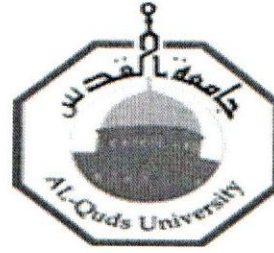


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"Compliance to iron supplementation among pregnant women receiving antenatal care at UNRWA clinics- West Bank"

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ABSTRACT

UNRWA provides iron and folate supplementation to all pregnant women for control of iron deficiency anemia. This program has been revised, only hemoglobin level measurement was done for assessing anemia situation among these pregnant women and compliance of these women was not considered in the program process.

This study aims to investigate the determinants of compliance to iron and folate supplementation intervention program for pregnant women at the UNRWA primary health care clinics in the West Bank during the year 2010. Its objectives were to determine the socio-demographic characteristics of pregnant women attending UNRWA primary health care centers in West Bank that is associated with compliance to iron supplementation, to determine the perception of pregnant women to the iron supplementation services provision and its association with compliance, to examine the iron supplementation supply, procedures and prescription in the UNRWA primary health centers that are associated with compliance; and to examine the association between the education and counseling provided to pregnant women by health care team at UNRWA health centers with compliance to iron supplementation.

A cross-sectional study targeted pregnant women attending three major clinics and three health points (mobile) in the West Bank. A sample of 810 women was selected by systematic sample from all women files in each center. An interview was done with these women using a pre-designed questionnaire and a consent form. All data extracted from the women' file and from the questionnaire were analyzed using SPSS version 15. Descriptive statistics was used to describe the data, for the univariate analysis, chi square (χ^2) test with 0.05 significant was used. Binary logistic regression model was used in the multivariate analysis.

The study findings showed that compliance rate was low (50.4%). The logistic regression showed that health education and counseling for proper use of iron supplement, benefits, information about possible side effects and clear instructions provided by the health staff is a significant factor associated with compliance (AOR 3.90; CI 95% 1.47 -10.34, $p < 0.05$). Also, pregnant women's perception, knowledge, and attitude towards iron supplement were significantly associated with compliance to iron supplement. The pregnant women who believed that iron intake is necessary were three times more compliant compared to others (AOR 3.109; CI 95% 1.67-5.76, $p < 0.05$). The women who experienced side effects

and felt too bored to take iron supplement were less compliant compared to others ($p < 0.05$). The antenatal follow up visits and availability of iron supplementation at clinics were significantly associated with pregnant women's compliance ($p < 0.05$).

In conclusion, the findings of this study showed that pregnant women's perception and the extent of their knowledge toward iron supplementation are important factors influencing the extent of their compliance to iron supplementation. Also, results demonstrated the importance and role of the health care system in determining this compliance. The study recommends that: decision makers at the UNRWA to take into account this study results to improve the quality of health care for women from vulnerable groups, in particular, to improve their status of iron deficiency. The study also recommends a process of modifying and upgrading the implemented health education and promotion programme that is currently used at UNRWA clinics. This developed program should suit these women's knowledge, perception and attitude towards the importance of the iron/folate supplementation program. Also, continuous training for health personnel is needed in parallel with modification in the process and services provided for women at the reproductive health clinics in the Agency, in particular, the supplementation programs.

ملخص الدراسة

تقوم وكالة غوث وتشغيل اللاجئين /الأونروا، بتزويد كافة النساء الحوامل بمكملات الحديد/الفوليت بغرض السيطرة على مرض فقر الدم الناجم عن نقص الحديد. ولدى مراجعة هذا البرنامج اقتصر تقييم حالة فقر الدم على قياس مستوى نسبة الحديد في الهيموغلوبين لهؤلاء النسوة الحوامل، حيث لم يأخذ البرنامج بعين الاعتبار مدى انتظام والتزام هذه النساء في تناول مكملات الحديد.

تهدف هذه الدراسة إلى تقييم محددات الالتزام ببرنامج التدخل في مكملات الحديد والفوليت المقدم للنساء الحوامل في العيادات الرئيسية التابعة للأونروا في الضفة الغربية خلال العام 2010. وتتمثل أهداف الدراسة في تحديد العوامل الاجتماعية الديموغرافية للنساء الحوامل المترددات على عيادات مراكز الأونروا للرعاية الصحية في الضفة الغربية والمرتبطة بالالتزام بتناول مكملات الحديد، معرفة وجهة نظر النساء الحوامل حول تقديم خدمات مكملات الحديد ومدى ارتباط ذلك بالالتزام في تناول مكملات الحديد، تحديد كيفية والية العمل على توفير مكملات الحديد من حيث الإجراءات والوصفات الطبية المتاحة في المراكز الصحية الرئيسية التابعة للأونروا والمتعلقة بالانتظام والالتزام في تناول المكملات، و تحديد آلية ومستوى ودور التنقيف والإرشاد المقدم للمرأة الحامل من قبل فريق الرعاية الصحية في المراكز الصحية التابعة للأونروا في الالتزام بتناول مكملات الحديد لدى النساء الحوامل.

هذه الدراسة عبارة عن دراسة مقطعية والتي استهدفت النساء الحوامل اللاتي يترددن على ثلاث عيادات رئيسية وثلاث نقاط صحية في الضفة الغربية. وشملت العينة 810 امرأة اللاتي تم اختيارهن من خلال أخذ عينة نظامية من كافة الملفات والبيانات المتواجدة في المراكز والخاصة بتلك النساء. تم إجراء مقابلات مع أولئك النساء باستخدام استمارة معدة مسبقاً، وبعد توقيع كل المشاركات على نموذج الموافقة بالمشاركة. تم تحليل البيانات باستخدام برنامج التحليل الإحصائي (SPSS) النسخة 15، وقد تم التحليل بعدة مستويات الوصفية، وتحليل العلاقات الثنائية بين العوامل باستخدام متغير مربع كاي (χ^2) حيث ضبطت القيمة الهامة على 0.05 ؛ ثم تم استخدام التراجع المنطقي الثنائي لتحليل النموذج الذي ركز على المحددات الرئيسية المؤثرة على التزام النساء الحوامل في تناول المكملات.

أظهرت نتائج الدراسة أن نسبة الالتزام بتناول المكملات بين مجموعة الدراسة كانت متدنية (50.4%)، و أظهر التراجع المنطقي أن التنقيف والإرشاد الصحي حول الاستخدام الأمثل لمكملات الحديد، ومنافعها، والمعلومات الأخرى المتعلقة بالأعراض الجانبية والتعليمات الواضحة المقدمة من

قبل الطاقم الصحي يعد عاملاً مهماً فيما يتعلق بمسألة الالتزام (AOR 3.9; 95%CI: 1.47-10.3, p<0.05)

كما أن وجهة نظر المرأة الحامل ومعرفتها بمكملات الحديد كان له دوراً أساسياً بالالتزام بتناول تلك المكملات؛ إذ أن المرأة الحامل التي تعتقد أن تناول الحديد هو أمر ضروري كانت التزامها أكثر بثلاث مرات مقارنةً بنظيراتها ممن لديهن اعتقاداً سلبياً حول ذلك (AOR 3.10; 95%CI:1.67-5.7, p<0.05) أيضاً كان التزام النساء اللواتي عانين من أعراض جانبية أو اللواتي شعرت بالملل من تناول الحديد أقل غيرهن من النساء. كما ارتبطت زيارات المتابعة ما قبل الولادة وتوافر مكملات الحديد في العيادات بشكل ملحوظ بمدى التزام تلك النساء بتناول المكملات (p <0.05). بينما لم يكن للعوامل الاجتماعية والديموغرافية أي صلة بمدى ذلك الالتزام.

أظهرت نتائج هذه الدراسة بان نظرة النساء الحوامل ومدى معرفتهن بمكملات الحديد من العوامل الهامة والمؤثرة على مدى التزامهن بتناول مكملات الحديد. وأيضاً أظهرت أهمية ودور نظام الرعاية الصحية في تحديد هذا الالتزام. وتوصى الدراسة بالأخذ بعين الاعتبار من قبل صانعي القرار في الأونروا نتائج هذه الدراسة لتحسين جودة الرعاية الصحية للنساء من المجموعات المعرضة للخطر وبالأخص تحسين مستوى حالة فقر الدم الناجم عن نقص الحديد. وتقتصر الدراسة تعديل وتطوير برنامج التعزيز والتثقيف الصحي المعمول به حالياً في عيادات الأونروا من خلال رفع مستوى هذا البرنامج ليتناسب مع مفاهيم وإدراك النساء لأهمية برنامج مكملات الحديد وذلك من خلال توفير التدريب المتواصل للطاقم الصحي، وتحديث آليات تقديم الخدمات الصحية المتعلقة بالصحة الإنجابية في الوكالة وبالأخص المتعلقة بالتوعية والإرشاد للمكملات الغذائية.

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Chapter one

BACKGROUND AND SIGNIFICANCE

1.1 Introduction

Compliance to medications is an important area in need for more attention and in-depth studies. The low compliance level to therapeutics regimen is a significant global public health problem confronting the medical professionals. Compliance is a major under-addressed cause of care gap and a major opportunity for improvement. Walid Gellad, a medical doctor, the lead **Research and Development Corporation (RAND)** researcher in the United State (USA) noted that, "*Poor medication adherence is an enormous public health problem. Finding solutions to this problem should be part of health reform discussions now and in the future*" (Barclay, 2009).

1.2 Background

Compliance to medication plays an important part in quality of health care and effectiveness of therapeutic regimen. The effectiveness of the drug is largely influenced by the non-compliance, which is believed to be affected by patient attitudes toward drugs (Sweileh and Arafat, 2006).

Different studies all over the world showed that compliance to medications is lower than standards .USA study estimated one-third to one – half of all patients in the United State do not take their medication as prescribed by their providers (Osterberg and Blaschke, 2005).

A WHO estimates that only 50% of patients suffering from chronic diseases in developed countries follow treatment recommendations (WHO, 2003).

There is different factors leading to non-compliance to medications and considered as barriers to good medication adherence. Barriers most commonly include patients believes about their medications (e.g. perceived risk of side effects), regimen complexity and cost (Greenberg, 2009).

We can achieve optimal medication adherence successfully. It requires appropriate prescribing, effective patient-provider communication, coordination among care providers and active engagement and participation by the patient. A lack of information, gaps in communication and a range of other barriers result in poor medication adherence and less than optimal clinical outcomes (Barclay, 2009).

Many literatures confirmed that non-compliance with iron supplement during pregnancy is a leading factor to gestational anemia, which is a multi-factorial disorder where several factors operate concurrently which might be a contributory cause of maternal mortality and morbidity (Lindsay, 2000; Tolentino and Friedman, 2007).

It is worth highlighting that the pregnant population is among the highest risk segment for iron deficiency and is considered a top priority for public policies. However, the prevalence of anemia is still high and there is widespread uncertainty in the field of study of this condition. A number of studies have examined the use of supplemental iron in pregnant women. However, few studies that address the side effects and adherence of iron supplements exist in the literature (Ariani; et al., 2009).

The compliance is a key factor in the success of iron supplementation intervention in anemia control program. Different barriers will affect the compliance to iron supplement among pregnant women as marital status, number of children, health programme knowledge, side-effects, perceived health benefits, and dislike of taste; some of these factors may serve as avenues for interventions to increase compliance, and ultimately Hemoglobin concentrations (Lutsey, 2006).

However, oral iron replacement is poorly tolerated by many patients and therefore, compliance with treatment regimens may be poor. (NAAC Review, 2008; Arcangelo and Peterson, 2006).

The experience of side effects that pregnant woman's associated with the tablets, misunderstanding that they needed to continue taking the tablets throughout pregnancy, and forgetfulness are the main determinant factors associated with compliance as showed by different studies in developing and developed countries as Senegal ,Canada, Denmark, Bangladesh, Philippines, Nepal. (Seck and Jackson, 2007; Nguyen; et al., 2009; Hyder, et al, 2002; Milman; et al., 2006; Lutsey, 2006; Kulkarni; et al, 2008).

Real world compliance with oral iron regimens is low (60%), emphasizing the need for better-tolerated preparations and/or dosing schedules (Zhou and Gibson, 2007).

There are no data on the compliance to iron supplement among pregnant women in West Bank, one study was done in GAZA in year 2001 for determining factors associated with compliance to iron supplementation among anemic pregnant women attending antenatal clinics of the Palestinian Ministry of Health(Al-Lilly, 2001). The main findings of this study were 56% an overall low rate of compliance to iron supplement among pregnant women, which was small higher than our study rate, and 33.6% in terms of prophylactic iron supplement coverage, the pregnant socio-demographic factors. iron supplement supply system related factors as availability of iron tablet in health clinics ,service providers factors including counseling patients on the benefit of iron tablet use and possible side effects play a role and associated with compliance to iron supplement among pregnant women (Al-Lilly, 2001).

1.3 Problem Statement

UNRWA program for prevention and treatment of iron deficiency anemia comprising medical iron supplementation, fortification for wheat flour distributed to a high priority target groups' children 6-36 months and pregnant Palestinian refugees, de-worming of schoolchildren and expanding the use of modern contraceptive methods (UNRWA, 2006).

Compliance to iron supplementation is important to be studied to evaluate the effectiveness of the program. Looking into different studies done to assess the degree of compliance and adherence to iron supplement used pill count, stool color, hemoglobin level, and free or purchased iron supplement for pregnant women as group interventions,. These studies stated that providing pregnant women with free iron supplement regularly, proper education, counseling by well-trained health team on the side effects and benefits of iron use are the most effective way to improve compliance to iron supplement in pregnant women (Seck and Jackson, 2007; Nguyen; et al., 2009 ; Hyder; et al ,2002 ; Milman; et al., 2006 ; Lutsey, 2006).

After revising the UNRWA iron supplementation programme implementation, only hemoglobin level measurement was done for assessing anemia situation among pregnant women. They depend on the coverage of iron supplementation to pregnant women as 90% as good indicator for compliance among these women. However, at the UNRWA program,

no clear criteria were set to evaluate the supplementation programme except hemoglobin level. Therefore, considering the compliance to iron supplementation, as an indicator of program effectiveness is a crucial need for such evaluation (Khader; et al., 2008).

1.4 Justification of Research Study

UNRWA is unique in its long standing and commitment to one type of refugees in the world, the Palestine refugees in five fields of area operations. The UNRWA health programme in the West Bank provides and leads directly primary health care services through 41 health centers mainly in the refugee camps, in addition to four emergency medical teams to reach refugees and non-refugees in the remote areas and areas behind the siege. Among the primary health care services, the UNRWA provides its clients with the Maternal and Child Health services in all health centers at West Bank. (UNRWA, 2009).

The maternal and child health services contain a program that aims to prevent and control anemia among pregnant women and children, this program is implemented through different interventions comprising medical iron supplementation, fortification of wheat flour and food, de-worming of schoolchildren and expanding the use of modern contraceptive methods. At UNRWA, there are technical guidelines for anemia control in all health centers in all fields; the health teams at health centers are providing the free iron and folate supplementation to each registered women in addition women are supported by proper counseling regarding the use of tablets and possible side effects, besides to laboratory test for hemoglobin and the good follow up procedures (UNRWA, 2009).

In the first visit to register as pregnant women at UNRWA health centers, the women is provided with folic acid tablet 5mg once daily for three months or about 12 weeks of the first trimester to reduce the risk of neural tube defects (NTD) and hemoglobin concentration measured by laboratory test on this same first visit and next on the 24 weeks of gestation. After the first trimester, the pregnant women started taking a prophylactic oral iron and folate tablet once daily (60-100mg iron daily) for the next six months of delivery to provide sufficient iron that meet the physiological requirements during pregnancy and to protect pre-existing iron storage (UNRWA, 2009).

In 1990, a nutrition survey was conducted by the WHO Collaborating Center, which was coordinated by Center for Disease Control and Prevention (CDC), Atlanta, USA. The

6.7 Conclusion

In conclusion, in this chapter we discussed our findings from the research study, which presented the main health care system factors that are associated with compliance to iron supplement among the pregnant women attended primary health care settings in West Bank. The findings of this study are consistent and correlated with other studies' findings in other developing and developed countries as observed in literature. For example, socio-demographic factors are considered non-significant factor affecting compliance, while the health education and counseling for proper use of iron supplement, benefits, information about possible side effects and clear instructions provided by the health staff is a significant factor associated with compliance. As well as the pregnant perception, knowledge, beliefs and attitudes toward iron supplement play significant variables associated with compliance to iron supplement. These variables should be taken with high concern that triggers series actions for further improvements that should have an impact on the maternal health services in general.

6.8 Recommendations

In the light of our results and conclusion, we have the following recommendations to improve the effectiveness of iron supplementation program at UNRWA health clinics:

- **For Health Policy development:**

1. To implement health promotion program targeted pregnant women and her family, including healthy nutrition subjects related to anemia and the benefits of regular iron supplementation intake. This could improve the pregnant knowledge about anemia and the serious maternity prenatal and postnatal complications, best benefit for iron supplements regular intake, and proper counseling for the correct use of iron tablets as both prophylactic or treatment indications
2. On the other hand, if we can provide the pregnant women with a sachet pack with calendar to remember the pregnant with the day time for iron pill intake would improve the compliance and decrease the forgetfulness factor associated with