association between the child their parents. The method was, 209 children (aged 6.5-14years) were interviewed often an accident as anew diagnosis of cancer or diabetes mellitus, by the means of child PTSD-R1, their mother (n=180), fathers (n=175) were assessed by PTSD-diagnostic scale according to DSTD-IV Results, children reported PTSD levels in the mild range, 16% of the
fathers, 239% of the mothers. In children, accident related injury was associated with higher PTSS score. Conversely in parents, diagnosis if cancer in their child associated with more symptoms, however, child PTSS were not significantly related to PTSS of mothers and fathers. This was true for total scores as well as for DSM-IV symptoms clusters.

Baracat, et al (2000) the study was to examine prospectively the impact of posttraumatic stress symptoms (PTSS) in response to childhood cancer and treatment on general adjustment while accounting for the role of other stressful life events and appraisal of life threat and treatment intensity. The sample was 56 childhood cancer survivors, aged 8 to 18, and 65 mothers completed self-report measures of PTSS and appraisal of the intensity and life threat associated with cancer by using Post Traumatic Stress Disorder Reaction Index and Impact of Event Scale (IES) for both children and their mothers. Treatment at time 1 and self-report measures of stressful life events and general adjustment at time 2 (approximately 18 months after time 1), Results found that the children survivors and their mothers, posttraumatic stress at time 1 significantly predicted general adjustment at time 2, over and above the significant contribution of lifetime stressful events. The life events variable did not function as a mediator in the association of PTSS and general adjustment. Conclusion, that trauma responses to childhood cancer and its treatment have implications for the long-term adaptation of children and their families. Early signs and symptoms of post traumatic stress and stressful life experiences require early assessment and intervention.

Methodology
Study design
This study based on case control design, it has been selected to investigate psychiatric disorders, (anxiety, depression and PTSD) among cancer children. Case control study is an observational study in which characteristic of one group exposed to an agent of changed (cases) compared with selected sample (control) the prime advantages of the case control study are practical, simple, logistic are easy and less expensive. Altman (1999) report that the basic strategy of a case-control study is to compare a group which has a practical outcome of interest (cases) with a control group (control) that does not have that outcome but often matches the first group with respect to select characteristics.
Sample size
A convenient sample of all cases coming to oncology department. The number was 50 cases (24 male and 26 female), and 52 case controls was sufficient for detection psychiatric disorder of two, with 90% power as significant at the 0.05 level.

<table>
<thead>
<tr>
<th>Group</th>
<th>Sex</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>Case</td>
<td>24</td>
<td>26</td>
</tr>
<tr>
<td>%</td>
<td>48</td>
<td>52</td>
</tr>
<tr>
<td>Control</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>%</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>52</td>
</tr>
<tr>
<td>%</td>
<td>49.02</td>
<td>50.98</td>
</tr>
</tbody>
</table>

Sampling process
The sample was taken from the El Nasser pediatric hospital in oncology department where all total 57 cases, 2 cases were mentally retarded, 2 cases complained from psychiatric disorders, (the 4 cases are excluded from the study) and 3 cases refused to fulfill the questionnaire. The total sample was 50 cases were available for pediatric hospitalization and follow up in out patient clinic in oncology department. A total sample was taken according to the information from the medical cancer registry in the same department concerning the number and all population resides in Gaza City, Middle Zone, and north area.

Setting of the study
The study was conducted in El Nasser pediatric hospital-oncology department in Gaza Strip. The cases control group was selected from the same hospital as inpatients and of the reception department.

Instruments of the study
Research instrument have two parts
(1) Questionnaire of sociodemographic and economics, include age, sex family income, and educational level.
(2) Instruments which used, depression, anxiety, and PTSD scale Children Posttraumatic Stress Disorder Clinically Administered Scale
Revised Children’s Manifest Anxiety Scale (RCMAS), Reynolds and Richmond (1985)
Children Depression Inventory (CDI) Gareeb, (2000)

4.6 Ethical consideration
1- The researcher ensured participants privacy and confidentiality, participants in the study were received complete explanation about the purpose of the study including the time and how long interview will take.
2- Consent letter from the parents of the child especially the mother and the right to share or not.
3- An official letter of approval to conduct the study was obtained from Helsinki committee for facility date collection.
4- Obtained approval of director of the hospital.
5- The researcher was given the participants sufficient time to answer the questions and assuring them that information given in the interview will be confidentially.
6- The researcher promised that the names were anonymous and confidential.

9 Limitation of study
The researcher faced many obstacles during implementation the study such as

- Lack of resources in Gaza Strip the researcher travel to Egypt and collect information related to study form Academy of Scientific Research and Technology Information Sector.
- Time limitation.
- Sampling was convenient, for all cancer cases, but the sample was small.
- Political situation, as a result of the Israeli invasion to Gaza, there was difficulties to interview some of the selected sample.
- Some cancer children were not cooperative especially during chemotherapy treatment.
- The study was non random sampling, so the responses from participants may be generalized for cancer children but may not be generalized to the parents of cancer children.

The Results
The results of current study are presented by description of the sociodemographic characteristics of the study sample, using the descriptive, statistics, frequencies, percentages, means and standard deviation. Analysis
of the relationship between sex and categories of the psychiatric disorder (posttraumatic stress disorder, anxiety, depression in general mental health difficulties between the cases of cancer and the cases control, and also used ANOVA test in statistical analysis.

Sociodemographic characteristics of the study sample:

### Distribution of sample according to sex

<table>
<thead>
<tr>
<th>Group</th>
<th>Sex</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>male</td>
<td>female</td>
</tr>
<tr>
<td>Case</td>
<td>48</td>
<td>52</td>
</tr>
<tr>
<td>Control</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>50.00961</td>
<td>50.98039</td>
</tr>
</tbody>
</table>

### Distribution of the cases according to age

<table>
<thead>
<tr>
<th>GROUP</th>
<th>AGE 6-</th>
<th>7-</th>
<th>8-</th>
<th>9-</th>
<th>10-</th>
<th>11-12</th>
<th>Total</th>
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<tbody>
<tr>
<td>Case</td>
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<td>12</td>
<td>7</td>
<td>7</td>
<td>6</td>
<td>50</td>
</tr>
<tr>
<td>Control</td>
<td>8</td>
<td>9</td>
<td>7</td>
<td>9</td>
<td>8</td>
<td>11</td>
<td>52</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10</td>
<td>25</td>
<td>19</td>
<td>16</td>
<td>15</td>
<td>17</td>
<td>102</td>
</tr>
</tbody>
</table>

### Distribution of the cases according to residency

<table>
<thead>
<tr>
<th>Residence</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>City</td>
<td>15</td>
<td>30</td>
</tr>
<tr>
<td>Refugee camp</td>
<td>19</td>
<td>38</td>
</tr>
<tr>
<td>Village</td>
<td>16</td>
<td>32</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>
Distribution of children with cancer according to diagnosis

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute lymphatic Leukemia</td>
<td>37</td>
<td>74</td>
</tr>
<tr>
<td>Acute myeloid leukemia</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Hodgkin’s</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Brain tumor</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Lymphoma without Hodgkin's</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Distribution of the cases according to type of treatment

<table>
<thead>
<tr>
<th>Type treatment</th>
<th>Frequency</th>
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</thead>
<tbody>
<tr>
<td>Chemotherapy</td>
<td>48</td>
<td>96</td>
</tr>
<tr>
<td>Radiation therapy</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Prevalence of depression between children with cancer and control

<table>
<thead>
<tr>
<th>Depression</th>
<th>Case Frequency</th>
<th>Case Percent</th>
<th>Control Frequency</th>
<th>Control Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No depression</td>
<td>18</td>
<td>36</td>
<td>38</td>
<td>73.1</td>
</tr>
<tr>
<td>Moderate depression</td>
<td>14</td>
<td>28</td>
<td>11</td>
<td>21.2</td>
</tr>
<tr>
<td>Severe depression</td>
<td>18</td>
<td>36</td>
<td>3</td>
<td>5.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>50</strong></td>
<td><strong>100</strong></td>
<td><strong>52</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Prevalence of depression among children with cancer

![Pie chart showing prevalence of depression among children with cancer]

- Severe CDI, 36%
- No CDI, 36%
- Moderate CDI, 28%
### Prevalence of PTSD between children with cancer and the control

<table>
<thead>
<tr>
<th>PTSD</th>
<th>Case</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>No PTSD</td>
<td>21</td>
<td>42</td>
</tr>
<tr>
<td>Yes PTSD</td>
<td>29</td>
<td>68</td>
</tr>
<tr>
<td>Total</td>
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<td>100</td>
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</tbody>
</table>

**Figure -3-**
Prevalence of PTSD among children with cancer

<table>
<thead>
<tr>
<th>ANXIETY</th>
<th>Case</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Percent</td>
</tr>
<tr>
<td>No anxiety</td>
<td>22</td>
<td>44</td>
</tr>
<tr>
<td>Yes anxiety</td>
<td>28</td>
<td>56</td>
</tr>
<tr>
<td>Total</td>
<td>50</td>
<td>100</td>
</tr>
</tbody>
</table>
Figure 4: Prevalence of anxiety among children with cancer

Differences in (PTSD, Anxiety, depression) between cancer children and control

<table>
<thead>
<tr>
<th>Factor</th>
<th>GROUP</th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>t. value</th>
<th>P.value</th>
<th>sig. level</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDI</td>
<td>case</td>
<td>50</td>
<td>23.360</td>
<td>9.587</td>
<td>5.693</td>
<td>0.000</td>
<td>sig. at 0.01</td>
</tr>
<tr>
<td></td>
<td>control</td>
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<td>12.942</td>
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Prevalence of anxiety, depression, PTSD according to gender

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‘t’ standard table at sig. (0.05) and df (48) = 2.02
‘t’ standard table at sig. (0.01) and df (48) = 2.70

Discussion
Socio-demographic variables
The study sample consisted of 102 children, 50 children with cancer, 52 children as a case control study, from pediatric hospital-Gaza, selected according to the inclusion criteria described previously by the researcher. The study was investigate the prevalence rate of psychiatric disorders with cancer aged 6-12 years, compared with the prevalence rate of another matched group over this period of time. The results of the study showed that 30% of children live in city, 38% children live refugee camp, and 32% of children live in village. This result was revealed that high the number of children comes from refugee camp. All of these children are living in their families, and with their siblings. According to number of siblings, the researcher found that there are statistical differences between the psychiatric disorders and number of siblings, the number of siblings are categorized into three groups, (less than 4), (5-7), and (more than 8), it is found when increased the number of children increased the anxiety, depression, and PTSD. The researcher also found their is statistical differences between the depression and residence, the cancer children who are live in the city high in rate of depression than the cancer children who live in camps and village,
and the researcher found the are no statistical differences between anxiety, and PTSD return to type of residency city, camp, and village.

**Domain of depression disorder**

The result of this study found the cancer children in both sexes (male and female) represent 64% of depression, the high rates of depression included as moderate depression 28% and sever depression 36%, while the control group found lower rate of depression in both sexes, represent 27% of depression, moderate depression 21.2% and sever depression 5.8% that's mean depression in cancer children is very high than depression in control case study. The study of Yeh and Worg (2004) found there were children with cancer reported high rates of significant depression. The study of Sawyer, et al (1997) reported that depression in children with cancer were significantly higher than children in the community. It seems likely that depression reflected the impact of treatment, chemotherapy and other invasive medical procedures on the children with cancer. This is also consistent with the study by Dahlquist et al (1999), which also fined high levels of anxiety and depression among children with cancer and parents. It seems likely that these difficulties of depression reflect the concern of the disease experienced by parents of children who are being treated for a life threatening illness. Depression may result due to children's fears about injections, and excessive vomiting experienced by children, or difficulty ingesting oral medication, which may lead to low self-esteem and no capacity to cope with their illness. The parent observation may be influenced by the distress as experiencing which reflects negative feelings toward their children's illness.

In comparison with study by Mariann and his Colloques (2005) found 21% for clinical depression, in children with cancer, because depression is often difficult to diagnose in cancer patients, as physical symptoms of depression such as disturbance in sleep, appetite, and concentration and decreased energy levels may occur as a consequence of cancer and its treatment. And according to pain from procedures and treatment is more common among the range of depression. However, the result is in concordance with previous finding by Varni et al (2004) showing that higher pain intensity is associated with higher depression and anxiety symptoms among children with cancer as a comparative study with community children the study found there is no significant differences between level of depression and sex of children with cancer. In comparison with the study by Marian and his Colleques (2005)
girls reported higher level of anxiety and depression than boys, due to changed appearance, by losing hair.

**Domain of anxiety disorder**

The psychiatric disorder of anxiety the research found that 65% of children with cancer, and as a comparative with control group that 11.54%. The study of El-Hammarawi et al (2003) approved that there is statistically significant with cancer children than other control group. The study of Marrian and his Colleques (2005) report that 21% of children with cancer compared with control study who treated in general hospital. Rating of anxiety due to pain procedure and treatment, highly distressing and worst aspects of distress, losing hair, fatigue were rated with highest and the same time worry about not getting well, mucositis, nausea, pain from procedure and treatment and worry about missing school.

The study of Sawyer et al (1997) and Goldberg (1978) they found the children with cancer were reported to be more anxious, dependent, and tearful and to experience more sleep disturbance than children in the community and the problems reflected the impact of hospitalization chemotherapy and other invasive medical procedures. Bessell and Ann (1999) revealed in their study that children with cancer higher social anxiety than others, and were generally unhappy in school particularly concerned with their school performance and peer relationship during treatment and socially isolated.

The interpretation of high anxiety of children with cancer in Gaza related to political situation, Thabet and Vostains (1998) found that there were children reported high rates of significant anxiety problems (21.5%), Thabet et al (2002) found that there is significantly more children exposed to bombardment. This would be the fact that Palestinian children are affected by other risk factors such as political violence and low socio-economic. The research found the results that the rate of PTSD among cancer children 58% compared with the case control study 19.2%, this indicate that children with cancer high rate than other children with no cancer. In comparison with other study Meesk et al (2002), found that children with cancer and survivors reported clinically significant levels with PTSD than the population, and the survivors with PTSD reported poor quality of life. The study of Niels and Marianne (2005), found that the children survivors with cancer reported 14% of sever level of PTSD when compared with a group of non ill children.

Where the study of Libov et al (1999) found the children with cancer reported PTSD symptoms, reveal that 61% intrusive recollections, flashback
experience 14% avoidance 3%, hypervigilance the most common arousal 41%. The result of their study found that there was consistency with the researcher study in Gaza.

Yeh and Wong (2004) found that children with cancer have significant PTSD symptoms, including intrusion and avoidance which return to the high tendency of emotional and behavioral problems scores for pediatric oncology patients and suggested that they should receive psychological care. While the study of Meeske et al (2000) reported and examine the association between children with cancer long term quality of life and psychological outcome, revealed that survivors with PTSD reported clinically significant levels on all psychological distress. The research found there is no sex difference in PTSD with cancer children, but there are statistically significant differences between PTSD in children with cancer and the case control study.

Domain of social status income

The study found that cancer children's family had low social income 76% of other social families. This is consistent with the study of El-Hamrawi et al (2003) that found increased burden of cancer in lower social status families, and the searcher results of low social income consistent with the study of Zebrack et al (2004) that PTSD children with cancer increased with diminished social functioning. The researcher found in the study that there are no significant differences of PTSD in children with cancer according to gender, and number of sibling's to the type of cancer and case control study. The study of Zebrack et al (2004) found 5% of siblings were associated with female sex increased psychological distress that may relate to brain tumor as a type of cancer. The study found, no significant differences between the PTSD in children with cancer, return to type of cancer, acute lymphatic Leukemia and acute myeloid Leukemia, children are suffering from PTSD.

Domain of educational level

The searcher found no-significant differences between anxiety, depression, PTSD return to educational level of children with cancer, because the children in the same level of education, but the children were feel unhappy in school particularly concerned with their performance and peer relationship.
The study of Challinor et al (1999) found that a child who diagnosed with cancer has increased risks for school failure related to illness and treatment. This interpreter the scores reported by children with cancer describe physical problems commonly present as headaches, nausea, vomiting worry, invasive medical procedures, disturbances of sleep or worry and feeling run down, low self-esteem due to chemotherapy. The researcher sees that the results of this study about psychiatric disorders was logical results, where the children in Gaza strip as a general lived in difficult circumstances due to daily traumatic events and the hard of socioeconomic status due to political violence. In other words, the psychiatric trauma was accumulative affect in different period of life (Awwad, 1988).

**Recommendation**
Form the finding of this study we recommend the following
- Establishment of multidisiplinary team, psychiatrist, psychiatric nurse, psychologist and social worker to promote psychological needs of children and palliative care treatment.
- Promote the healthy life style.
- Developed the out patient clinic by computerized system for medical cancer index.
- More psychological programs directed to the children with cancer especially during invasive chemotherapy and educating family about cancer.
- Health care for children with cancer should include psychological services to prevent long-Term psychiatric problems.
- Enhancing community mental health program for psychological support for children with cancer and their families especially their mothers through home visits and follow up.

**Suggest research**
- Psychological impact to mothers and fathers of children with cancer.
- Heath related quality of life of children with caner.
- Psychosocial adjustment with cancer children and family.
- A longitudinal prospective study of psychiatric disorder to survivor's cancer children.
- Coping strategies for children with caner and parents.
References
*Diagnostic and Statistical Manual of Mental disorder*, American Psychiatric Association, Washington, DC.

*Diagnostic and Statistical Manual of Mental disorder*, American Psychiatric Association, Washington, DC.


Health-related quality of life in diabetic patients and controls without diabetes in refugee camps in Gaza strip: a cross-sectional study

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Rafael T. Mikolajczyk, Alexander Kraemer and Ulrich Laaser: School of Public Health, University of Bielefeld, Bielefeld, Germany

Diabetes mellitus is a serious disease and a cause for a growing public health concern in both developed and developing countries. Globally, the number of people with diabetes is expected to double between 2000 and 2030 while public awareness about this disease remains low.

Several studies have demonstrated that diabetes has a strong negative impact on the health-related quality of life (HRQOL), especially in the presence of complications. However, most of the studies on diabetes and HRQOL have been conducted in developed countries and studies of the HRQOL in diabetic patients in developing countries are rare.

In Gaza strip, the prevalence of diabetes was estimated at 11% in the rural and 14% in the urban population of the West-Bank. The prevalence of complications of diabetes in this population is high.

The aim of our study was to examine the HRQOL of diabetic patients in a large and long-term refugee community in camps in the Gaza strip in comparison to controls living in similar conditions. The secondary aim of the analysis was to evaluate the psychometric properties of the Arabic version of a HRQOL instrument.

Sample
For the purpose of comparison we aimed at recruiting about 200 patients with diabetes and 200 controls without diabetes living in the camps in the Gaza strip.

We started with diabetic refugees who were randomly selected from the files in "United Nations Relief and Works Agency for Palestine" clinics (UNRWA) in the biggest three refugee camps in the Gaza strip: Jabalia in the North, Nuseirat in the Middle, and Rafah in the South.
Inclusion criteria for patients were: being a resident of one of the three refugee camps, a diagnosis of type 1 or type 2 diabetes with treatment initiated at least six months prior to the study. Exclusion criteria were having any co-morbidities and pregnancy at the time of the survey.

Questionnaire

We used the World Health Organization Quality of Life Questionnaire – short version (WHOQOL-BREF) to assess quality of life.

The four domains of the WHOQOL-BREF are physical health, psychological, social relationships and environment. Subjects rated all items on a 5 point Likert-type scale.

The translations were reviewed by the first author and synthesized into one version. This preliminary Arabic questionnaire was back-translated into English by two independent translators. Both versions were compared and the Arabic version was revised where necessary.

Statistical analysis

We evaluated the psychometric characteristics of the Arabic translation of WHOQOL-BREF in the sample by means of internal reliability (Cronbach's alpha). We used the chi-square test for comparison of categorical variables and the t-test for the comparison of mean score values for the domains of WHOQOL-BREF between groups. Further, we performed multivariate analysis of variance to analyze the determinants of HRQOL in both groups.

Results

I. Characteristics of the sample

They were mostly patients with type 2 diabetes (92.4%) with a relatively long history of disease (72.6% over 6 years, 33.5% over 10 years). 80.2% with one or more self-reported major complication: nephropathy, neuropathy, retinopathy or diabetic foot. More than half were treated by oral medication (53.8%). Female patients had a longer duration of the disease and more self-reported complications than male patients.
II. Psychometric characteristics of the WHOQOL-BREF in the study sample

The internal reliability was very high for three domains and reasonably high for the fourth one. Cronbach's alpha for the physical health domain was 0.95, for the psychological domain 0.94, for social relationships domain 0.6 and 0.85 for the environment domain.

III. Evaluation of the HRQOL

1. The HRQOL was significantly lower for diabetic patients than for controls in all of the domains with the largest differences in the physical health and psychological domains (39 and 35 points difference) and smaller differences in social relationships and environment domains (19 and 13 points difference).

2. Both groups had particularly low scores in the environmental domain, indicating the bad environmental conditions affecting HRQOL of diabetic patients and controls in a similar way.

3. In the multivariate analysis: Female diabetic patients had consistently lower HRQOL for all domains than male diabetic patients.

4. Similarly, diabetic patients younger than 50 years had a considerably better HRQOL than older patients.

6. Lower income (below 200 $) had stronger effect on HRQOL among patients younger than 50 than for older patients.

7. The socio-economic status had even a higher impact on social relationships and environment domain in this comparison.

8. Being married had a small positive effect on HRQOL.

Discussion

* Diabetes and its complications affected negatively all of the domains of the WHOQOL-BREF, however the effects were strongest for the physical health and psychological domains and weaker for the social relationships and environment domains.
* We found a strong effect of interactions between gender and disease status. Whereas this finding could be partly explained by the worse situation of female patients in respect to the disease in our sample, this is still an evidence for gender inequalities. Similar difference in HRQOL of both genders was observed in a study conducted in Iran. Lower HRQOL in women with diabetes was also reported in other studies.

* Age strongly affected the HRQOL of diabetic patients in physical health and psychological domains and had almost no effects on HRQOL among controls.

* Interestingly, education played no independent role with respect to HRQOL.

* Another important finding is the high impact of the economic situation on the HRQOL especially in the younger age group.

* This study also contributed to the literature by translating the WHOQOL-BREF into Arabic and by administering the assessment tool for the first time to an Arabic speaking sample. The psychometric properties of the Arabic translation of the WHOQOL-BREF were somewhat better than in a Norwegian general population sample or Danish sample consisting of five different groups of patients, but this may be due to the fact that our sample was more homogenous.

* The strengths of this study are the relatively large sample size and inclusion of a control group. Further, the sample was designed to represent the refugee population in the Gaza strip camps, a population which is not only underserved but also understudied.

**Conclusion**

Diabetic patients living in the Gaza strip camps have a poor HRQOL compared to non-diabetic controls living under the same conditions and diabetic patients surveyed in other studies. Higher age further reduces the HRQOL in diabetic patients without having an impact on controls. Diabetes has a greater impact on the HRQOL of females than on the HRQOL of males. Under the living conditions encountered in this study, poverty strongly reduced HRQOL, especially in younger participants and this effect did not differ for diabetic patients and controls.
HIV/AIDS Clients' Experience with Health Care Providers

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HIV/AIDS Clients’ Experience with Health Care Providers

Abstract

Purpose was to explore HIV/AIDS clients’ experience with health care providers and if the client-provider relationship influenced medication adherence. Using a longitudinal qualitative design and empowerment framework, clients were interviewed prior to beginning a newly prescribed medication and at their follow up appointment. A purposive sample of 46 men and 34 women participated. Interviews were content analyzed. From 1195 significant words, phrases, and sentences, eight themes emerged. Themes are organized into two categories: Positive Relationships (Caring with the Heart, Competent Provider, Sat Down with Me, and Clients’ Commitment), and Negative Relationships (Uncaring Practices, Incompetent Provider, Poor Communication, and Client Distancing.) Health care providers who were perceived as client-centered empowered participants to feel positive, take medications, and keep appointments.

Key Words: health care relationships, HIV/AIDS, adherence, empowerment

HIV/AIDS Clients’ Experience with Health Care Providers

Adherence rates to Human Immunodeficiency Virus (HIV) medication regimens must be at least 95% to reduce disease progression and prevent viral replication and drug resistance (Bartlett & Gallant, 2005; Hsu, 2004; Rastegar & Fingerhood, 2003). Among persons with HIV disease, 40 to 60% are less than 90% adherent (Bartlett, 2002; Ingersoll & Heckman, 2005). Practitioners and researchers are working diligently to determine, understand, and measure factors that may influence anti-retroviral therapy (ART) adherence or non adherence (Bartlett et al., 2003; Bodenlos et al., 2004; Ingersoll & Heckman, 2005; Murphy, Lu, Martin, Hoffman, & Marelich, 2002). Understanding how health care relationships influence a person’s adherence to drug regimens is critical knowledge for health care providers in determining whether to delay or provide ART to persons with HIV/AIDS.
Medication Adherence and Health Care Relationships

Among 1422 HIV-infected persons on highly active antiretroviral therapy (HAART), medication adherence, not baseline CD4 cell count for beginning treatment, was the critical determinant of survival (Wood et al., 2003). In a review of 20 studies investigating barriers to HAART adherence, factors consistently associated with medication non adherence included psychological distress, lack of social support, low self-efficacy, medication side effects, complexity and inconvenience of treatment regimen (Ammassari et al., 2002). Ferguson et al. (2002) found no correlation between race/ethnicity and levels of ART adherence after controlling for factors of poverty, healthcare access, homelessness, and drug/alcohol abuse. After controlling for age, gender, education, race, physical and mental health, Schneider et al. (2004) found that the physician-client relationship predicted adherence. In particular, communication, satisfaction with a physician, and physician trust influenced adherence.

Medication adherence is inconsistently associated with client satisfaction with health care and good client-provider relationships (Ammassari et al., 2002; Garcia & Cote, 2003; Matthew et al., 2002; Martini, Parazzini, & Agnoletto, 2001; Wagner & Ryan, 2004). In England, greater adherence was associated with perceptions of positive communications and partnership in their care (Pratt et al., 2001). While in Hong Kong, high rates of adherence were associated with both a strong relationship between clients and health care providers and ethno-cultural factors (Molassiotis et al., 2002).

Among 205 HIV-positive clients in prison clinics, level of satisfaction with health care providers was high and acceptance of ART was separately and significantly associated with trust in physician and trust in HIV medications (Altice, Mostashari, & Friedland, 2001). Altice et al. found no significant differences in trust in health care provider by client age, race, educational level, stage of HIV disease, or length of infection. In a grounded theory study exploring long-term client-health care provider relationships among persons with HIV/AIDS, Carr (2001) found trust to be the dominant quality in positive relationships. In interviews with HIV-positive persons from different racial/ethnic groups, Roberts (2002), found client-provider relationships ranged from extremely satisfying to less than optimal, provider role varied from friend to professional, and physician-client relationships did influence ART adherence. Trusting their physician and having the physician believe in the ART medications helped participants to believe in their medications.
The complexity of adherence/non adherence is influenced positively and negatively by factors in the individual, health care system, and client-provider relationship (Van Servellen, Chang, Garcia, & Lombardi, 2002). Given the potential for client-provider relationships to influence adherence among persons with HIV/AIDS, inconsistency of findings, complexity of the situation, and limited longitudinal research explaining characteristics of these relationships, a longitudinal qualitative research study was undertaken. The theoretical framework for this study was Empowerment. A meta-synthesis of empowerment in nursing (Mikky, 2000) revealed two main prerequisites: a caring environment and competence. A caring environment is the critical ground in which empowerment is initiated, nurtured, and flourishes. It provides a milieu in which health care providers/nurses exchange trust, mutual respect, and honesty with their clients. Through sharing competencies both health care providers and clients can recognize each other's strengths and capabilities. This requirement is critical in order to encourage clients to engage in empowering situations and to make sound decisions and judgments in regard to their chronic health issues, complications. Exploring empowerment in chronic disease, Paterson (2003) found that despite their intentions practitioners frequently discounted the experiential knowledge of their clients and did not provide the resources needed to make informed decisions.

The general concept of empowerment with the prerequisites of a caring environment and professional competence provided a relevant theoretical framework for this study. HIV/AIDS health services are provided in established and accredited institutions with an expected environment of caring. To practice clinically, health care providers (physicians, nurse practitioners, physician assistants, nurses) meet licensure/certification competencies.

**Purpose:** The purpose of this study was to longitudinally explore the experience of health care provider relationships by persons with HIV/AIDS who were prescribed and began taking a new medication and explication of the relationship between client-health care providers and adherence to new medications over time.

**Operational Definition:** In this study, “health care provider” included physicians, nurse practitioners, and physician assistants. The majority of encounters were with physicians and nurse practitioners with reference to nurses and a single mention of a dentist. Some clients referring to nurse practitioners by name addressed them as “doctor.”
Design: The design is a longitudinal qualitative study with interviews prior to beginning medication and after two weeks. Participants responded verbally to the following: “Please describe your experience with health care providers, beginning with your very first experience with health care providers and continuing until you have nothing more to share.”

Sample: A purposive sample of 46 men and 34 women with a diagnosis of HIV/AIDS participated. Inclusion criteria were: 18 years of age or older, diagnosis of HIV, prescribed a new medication related to HIV treatment, Mini-Mental Status Exam score of 23 or higher, and ability to communicate in English. Participants were predominately men (57%), never married (54%), with racial/ethnic backgrounds most frequently African-American (43%) and Latino (41%). The mean age was 43.01 (SD = 8.86) with the highest level of education primarily 11th grade or less (57%). Eighty-five percent reported less than $10,000 for an annual income. Interviews occurred on an average of 105.16 (SD = 57.34) months from date of initial diagnosis with HIV infection. Participants had a mean CD4 count of 221.26 (SD = 225.13) and reported unprotected sex (54%), intravenous drug use (22%) or combination of unprotected sex and drug use (17%) as the most frequent sources for HIV infection.

Methods: Institutional Review Boards for the university and area hospitals provided approval for the study. Participants were recruited from four inner-city HIV/AIDS clinics and one HIV/AIDS unit in a long-term care facility. Nurse practitioners who were site coordinators identified persons meeting inclusion criteria, determined interest in participating, provided an explanation of the study, and obtained informed consents. To ensure confidentiality, participants were assured that their responses would not be shared with their health care providers and tape recordings would be destroyed on completion of the study.

In order not to influence participants’ responses, health care providers and site coordinators at HIV/AIDS clinics and the long-term care HIV/AIDS unit did not conduct any interviews. The first author and three research assistants conducted all interviews. Interviews lasted approximately 15 to 30 minutes, were taped recorded, and transcribed verbatim. Participants were interviewed twice, first, prior to beginning a newly prescribed medication and then at their regularly scheduled follow up appointment in 2-4 weeks. Seventy-two participants were interviewed twice. Second interviews were unable to be obtained from 8 persons because of death, imprisonment, returning to street drugs, or not keeping follow up appointments. Initial interviews by all 80 participants were analyzed in order to include persons who may be considered non adherent.
Background information was obtained during the initial interview. The most recent laboratory values for CD4 were obtained from client records. Clinic participants received a $20.00 honorarium for their participation. The long-term care facility requested that their participants receive a $5.00 movie or video voucher.

**Data Analysis:** Data were analyzed using content analysis, a research method that "can be both quantitative and qualitative, descriptive and inferential, objective and systematic with generalizable qualities and functions" (Nandy & Sarvela, 1997, p. 225). The objective of content analysis is to provide knowledge, description, and an understanding of the phenomenon under study (Downe-Wamboldt, 1992; Nandy & Sarvela, 1997; Polit & Beck, 2004). With this method, researchers can obtain new insights, a representation of facts, and valid inferences from the text about the message, its senders as well as its audience (Weber, 1985 in Nandy & Sarvela, 1997, p. 222). Thus, researchers can identify communication content and explore its qualitative themes (Nandy & Sarvela, 1997).

Accepted steps in content analysis are: (a) identifying the unit of analysis, (b) creating and defining categories, (c) presenting category definitions and rules, (d) assessing reliability and validity, (e) revising code rules as necessary, (f) presenting the revised category scheme, (g) coding all data, and (h) reassessing reliability and validity (Cavanagh, 1997; Krippendorff, 1980; McCain, 1988; Nandy & Sarvela, 1997). Analysis of text includes identifying the latent meaning of each word, sentence, or phrase within the context as well as reporting the specific instances and occurrences of words related to the phenomena under study.

The selected unit for content analysis can be “a single word, word sense, sentence, theme, paragraph, or whole story” (Weber, 1985 in Nandy and Sarvela, 1997). The unit of analysis selected for this study ranged from a relevant word to several sentences (i.e. complete thought) on adult provider-client health care relationships. Category schemes are developed to generate knowledge and to elucidate understanding of particular phenomena. Categories are based on many factors including (a) the research question, (b) selected unit of analysis, (c) relevant theories, (d) review of related literature, and (e) data collected. As this study unfolded, the first two authors, experienced qualitative researchers, focused their attention during data analysis on occurrences of words and phrases while considering the contextual meaning of data to the general phenomena under study. After reading a small sample of transcribed text pertinent to health care relationships, the researchers created a category system believed to be clear and consistent with content collected from this sample. All content selected
from textual data fell easily within the two main categories of positive health care relationships and negative health care relationships. Within these two major categories eight themes emerged. In content analysis, reliability refers to replicability, consistency, and agreement among researchers in the coding or interpretation of content (Lederman, 1991; McCain, 1988). Investigator triangulation (Polit & Beck, 2004) was evident in the two lead researchers agreeing on the coding system and meeting weekly for three months to analyze data. Inter rater reliability was achieved through consensus while the two researchers identified the main idea on a representative number of words and phrases and created category labels from similar clusters of ideas. Nandy and Sarvela (1997) hold that reliability in content analysis studies might be ascertained with the use of both latent and manifest content analysis approaches to analyze contextual data. “In latent content analysis, the researcher is concerned with the underlying meaning in each passage of the text…whereas coding the manifest content describes only the visible, surface, or obvious components of communication” (Nandy & Sarvela, p. 318). Therefore, both latent and manifest techniques were used in this study at the time of data analysis in order to provide a deeper understanding and clearer descriptions of participants’ experiences relevant to health care relationships. Validity in the content analysis method is achieved through the clarity established in the initial steps of the procedure (McCain, 1988). Validity of the content and results in this study was achieved through (a) four researchers’ expertise as nurse practitioners in caring for persons with HIV/AIDS, (b) analyses conducted by researchers experienced in qualitative research, (c) results strongly validated by four persons with HIV/AIDS, (d) results supported previous research, and (e) emergence of a relevant theory.

**Findings**
From 1195 significant words, phrases, and sentences, eight themes emerged within the two major categories: Positive Relationships and Negative Relationships. Themes in Positive Relationships were: Caring with the Heart, Competent Provider, Sat Down with Me, and Clients’ Commitment. Negative Relationship themes included: Uncaring Practices, Incompetent Provider, Poor Communication, and Client Distancing.

**Positive Relationships:**
**Caring With the Heart:** Participants described health care providers (HCP) as knowing them and going “beyond a paycheck.” Many referred to their HCP as persons who “really cared” about them. Clients viewed caring...
attributes as being compassionate, concerned, encouraging, kind, loving, reassuring, respectful, understanding, and supportive. In a mirror image, this was expressed as the HCP not having an “attitude” or not putting a person down.

The depth of caring or genuine presence was evident in HCP’s acceptance of clients, always being there, and not giving up on them even when they were using street drugs or not being consistent with their medications or appointments. As one person stated, “She doesn’t beat me up like when I don’t take my medicine. I don’t like telling anybody when I screw up or when I don’t feel well. But, I have confidence in her that she won’t go overboard.” One client’s advice to providers was to “Stay concerned. Don’t give up [on us]. Be patient.” Another described the empathy of the HCP as someone who “really put their feelings into you; feelings as if walking in your shoes.” Empathetic understanding is further substantiated with this person’s statement, “They know what to say and pretty much can feel me and feel how I’m doing that day and when to back off.”

Caring was often measured in time such as spending time and taking adequate time at a visit. One person requested that providers not rush but “give clients at least 10 minutes” since time is needed for clients to clarify and understand their treatment. As one client stated, “I forgot to ask him that. You don’t have time to think because they’re asking you something and then [the HCP says] ‘We’ll talk to you later.’ And then you’re like, oh, I meant to...”

Although many spoke of knowing when providers really cared about them, one person noted, “We don’t really know if for sure if they really care, but at least they portray that.” Clients valued caring, but would not accept caring without health care competency. This is exemplified in the following, “I’m with a specialist and he is sharp and he cares about his clients, too. In [another geographic area], I had caring doctors but they didn’t really have a clue to ferret all this stuff out.”

**Competent Provider:** Providers were praised for being aggressive and comprehensive in treatment, giving medications when needed, and making referrals when necessary. Many clients described their HCP as “knowledgeable,” “excellent,” “competent,” and “conscientious.” Competency was seen as helping clients and saving lives. One client spoke of the HCP as meeting “my standard.”

The HCP-client relationship is viewed as a matter of life and death since providers are gatekeepers to medications and treatment. As one client stated the HCP “becomes your life.” Some participants had a sense of ultimate trust in their HCP as is evidenced by the statement, “I put my life in their
hands, because I trust them.” Linking positive relationships with a Higher Being is reflected in the description “It’s like going to church on a Sunday. It’s all good.” Another described his perception of doctors as “He [God] put doctors here, he put them here for a reason.”

**Sat Down With Me:** Communication skills, both verbal and nonverbal, were important aspects of positive health care relationships. Basic skills such as greeting the client, smiling, and having eye contact were mentioned. Body language in communication, in particular sitting and talking as well as touching, such as putting an arm around a client, helped participants to feel that they were valued and being treated as human beings. One woman described it as:

She really sat down and talked to me and my mother and made me feel like I could count on her and to trust her, that she is going to tell me everything about the medicines. About any questions I could call her. She made me realize that if I don’t take the medicine that I wasn’t going to be here.

Clients described positive relationships in which they could ask and get answers to questions as well as feel comfortable talking to the HCP. Clients spoke of being able to talk about “everything” and “anything” and expected health care workers to provide advice, education, and explanations. Participants felt that linking their behaviors to health outcomes was vital to their understanding the need to change high risk or non-adherent behaviors. Truthful and honest communication was valued as well as providers’ listening and believing that clients had significant information to share. One person stated that the HCP “makes me feel that what I am saying is important to listen to.” Some spoke of the mutuality of their communication and trust. Another participant described sharing humor and laughing together with the HCP. Provider’s sensitivity in communication can be seen in the following statement, “He kind of knows what to say and what not to say to me ‘cause he knows I’m dealing with [HIV] disease.”

**Client Commitment:** Clients responded both emotionally and behaviorally to positive relationships with health care providers with a strong sense of commitment to their provider and to their own health. Emotionally, clients noted that they felt “good,” “safe,” “a little better,” “hopeful,” “lucky,” “happy,” and “optimistic.” They reported having more energy, feeling less anxious, and not alone. Behaviorally, participants reported taking medications, following instructions, keeping appointments, knowing what had to be done, living a normal life, and engaging in self-management of care. An example can be seen in the following, “I have wonderful doctors and my self-esteem has increased immensely. I love [NP] and [MD] and
everybody here. I take my meds diligently. I have no doubt in my mind that I’m going to beat this thing.”

Relationships were viewed as “long-term” and humanistic. Participants felt confident in and comfortable with their HCP. There was a sense of a “close relationship” with the HCP that was described almost like “family” or “friendship.” One person called the provider a “replacement dad” while others spoke of the client-HCP relationship replacing family and friends. Equality in the relationship was evident in the description of positive relationships as “partnerships.” As one participant stated, “We are more than just patient-physician. We are partners.” Another described his participation in his health care as “What made me feel good is if they would make me feel like part of the solution.” Participants’ total commitment to their own health care can be seen in the statement in which one client asserted “It’s very important to see the doctor every time; keep my appointment because that’s my life.”

**Negative Relationships:**

In a mirror image of the positive relationships described above, clients who experienced negative health care relationships were strong in their descriptions of uncaring practices, incompetent treatment, poor HCP communication, and their own negative emotional and behavioral responses. Past negative experiences were vividly recalled and emotionally related. Two women tearfully and angrily reported that they or a family member had been raped by a health care provider many years previous.

**Uncaring Practices:** The lack of caring was evident in clients’ feeling stigmatized because of their diagnosis. While in prison, one person related that doctors and nurses “treated me like I was with the ‘disease’ and poison. I felt a lot of neglect. We constantly had words back and forth. I just felt I couldn’t trust them and I didn’t trust them.” One person declared, “They treat you like you are not even an adult because they treat the animals better than people.”

Participants experienced lack of confidentiality when providers discussed their illness so loudly that other clients and visitors could hear. One person related how he was treated as an exhibition in an Emergency Department such that other health care workers were called over to laugh at the uniqueness of his injuries. Lack of respect and inequality were evident when one person who asked questions about treatment/medications was told to,
“Just do it.” The rationale for the treatment regimen was that the HCP had ordered it.

With negative health care relationships, participants felt that their experiences as clients were discounted and providers were only interested in getting paid. They reported being looked down upon and not feeling accepted or helped. Some felt disrespected when health care workers rushed in and out or asked them questions that they had answered or the information was in their charts. Another resented health care workers quizzing him on his knowledge about his disease and medications.

**Incompetent Provider:** Participants reported health care workers’ lack of knowledge, competency, and assistance. One person noted that he was never physically examined at his appointment. Someone else felt that gloves were used more than was necessary. Waiting all day to be seen, difficulty getting prescriptions written or filled, and lack of office organization were viewed as negative factors impacting health care relationships. One person reported that no provider wanted to see him on a particular day. Some clients perceived the manner in which health care workers examined them as reflecting negative feelings toward them.

**Poor Communication:** Negative communication was evident in reports of HCP screaming at, talking down to, and over the heads of clients. One woman who now takes her medicine “diligently” presented her initial situation as:

> I was in the hospital and they were like talking over my head. They weren’t really explaining to me what was going on. They just gave me some medicine and told me what I had to do but they didn’t explain the importance of it.

Participants reported receiving directions without explanations, not being educated about and not understanding how their behavior was related to outcomes of the disease. One woman felt she did not obtain an early diagnosis of HIV because of HCPs’ attitude toward her. She stated that she never received an explanation as to how her oral candidiasis may be linked to HIV disease. As a minority poor, single parent who never used drugs and was not sexually active at the time, she interpreted emergency room and clinic HCPs’ directions to “Go get an HIV test” as prejudice and not as a concern for her health.

Negative health care relationships were described as impersonal and clients were aware when a HCP did not respond to their greeting. One client reported that her first HCP seemed to hold everything back. She stated, “I’d rather know everything up front and as long as they’re honest with me and they tell me what’s going on, I’m just really happy.”
Client Distancing: Responses to negative relationships were extremely strong, both emotionally and behaviorally. Dehumanizing experiences resulted in feelings of “betrayal,” embarrassment, discomfort, stupidity, neglect, misunderstanding, and feeling like a guinea pig. Anger was expressed in varying degrees of “hate,” and “fear.” These feelings were behaviorally expressed in distancing by changing providers, not keeping appointments, stopping medications, and deciding to rely only on oneself. Because of the perceived physician-client inequality and treatment, one participant reported “I just moved onto another doctor without discussing it.” Another person went so far as to want to physically harm the health care worker who had betrayed confidentiality. He was lucky because I didn’t care if I was gonna go to jail ‘cause I was gonna punch him. The way he treat[ed] me that day I told him, ‘Look, the same respect that you deserve I deserve respect, too.’ He was treating me poorly.

Among some, helplessness was evident in feelings of depression, hopelessness, loneliness, and not knowing one’s personal feelings. Out of a sense of fear, some participants reported an inability to relate, be honest, or confront health care workers about negative experiences. In particular, they seemed to revert to shallow relationships by not sharing information, only superficially answering or asking questions, and eventually by avoiding or staying away from the problematic health care provider. They felt they did not have the acceptance or support that they needed to be honest in their encounters.

Discussion
This study provided a view of health care relationships and medication adherence over time. The quality of client-health care provider interaction and client’s attitude toward health professionals did influence adherence levels. This was evident with participants who had positive experiences with their health care providers reporting that they were taking medications and keeping their follow up appointments. Persons with negative experiences reported changing health care providers and stopping their medications. HIV/AIDS treatment was valued, but clients thought it was easier to walk away from care rather than confront the negative behavior of a health care provider. This raises the question as to whether clients perceived their health care provider as too powerful to challenge.

As in Robert’s study (2002), health care provider relationships ranged from extremely satisfying to less than optimal and the provider’s role varied from friend to professional. Participants responded to and looked for relationships
with health care providers that valued them as persons and treated them as partners in care. In Ingersoll and Heckman’s (2005) study physicians’ poor interpersonal treatment of clients and lack of client knowledge were significantly associated with clients not taking medications as directed. Similarly in this study, participants who had positive relationships with their HCP spoke about equality, trust, friendship, and partnerships leading to greater adherence.

Participants indicated that competency is as important as caring in their trust of a provider. Clients’ perceptions of caring were related to the provider taking adequate time at a visit. It would be valuable to explore in future studies if longer appointment times or better access to care will positively improve client’s perception of health care relationships and ultimately adherence to medications.

The health care relationship is a partnership. Trust has been identified as one of the key components of such a partnership. Nurses need to be honest with clients, affording hope at the same time as providing a realistic view of the client’s situation. Listening to clients and assessing their psychosocial, spiritual, and physical health is important in planning care. Clients may or may not choose to follow a care plan, even if they have participated in developing it or have agreed to adhere to the plan. Other factors such as substance use, homelessness, and psychiatric disorders may affect the client’s ability to maintain adherence to medications or to a care plan. Although clients appreciated it when health care providers did not give up on them, the final decision on what they will or will not do and their state of health or illness “belongs” to the client. Client’s decisions or actions are not personal affronts to the health care provider.

Empowerment is an interactive process. Most empowerment strategies focus on providing clients with an appropriate base of knowledge necessary to manage their lives. Studies distinguish between two types of client education: leader directed approach (health education) and individual directed education (empowerment education) (Byrne et al., 1999). In ‘empowerment education,’ the educational process moves slowly as individuals develop an awareness and appreciation of their complete problem and a sense of ownership in planning solutions. Educators who utilize this approach do not act as “experts imparting their knowledge, but facilitate and dialogue with group members” (Byrne et al., 1999, p.369-370). Participants in this study valued learning about their illness and being perceived as a partner in their care whose input was valued.

As this study progressed, a theoretical framework evolved similar to Murdoch’s (1995) phenomenological study of
empowerment/disempowerment in clients with cancer and their nurses. Murdoch explored the paternalistic nature of the biomedical model, which prevents cancer client’s empowerment related to imbalanced relationships between clients and health care providers. In Murdoch’s study, the process of empowerment/disempowerment evolved as clients and nurses interacted and included processes of a) establishing/building trust, b) acquiring/providing comfort, c) building/inspiring positiveness, d) acquiring/providing information, and e) acquiring/giving control. The context of care was described in terms of: a) time/no time, and b) teamwork/no teamwork. Clients and nurses experienced their relationship of empowerment/disempowerment within the themes of: a) experiencing the client as central/not central in the process, and b) experiencing connecting/distancing in the relationship.

Although Murdoch’s study included both nurses and clients, and this study focuses only on client perceptions of health care relationships, the findings are similar. The themes of client as central and connecting/distancing in the relationship clearly emerged as essential concepts in this study. One difference is that Murdoch’s context of care for persons with cancer namely, teamwork/no teamwork, emerged in this study as partnership/no partnership. In addition, ways of participating or connecting for persons with HIV/AIDS is described as acquiring/providing “empowerment” rather than “acquiring/giving control.” Figure 1 shows the theoretical framework that emerged from this study.

The expertise of clients who possess knowledge related to their own bodies and life choices needs to be recognized. Within an environment of respect and attention to a client’s background, language, and culture, clients need and want to understand their disease and all aspects of their care. Clients without educational degrees can be very knowledgeable about their disease. Many have street “savvy” and are “survivors”. Frequently, they have a network, consisting of friends, family, groups, other health providers (e.g. methadone clinic), community centers, case managers, and even the internet, from which they obtain and validate information.

Adherence to medications has a major impact on the mortality and morbidity of persons with HIV/AIDS and is a cornerstone to their care. This study contributes to the understanding of how healthcare relationships are enhanced through partnership with clients, in particular through client directed education, support, communication, and empowerment and ultimately how the client-health care provider relationship can impact adherence.
Notes
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HIV/AIDS Clients’ Experience with Health Care Providers

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Abstract
Purpose was to explore HIV/AIDS clients’ experience with health care providers and if the client-provider relationship influenced medication adherence. Using a longitudinal qualitative design and empowerment framework, clients were interviewed prior to beginning a newly prescribed medication and at their follow up appointment. A purposive sample of 46 men and 34 women participated. Interviews were content analyzed. From 1195 significant words, phrases, and sentences, eight themes emerged. Themes are organized into two categories: Positive Relationships (Caring with the Heart, Competent Provider, Sat Down with Me, and Clients’ Commitment), and Negative Relationships (Uncaring Practices, Incompetent Provider, Poor Communication, and Client Distancing.) Health care providers who were perceived as client-centered empowered participants to feel positive, take medications, and keep appointments.

Key Words: health care relationships, HIV/AIDS, adherence, empowerment

Adherence rates to Human Immunodeficiency Virus (HIV) medication regimens must be at least 95% to reduce disease progression and prevent viral replication and drug resistance (Bartlett & Gallant, 2005; Hsu, 2004; Rastegar & Fingerhood, 2003). Among persons with HIV disease, 40 to 60% are less than 90% adherent (Bartlett, 2002; Ingersoll & Heckman, 2005). Practitioners and researchers are working diligently to determine, understand, and measure factors that may influence anti-retroviral therapy (ART) adherence or non adherence (Bartlett et al., 2003; Bodenlos et al., 2004; Ingersoll & Heckman, 2005; Murphy, Lu, Martin, Hoffman, & Marelich, 2002). Understanding how health care relationships influence a person’s adherence to drug regimens is critical knowledge for health care providers in determining whether to delay or provide ART to persons with HIV/AIDS.
Medication Adherence and Health Care Relationships
Among 1422 HIV-infected persons on highly active antiretroviral therapy (HAART), medication adherence, not baseline CD4 cell count for beginning treatment, was the critical determinant of survival (Wood et al., 2003). In a review of 20 studies investigating barriers to HAART adherence, factors consistently associated with medication non-adherence included psychological distress, lack of social support, low self-efficacy, medication side effects, complexity and inconvenience of treatment regimen (Ammassari et al., 2002). Ferguson et al. (2002) found no correlation between race/ethnicity and levels of ART adherence after controlling for factors of poverty, healthcare access, homelessness, and drug/alcohol abuse. After controlling for age, gender, education, race, physical and mental health, Schneider et al. (2004) found that the physician-client relationship predicted adherence. In particular, communication, satisfaction with a physician, and physician trust influenced adherence.

Medication adherence is inconsistently associated with client satisfaction with health care and good client-provider relationships (Ammassari et al., 2002; Garcia & Cote, 2003; Matthew et al., 2002; Martini, Parazzini, & Agnoletto, 2001; Wagner & Ryan, 2004). In England, greater adherence was associated with perceptions of positive communications and partnership in their care (Pratt et al., 2001). While in Hong Kong, high rates of adherence were associated with both a strong relationship between clients and health care providers and ethno-cultural factors (Molassiotis et al., 2002). Among 205 HIV-positive clients in prison clinics, level of satisfaction with health care providers was high and acceptance of ART was separately and significantly associated with trust in physician and trust in HIV medications (Altice, Mostashari, & Friedland, 2001). Altice et al. found no significant differences in trust in health care provider by client age, race, educational level, stage of HIV disease, or length of infection. In a grounded theory study exploring long-term client-health care provider relationships among persons with HIV/AIDS, Carr (2001) found trust to be the dominant quality in positive relationships. In interviews with HIV-positive persons from different racial/ethnic groups, Roberts (2002), found client-provider relationships ranged from extremely satisfying to less than optimal, provider role varied from friend to professional, and physician-client relationships did influence ART adherence. Trusting their physician and having the physician believe in the ART medications helped participants to believe in their medications.
The complexity of adherence/non adherence is influenced positively and negatively by factors in the individual, health care system, and client-provider relationship (Van Servellen, Chang, Garcia, & Lombardi, 2002). Given the potential for client-provider relationships to influence adherence among persons with HIV/AIDS, inconsistency of findings, complexity of the situation, and limited longitudinal research explaining characteristics of these relationships, a longitudinal qualitative research study was undertaken.

The theoretical framework for this study was Empowerment. A meta-synthesis of empowerment in nursing (Mikky, 2000) revealed two main prerequisites: a caring environment and competence. A caring environment is the critical ground in which empowerment is initiated, nurtured, and flourishes. It provides a milieu in which health care providers/nurses exchange trust, mutual respect, and honesty with their clients. Through sharing competencies both health care providers and clients can recognize each other's strengths and capabilities. This requirement is critical in order to encourage clients to engage in empowering situations and to make sound decisions and judgments in regard to their chronic health issues, concerns, and complications. In exploring empowerment in chronic disease, Paterson (2001) found that despite their intentions practitioners frequently discounted the experiential knowledge of their clients and did not provide the resources needed to make informed decisions.

The general concept of empowerment with the prerequisites of a caring environment and professional competence provided a relevant theoretical framework for this study. HIV/AIDS health services are provided in established and accredited institutions with an expected environment of caring. To practice clinically, health care providers (physicians, nurse practitioners, physician assistants, nurses) meet licensure/certification competencies.

**Purpose:** The purpose of this study was to longitudinally explore the experience of health care provider relationships by persons with HIV/AIDS who were prescribed and began taking a new medication and explication of the relationship between client-health care providers and adherence to new medications over time.

**Operational Definition:** In this study, “health care provider” included physicians, nurse practitioners, and physician assistants. The majority of encounters were with physicians and nurse practitioners with reference to
Design: The design is a longitudinal qualitative study with interviews prior to beginning medication and after two weeks. Participants responded verbally to the following: “Please describe your experience with health care providers, beginning with your very first experience with health care providers and continuing until you have nothing more to share.”

Sample: A purposive sample of 46 men and 34 women with a diagnosis of HIV/AIDS participated. Inclusion criteria were: 18 years of age or older, diagnosis of HIV, prescribed a new medication related to HIV treatment, Mini-Mental Status Exam score of 23 or higher, and ability to communicate in English. Participants were predominately men (57%), never married (54%), with racial/ethnic backgrounds most frequently African-American (43%) and Latino (41%). The mean age was 43.01 ($SD = 8.86$) with the highest level of education primarily 11th grade or less (57%). Eighty-five percent reported less than $10,000 for an annual income. Interviews occurred on an average of 105.16 ($SD = 57.34$) months from date of initial diagnosis with HIV infection. Participants had a mean CD4 count of 221.26 ($SD = 225.13$) and reported unprotected sex (54%), intravenous drug use (22%) or combination of unprotected sex and drug use (17%) as the most frequent sources for HIV infection.

Methods: Institutional Review Boards for the university and area hospitals provided approval for the study. Participants were recruited from four inner-city HIV/AIDS clinics and one HIV/AIDS unit in a long-term care facility. Nurse practitioners who were site coordinators identified persons meeting inclusion criteria, determined interest in participating, provided an explanation of the study, and obtained informed consents. To ensure confidentiality, participants were assured that their responses would not be shared with their health care providers and tape recordings would be destroyed on completion of the study.

In order not to influence participants’ responses, health care providers and site coordinators at HIV/AIDS clinics and the long-term care HIV/AIDS unit did not conduct any interviews. The first author and three research assistants conducted all interviews. Interviews lasted approximately 15 to 30 minutes, were taped recorded, and transcribed verbatim. Participants were interviewed twice, first, prior to beginning a newly prescribed medication
and then at their regularly scheduled follow up appointment in 2-4 weeks. Seventy-two participants were interviewed twice. Second interviews were unable to be obtained from 8 persons because of death, imprisonment, returning to street drugs, or not keeping follow up appointments. Initial interviews by all 80 participants were analyzed in order to include persons who may be considered non adherent.

Background information was obtained during the initial interview. The most recent laboratory values for CD4 were obtained from client records. Clinic participants received a $20.00 honorarium for their participation. The long-term care facility requested that their participants receive a $5.00 movie or video voucher.

**Data Analysis:** Data were analyzed using content analysis, a research method that “can be both quantitative and qualitative, descriptive and inferential, objective and systematic with generalizable qualities and functions” (Nandy & Sarvela, 1997, p. 225). The objective of content analysis is to provide knowledge, description, and an understanding of the phenomenon under study (Downe-Wamboldt, 1992; Nandy & Sarvela, 1997; Polit & Beck, 2004). With this method, researchers can obtain new insights, a representation of facts, and valid inferences from the text about the message, its senders as well as its audience (Weber, 1985 in Nandy & Sarvela, 1997, p. 222). Thus, researchers can identify communication content and explore its qualitative themes (Nandy & Sarvela, 1997).

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Categories are based on many factors including (a) the research question, (b) selected unit of analysis, (c) relevant theories, (d) review of related literature, and (e) data collected. As this study unfolded, the first two authors, experienced qualitative researchers, focused their attention during data analysis on occurrences of words and phrases while considering the contextual meaning of data to the general phenomena under study. After reading a small sample of transcribed text pertinent to health care relationships, the researchers created a category system believed to be clear and consistent with content collected from this sample. All content selected from textual data fell easily within the two main categories of positive health care relationships and negative health care relationships. Within these two major categories eight themes emerged.

In content analysis, reliability refers to replicability, consistency, and agreement among researchers in the coding or interpretation of content (Lederman, 1991; McCain, 1988). Investigator triangulation (Polit & Beck, 2004) was evident in the two lead researchers agreeing on the coding system and meeting weekly for three months to analyze data. Inter rater reliability was achieved through consensus while the two researchers identified the main idea on a representative number of words and phrases and created category labels from similar clusters of ideas. Nandy and Sarvela (1997) hold that reliability in content analysis studies might be ascertained with the use of both latent and manifest content analysis approaches to analyze contextual data. “In latent content analysis, the researcher is concerned with the underlying meaning in each passage of the text...whereas coding the manifest content describes only the visible, surface, or obvious components of communication” (Nandy & Sarvela, p. 318). Therefore, both latent and manifest techniques were used in this study at the time of data analysis in order to provide a deeper understanding and clearer descriptions of participants’ experiences relevant to health care relationships.

Validity in the content analysis method is achieved through the clarity established in the initial steps of the procedure (McCain, 1988). Validity of the content and results in this study was achieved through (a) four researchers’ expertise as nurse practitioners in caring for persons with HIV/AIDS, (b) analyses conducted by researchers experienced in qualitative research, (c) results strongly validated by four persons with HIV/AIDS, (d) results supported previous research, and (e) emergence of a relevant theory.
Findings
From 1195 significant words, phrases, and sentences, eight themes emerged within the two major categories: Positive Relationships and Negative Relationships. Themes in Positive Relationships were: Caring with the Heart, Competent Provider, Sat Down with Me, and Clients’ Commitment. Negative Relationship themes included: Uncaring Practices, Incompetent Provider, Poor Communication, and Client Distancing.

Positive Relationships:
Caring With the Heart: Participants described health care providers (HCP) as knowing them and going “beyond a paycheck.” Many referred to their HCP as persons who “really cared” about them. Clients viewed caring attributes as being compassionate, concerned, encouraging, kind, loving, reassuring, respectful, understanding, and supportive. In a mirror image, this was expressed as the HCP not having an “attitude” or not putting a person down.

The depth of caring or genuine presence was evident in HCP’s acceptance of clients, always being there, and not giving up on them even when they were using street drugs or not being consistent with their medications or appointments. As one person stated, “She doesn’t beat me up like when I don’t take my medicine. I don’t like telling anybody when I screw up or when I don’t feel well. But, I have confidence in her that she won’t go overboard.” One client’s advice to providers was to “Stay concerned. Don’t give up [on us]. Be patient.” Another described the empathy of the HCP as someone who “really put their feelings into you; feelings as if walking in your shoes.” Empathetic understanding is further substantiated with this person’s statement, “They know what to say and pretty much can feel me and feel how I’m doing that day and when to back off.”

Caring was often measured in time such as spending time and taking adequate time at a visit. One person requested that providers not rush but “give clients at least 10 minutes” since time is needed for clients to clarify and understand their treatment. As one client stated, “I forgot to ask him that. You don’t have time to think because they’re asking you something and then [the HCP says] ‘We’ll talk to you later.’ And then you’re like, oh, I meant to…”
Although many spoke of knowing when providers really cared about them, one person noted, “We don’t really know if for sure if they really care, but at least they portray that.” Clients valued caring, but would not accept caring without health care competency. This is exemplified in the following, “I’m with a specialist and he is sharp and he cares about his clients, too. In [another geographic area], I had caring doctors but they didn’t really have a clue to ferret all this stuff out.”

**Competent Provider:** Providers were praised for being aggressive and comprehensive in treatment, giving medications when needed, and making referrals when necessary. Many clients described their HCP as “knowledgeable,” “excellent,” “competent,” and “conscientious.” Competency was seen as helping clients and saving lives. One client spoke of the HCP as meeting “my standard.”

The HCP-client relationship is viewed as a matter of life and death since providers are gatekeepers to medications and treatment. As one client stated the HCP “becomes your life.” Some participants had a sense of ultimate trust in their HCP as is evidenced by the statement, “I put my life in their hands, because I trust them.” Linking positive relationships with a Higher Being is reflected in the description “It’s like going to church on a Sunday. It’s all good.” Another described his perception of doctors as “He [God] put doctors here, he put them here for a reason.”

**Sat Down With Me:** Communication skills, both verbal and nonverbal, were important aspects of positive health care relationships. Basic skills such as greeting the client, smiling, and having eye contact were mentioned. Body language in communication, in particular sitting and talking as well as touching, such as putting an arm around a client, helped participants to feel that they were valued and being treated as human beings. One woman described it as: She really sat down and talked to me and my mother and made me feel like I could count on her and to trust her, that she is going to tell me everything about the medicines. About any questions I could call her. She made me realize that if I don’t take the medicine that I wasn’t going to be here.

Clients described positive relationships in which they could ask and get answers to questions as well as feel comfortable talking to the HCP. Clients spoke of being able to talk about “everything” and “anything” and expected health care workers to provide advice, education, and explanations.
Participants felt that linking their behaviors to health outcomes was vital to their understanding the need to change high risk or non-adherent behaviors.

Truthful and honest communication was valued as well as providers’ listening and believing that clients had significant information to share. One person stated that the HCP “makes me feel that what I am saying is important to listen to.” Some spoke of the mutuality of their communication and trust. Another participant described sharing humor and laughing together with the HCP. Provider’s sensitivity in communication can be seen in the following statement, “He kind of knows what to say and what not to say to me ‘cause he knows I’m dealing with [HIV] disease.”

**Client Commitment:** Clients responded both emotionally and behaviorally to positive relationships with health care providers with a strong sense of commitment to their provider and to their own health. Emotionally, clients noted that they felt “good,” “safe,” “a little better,” “hopeful,” “lucky,” “happy,” and “optimistic.” They reported having more energy, feeling less anxious, and not alone. Behaviorally, participants reported taking medications, following instructions, keeping appointments, knowing what had to be done, living a normal life, and engaging in self-management of care. An example can be seen in the following, “I have wonderful doctors and my self-esteem has increased immensely. I love [NP] and [MD] and everybody here. I take my meds diligently. I have no doubt in my mind that I’m going to beat this thing.”

Relationships were viewed as “long-term” and humanistic. Participants felt confident in and comfortable with their HCP. There was a sense of a “close relationship” with the HCP that was described almost like “family” or “friendship.” One person called the provider a “replacement dad” while others spoke of the client-HCP relationship replacing family and friends. Equality in the relationship was evident in the description of positive relationships as “partnerships.” As one participant stated, “We are more than just patient-physician. We are partners.” Another described his participation in his health care as “What made me feel good is if they would make me feel like part of the solution.” Participants’ total commitment to their own health care can be seen in the statement in which one client asserted “It’s very important to see the doctor every time; keep my appointment because that’s my life.”
Negative Relationships:
In a mirror image of the positive relationships described above, clients who experienced negative health care relationships were strong in their descriptions of uncaring practices, incompetent treatment, poor HCP communication, and their own negative emotional and behavioral responses. Past negative experiences were vividly recalled and emotionally related. Two women tearfully and angrily reported that they or a family member had been raped by a health care provider many years previous.

Uncaring Practices: The lack of caring was evident in clients’ feeling stigmatized because of their diagnosis. While in prison, one person related that doctors and nurses “treated me like I was with the ‘disease’ and poison. I felt a lot of neglect. We constantly had words back and forth. I just felt I couldn’t trust them and I didn’t trust them.” One person declared, “They treat you like you are not even an adult because they treat the animals better than people.”

Participants experienced lack of confidentiality when providers discussed their illness so loudly that other clients and visitors could hear. One person related how he was treated as an exhibition in an Emergency Department such that other health care workers were called over to laugh at the uniqueness of his injuries. Lack of respect and inequality were evident when one person who asked questions about treatment/medications was told to, “Just do it.” The rationale for the treatment regimen was that the HCP had ordered it.

With negative health care relationships, participants felt that their experiences as clients were discounted and providers were only interested in getting paid. They reported being looked down upon and not feeling accepted or helped. Some felt disrespected when health care workers rushed in and out or asked them questions that they had answered or the information was in their charts. Another resented health care workers quizzing him on his knowledge about his disease and medications

Incompetent Provider: Participants reported health care workers’ lack of knowledge, competency, and assistance. One person noted that he was never physically examined at his appointment. Someone else felt that gloves were used more than was necessary. Waiting all day to be seen, difficulty getting prescriptions written or filled, and lack of office organization were viewed as negative factors impacting health care relationships. One person reported
that no provider wanted to see him on a particular day. Some clients perceived the manner in which health care workers examined them as reflecting negative feelings toward them.

**Poor Communication:** Negative communication was evident in reports of HCP screaming at, talking down to, and over the heads of clients. One woman who now takes her medicine “diligently” presented her initial situation as:

I was in the hospital and they were like talking over my head. They weren’t really explaining to me what was going on. They just gave me some medicine and told me what I had to do but they didn’t explain the importance of it.

Participants reported receiving directions without explanations, not being educated about and not understanding how their behavior was related to outcomes of the disease. One woman felt she did not obtain an early diagnosis of HIV because of HCPs’ attitude toward her. She stated that she never received an explanation as to how her oral *candidiasis* may be linked to HIV disease. As a minority poor, single parent who never used drugs and was not sexually active at the time, she interpreted emergency room and clinic HCPs’ directions to “Go get an HIV test” as prejudice and not as a concern for her health.

Negative health care relationships were described as impersonal and clients were aware when a HCP did not respond to their greeting. One client reported that her first HCP seemed to hold everything back. She stated, “I’d rather know everything up front and as long as they’re honest with me and they tell me what’s going on, I’m just really happy.”

**Client Distancing:** Responses to negative relationships were extremely strong, both emotionally and behaviorally. Dehumanizing experiences resulted in feelings of “betrayal,” embarrassment, discomfort, stupidity, neglect, misunderstanding, and feeling like a guinea pig. Anger was expressed in varying degrees of “hate,” and “fear.” These feelings were behaviorally expressed in distancing by changing providers, not keeping appointments, stopping medications, and deciding to rely only on oneself. Because of the perceived physician-client inequality and treatment, one participant reported “I just moved onto another doctor without discussing it.” Another person went so far as to want to physically harm the health care worker who had betrayed confidentiality. He was lucky because I didn’t care if I was gonna go to jail ‘cause I was gonna punch him. The way he
treat[ed] me that day I told him, ‘Look, the same respect that you deserve I deserve respect, too.’ He was treating me poorly.

Among some, helplessness was evident in feelings of depression, hopelessness, loneliness, and not knowing one’s personal feelings. Out of a sense of fear, some participants reported an inability to relate, be honest, or confront health care workers about negative experiences. In particular, they seemed to revert to shallow relationships by not sharing information, only superficially answering or asking questions, and eventually by avoiding or staying away from the problematic health care provider. They felt they did not have the acceptance or support that they needed to be honest in their encounters.

**Discussion**
This study provided a view of health care relationships and medication adherence over time. The quality of client-health care provider interaction and client’s attitude toward health professionals did influence adherence levels. This was evident with participants who had positive experiences with their health care providers reporting that they were taking medications and keeping their follow up appointments. Persons with negative experiences reported changing health care providers and stopping their medications. HIV/AIDS treatment was valued, but clients thought it was easier to walk away from care rather than confront the negative behavior of a health care provider. This raises the question as to whether clients perceived their health care provider as too powerful to challenge.

As in Robert’s study (2002), health care provider relationships ranged from extremely satisfying to less than optimal and the provider’s role varied from friend to professional. Participants responded to and looked for relationships with health care providers that valued them as persons and treated them as partners in care. In Ingersoll and Heckman’s (2005) study physicians’ poor interpersonal treatment of clients and lack of client knowledge were significantly associated with clients not taking medications as directed. Similarly in this study, participants who had positive relationships with their HCP spoke about equality, trust, friendship, and partnerships leading to greater adherence.

Participants indicated that competency is as important as caring in their trust of a provider. Clients’ perceptions of caring were related to the provider taking adequate time at a visit. It would be valuable to explore in future
studies if longer appointment times or better access to care will positively improve client’s perception of health care relationships and ultimately adherence to medications.

The health care relationship is a partnership. Trust has been identified as one of the key components of such a partnership. Nurses need to be honest with clients, affording hope at the same time as providing a realistic view of the client’s situation. Listening to clients and assessing their psychosocial, spiritual, and physical health is important in planning care. Clients may or may not choose to follow a care plan, even if they have participated in developing it or have agreed to adhere to the plan. Other factors such as substance use, homelessness, and psychiatric disorders may affect the client’s ability to maintain adherence to medications or to a care plan. Although clients appreciated it when health care providers did not give up on them, the final decision on what they will or will not do and their state of health or illness “belongs” to the client. Client’s decisions or actions are not personal affronts to the health care provider.

Empowerment is an interactive process. Most empowerment strategies focus on providing clients with an appropriate base of knowledge necessary to manage their lives. Studies distinguish between two types of client education: leader directed approach (health education) and individual directed education (empowerment education) (Byrne et al., 1999). In ‘empowerment education,’ the educational process moves slowly as individuals develop an awareness and appreciation of their complete problem and a sense of ownership in planning solutions. Educators who utilize this approach do not act as “experts imparting their knowledge, but facilitate and dialogue with group members” (Byrne et al., 1999, p.369-370). Participants in this study valued learning about their illness and being perceived as a partner in their care whose input was valued.

As this study progressed, a theoretical framework evolved similar to Murdoch’s (1995) phenomenological study of empowerment/disempowerment in clients with cancer and their nurses. Murdoch explored the paternalistic nature of the biomedical model, which prevents cancer client’s empowerment related to imbalanced relationships between clients and health care providers. In Murdoch’s study, the process of empowerment/disempowerment evolved as clients and nurses interacted and included processes of a) establishing/building trust, b) acquiring/providing comfort, c) building/inspiring positiveness, d) acquiring/providing
information, and e) acquiring/giving control. The context of care was described in terms of: a) time/no time, and b) teamwork/no teamwork. Clients and nurses experienced their relationship of empowerment/disempowerment within the themes of: a) experiencing the client as central/not central in the process, and b) experiencing connecting/distancing in the relationship.

Although Murdoch’s study included both nurses and clients, and this study focuses only on client perceptions of health care relationships, the findings are similar. The themes of client as central and connecting/distancing in the relationship clearly emerged as essential concepts in this study. One difference is that Murdoch’s context of care for persons with cancer namely, teamwork/no teamwork, emerged in this study as partnership/no partnership. In addition, ways of participating or connecting for persons with HIV/AIDS is described as acquiring/providing “empowerment” rather than “acquiring/giving control.” Figure 1 shows the theoretical framework that emerged from this study.

The expertise of clients who possess knowledge related to their own bodies and life choices needs to be recognized. Within an environment of respect and attention to a client’s background, language, and culture, clients need and want to understand their disease and all aspects of their care. Clients without educational degrees can be very knowledgeable about their disease. Many have street “savvy” and are “survivors”. Frequently, they have a network, consisting of friends, family, groups, other health providers (e.g. methadone clinic), community centers, case managers, and even the internet, from which they obtain and validate information.

Adherence to medications has a major impact on the mortality and morbidity of persons with HIV/AIDS and is a cornerstone to their care. This study contributes to the understanding of how healthcare relationships are enhanced through partnership with clients, in particular through client directed education, support, communication, and empowerment and ultimately how the client-health care provider relationship can impact adherence.

Notes
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How Do Health Care Relationships and Nausea Affect the Quality of Life in Persons with HIV/AIDS?

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Introduction and Background: Persons with HIV/AIDS are living longer requiring extended contact with health care providers and a variety of medication regimens that may cause nausea and affect a person’s quality of life and mood. With HIV/AIDS, 95% adherence to antiretroviral (ART) drug regimens is necessary for complete viral suppression and prevention of mutant strains (Bartlett & Gallant, 2006). Persons with HIV/AIDS experience nausea and/or vomiting associated with antiretroviral therapy (ART) drugs, disease progression, or opportunistic diseases that can lead to missed doses, compromised nutritional status, and profound weight loss (Legg & Balano, 1997).

Reynolds and colleagues (1998) reported a 48% incidence of nausea associated with ART therapy in the first week of treatment that declined over time. However, nausea was ranked as moderate or severe through week 10. In a qualitative study, women described overwhelming terror of HIV symptoms including nausea/vomiting (Stevens, 1996). Nausea and vomiting are subjective symptoms that can only be assessed through the report by a patient. In a 13-city study in France, physicians recognized HIV patients’
nausea and vomiting only 39% of the time (Fontaine, Larue, & Lassauniere, 1999). Recognition was low for symptoms associated with adverse effects of treatment (nausea/vomiting) and for symptoms that had no direct measurement (e.g., nausea). Reilly and colleagues (1997) found that nurses consistently underestimated the frequency and severity of symptoms in newly admitted patients with a diagnosis of AIDS. Nausea was accurately detected 27% and vomiting 26% of the time.

In Connecticut, U.S., 55 multiracial/multiethnic men and women with AIDS (M = 42 years, SD = 8.4) participated in a cross-sectional, exploratory, and qualitative study (Anderson & Spencer, 2001). Among the 55 persons with AIDS, the majority experienced nausea (75%) and vomiting (60%) after taking their medications. Of special note is that 51% experienced “anticipatory” nausea before taking medications. Severity of nausea was rated moderate by 22% and severe/intolerable by 25%. Lower quality of life was associated with post medication nausea (r = .27, p < .05) and vomiting (r = .32, p < .05) and as well with anticipatory nausea (r = .40, p < .01). Anticipatory nausea was also associated with negative mood (r = -.28, p < .05). Persons who experienced nausea were more likely to have experienced vomiting (r = .47, p < .01).

Theoretical Framework: Cognitive representations (mental images) are believed to determine behavior (Carver & Scheier, 1981). Johnson (1973; 1978) demonstrated in a variety of clinical situations that the type of information individuals received influenced coping outcomes. Within Leventhal’s "Common Sense Model" of illness, patients are viewed as active problem solvers whose behavior is a product of their cognitive and emotional responses to a health threat. In an ongoing process, people transform internal (e.g., symptoms) or external (e.g., relationships with health care providers) stimuli into cognitive representations of threat and/or emotional reaction while trying to achieve quality of life. Leventhal (1992) noted that individuals with different cognitive representations of their hypertension had different levels of adherence to their therapeutic regimen. Consequently, how individuals cognitively understand HIV/AIDS and their emotional reactions to the threats associated with their illness will influence medication adherence, their mood and quality of life. What is not known is to what degree health care provider relationships or nausea influence persons’ decisions to take ART drugs.

Purpose: The purpose of this study was to explore among economically disadvantaged persons in Southern New England in the United States the
relationships among factors influencing quality of life and mood with particular attention to Health Care Relationships. Research questions were: 1. What is the relationship of nausea, health care relationships, medication self-efficacy, medication adherence, quality of life, and mood in persons with HIV/AIDS? and 2. What variables significantly influence the quality of life among persons with HIV/AIDS? Understanding how health care relationships and nausea influence a person’s quality of life and mood will assist health care providers in caring for persons with AIDS.

Research Design and Methods
The study design was prospective, longitudinal, and correlational. In correlation analyses, an alpha of .05 to detect a medium effect size of .30 with power of .80 requires 85-88 subjects (Cohen, 1988; Polit & Hungler, 1995). Inclusion criteria were: (a) Diagnosis of HIV/AIDS, (b) 18 years of age or older, (c) able to communicate in English, and (d) newly prescribed medications. Exclusion criteria were a score less than 23 on the Mini-Mental Status. Scores above 23 indicate normal mental status.

Eighty participants were recruited from two outpatient hospital HIV/AIDS clinics and an HIV/AIDS unit in a long-term care facility. Institutional Review Boards from the University of Connecticut and the two hospitals approved the study. Persons who met the inclusion criteria were approached and asked to participate in a study with two interviews each lasting 30 to 45 minutes. Written consents were obtained from all participants. A $20.00 stipend was given to each participant for each of the two interviews. In keeping with the requirements at the long-term care facility, participants received a $5.00 entertainment certificate.

Participants were asked to complete background information and six paper and pencil questionnaires. Information was gathered when a new medication was prescribed and at the next appointment approximately two weeks later.

Instrumentation:

Relationships with Health Care Providers is a newly developed instrument consisting of five Visual Analogue Scales based on two qualitative research studies (Anderson & Spencer, 2001; DeGeest, Abraham, Gemoets, & Evers, 1994). Questions address patient-provider communication, trust, decision-making, and satisfaction with care. Answers represent two extremes (e.g. How much are you involved in the decisions
about your health care? Doctor/nurse decides everything [0] to I make the
decision with my health care provider [10]). In this study alphas were .64
and .74.

**HIV Self-efficacy Scale** (HIV SES), a 26-item questionnaire, measures
Self-efficacy Beliefs (17 items) and Outcome Expectancies (9 items). The
HIV SES assesses level of self-rated confidence from 1(not confident) to 10
(totally confident) related to taking medications and keeping appointments.
The scale has validity, moderate test-retest reliability (.45) and alpha
coefficient of .95 for entire scale and each of the subscales (Erlen, Mellors,
Sereika, & Thato, 2001). Alphas were high for the current study at .97 and
.97.

**Morrow Assessment of Nausea and Emesis** (MANE), a five-item
questionnaire with a Likert-type response format has well-established
validity and reliability (Morrow, 1984; Rhodes, 1997). The scale provides
information on the incidence and severity of nausea/vomiting before and
after taking medications. With AIDS patients the alpha is .60 (Anderson &
Spencer, 2001). In this study, the alphas at each interview were .72 and .61.

**Quality of Life** (Ferrell, Wisdom, & Wenzl, 1989) has 28 questions with
response formats on 10-cm visual analog scales with answers representing
two extremes (e.g. How easy or difficult is it to adjust to your disease and
treatment? “Not at all easy” to “Very easy”). In a study with AIDS patients
the Alpha was .89 (Anderson & Spencer, 2001). Alphas in this study were
.90 and .91.

**Profile of Moods State-Short Form** (McNair, Lorr, & Droppleman, 1992) is
a 30-item, 5-point Likert-type instrument that measures mood on six subscales
(Tension-Anxiety, Anger, Depression, Vigor, Fatigue, and Confusion). The
full scale has well-established validity and alpha reliabilities from .87 to .95.
With AIDS patients, alpha coefficients for the short-form ranged from .69 to
.86 for the subscales and .89 for the total instrument (Anderson & Spencer,
2001). For the six subscales the alphas ranged in this study from .78 to .90 and
.77 to .92.

Adherence was measured in two ways. First, a four-item **Self-reported
Measure of Medication Adherence** with a “yes = 0” or “no =1” response
format has concurrent and predictive validity and alpha reliability of .61
(Morisky, Green, & Levine, 1986). Questions are asked so that “No” answers
reflect greater adherence. This instrument has been used with HIV/AIDS patients (J. A. Erlen, personal communication, April 17, 2001). In this study the alphas were .66 and .67. The second measure, prescription refill, was coded with a yes (1) or no (0) format indicating if the prescription was refilled before running out of ART drugs.

Most recent CD4 and Viral Load laboratory values were obtained from patient charts.

Results
Sample
Volunteers included 46 men and 34 women. Participants were Black (42.5%), Hispanic (41.3%), and Caucasian (15.0%). The average age was 42.9 (SD = 8.6) with the majority reporting an education level less than high school (57.5%) and yearly income less than $10,000 (85.0%). Major risks for HIV were unprotected sex (55%) and intravenous drug use (22.5%) with average time from HIV diagnosis to interview 105 months or 8.8 years. Mean CD4 count was 222.8 (SD = 227.6). Average Viral Load was 300,309.6 (SD = 915,331.4) with a range from 100 to 5,887,650.0. Participants reported taking an average of 16.1 (SD = 9.4) oral medication dosages in 24 hours. Only 33% participants refilled prescriptions on time.

Statistical Analysis and Results:
Quantitative data were coded and entered into the SPSS PC data program. Data were cleaned and validated by running frequencies and looking for responses outside of the established parameters. 

Question 1: “What is the relationship of nausea, health care relationships, medication self-efficacy, medication adherence, quality of life, and mood in persons with HIV/AIDS?” This was answered with a SPSS PC 11.5 correlation table with the variables of nausea, self-efficacy, quality of life, mood, and measures of adherence at time 2. The degree of correlation as well as the level of significance were assessed at a minimum of 0.05. Positive health care relationships were significantly associated with positive medication self-efficacy (r = .228, p = .043), negative mood (r = -.301, p = .011), and good quality of life (r = .337, p = 004). Time 2 self-reported medication adherence was associated with higher medication self-efficacy (r = 309, p = 009) and mood disturbance (r = -2.37, p = .046). 

Question 2: “What variables significantly influence the quality of life among persons with HIV/AIDS?” was explored with SPSS 11.5 Multiple Regression Analysis. Correlations were obtained for background variables,
CD4, Viral load, Quality of Life, Mood Disturbance, and as well as criterion and predictor variables. Variables for covariation in Multiple Regression Analysis were selected based on (a) a correlation of 0.3 or greater with criterion variable of adherence; (b) less than 0.8 correlation with other covariates; and (c) degree of variability. None of the background variables met these criteria.

The criterion variable of Quality of Life at time 2 was regressed on predictor variables in the following step-wise order: 1. Experience of Nausea (time 2), HIV Self-efficacy in taking medications (time 2), and 3. Mood Disturbance (time 2) and submitted to one multiple regression analysis to determine significance.

Experience of Nausea, Medication Self-Efficacy, and Mood Disturbance accounted for 67% of the variance in Quality of Life \[F(3, 65) = 42.30, \ p = 000\]. Negative mood accounted for the largest unique variance in Quality of Life \(\text{sr}^2 = -0.609\).

Based on Baron and Kenny’s (1986) criteria for mediation, Mood disturbance showed tendency to be a mediator between medication self-efficacy and quality of life. Medication self-efficacy was significantly correlated with Quality of life \(r = .555, \ p = 000\) and with Mood Disturbance \(r = -0.416, \ p = 000\). Mood Disturbance was significantly correlated with Quality of Life \(r = -0.737, \ p = 000\) satisfying the requirements to determine mediation. The Beta between Medication Self-efficacy and Quality of Life was .555 \(t = 5.338, \ p =000\) and decreased to a Beta of .305 \(t = 3.608, \ p = 001\) but did not achieve insignificance a sign of true mediation.

High medication self-efficacy is associated with increased quality of life among persons with HIV/AIDS. When a person experiences negative mood the relationship changes so that negative mood decreases the relationship between medication self-efficacy and quality of life. Positive mood tends to increase the relationship.

**Implications for practice:** To improve quality of life among vulnerable persons with HIV/AIDS, health care providers need to develop positive relationships with their clients as well as assess and treat clients’ nausea. Since client’s negative mood may lessen the effect of medication self-efficacy on quality of life, it is critical for nurses to assess the mood of persons taking medications to identify those needing psychological help.
Impact of Hypertension on the Quality Of Life among Patients Attending Two Palestinian Communities

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Abstract
The aim of this study was to evaluate the quality of life among hypertensive patients attending governmental and UNRWA clinics. It used a descriptive analytical cross sectional design, the study sample included 340 subjects aged between 40 – 71 years old, and who had hypertension at least for two years. Two settings were chosen randomly one belong to the government and the other belong to UNRWA. Subjects were recruited by using non probability convenient sample method. 170 subjects from each setting comprising 85 males and 85 females. Subjects were told to sign consent in order to participate in the study. A face to face structured interview was used to collect data from the participants by using demographic information sheet and the WHOQOL – BREF questionnaire. Results of the study revealed that, the percentage of the total scores of the QOL among the whole study sample 65.63%, the highest domain was the social at (70.14%), and the lowest one was the environmental at (62.40%). Demographic characteristics including, age, sex, marital status, educational attainment, duration of disease, monthly income, family size, working status and clinic being visited, was statistically significant except for some domains pertaining to some groups. Physical, psychological and social domains were lower in the group of monthly income 3000NIS and above in comparison with the group of monthly income 2001 – 3000NIS at level of significance (f = 12.51, 15.85, 13.61) respectively. In regard to marital status psychological and social domains were higher in the married group in comparison with divorced group, but the physicals domain in the divorced group was better than that in the married group at level of significance (f = 19.55, 18.22, 24.22) respectively. Family size and clinic being visited, showed no statistical significance, except for the social domain in favor of subjects visiting the governmental clinic, statistical significance at (t =2.19; df =338; p<0.05). As a matter of fact, health care providers and decision makers should consider the results of this study to contribute in the promotion of health care services provided to hypertensive patients to
reduce their suffering, prevent and delay future complications as well as helping them to have and enjoy a better quality of life.

ملخص:

هـفت هذه الدراسة الوصيفية التحليلية القطعية إلى تقييم جودة الحياة عند مرضى ضغط الدم المسجلين في عيادات الحوـمة والوكالة ، حيث أن تقيـم جودة الحياة عند هؤلاء الأفراد يمثل تقيـم شامل للـبعد الجسماني ، النفـسي، الاجتماعي و كذلك الـبعد البيئي، كما أنه يعتبر معاناة لمدى رضـى هؤلاء الأفراد عن الخدمات الصحية المقدمة لهم ، حيث تم اختبار عويدة وكالة وعويدة حكومة عن طريق العينة العشوائية ، ولدت تم اختيار الأفراد المشتركين في الدراسة بواسطة استخدام نظام العينة المتاحة أو الملاحظة داخل العينة المحددة لإجراء عملية جمع المعلومات بالشكل السليم . لقد شملت الدراسة 340 فرد تراوح أعمارهم ما بين 40 إلى 71 سنة حيث تم اختيار 170 فرد من كل عبادة ، 85 ذكر و 85 أنثى ، يعانون من منش ضغط الدم لمدة عامين فأكثر ، لقد تم شرح أهداف الدراسة للمشاركين وتم إخذ الموافقة منهم على المشاركة في الدراسة بتوقيع كل فرد على إقرار بالموافقة على المشاركة في الدراسة ، لقد أجريت المقابلات الإفرادية من خلال مقابلة شخصية وحيها لوجه وذلك باستخدام أسلوب البيانات الشخصية وكذلك استبانه تقييم جودة الحياة . لقد أظهرت نتائج هذه الدراسة أن معدل جودة الحياة بين جميع أفراد العينة الدراسية كان 65.63% ، ولد حصل البعد الاجتماعي على أعلى نسبة وهي 70.14% أما البعد البيئي فقد حصل على أقل نسبة وهي 62.40% بالنسبة للعمل، الديموغرافية التي تشمل على (العمر، الجنس، الحالة الاجتماعية، التحصيل الدراسي، عدد سنوات الموت، الدخل الشهري، عدد أفراد الأسرة، حالة العمل، العبادة التي يزورها المريض ) أظهرت دالة إحصائية ما عدا بعض الأبعد عند بعض المجموعات مثل البعد الجسـماني، النفـسي والإجتماعي عند ذوى الدخل 3000 شيكل فأكثر أقل منها عند ذوي الدخل الذي يتراوح بين 2100 إلى 3000 شيكل ، حيث كانت الدالة الإحصائية (61) f = 12.51, 15.85, 13.61. التوالي.

بالنسبة للحالة الاجتماعية فقد أظهرا البعدين النفسي والاجتماعي عند المزوجين معدل أعلى بالمقارنة مع المطلقيين ، لكن المجال الجسمي أظهر معدل أعلى منه بالمقارنة مع المتزوجين حيث كانت الدالة الإحصائية (22) f = 19.55, 18.22, 24.22 على التوالي. أما بالنسبة لعدد أفراد الأسرة والعبارة التي يزورها المريض فلم يكن لها دلالات إحصائية ما عدا البعد الاجتماعي.
Introduction:
Non-communicable diseases (NCD) introduce a considerable burden and challenge to health globally for the present time and in the future, they caused 59% of deaths and 47% of the global burden of disease in 2002. These diseases place a heavy burden on people’s health, health care systems as well as threatening economical and social development. NCDs are responsible for at least 40% of all deaths in the developing world countries including, 40% in India, 84% in the former Soviet Union and 23% in the sub-Saharan Africa, and 75% in the industrialized countries.
Predictions for the future based on current trends, states that, the global burden of NCDs will increase to 73% of all deaths and 60% of disease burden by the year 2020. They comprise a large group of diseases such as, diabetes mellitus, chronic respiratory disease, cancer and cardiovascular diseases including, hypertension, heart disease and stroke. These diseases are influenced by many risk factors (high salt diet, high fat diet, high sugar diet, alcohol intake, physical inactivity and non-compliance to medical treatment and smoking) which, are all connected to the lifestyle of the people (WHO, 2001). Cardiovascular diseases (CVDs) have emerged as the leading cause of death in most regions of the world, causing 30% of all deaths in 1998. Where deaths among men and women is were 28% and 34% respectively (WHO, 1999).
Deaths under the age of 70 years old in the developing countries due to CVD were 46.7% compared to 22.7% in the developed countries in 1999. In comparison of data from 1999, to projections for 2020, based on socio-demographic and economic models, the burden of CVD will rise all over the world. According to DALYs (attributable disability adjusted life years), life losses related to CVD will increase to 55% between 1999 and 2020, in the developing countries. In India deaths due to CVD are expected to rise from 24.2% in 1999 to 41.8% of the total deaths in 2020. Thus, the increasing burden of CVD would be mostly borne by the developing countries in the next two decades (Reddy, 2001).
Cardiovascular diseases caused more than half of all deaths in Europe in 2020. Over the past 30 years, mortality from CVD of all ages has been declining steadily in Western Europe. On the other hand, there has been a general increase in mortality in the newly dependent states reaching the peak in 1994.

In 2000, the average numbers for CVD mortality of all ages in the newly dependent states, of the former Soviet Union, were three times higher than those in Western Europe (WHO, 2001). The high burden of midlife deaths would continue to prevail the developing countries, as the CVD epidemics continue to take a higher share of the global disease burden. It has been projected that, 6.4 million deaths will occur due to CVD in the developing countries in the age group of 30-69 by the year 2020.

These projections may result from CVD risk factors which influenced by the combined effects of industrialization, urbanization, and globalization. In Palestine, CVDs, represents the leading cause of death in the year 2004, constituting 56.8% with a rate of 54.4 per 100,000 populations.

In the year 2004, 3481 persons have died from CVDs between them (1781 males and 1700 females), with a proportion of 33.6% of the total deaths, with a rate of 95.7/100,000 population. This shows that, mortality among males is higher than females (51.1% in males Vs 48.9% in females), (MOH, 2004).

One of the most serious diseases of NCD’s is hypertension which is called, the silent killer. Hypertension was defined according to World Health Organization (WHO) standardized criteria as systolic BP =>140 mmHg and/or diastolic BP=> 90 mmHg and/or the use of antihypertensive medication (WHO, 1999).

The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of high blood pressure (JNC7) in 2003, defined a blood pressure of <120/<80mmHg as normal; 120-139/80-89mmHg as pre-hypertension.. The JNC7, introduced the new category, pre-hypertension into the categorization of the blood pressure levels to emphasize the growing awareness that persons whose blood pressure begins to rise above 120/80mmHg are likely to develop definitely hypertension. Therefore, this committee hopes that, health care providers will encourage people with blood pressure in the pre-hypertension stage to begin life style modifications such as diet changes and exercise. It also, recommends that persons with hypertension must be treated with medications and be evaluated by their doctor nearly every month until their blood pressure get to normal and about every 3to 6 months thereafter. People with higher blood
pressure >160/>100, need to be evaluated more frequently. Hypertension has been classified into two categories; primary hypertension and secondary hypertension. In primary hypertension the cause of blood pressure elevation is un-identifiable. Between 21% and 36% of the adult population of the United States of America has hypertension between 90% and 95% out of this population, have primary hypertension. The remaining 5% to 10% of this group has high blood pressure related to a specific cause. Secondary Hypertension is high blood pressure from identified cause such as, Sleep Apnea, Drug-induced or related cause, chronic kidney disease, and Cushing's disease. Hypertension is a symptom free disease because; people who have it are often symptomless. In a national survey that was conducted in (1999 to 2000), 31% of people who had blood pressure exceeding 140/90 mmHg were unaware of their elevated blood pressure.

For hypertension to occur there must be a change in one or more factors affecting peripheral resistance or cardiac output. In addition, there must also be a problem with the control system that monitors or regulates pressure. Single gene mutations have been identified for a few rare types of hypertension, but many types of high blood pressure are due to mutations in more than one gene (Smeltzer & Brenda, 2004).

The prevalence of hypertension in some countries in the region, in south western Saudi Arabia was 10.6% in men and 11.4% in women (Aboulfotouh,M. Abu-Zeid,H. 1996). In Tunisia it was 28.4% in women and 30.0% in men (Ghannem,H. Hadj Fredj, A.1997). In Palestine hypertension constitutes 17.4% of cardiovascular diseases with a rate of 16.6 per 100,000 population, hypertension disease mortality is the seventh leading cause of deaths in the total population with 5.9% and it represents 4.1% of males deaths, while, it was the fourth leading cause of deaths in females with 8.3%. Hypertension is the fifth leading cause of cardiovascular disease deaths; with 17.4% of the total cardiovascular mortality, with a rate of 16.6 per 100,000. In 2004, mortality rate per 100,000 was 20.1, for females and 13.2, for males in comparison with 35.8 among females and 24.6 among males in 2000 the annual average specific mortality rate from hypertension for 100,000 population was 17.8 for males and 23.3 for females in the last five years (MOH, 2004).

Records of registered hypertensive patients, in UNRWA clinics, by age and sex in Gaza Strip, in the year 2003 show, males 3805, females 9568, with total number 13373 subjects. Distribution of registered hypertensive patients in UNRWA clinics, by age in Gaza Strip, as follow, <20 years old 95, 20-29 years old, 1489, 40-59 years old, 6120, >60 years old, 5669. The rate of new cases of hypertension per 100,000 populations among registered refugee
population in Gaza Strip is 289.9 (M.O.H, 2003). Quality of life is a common concept in the field of health in general as well as health literature. Having improved quality of life is seen as the desired outcome of health care provision. Assessment of Quality of life can reveal people in need for support and care, despite the absence of a diagnosable disease. Looking to quality of life from a health promotion or a disease prevention point of view, it can be seen as a health risk indicator, either physical or psychological as long as there is no treatment or any kind of care (Raphael et al., 1996).

The research on quality of life has been emphasized by the United Nations Education Science Culture Organization (UNESCO, 1977). With projects to develop research designs and instruments that are likely to stimulate QOL research in regions that have no research attempters and traditions in this field. Such research studies take into consideration the fact that, individuals and groups not only experience quality but also participating in creating their life quality. Research studies on people managing their chronic disease should be policy-oriented and should provide information and clarifications to the public as well as to policy makers (Milbrath, 1979).

WHO has developed a quality of life assessment tool called World Health Organization Quality of Life Questionnaire- short version (WHOQOL-BREF). This initiative has emerged from the need to a genuine international measure of quality of life and a commitment to the ongoing promotion of a holistic approach to health and health care profession.

The dramatic increase of death in average age has brought the attention that, longevity should be accompanied with improvements in health-related quality of life (HRQOL). Some researchers indicated that, increasing life expectancy will lead to an increase in the proportion of people living in poor health with the consequent burden on society and health care services (Manuel and Schultz, 2004).

The World Health Organization (WHO) has summarized these concerns, stating that, "adding years to life is an empty victory without adding life to years"(WHO, 1998).

The Quality of Life Research Unit in the Department of Public Health Sciences, University of Toronto stated that: "The ultimate goal of quality of life study and its subsequent application to people's lives is to enable people to live quality lives; lives that are both meaningful and enjoyable" (Renwick, 2002).
Methodology:
The aim of this study was to evaluate the impact of hypertension on QOL among patients attending Al Rimal and Shake Radwan clinics in Gaza city. The researcher has used a descriptive analytical cross-sectional design to conduct this study. Which focused on the QOL including its different domains among hypertensive patients in two different settings providing almost the same services under different rules and regulations, bearing in mind comparison between the two settings will enrich the study. The settings of this study were chosen randomly, comprising two clinics, Al Shake Radwan as a governmental clinic, and al Rimal as UNRWA clinic. Study population included 2500 subjects; hypertensive patients who met the eligibility criteria in both clinics. Study sample included a total of 340 subjects distributed as 170 subject for each clinic, in which 85 male and 85 female matched by age and sex, where chosen by using a non-probability convenient sample.

Eligibility criteria:
Inclusion criteria:
1. Hypertensive patient aged between 40 to 71 years old.
2. Hypertension has been diagnosed and confirmed by a physician and subject has been under medical follow up and treatment at least for two years.
3. Subjects have no history of any other diseases.
4. Subjects can communicate verbally with the researcher.
5. Subjects have time and willing to participate in the study.

Exclusion criteria:
1. Subjects less than 40 and over 71 years old.
2. Subjects with history of other disease.
3. Subjects have been under medical follow up for less than two years.
4. Subjects who refuse to participate in the study.

After obtaining the necessary permissions from the concerned authorities to conduct the study, the researcher has met with the physicians and the nurses in charge of both Al Rimal and shake Radwan clinics, explained to them the purpose of the study and requested the needed assistance from their side in recruiting the subjects. The subjects who met the inclusion criteria were selected as potential participants for the study. Method, purpose, special objectives of the study were explained carefully to each eligible subject. Upon agreement of the subject to participate in the study, they were assured that they could withdraw from the study at any time they wish as well as
they would not be identified in the report of the study, consent form was read to them at that time.
In this study, a structured face to face interview was used to collect data from the subjects by the researcher himself. According to Loftland, intensive interview aims to discover the participant's experience of a particular situation. It further allows the researcher an opportunity to pursue the topics of interest in depth as well as to probe more which may arise during the interview, and to clarify misinterpretations which may occur (Loftland, 1984).

Pilot testing:
Data collection instruments, the demographic sheet and the QOL questionnaire were both tested by 20 subjects from both clinics; all those who were pilot tested were excluded from the study. The goals of the pilot study were to assess the adequacy of the data collection plan, to know whether respondents from all groups understand the questions on the same way, to identify any parts of the instrument find objectionable or culturally incongruent. Thus, revision and refinements have been done to minimize the problems which may be raised during data collection.
After data collection, data was entered and analyzed by using the Statistical Package for Social Sciences (SPSS. Version 8). The descriptive statistical techniques such as frequency distribution, independent t-test and one way ANOVA were used, the p-value of less than 0.05 was considered statistically significant.

Instruments of data collection:
Two data collection instruments were used; the demographic information sheet and quality of life questionnaire. The demographic information sheet has covered the following areas of interest; demographic data including, age, gender, marital status, place of residency, and educational level, socioeconomic status including, occupation, income and number of dependents sponsored by the participant and health profile including: duration of the disease, history of any other diseases and type of treatment.
On the other hand, the quality of life questionnaire (WHOQOL-BREF), contains a total of 26 questions to provide a broad and comprehensive assessment, of the overall quality of Life, general health and as well as, providing a new perception on the disease by focusing on the individual's own views of their well being. This kind of instrument is not only inquiring about the functioning of people with hypertension across a range of areas
but also inquiring how those people are satisfied with their functioning under the effect of medical treatment (WHO, 1996).

**Ethical considerations:**
Formal approval was obtained from the concerned authorities to conduct the study at UNRWA and MOH clinics. Subjects who agreed to participate in the study were asked to singe the consent form. The participants and their families were assured that their names and responses would be confidential. All participants have been informed that, their participation is entirely voluntary, and even after the interview begins they can refuse to answer any specific question and they have the right to terminate the interview at any time. They have been also informed that, neither their participation or non participation or refusal to answer any question will not have any effect on health care services that they or any member of their families may receive from UNRWA or MOH.

**Results and Discussion**
The data collected in this study provides a great deal of information on hypertensive patients, and quality of life they are living, as well as, their experience with the health care facilities they are visiting for medical advice and treatment In this chapter the researcher tries to present the core results that includes, the socio-demographic characteristics of the study sample as well as, the evaluation of the quality of life and the related variables affecting, by using descriptive analysis to provide summary of the study sample characteristics, frequency distributions, as well as, presentation of data in tables and graphs.

### Table (5.1) Distribution of the sample according to sex

<table>
<thead>
<tr>
<th>Sex</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>170</td>
<td>50.0</td>
</tr>
<tr>
<td>Females</td>
<td>170</td>
<td>50.0</td>
</tr>
<tr>
<td>Total</td>
<td>340</td>
<td>100.0</td>
</tr>
</tbody>
</table>

As shown in table (5.1), the total number of subjects selected for the study was 340 subjects of hypertensive patients from governmental and UNRWA clinics. The total number of males was 170 (50.0 %); and the total number of females was 170 (50.0%).
In order to clarify the difference in quality of life among hypertensive patients independent t-test was performed. The result in table (5.2) shows that, there is a significant difference between the physical domain and total scores of quality of life according to sex with an actual probability (t = 3.38, 3.35; df= 338; P<0.001) respectively toward males. It also shows a significant difference between the psychological, social and environmental domain according to sex with an actual probability (t = 3.01, 2.70, 2.69; df= 338; P<0.01) respectively toward males. While the global value was not significant according to sex (t = 0.26; df= 338; P> 0.05, NS.).

This result indicates that males enjoy a better quality of life than female do, and this is obvious in the whole domains of quality of life, which is attributed to fact that males have the opportunity to go out visiting friends, the vast majority of males work and earn money, even if they are not working they are keeping the money which represents to them a source of power and satisfaction. Males are also spending too much time out side the house which is in most times is the source of tension and anxiety, which will improve their quality of life. On the contrary female stay most of time at home taking care of the children looking after every single detail of their houses, which represents a source of tiredness and worry, which will be reflected negatively on their quality of life. The study which conducted by Klocek and Kawecka, in (2003), agrees with the aforementioned results,
which means that, most societies are all alike no matter where they are in Europe, Africa, Asia, or America, males dominate the family as well as the society.

**Quality of life and age:**
Age is an important variable because, it's included in all areas of research studies. It definitely affects quality of life therefore, it should be studied. For the purpose of this study age was categorized into three categories (40-49), (50-59), (60 and more)

![Figure (5.1) Distribution of the sample according to age](image)

Figure (5.1) shows that; 94 subjects of the sample are aged between 40 – 49 years old which represents (27.6%), 113 subjects are aged between 50 – 59 years old which represents (33.2%), and 133 are aged 60 years old and above which represents (39.1%). Its obvious that, about one third of the sample are aged between 40-49 years old, and two third of sample are aged
50 years old and above, which mean in this range of age most people may get hypertension.

Table (5.3) Means of quality of life according to age

<table>
<thead>
<tr>
<th>Variable</th>
<th>40 - 49 years (N= 94)</th>
<th>50 - 59 years (N= 113)</th>
<th>60 and above (N= 133)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical domain</td>
<td>26.37</td>
<td>24.63</td>
<td>20.93</td>
</tr>
<tr>
<td>Psychological domain</td>
<td>20.20</td>
<td>19.92</td>
<td>18.09</td>
</tr>
<tr>
<td>Social domain</td>
<td>11.23</td>
<td>10.67</td>
<td>9.88</td>
</tr>
<tr>
<td>Environmental domain</td>
<td>25.19</td>
<td>26.14</td>
<td>23.79</td>
</tr>
<tr>
<td>Global value</td>
<td>7.06</td>
<td>7.30</td>
<td>6.40</td>
</tr>
<tr>
<td>Total scores of Quality of life</td>
<td>90.06</td>
<td>88.68</td>
<td>79.11</td>
</tr>
</tbody>
</table>

As shown in table (5.3) physical, psychological and social domains were better in age group (40 – 49) years old in comparison with the other age groups. But the environmental domain was better in the age group (50 – 59) years old. It also indicates that, the total scores of quality of life are higher in age group (40 – 49) in comparison with the other age groups.
One-Way ANOVA analysis was used to study quality of life according to the age. As shown in table (5.4); the results show that, there is a significant difference between physical, psychological, social, and environmental domains and the total scores of quality of life according to the age, at levels of significant (f = 31.19, 14.08, 14.51, 7.83, 23.80; P< 0.001) respectively. While the Global value is significant according to age at the level (f = 3.63; P< 0.05).

Post-hoc analysis according to scheffe statistical test was done presenting that, there is a negative relationship between the quality of life and age. (i.e. as patients getting older their quality of life getting lower). Which means that, QOL is in favor of the age group (40 – 49) years old?

Of course, the above results are logical because, as people getting older after 40 years old are subjected to all types of diseases especially chronic diseases such as hypertension and diabetes, so, when patient gets hypertension in the early forties he can resist the disease and his response to the medication will

<table>
<thead>
<tr>
<th>Variables</th>
<th>Source of variance</th>
<th>Sum of Squares</th>
<th>Df</th>
<th>Mean Square</th>
<th>F-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Physical domain</strong></td>
<td>Between Groups</td>
<td>1788.961</td>
<td>2</td>
<td>894.481</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>9664.483</td>
<td>337</td>
<td>28.678</td>
<td>31.19</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>11453.44</td>
<td>339</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Psychological domain</strong></td>
<td>Between Groups</td>
<td>315.816</td>
<td>2</td>
<td>157.908</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>3779.510</td>
<td>337</td>
<td>11.215</td>
<td>14.08</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>4095.326</td>
<td>339</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Social domain</strong></td>
<td>Between Groups</td>
<td>103.812</td>
<td>2</td>
<td>51.906</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>1205.044</td>
<td>337</td>
<td>3.576</td>
<td>14.51</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>1308.856</td>
<td>339</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Environmental domain</strong></td>
<td>Between Groups</td>
<td>342.696</td>
<td>2</td>
<td>171.348</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>7373.807</td>
<td>337</td>
<td>21.881</td>
<td>7.83</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>7716.503</td>
<td>339</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Global value</strong></td>
<td>Between Groups</td>
<td>53.064</td>
<td>2</td>
<td>26.532</td>
<td>*</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>2457.462</td>
<td>337</td>
<td>7.292</td>
<td>3.63</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>2510.526</td>
<td>339</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total scores of Quality of life</strong></td>
<td>Between Groups</td>
<td>8516.600</td>
<td>2</td>
<td>4258.300</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Within Groups</td>
<td>60289.45</td>
<td>337</td>
<td>178.900</td>
<td>23.80</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>68806.05</td>
<td>339</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p< 0.05 **p< 0.01 ***p< 0.001
be positive with no or at least very mild side effects therefore, he can enjoy a good quality of life. On the other hand when he gets older he will be weaker with low resistant and more complications as well as more side effects which will lead to deterioration of his quality of life. There is some literature that agrees with the results being mentioned. A study was conducted in China by Li and associates in (2005) agree with the obtained results, moreover another study which was conducted in the USA by Erickson and colleagues in (2001), also agrees with the results. It's obvious that, it's like a rule patients all over the world when they getting old they need some one to help them in their daily life, they quit working, they get lack of money and they need more medication, so as a result their quality of life decreases.

<table>
<thead>
<tr>
<th>Clinic visited</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>170</td>
<td>50.0</td>
</tr>
<tr>
<td>UNRWA</td>
<td>170</td>
<td>50.0</td>
</tr>
<tr>
<td>Total</td>
<td>340</td>
<td>100.0</td>
</tr>
</tbody>
</table>

*Table (5.5) Distribution of sample according to clinic being visited*

It's clear from table (5.5); that 170 subjects were visiting governmental clinic (50.0%) and 170 subjects were visiting UNRWA clinic (50.0%). This means that, equal numbers of subjects were taken from both clinics to match between age and sex to control confounding variables.
In order to test quality of life among the hypertensive patients according to the clinic they visit independent T-test was performed. As table (5.6) reveals; there is no significant differences between levels of total scores of quality of life and most of its domains according to clinics that patients visited (t = 0.81, 0.42, 0.87, 0.02, 0.82; P> 0.05). While there is a significant differences between levels of social domain according to clinic being visited by the patients at (t= 2.19; df= 338; p< 0.05) in favor of patients who visited governmental clinics. It seems that the variable of the clinic being visited by the patients is not important since it shows no significant result, in the total quality of life and most of its domains except for the social domain which shows slight significance.

This indicates that, health services being provided in both the UNRWA, and governmental clinics are almost the same, so the only variable that affects the quality of life among the hypertensive patients from UNRWA, and governmental clinics is the disease itself (hypertension).

This also point out that, patients are satisfied with the services being provided by the staff in both clinics, and that gives a good sign about the standard of health care services being provided by the UNRWA, and the MOH. Concerning the social domain which in favor of patients who visit the governmental clinic it looks like that, those patients enjoy a better social atmosphere within their families as well as outside their families, than those who visit the UNRWA clinic.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Government N = 170</th>
<th>UNRWA N = 170</th>
<th>T- value df = 338</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean SD</td>
<td>Mean SD</td>
<td></td>
</tr>
<tr>
<td>Physical domain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23.92 5.362</td>
<td>23.41 6.235</td>
<td>0.81</td>
<td></td>
</tr>
<tr>
<td>Psychological domain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19.20 3.554</td>
<td>19.36 3.403</td>
<td>0.42</td>
<td></td>
</tr>
<tr>
<td>Social domain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10.75 2.043</td>
<td>10.28 1.860</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>Environmental domain</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25.18 4.574</td>
<td>24.73 4.963</td>
<td>0.87</td>
<td></td>
</tr>
<tr>
<td>Global value</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.88 1.530</td>
<td>6.88 3.537</td>
<td>0.02</td>
<td></td>
</tr>
<tr>
<td>Total scores of Quality of life</td>
<td>85.95 14.063</td>
<td>84.68 14.441</td>
<td>0.82</td>
</tr>
</tbody>
</table>

*p< 0.05 **p< 0.01 ***p< 0.001
Conclusion:
Hypertension represents a major threat for millions of people around the world, and it’s a cause for growing public health concern in most countries including Palestine. Hypertension is now a leading cause of death, disability and a highly health care cost, which must persuade all health authorities to cope with this challenge.
Hypertension as a serous public health problem requires changes to the structure of health care delivery in terms of, well resourced interventions, effective coordination between all levels of the health organization, health care agencies, multidisciplinary health care teams as well as patient's advocacy group.
Although, hypertension cannot be cured, it can be controlled. Its effects on QOL can be minimized and proper management can prevent or delay its long term complications. It worth mention that, hypertension management is more of a psychological problem than of a biological one, particularly when behaviors, attitudes and circumstances of the patient are the key determinants for achieving medical control which leads to improvement of the quality of their lives. This study has approved that hypertension and its complications were associated with more substantial reduction not only in the physical abilities of the patients but also in their psychological wellness.

This study has used a quantitative measure which provided an important assessment of the QOL among patients in UNRWA and governmental clinics, it also gave rich and meaningful information about the patient's experience with hypertension, moreover it provided a detailed and extensive understanding of how the disease with scarce resources affected their QOL, since the effective management of hypertension is largely dependant on the patient himself. It's so important to help hypertensive patients to minimize their psychological distress and unnecessary disturbances of their QOL.
This descriptive analytical cross sectional study was conducted to evaluate the QOL among patients attending UNRWA and governmental clinics in Gaza city. A convenient sample of 340 subjects aged between 40- 71 years old were recruited from two settings UNRWA and government. Data was collected by using demographic information sheet and the WHOQOL-BREF questionnaire.
Results revealed that, about one third of the sample are (40-49) years old, and the rest two third are aged 50 years and above. According to duration of disease most of the sample have been suffering from 2 – 5 years 168 subjects (49.4%), 103 subjects (30.3%) from 6-10 years, 42 subjects (12.4%) from 11-15 years and 27 subjects (7.9%) 16 years and above,
distribution of the sample by educational attainment shows that, most of the study sample were illiterate (25.3%) and had hypertension, the vast majority of the sample were very low income 1200NIS and less (68.5%), the percentage of unemployment was the greatest among the sample (76.5%), subjects have extended families 8 children and above were the majority among the study sample (45.3%), married subjects were the majority among the sample (83.2%), subjects from UNRWA and government clinics were 170 subjects from each clinic (50%).

The findings of this study also revealed that, total scores of QOL among hypertensive patients as high as 65.63%, and the highest domain was the social one at 70.14% while the lowest one was the environmental at 62.40%. In regard to sex, results revealed that, males enjoyed a better QOL than females especially the physical domain. Concerning duration of disease the results indicated that, as duration of disease increases QOL decreases. Findings of the study indicated that, as the subject getting older his QOL getting lower. In respect to educational attainment the results revealed that, QOL is higher among literate subjects than illiterate. Moreover, the findings asserted that, as monthly income increase QOL improves, except for physical and social domains. Family size was not statically significant for QOL.

QOL was higher among married and divorced than widowed subjects, showing that, the physical domain was in favor of the divorced but, the Psychological and Social domains were in favor of the married patients. The results also revealed that, work status was statically significant in relation to QOL in favor of working subjects.

Furthermore, the study revealed that, the clinics being visited by the subjects were not statically significant in relation to QOL except for the social domain which was in favor of the subjects visiting the governmental clinic. However, within this overall study a picture of relatively positive indicator of the QOL among the study sample, except for some domains which must highlight the need for some reforms concerning the areas where QOL has shown impairment.

**Recommendations:**
As a matter of fact, health services provided at both governmental and UNRWA facilities should respond to client's demands and perspectives, in order to enhance client's involvement in the treatment process as well to prevent or at least to minimize suffering and further complications. Furthermore, study results that helping developing in depth understanding
of issues that may influence subject's overall health as well as their QOL, therefore, here are some recommendations that should be considered.

- To pay more attention to illiterate subjects in terms of treating them as special need subjects.
- To find work opportunities for those who are not working in order to reduce their hardship.
- To focus on the strategy of prevention rather than treatment in order to save health complications as well as social and financial burdens.
- To encourage people to introduce life style modifications in terms of physical activity, diet, recreation.
- To enhance public awareness about health issues through the media, publications, educational sessions and lectures.
- Ongoing evaluation of the quality and effectiveness of patient's care and management.

**Recommendations for future research studies:**

1. The relationship between quality of life and type of work.
2. Noncompliance to treatment regimen and its effect on the quality of life.
3. The relationship between life style and quality of life.
4. Prevalence of hypertension among people under 40 years of age, and its effect on their quality of life.
5. Quality of life among hypertensive people with another disease.
6. The impact of hypertensive medications on the quality of life among hypertensive patients.
7. The impact of gestational hypertension on the quality of life among pregnant women.

**References:**

Parental Obesity Compared with Serum Leptin and Soluble Leptin Receptor Levels Among Obese Adults in the Gaza Strip

Obesity, leptin and soluble leptin receptor levels........

By

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April, 2007

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Abstract

Objective: To investigate whether parental obesity influences serum leptin hormone and soluble leptin receptor (Ob-Re) concentrations among obese adults in the Gaza Strip.

Materials and Methods: A case-control design was used. Sample used was convenient and obtained from two largest obesity clinics in the Gaza strip. It consisted of 83 overweight and obese adults without history of other diseases (case group). Control group consisted of 83 ideal weight adults who were selectively chosen from the same clinics. Self reported structured interviews and serum blood samples were obtained from both groups. Human leptin competitive ELISA kits were used for determination of leptin and Ob-Re concentrations in the blood serum. SPSS system was used to analyze the data.

Results: About 69\% of the case group was found to have paternal and/or maternal obesity. Moreover, the mean of serum leptin hormone levels for the obese adults with history of obese parents was significantly higher than obese adults without history of obese parents (p= 0.02). No significant correlation was observed between parental obesity and Ob-Re levels among the case group (p=0.88).

Conclusion: Parental obesity plays an important role in obesity and serum leptin level during adulthood.
**Keywords:** parental obesity, leptin, soluble leptin receptor, adult obesity, the Gaza Strip.

**Introduction**

Obesity is a chronic condition that is characterized by long term energy imbalance due to excessive caloric intake with slightly energy expenditure [1]. According to recent National Institutes of Health (NIH) statistics, obese individuals have a 50 to 100% increased risk of death from all causes compared to normal weight individuals. Obesity plays an important role in cardiovascular diseases, diabetes, stroke, hypertension, gallbladder disease, osteoarthritis, sleep apnea and some forms of cancer [2].

Leptin is a polypeptide hormone that inhibits food intake and stimulates energy expenditure. It is encoded by the *ob* gene and is secreted by the white adipose tissue into the circulation. It was first isolated from the mouse *ob* gene by positional cloning. The gene encodes adipose tissue mRNA translated to a highly conserved protein with 167-amino acids [3]. It was reported that a number of non-adipose tissues have been shown to synthesize and secret low level of leptin including the gastric mucosa, mammary, epithelial cells, myocytes, placenta, testes, ovaries and hair follicles [4-8].

Ob-Re makes up the main binding compound of the leptin in the blood plasma [9]. In obesity, level of Ob-Re is decreased compared with lean tissues control resulting in an increase fraction of free leptin [10]. Moreover, reduction of body weight through diet or surgical procedure significantly increases concentration of circulating Ob-Re and thus increases the fraction of bound leptin. Thus, Ob-Re acts as a regulating factor of leptin action and plays an important role in leptin resistance [11]. However, in the blood stream, leptin circulates attached to the receptors, transported to the hypothalamus, where it stimulates or inhibits release of several neurotransmitters that are involved in energy metabolism [12]

The Body mass index (BMI, Kg body weight/height in meter square) has been commonly used for measuring the percent of body fat. Thus, differences in BMI between people of the same age and sex are usually due to body fat. Its value falls into one of these categories: below 18.5 corresponds to underweight and possibly malnourished, 18.5-24.9 corresponds to healthy normal weight; 25-29.9 indicates overweight, and 30 or above corresponds to obesity. It should be emphasized that, these cut-off values of the BMI are very applicable for Orientals [13], and frequently used in Palestinian Ministry of Health for measuring of adults obesity [14].
Obesity is a complex, multi-factorial disease [15-17]. A parental history of obesity is one of these factors that modifies the percent body fat gain during adulthoods [18], but how parental obesity affects a chance of a child’s becoming obese adult has not been cleared yet. Obesity is increasing worldwide at an alarming rate in both developed and developing countries. Currently in the United States, obesity is associated with about 300,000 deaths per year, and an economic cost of approximately $117 billion [19]. In European countries, the prevalence of obesity has increased by about 10-40% in the majority of countries in the last decade [20]. In Saudi Arabia, the prevalence of obesity was more than 25% among all regions at the end of the last century [21]. Although the prevalence of obesity among Palestinian adults aged 30-65 years is high, 30% for men and 49% for women [22], there is a limited information on obesity and its relationship to a number of chronic diseases [14]. Our previous study showed that, in contrast to Ob-Re, leptin had significant positive correlations with percent body fat and lipid profiles among the obese adults in the Gaza Strip [23]. This study, therefore, aims to determine the effect of obesity in one or both parents on adult obesity and on both serum leptin and Ob-Re levels among the same subjects in the Gaza Strip.

MATERIALS AND METHODS

**Study design:** The present study involves two groups, case adults (BMI ≥25 kg/m²) and control adults (BMI between 18.5 to 24.9 kg/m²).

**Study population:** The study population was all adult individuals who have excess body weight from the specialized herbal center and Europe regimen center in North and Mid-Zone Governorates in the Gaza Strip, respectively.

**Setting and Study sample:** Two largest obesity clinics from the North and the Mid-Zone Governorates in the Gaza strip were chosen in order to collect a representative sample for this study. About 42% of the subjects were recruited from the specialized herbal center (North Governorate) and about 58% of the subjects were from Europe regime center (Mid-Zone Governorate). Study sample was convenient and consisted of 83 case group adults (40 men and 43 women; mean age was 36.5 ± 9.5) without history of other diseases. Control group consisted of 83 ideal body weight adults (40 men and 43 women; mean age was 36.3 ± 9.5) that selectively chosen from the same places to match case group in age and gender.

**Ethical consideration:** The study protocol was approved by the local ethics committee (Palestinian National Authority, Ministry of Health, Helsinki Committee).
Questionnaire interview: Face to face structured interviews were used to collect data from the all study individuals. The questionnaire included issues about different personal and socio-economic information (age, gender, marital status, weight and height, income, type of food, number of meals and paternal and/or maternal obesity).

Blood sampling and processing: Twelve hours fast blood samples were collected from the cases and controls by well trained and experienced medical technologist. Six ml of venous blood sample was drawn from each individual from the median cubital vein. The serum samples were separated by centrifugation for 10 minute at room temperature at 3500 rpm. The separated serum was frozen at -70°C until assay. Determination of human leptin and Ob-Re levels were carried out by competitive enzyme immunoassay (Diagnostic System Laboratories, USA) technique [24, 25].

Data analysis: Data were analyzed using Statistical Package of Social Sciences (SPSS) system (Version 13.0). Pearson’s correlation coefficient (r) was performed at a significance level of 5 %, and any correlation between two numerical data was considered statistically significant if significance value (p) < 0.05 . The Chi-square test was also performed in one direction at a significance level of 5 %, and any difference between two nominal data was considered statistically significant if p < 0.05 .

Results
Table 1 shows that, age and height did not differ significantly between the two study groups. Weight, BMI, and leptin were very significantly higher in the case group than control group. In contrast, average Ob-Re concentrations in the case group was very significantly lower than the control group. Table 1: Relationship between the case and the control groups with respect of age, weight, height, BMI, leptin and Ob-Re.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Case</th>
<th>SD</th>
<th>Control</th>
<th>SD</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (years)</td>
<td>36.46</td>
<td>9.58</td>
<td>36.25</td>
<td>9.58</td>
<td>0.18</td>
</tr>
<tr>
<td>Weight (kg)</td>
<td>100.28</td>
<td>25.30</td>
<td>62.00</td>
<td>7.95</td>
<td>0.00</td>
</tr>
<tr>
<td>Height (m)</td>
<td>1.69</td>
<td>0.10</td>
<td>1.670</td>
<td>0.08</td>
<td>0.10</td>
</tr>
<tr>
<td>BMI (kg/m²)</td>
<td>34.70</td>
<td>7.81</td>
<td>21.91</td>
<td>1.81</td>
<td>0.00</td>
</tr>
<tr>
<td>Leptin (ng/ml)</td>
<td>58.74</td>
<td>33.55</td>
<td>13.96</td>
<td>9.80</td>
<td>0.00</td>
</tr>
<tr>
<td>Ob-Re (ng/ml)</td>
<td>8.71</td>
<td>2.76</td>
<td>15.47</td>
<td>4.41</td>
<td>0.00</td>
</tr>
</tbody>
</table>
Table 2 shows significant relationships were found between average leptin concentrations (58.74 ± 33.55 ng/ml) and BMI or number of meals among the case group. The same table also shows observed significant relationships between average Ob-Re concentrations (8.71± 2.76 ng/ml) and BMI or age among the same group. On the other hand, average Ob-Re concentrations of the control (15.47 ± 4.41ng/ml) was significantly related to the age or number of meals.

Table 2: Leptin and its soluble receptor compared with numerical questionnaire variables among the case and the control groups.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Leptin</th>
<th>Soluble leptin receptor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control group r (p)</td>
<td>Case group r (p)</td>
</tr>
<tr>
<td>Age</td>
<td>0.20 (0.08)</td>
<td>0.08 (0.45)</td>
</tr>
<tr>
<td>BMI</td>
<td>0.13 (0.19)</td>
<td>0.64 (0.00)**</td>
</tr>
<tr>
<td>Income</td>
<td>0.20 (0.07)</td>
<td>-0.20 (0.07)</td>
</tr>
<tr>
<td># of meals</td>
<td>-0.14 (0.20)</td>
<td>0.27 (0.02)*</td>
</tr>
</tbody>
</table>

*Significant. **Highly significant.

Table 3 shows no significant relationships were found between the average leptin concentrations and different nominal variables within each study group with the exception parental obesity among the case group (p=0.01). The same table also shows no observed significant relationships between the average Ob-Re concentrations and the same variables among each of the study group. Table 3: Leptin and its soluble receptor compared with nominal questionnaire variables among the case and the control groups.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Leptin</th>
<th>Soluble leptin receptor</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control Chi-square (p)</td>
<td>Case Chi-square (p)</td>
</tr>
<tr>
<td>Marital status</td>
<td>1.32(0.27)</td>
<td>2.33(0.13)</td>
</tr>
<tr>
<td>Type of food</td>
<td>0.90(0.82)</td>
<td>7.06(0.07)</td>
</tr>
<tr>
<td>Parental obesity</td>
<td>2.11(0.15)</td>
<td>11.57(0.01)</td>
</tr>
</tbody>
</table>
Table 4 shows that about 69% of the case individuals had paternal and/or maternal obesity and about 31% had ideal body weight parents. In contrast, for the control individuals, about 36% had parental obesity and about 64% had normal ideal weight parents. Table 4: Frequency Distributions of the study individuals by parental history of obesity.

<table>
<thead>
<tr>
<th>Parental obesity</th>
<th>Control group</th>
<th>Case group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Frequency</td>
<td>Valid percent (%)</td>
</tr>
<tr>
<td>Present</td>
<td>30</td>
<td>36.1</td>
</tr>
<tr>
<td>Normal</td>
<td>53</td>
<td>63.9</td>
</tr>
<tr>
<td>Total</td>
<td>83</td>
<td>100</td>
</tr>
</tbody>
</table>

Results of table 5 show that the mean of serum leptin hormone concentrations of obese adults with parental obesity (64.30 ± 7.09 ng/ml) was more significant than obese adults without parental obesity (44.8 ± 12.33 ng/ml) in the case group (p = 0.02). However, this final result was not observed in the case of Ob-Re among the case group (p = 0.88). Table 5: Relationship between parental obesity and serum leptin or soluble leptin receptor levels among obese adults of the case group.

Discussion

The aim of this study was to test whether parental obesity might contribute to adult obesity, serum leptin hormone and its soluble receptor among obese adults in the Gaza Strip. Excessive weight gain during adulthood is well known to be associated with increasing morbidity and mortality. Most studies have concentrated on the role of parental body composition on developing of obesity (26-30).

In the present study, leptin concentrations for the case were found to be very heterogeneous (Table 1) and positively correlated with BMI, and number of meals (Table 2). In contrast, Ob-Re for the case group was not heterogeneous (Table 1) and significantly correlated with BMI (negative) and age (positive) (Table 2). For the control, It was also correlated with age (positive) and number of meals (negative). Thus, level of leptin is a direct
function of internal energy stored and amount of daily energy input. In contrast, internal body fats is negatively proportional to OB-Re level. The effect of age and daily energy input on Ob-Re level are not so clear and requires more investigations. These leptin findings are in agreement with recent studies demonstrating that circulating serum leptin levels in human are positively correlated with the body fat [31, 32]. The reason for these results might be due to decreased sensitivity to leptin among obese subjects [33].

Results of the study also provided very new information about the influence of a history of obesity on serum leptin concentrations (Tables 3 and 4). It was found that adults with obese parents were more likely to have obesity and high leptin level more than adults of non-obese parents. In contrast, according to this study, parental obesity does not affect Ob-Re level of the obese adults (Table 5). This means that fat cells generated in one or both parents due to genetic factors and family feeding styles contribute to transmission of obesity risk and high leptin level during adulthoods. The findings that parental obesity affects developing of obesity are also in agreement with other studies in the literature [26-30]. Willms et al. [26] reported that parents weight plays an important factor in the causes of obesity during childhoods. On the other hand, Nieman [27] reported that if parents’ weights were normal or slightly overweight, there would not be an increase risk of obesity in their children later on. Moreover, he also reported that children between the ages of one and three years whose parents, brothers and sisters are also overweight had a higher risk of becoming overweight. Frisancho [28] reported that fatness during adolescence is related to parental fatness but not to prenatal fatness. Moreover, Whitaker et al. [29] concluded that obese children under three years of age without obese parents are at low risk for obesity in adulthhood, but among older children, obesity is an increasing important predictor of adult obesity, regardless of whether the parents are obese.

Finally, Tarquini et al. [30] reported that cord blood leptin concentration is elevated in the presence of a family history of obesity on the paternal side, but not on the maternal side. The present study used a representative sample and gave an indication about the relation of adult obesity with parental obesity at a molecular level in the Gaza Strip. In a conclusion, parental obesity is more than doubles the risk of adult obesity and significantly increases the serum leptin concentrations among obese adults in the Gaza Strip. Its effect on serum Ob-Re level of obese adults is not observed during this study.
Recommendations
In the current study the results showed that parental obesity plays an important role in obesity and serum leptin level among adults in the Gaza strip. A standard measure of parents’ body fats and further biochemical studies are recommended for comparison of body fat and lipid profiles between obese individuals and their parents. An examinations of leptin and leptin receptor genes of individuals and their parents should be also recommended in order to understand the causes of obesity at a molecular level.

Limitations of the study
1- Because of the study was carried out on adult individuals (mean age was about 36 yrs), parental obesity indicated was reported, not measured.
2- While prevalence of parental obesity was high (69 %), 31 % prevalence of ideal body weight parents among the case group was clinically significant as well.

Acknowledgment
Our special thanks to Dr. Mazen El-Sakka, the leader of the Specialist Herbal Center and Dr. Basher Abu-Soltan the leader of Europe Regime Center for their kind co-operation in the data collection process. Our thanks should also be extended to Mr. Waheed Mousa, the supervisor of clinical chemistry department of Palestinian Ministry of Health (MOH) for his help in the biochemical analysis.
Finally, many thanks to Prof. Dr. Maged Yassin, the human physiologist, for reviewing the manuscript and suggesting valuable notes.

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25. Diagnostic System Laboratories, Inc. Texas, USA. Active Human Leptin Soluble Receptor ELISA, DSL-10-23200.
Disturbing post-operative symptoms are not reduced by prophylactic antiemetic treatment in patients at high risk of post-operative nausea and vomiting

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Background: To give prophylactics or timely treatment for post-operative nausea and vomiting (PONV) is the question. We compared the intensity and number of disturbing postoperative symptoms (i.e. pain, PONV, headache, fatigue, etc.) after prophylactic antiemetic treatment in a group of patients with >30% risk for post-operative vomiting.

Methods: Four hundred and ninety-five patients, from three hospitals, planned for gynecological surgery were randomized double blind. They were given granisetron 3mg, droperidol 1.25mg or no prophylactic antiemetic. Post-operative symptoms were followed for 24h using a questionnaire. Symptoms were analyzed both according to their intensity and in a dichotomous fashion.

Results: The intensity of different symptoms differed depending on whether droperidol, granisetron or no antiemetic had been given (P<0.005) but the overall incidence of moderate to very severe symptoms was similar in all groups. No group fared better in general. The total number of symptoms was higher in the groups given prophylactic treatment (P<0.05). The relative risk reduction for PONV with granisetron or droperidol prophylaxis was 27% [95% confidence interval (CI) 8—43] and 22% (2—38), respectively. The NNT (number needed to treat) for granisetron (0—24 h) was 7 and for droperidol 8. The NNH (number needed to harm) (0—24 h) for headache and visual disturbances was 6 and 13 (NS) for granisteron and, 50 (NS) and 6 for droperidol.

Conclusion: The intensity of symptoms or the total number of disturbing symptoms did not decrease after prophylactic antiemetic treatment in a group of patients, but the profile of disturbing symptoms changed. The relevance of postoperative symptoms in terms of patients’ well-being needs to be addressed.
THE incidence of post-operative nausea and vomiting (PONV) varies from 24% to 75% in women undergoing gynecological surgery (1). The optimal strategy for the prevention and management of PONV remains disputed (2, 3). The use of prophylactic antiemetic treatment has been suggested to improve patients’ satisfaction (4). Nevertheless, it has remained unclear whether this is reflected in improvement in more objective measures of outcome such as overall patient satisfaction with their surgery experience, unanticipated admission, and the time required in returning to normal daily activity (4). Meta-analysis has shown that the efficacy of prophylactic antiemetic strategies is limited (5). Some studies have even suggested that antiemetic prophylaxis offers no advantage over timely symptomatic treatment (2—4). Thus, prophylactic antiemetics appear justified only in patients at increased risk of PONV (6—8). Risk scores have provided an objective risk assessment for PONV (9—12). Several studies have shown that the risk assessment derived from such scores is robust enough to be valid in other hospitals and under different conditions (13, 14).

In a study of all post-operative symptoms, incisional pain, headache, drowsiness, dizziness and nausea/vomiting were most frequently reported (15). To improve post-operative outcome and provide patients with the best possible care, the patient’s own assessment of their recovery (16) is required. Patients are best served by making choices based on evidence of drug effectiveness, side-effect profile, patient preference, and an associated reduction in total cost (6).

Our aim was to investigate how prophylactic antiemetic treatment, with two different well-studied and effective antiemetics, affects disturbing postoperative symptoms in a group of women at high risk of PONV.

Materials and methods
The study was approved by the Ethics Committee at the Faculty of Health Sciences, University of Linköping.

Participants
Women at high risk of PONV, scheduled for elective gynaecological surgery under general anaesthesia from May 2000 to January 2001, were recruited to the study. Inclusion criteria were: (i) women undergoing gynaecological surgery, such as abortion, dilatation & curettage, conization, hysterectomy, prolapse or laparoscopic surgery; and (ii) with a risk of >30%
for post-operative vomiting (PV) according to a score based on gender, age, smoking, history of motion sickness or PONV and length of anaesthesia (10).

Exclusion criteria were women who: (i) had experienced nausea and vomiting during the last 24 h before surgery; (ii) had taken antiemetics within 24 h before surgery; or (iii) were breast-feeding. For demographic details see Table 1.

**Objective**

To assess patients’ overall rating of intensity, incidence, and number of disturbing post-operative symptoms after prophylactic antiemetic treatment [Granisetron (Kytril1, Smithkline Beecham Pharma, Solna, Sweden) and Droperidol (Dridol1, Janssen-Cilag AB, Sollentuna, Sweden)] compared with a control group (control event) which did not have a prophylactic treatment but received timely treatment for PONV. No placebo group was used.

**Planned interventions, their timing, and measurements**

**Design**

This was a multicentre, prospective, consecutive, double blind and controlled clinical trial.

**Randomization**

After agreeing to participate in the study, the patients were randomised according to a randomisation list, generated by the pharmacy. Block randomization was used for nine patients in each group. Twelve patients were lost to follow-up. These were replaced by randomization with sealed envelopes.

**Prophylactic antiemetic treatment**

Group 1 received droperidol 1.25 mg, group 2 received granisetron 3 mg, and group 3 was a control event group. The drugs were administered intravenously over 2—5 min immediately before induction of anesthesia.

**Blinding**

All study drugs were diluted by a pharmacist to a fixed volume of 3 ml and marked with a coded label. The two groups treated with antiemetic were blinded to all involved in administration and anesthesia. The control group was not blinded to the anesthetist but to all other personnel. During analysis the treatment groups were concealed and only the labels provided by the
pharmacy identified which group the patient belonged to. When all material had been registered in the database, the statistical analysis was performed and the result section written before the pharmacy was contacted to break the code. Thereafter the names of the drugs were inserted in the text.

**Anesthesia**
Paracetamol 1 g and diazepam 5mg were given preoperatively. All patients were hydrated with 10 ml/kg of a balanced solution of glucose 2.5%. Anesthesia was induced with propofol 2mg/kg bodyweight, \( n=4413/495 \), or thiopentone 3—5mg/kg bodyweight, \( n=482/495 \). Alfentanil 0.5mg, \( n=4218/495 \), or fentanyl 0.2mg, \( n=4271/495 \), was used for intra-operative analgesia. Rocuronium (\( n=4245/495 \)) or suxamethonium (32/495) was used to facilitate tracheal intubation. For maintenance of anesthesia, 66% nitrous oxide in oxygen and isoflurane (\( n=42/495 \)), desflurane (\( n=413/495 \)) or sevoflurane (\( n=4269/495 \)) were used. Intravenous glycopyrrolate 0.5mg and neostigmine 2.5mg (\( n=4243/495 \)) was used for reversal of muscle relaxation. For more details on medication in the different groups see Table 1.

**Risk score for post-operative vomiting (PV)**
We used a table of risk scores derived from Apfel (10) with the individual risk factors. The risk score is based on gender, age, non-smoking, history of motion sickness or PONV and length of anaesthesia.

**Assessment of questionnaire**
None of the available assessment forms were sufficient for the purposes of our study, so we developed a specific assessment form for the study (Appendix 1). The questionnaire was given to 10 people, 2 doctors, 3 anesthetic nurses, 4 PACU nurses, and 1 statistician, A. Alkaissi et al. 2 who were asked to judge whether or not the questions were appropriate and reasonable. After some changes the questionnaire was considered valid. This questionnaire was then tested in a pilot study including 43 gynaecological surgery patients. Reliability was investigated with a test—retest in a further 18 patients. The test—retest correlation coefficient was between 0.77 and 0.95. The questionnaire was described as appropriate and gave a correct picture of their experience by 98% of the patients.

**Description of questionnaire**
The questionnaire was divided into two similar sets of nine questions, one set for each day. The questions were both open- and closed-ended. The
closed-ended questions had options on a scale (no, very mild, mild, moderate, bad, severe, very severe).

The open-ended questions required written responses from the patient. The patients were first asked if they had experienced a number of symptoms commonly reported after surgery (nausea/vomiting, incision pain, headache, abdominal pain, difficulties with accommodation, drowsiness and fatigue). Then, in the open-ended questions, patients were asked to report whether they experienced any other symptoms. Thereafter the patients were asked to report disturbing symptoms and to grade which of these were most disturbing (could be more than one). Patients were asked to grade the intensity of their overall suffering and the degree of pain.

Symptoms of very mild intensity were ignored in the primary outcome. The patients were classified as having disturbing symptoms if they rated them as moderate to very severe in intensity. The quality of sleep the night after surgery was asked for (good, slightly disturbed or poor). We did not ask directly about patients’ satisfaction, as this is a very complex psychological construct in health care. The simple ratings of patients’ satisfaction used in most anesthesia surveys are inadequate.

**Nausea and vomiting**

Nausea was defined as a subjective unpleasant sensation with awareness of urge to vomit. Vomiting was defined as a forceful expulsion of gastric content. Retching was defined as a spasmodic contraction of the abdominal wall without forceful expulsion of gastric content. Retching was classified together with vomiting in our study (18). Nausea was estimated using a 7-point scale of Lickert-type in which 0¼no nausea, 1¼very mild, 2¼mild, 3¼moderate, 4¼ severe, 5¼very severe and, 6¼worst possible nausea. If patients scored 1 or more at any time they were classified as having nausea. If at any time they scored 3 or more they were classified as having moderate to very severe nausea. The nurses recorded the frequency of vomiting while the patient was still in hospital. At home the patient noted this. The patients were asked to assess their degree of nausea after arrival at the post-operative care unit (PACU) and every hour until discharge from the PACU. When leaving the PACU all patients received a questionnaire where common symptoms reported after surgery were asked for, ending with some open questions. Nausea/vomiting were recorded at 20.00 hours on the day of surgery and at 20.00 hours on the first day after surgery.
Pain and analgesia
The patient assessed pain on a 7-point Lickert-type scale. Paracetamol 1 g four times daily was given to all patients. If further analgesia was required morphine hydrochloride was titrated in doses of 2mg intravenously. Day cases were asked to continue with paracetamol at home.

Assessment of other symptoms
Please see description of questionnaire above.

Procedure
A letter about the study was sent to the patient before admission. Patients were also informed verbally on the day of surgery and consent was obtained. A risk score for PV was established after the patient’s history and examination was complete. If the risk for vomiting according to Apfel (10) was >30% the patients were asked to participate in the study. The patients that accepted to take part in the study were randomized to one of three groups (n=165 for each group) for prophylactic antiemetic treatment or no treatment. An anesthetic nurse who was not involved in the assessment of treatment effect administered the drug intravenously immediately before induction of anesthesia. The 12 patients that were lost to follow up were replaced by others (see randomization). The questionnaire was later returned by mail to the hospital.

Indications for antiemetic treatment and rescue medication
If the patient reported nausea that was described as tolerable (up to 2 on the 7-point scale) no antiemetic was given. If nausea was described as intolerable (between 3 and 6 on the same scale) or the patient vomited twice, she was given dixyrazine 5mg intravenously. If PONV continued for more than 30min droperidol 1.25mg was used, and the next option was granisetron 1 mg. Eight patients in the control group wanted to have prophylactic treatment on the postoperative ward. These patients got antiemetics though they did not qualify according to our treatment criteria.

Cost of prophylaxis
The cost per patient of granisetron for a 3mg ampoule (one ampoule is used for each patient) together with the cost of a syringe and needle is 161 SKr (US$ 16). The cost per patient of droperidol is 11 SKr (US$ 1.1). The difference per patient between the two treatments is 150 SKr (US$ 15).
Cost of rescue medication
The cost per patient for one treatment of dixyrazine is 8 SKr (US$ 0.80). The cost per patient of granisetron for a 1mg ampoule is 98 SKr (US$ 0.98).

Statistics
Values are given as mean, SD, median and range, or number. Symptoms were analyzed and described in two ways first focusing on intensity of disturbing symptoms, based on question 7 in the questionnaire and then in a dichotomous fashion, that is there a symptom, yes or no? A logistic ordinal regression analysis was used to describe differences in intensity profiles for post-operative symptoms based on question 7 for the three groups. Number of symptoms was counted. The incidence of PONV and other specified symptoms was analyzed with Fisher’s exact test. A P-value below 0.05 was regarded as significant. A 50% reduction in PONV was considered of clinical interest. Accepting a significance of 0.05 and a power 0.80, the estimated sample size necessary to demonstrate such a difference was in the order of 154 persons with >30% risk of PV to draw meaningful conclusions. The number needed to treat (NNT) and number needed to harm (NNH) was used to compare the relative efficacy of a treatment (14, 19). The NNT identifies the number of patients that have to be treated to prevent one adverse event (4). The number needed to harm (NNH) identifies the number of patients that have to be treated to lead to one additional patient being harmed (19).

Results
Inclusion and exclusion numbers
Four hundred and ninety-five women (ASA I—III) were included in the primary data analysis. Twelve A. Alkaissi et al. 4 out of the 495 patients were lost to follow-up. Another 12 patients were added at the end of the study. Response rate was 98%.

Demographics
Demographics are presented in Table 1. The groups were similar regarding age, risk for PONV, anesthetic technique, and type of surgery.

Postoperative nausea and vomiting
The incidence of PONV was significantly lower in the granisetron and droperidol groups compared with the control (P<0.05) (Table 2). The number needed to treat (NNT) (0—24 h) to prevent one patient from having
PONV was 7 with granisetron and 8 with droperidol (Table 3). After prophylaxis with granisetron the number needed to harm (NNH) (0—24 h) for one extra patient to have a headache was 6 and for visual disturbances 12 (NS). After prophylaxis with droperidol the corresponding numbers were 50 (NS) and 6 (Table 3).

**Intensity of all post-operative symptoms**
The intensity of different symptoms differed depending on whether droperidol, granisetron or no prophylaxis was given, P<0.005. But the difference between the groups differed at different intensity levels and it is not possible to describe any of the groups as faring better (Table 4). Accumulative incidences of moderate to very severe (three or more on scale 0—6) disturbing symptoms experienced by patients are seen in Fig. 1. The incidence of disturbing symptoms declined with time but a substantial number of patients still had pain and fatigue on the first day after surgery.

**Symptoms reported**
There was a high accumulative incidence of symptoms reported (Fig. 2). In the figure only symptoms with an incidence more than 10% is given. Total number of symptoms reported was lower in the control group (P<0.05) than in the two treatments groups (Table 5). The number of moderate to very severe symptoms was similar (Table 5). Symptoms reported but not shown in Fig. 2 were in percent (%) in the three groups (droperidol, granisetron respective control group): dizziness and hypotension (4, 2, 2), difficulty in urinating (2, 2, 5), mental problems (2, 1, 2), expectorate, cough, dry mouth (5, 7, 2), feeling cold (2, 1, 1), abdominal distension (2, 6, 4), and bleeding (2, 1, 1).

**Costs**
The cost of prophylactic granisteron per effectively treated patient was SKr 1124 (US$ 112) and for droperidol SKr 84 (US $8). The average cost of rescue medication per patient was SKr 27 (US$ 2.7) for the granisetron group, SKr 20 (US$ 2) for the droperidol group and SKr 19 (US$ 1.9) for the control group.

**Discussion**
Prophylactic treatment with droperidol or granisetron reduced the incidence of PONV after gynecological surgery compared with the control group but did not decrease the total incidence of disturbing postoperative symptoms. Thus, the objectively measured reduction in PONV was not translated into
greater benefits for the patient even though we studied a group at high risk of PV. Similar results for other prophylactic PONV regimens have been described (4). Some disturbing symptoms such as nausea and vomiting decrease, but others such as headache and difficulty with accommodation increase significantly. As the intensity of disturbing symptoms varied in an inconsistent way it is not possible to describe any of the groups as faring better. Thus, instead of patients benefiting from prophylaxis, actual benefit is limited. The relative risk reduction (RRR) for PONV with granisetron or droperidol prophylaxis is 27% and 22%, respectively. The relative risk increase for headache is 63% after granisetron and 44% for difficulty with accommodation after droperidol. This has been described before (4, 5).

To measure PONV alone could be regarded as a surrogate end-point of patient satisfaction (2). The question is ‘Which symptom is the worst’ or ‘What is most important to you, immediate recovery or to avoid pain and/or PONV’ would be more adequate (20). It is important to incorporate patients’ preferences into decisions about care (19, 20). The key information required for this is ‘likelihood of being helped’ vs. ‘likelihood of being harmed (LHH). To obtain this information you need information about the number needed to treat (NNT) and number needed to harm (NNH) (19). Then LHH is (1/NNT) vs. (1/NNH). LHH may be presented to the patient who then can decide whether it is favorable enough to offset the side-effects and inconvenience of taking an antiemetic drug.

The rationale for giving prophylaxis could be as follows: if an antiemetic is given to a patient that will actually suffer from PONV, you have saved the patient an unpleasant experience. But then, can you be sure that this patient would have suffered from PONV? If not, then it is possible that you have given medication without effect and with extra cost. Furthermore it is possible that the patient will experience side-effects from the medication.

To increase the likelihood of choosing the right patient, a risk score of PONV could be used to identify patients who may benefit from prophylactic antiemetic treatment. Various risk scores for PV and PONV have been devised (9—11, 21) and prophylactic antiemetic treatment appears justified in patients at increased risk of PONV (6, 7). We have used Apfel’s risk score for PV (10). This score depends on the fact that the incidences of post-operative vomiting (PV) after inhalational anesthesia are mainly related to patient-specific characteristics such as female gender, being a non-smoker, having a history of motion sickness or PONV, being young, and the length of anesthesia (10). The relevance of these factors is supported by previous reports from several authors (9, 12, 21) and is superior to single predictor
models using a history of PONV or female gender alone (11). The risk score is useful both as a method to estimate an individual’s risk of PONV and as a method for comparing groups of patients in antiemetic trials (11). Though patients with a risk >30% of postoperative vomiting were entered into the study we could not demonstrate an improved outcome. This is in agreement with the findings of Scuderi (4) who advocates a timely treatment of symptoms instead of prophylaxis.

We used a score for vomiting when we designed our study (10). All patients are in a high-risk group for PV. When we are analyzing our data again, taking into consideration the simplified risk score of Apfel for PONV (11), the women in this study had on average three risk factors for PONV which is equal to an approximately 40—60% risk of PONV.

It seems reasonable to use the most effective, longest acting, side-effect free and least expensive drug when choosing an antiemetic (6). Granisetron, a selective 5-hydroxytryptamine type-3-receptor antagonist, possesses few side-effects (22) and has a good antiemetic effect (23, 24). It is believed to act specifically at 5-HT3 receptors on the vagal afferent nerves of the gut (25). The most commonly reported side-effects are headache, dizziness, flushing, increased hepatic enzymes and epigastric sensation (8). Headache was significantly the most common side-effect of granisetron in our study, 44% (72/165) (Table 3).

A dose—response curve for granisetron has been suggested for granisetron and PONV but has not been confirmed (26). When designing this study we wanted to be sure to give enough and hoped for an effect for 24 h. The effective dose of granisetron for the treatment of PONV was at that time suggested to be between 5 and 40 mikrog/kg (23, 24, 27). A low dose of granisetron was ineffective with a RR of 0.84 (0.68—1.04) while a high dose of granisetron led to a strong decrease with a RR of 0.30 (0.26—0.36) (26). The effective doses of granisetron were known to be 40 mikrog/kg for the treatment of cancer therapy induced nausea and vomiting (28). We know now better and as the work of Kranke et al. has shown we have been mislead by one dominating centre (26).

We used 3mg of granisetron (40 mikrog/kg). This has now clearly been demonstrated to be a high dose and in most countries a dose of 1mg of granisetron is recommended. The higher dose used by us may of course have increased the amount of undesirable side effects (29). When we compare our study to others that have investigated granisetron a similar profile can be observed but our incidence of headache is higher, 44%
compared with 17% (30, 31). On the other hand, the incidence of moderate to severe headache is only 7% and actually not higher than the incidence of headache in the groups treated with droperidol and the control group (Figs 1 and 2). Assuming that the ‘true’ incidence of headache is 17% then the high dose used by us could have resulted in 27% more patients having headache than could be expected by a dose of 1 mg. That would decrease the number of symptoms reported from the granisetron-treated group. But this does not change the conclusion of this study namely that a prophylactic treatment does not improve outcome counted in intensity of disturbing symptoms or in number of symptoms experienced.

Droperidol, a dopamine receptor antagonist, has a potent antiemetic effect (18). The most commonly reported side-effects are sedation, anxiety, drowsiness, dizziness, extrapyramidal symptoms (32) and lately reports on malignant ventricular dysrhythmias (33). Dose—response studies have concluded that 20 mikrog/kg is the optimal dose of droperidol when used as an antiemetic (34, 35). Side-effects may limit its suitability in anesthetic practice particularly in high doses (36). When lower doses of droperidol (e.g. 0.625—1.25 mg) are used (34, 37) adverse reactions are rare. We found that difficulty with accommodation was the most common side-effect of droperidol, 52% (85/165) (Table 3). This has been shown before (9, 38). There is convincing evidence from a systematic review that ondansetron is not more effective than 1.25mg of droperidol for PONV prophylaxis in adults (39). When the results of a systematic review were pooled by type of surgery, the 5HT3 receptor antagonist was superior to traditional agents in gynecological surgery only for the end-point of both nausea and vomiting (30).

This is a large randomized controlled clinical trial. We have aimed at a study on clinical efficiency and thus allowed the anesthetist to use the drugs he/she finds most appropriate for the patient. This means that the anesthetic technique is not totally standardized apart from the use of antiemetics. All drugs used were reported, as is the incidence of their use in each group. We have used a uniform method of data collection and an adequate number of subjects to have the necessary power to draw conclusions regarding clinical outcome (39) rather than surrogate endpoints (e.g. the occurrence of PONV) (2).

The cost-effectiveness of an antiemetic depends on its effectiveness, cost, frequency and severity of PONV, and whether the antiemetic is used as
prophylactic or rescue medication (40). In our study, seven patients needed to be treated with granisetron (3 mg) to prevent one patient from experiencing PONV. The equivalent number for droperidol (1.25 mg) was eight patients. The cost of the treatment was SKr 1124 (US$ 112) for granisetron and SKr 84 (US$8) for droperidol. That is a difference in cost per effectively treated patient of more than 100 US$. To identify a high-risk group, where PONV compromise surgery, delay recovery, cause hospital admission could be a way to increase the cost-effectiveness ratio (14, 21). Tools to predict risk of PONV could be useful in clinical practice (41) but the power to discriminate which individual will suffer from PONV is still limited and imperfect even when more predictors are considered (42).

In our study the efficiency of prophylactic antiemetics could be questioned as the patients reported disturbing symptoms to a similar degree in all groups. Only the profile of symptoms changed depending on if and which antiemetic treatment had been given. The patients who were given PONV prophylaxis experienced significantly more symptoms in total than patients who were not treated. It seems reasonable to state that the use of prophylactic antiemetic treatment in the present study was less cost effective than timely treatment of symptoms and that droperidol is more efficient than granisetron. Others have reported similar results (7, 40).

Summary and conclusion
The overall intensity and number of disturbing postoperative symptoms did not decrease after prophylactic antiemetic treatment in a group of patients at high risk of PONV, but the profile of disturbing symptoms changed. The relevance of disturbing postoperative symptoms in terms of patients’ well-being needs to be addressed.

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