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Al-Quds University**



**Adverse Drug Reactions among Elderly Clients at
UNRWA-PHC Centers**

Abu-Baker Tawfiq Satoom

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**Adverse Drug Reactions among Elderly Clients at
UNRWA-PHC Centers**

**Prepared by:
Abu-Baker Tawfiq Satoom**

Bachelor of Pharmacy – Al Azhar University – Palestine

Supervisor: Dr. Khitam Abu Hamad
PhD, Associate Professor, School of Public Health

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**Thesis Approval
Adverse Drug Reactions among Elderly Clients at UNRWA-PHC
Centers**

Prepared By: Abu-Baker Tawfiq Satoom
Registration Number: 21212209
Supervisor: Dr. Khitam Abu Hamad

Master thesis was submitted and accepted, Date:.....

The names and signatures of examining committee members were as follows:

1- Head of committee: Dr. Khitam Abu Hamad	Signature
2- Internal Examiner: Dr. Yehia Abed	Signature
3- External Examiner: Dr. Abedenaser Jasser	Signature

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With respect,

Abu-Baker Tawfiq Satoom

Declaration

I certify that this entire thesis submitted for the Degree of Master, is the result of my own work, except where otherwise acknowledged, and that this study (or any part of the same) has not been submitted for a higher degree or qualification to any other university or institution.

Signed

Abu-Baker Tawfiq Said Satoom

/ /

Abstract

As results of increasing life expectancy, the percentage of older population is growing fast. The increasing number of elderly and the increasing drug use among the elderly especially who have chronic disease, emphasizes the need to continuously monitor drug utilization in this group. This study aimed to explore the issue of adverse drug reactions among older people presenting at UNRWA-primary health care centers, also this thesis aimed at identifying individuals at risk of adverse drug reactions.

A mixed- methods approach was used, in which data has been triangulated. The study included three groups; the first is 694 prescription drugs of older people had a mix of health problems and included at least 5 drugs which randomly selected from ten UNRWA-PHCs computer databases in the Gaza governorates. The second group was in-depth interviews with three Non-Communicable Disease physicians that selected randomly from three centers and the third group consists of three focus group discussions that conducted with purposely selected 23 participants. The Statistical Package for the Social Sciences Program has been used for data analysis including cross tabulation, percentages and mean for the quantitative data collection entry and analysis in addition to independent sample t-test while open coding thematic technique was used for the qualitative data.

Findings revealed that 61.8% of participants were females, the mean age for females was (69.18) years (SD: 7.18), and for males was (68.36) years (SD: 7.21). About 61.3% of participants were between 60 – 69 years. With regard to participant's chronic morbidity, complicated hypertension with diabetes mellitus type 2 was the highest prevalence among elderly (52.6%), followed by hypertension (35.2%) and diabetes mellitus type 2 disease (5.8%). complicated hypertension with diabetes mellitus type 2 is higher among female than male patients (56.9% versus 45.2%)

Concerning number of drugs prescribed in prescriptions, the minimum number was 5 drugs with a mean number of drugs per prescription was 6.78 drug and SD= 1.88. About 29.3% of prescriptions contain 5, 24.6% had 6 drugs, and 19% had 7 drugs, and 27.1% had 8 drugs more. With regards to most drugs prescribed in elderly prescription, Aspirin was the most commonly drug prescribed as it was found in 87.5% of prescriptions, followed by Enalapril which represent 63.7% of prescriptions, and Paracetamol found in 59.4% of prescriptions, while the lowest included digoxin found in 6.3% of prescriptions.

By using drug checker to examine the possibility of adverse drug reactions between drugs, 93.9% of prescriptions included in the study show different types of adverse drug reactions; a significant adverse drug reactions were shown in 77.8% of prescriptions, in addition to serious ADR appears in 69.2% of prescriptions, and minor adverse drug reaction shown in 72%. Meaning that adverse drug reactions found in 93.9% of prescriptions that prescribed in UNRWA clinics. Interaction in 8 prescriptions included 8 drugs and more was serious in 87.2% of prescriptions, and was significant in 94.1% of prescriptions.

The study concluded that majority of health providers working in UNRWA clinics are not knowledgeable about ADRs. The prescription behavior requires further improvement. There is a need for training and monitoring programs accompanied by supervision and learning.

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List of Abbreviations

ADE	Adverse Drug Event
ADRs	Adverse Drug Reactions
CDSS	Clinical Decision Support System
CME	Continuing Medical Education
DM	Diabetes Mellitus
EDL	Essential Drugs Lists
GGs	Gaza Governorates
GPs	General Practitioners
GS	Gaza Strip
HTN	Hypertension
MOH	Ministry of Health
MSCP	Melbourne School of Continental Philosophy
NCD	Non Communicable Disease
NGOs	Non-Governmental Organizations
NSAIDs	Non-Steroidal Anti-Inflammatory Drugs
OTC	Over the-Counter
PCBs	Palestinian Central Bureau of Statistics
PHC	Primary Health Care
PNA	Palestinian National Authority
PNF	Palestinian National Formulary
SPSS	Statistical Package for Social Sciences
SSRIs	Selective Serotonin Reuptake Inhibitors
TPMT	ThioPurine MethylTransferase
UNRWA	United Nations Relief and Works Agency For Palestine Refugees in The Near East
WB	West Bank
WHO	World Health Organization

Chapter (1) Introduction

1.1 Background

As results of increasing life expectancy and decreasing mortality rates, globally, the older population is growing fast. Currently, every ninth person in the world is aged 60 years and above. A definition of older person varies between countries; in developed countries the chronological age of 60 or 65 years, which is equivalent to retirement age, is the beginning of elderly period. While, in developing countries other aspects take place, such as changes in capabilities and in social role (Gorman, 2000).

By 2050, the number of elderly people will increase sharply to one in five (WHO, 2011). This increasing in number of elderly population has tremendous social, cultural, and economical implications. With regard to healthcare services, older people utilize far more healthcare services than younger people.

Generally, elderly people are more susceptible to medical disorders, in particular chronic diseases such as Hypertension (HTN), arthritis, heart diseases, and Diabetes Mellitus (DM). Thus, more health care providers and resources are required to meet the high demand for health services. Medication is one of the main health resources required to meet its demand. Administration of multiple medications or administration of more than indicated medications is called "polypharmacy." In addition to the financial burden of polypharmacy, it is one of main risk factors of Adverse Drug Reactions (ADR) among elderly people (Sharif et al., 2008).

Polypharmacy is determined either as the simultaneous use of a certain number of medications (5 or more) (Fialova et al., 2005) or as the unnecessary overuse of drugs (Avorn, 2004). It can refer to perceptions of prescribers or consumers and may or may not include Over the-Counter (OTC) remedies.

Elderly people are more likely to be admitted to hospitals because of ADR than any other age groups; this due to overuse of prescription of medication. Between 4% (Veehof et al., 2000) and 34 % (Barat et al., 2000) of people aged 65 years and above are affected by polypharmacy. A number of studies investigated determinants of prescribed polypharmacy and reported relevant socio-demographic factors (age, gender, education, employment and socioeconomic status), (Odubanjo et al., 2004) influence of disease (multi-morbidity,

multiple complaints, well-being and chronic illness) (Al-Windi, 2005) and health system factors (prescriber related, perceived patient pressure and free access to medications) (Little et al., 2004). The effect of polypharmacy not only of the patient himself but also affect on the health system, according to Tangiisuran and colleagues (2009), for every dollar spent on medications in geriatric care nursing facilities, 1.33 dollars are required for the treatment of drug's related morbidities and mortalities. Fortunately, about one-half of ADR among elderly people could be prevented by improving the prescribing process (Tangiisuran et al., 2009). So the rational use of medicines is a crucial part of the national health policy and access to medicines is one of the vital tools needed to improve and maintain health.

Escalating pharmaceutical costs, new budgetary demands and a growing awareness of health risks for patients with polypharmacy exert pressure on General Practitioners (GPs) to reduce prescription of medication. This necessitates a good understanding of how multiple drug use comes about.

In the Gaza Strip (GS), the situation of elderly people, morbidity and mortality, is different when compared with global countries, this due to that GS lived under siege, closure, and poor health infrastructure. The prevalence of chronic diseases among older people appears to be high, as 68.6% of older people (60 years and above) in the GS have chronic diseases (PCBS, 2015). In addition, United Nations Relief and Works Agency For Palestine Refugees in The Near East (UNRWA) reported that clients aged 40 years old and above represented 91% of all clients who utilized services of the Non Communicable Disease (NCD) clinics within the Primary Health Care (PHC) centers (UNRWA, 2016).

Regardless this figure and increasing chronic diseases in elder people, most research studies focused on women in reproductive age and children as they mostly considered as the vulnerable groups. And some of international studies focus on drug use by the elderly in different countries. However, most of these studies focused on the prevalence and determinants of polypharmacy, while this thesis aimed to focus on the drug interactions due to polypharmacy in addition to the prevalence of polypharmacy.

1.2. Research problem

The use of polypharmacy is associated with well-known ADR. The efficacy of drugs may be reduced as results of different factors such as prescribing, dispensing and administration errors, in addition to patient non-adherence, and medication ineffectiveness. Prescribing

errors include irrational, inappropriate drug use and ineffective prescribing, under-prescribing, and overprescribing (Hovstadius, 2010). As will be discussed later, ADR includes six categories: dose-related, non-dose-related, dose-related and time-related, time-related, withdrawal, and failure of therapy (Edwards and Aronson, 2000).

With regard to elderly people, globally, many research studies have shown a correlation between ADR and age (WHO, 2007). From the researcher work experience at private pharmacies, the researcher noticed and documented several cases of prescription errors that contributed to ADR, in particular among elderly clients. Within the context of GS, according to the researcher knowledge, no studies have examined the issue of ADR among elderly people in the GS, in particular among elderly people who are taking multi-drugs, polypharmacy. Thus, this study will be the first one to explore the issue of polypharmacy and ADR among elderly people in the GS.

1.3. Justification of the study

The prevalence of chronic diseases among older people in the GS appears to be high, as 68.6% of older people (60 years and above) have chronic diseases, and women are more susceptible to develop chronic diseases than men (75.1% of females vs. 64.7% of males) (PCBS, 2015).

According to UNRWA 2016 annual report, clients aged 40 years old and above represented 91% of all clients who utilized services of Non Communicable Disease (NCD) clinics within the Primary Health Care (PHC) centers (UNRWA, 2016). Out of the total clients, 65 % of patients were female, reflecting the high utilization of health services by females and high accessibility of the UNRWA health services (UNRWA, 2016). The main health problems are HTN with a 44.5% and DM with 17.3% of the total registered patients and combination of HTN and DM with a 38.2% of total registered patients (UNRWA, 2016). According to the Palestinian Family Survey, which was conducted in 2010, elderly people rated their health conditions as: average with 44% of them, less than good with a 17 % of them, and bad with a 21 % of the total. Consistent with previous results, more women reported having less than good or poor health compared with men (PCBS, 2015).

GS is a young society, as 44.3% of its population is aged less than 15 years old (PCBS, 2015). On the other hand, only 3.7% of its population is aged 60 and more (PCBS, 2015). In the past two decades, the improvement in the socio-economic conditions and high