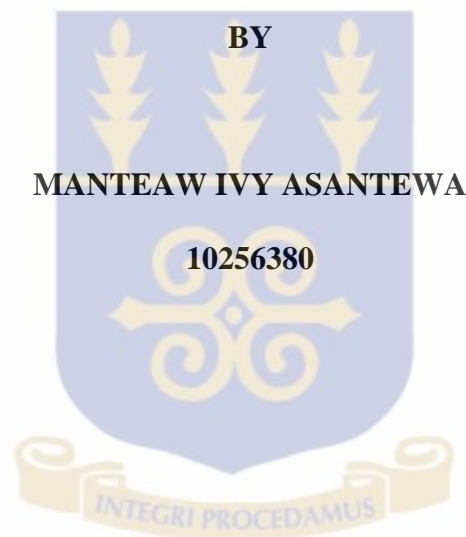


**SCHOOL OF PUBLIC HEALTH
COLLEGE OF HEALTH SCIENCES
UNIVERSITY OF GHANA**

**DISPENSING PRACTICE OF PHARMACY STAFF IN THE PROVISION OF
EMERGENCY CONTRACEPTIVE PILLS**



**A DISSERTATION SUBMITTED TO THE SCHOOL OF PUBLIC HEALTH,
UNIVERSITY OF GHANA, IN PARTIAL FULFILLMENT FOR THE AWARD
OF MASTER OF PUBLIC HEALTH (MPH) DEGREE**

JULY, 2015

DECLARATION

I, Ivy Asantewa Manteaw, declare that this dissertation is my own work. All works used therein have been duly acknowledged at the point of use and that a part or whole of this dissertation has not been presented elsewhere for another degree.

.....
Manteaw Ivy Asantewa
(Student)

.....
Date

.....
Professor Augustine Ankomah
(Supervisor)

.....
Date



DEDICATION

This work is dedicated to the memory of my late brother, Felix Anakwa Manteaw.

I love you but God loves you most.



ACKNOWLEDGEMENT

Firstly, my greatest gratitude goes to God for his grace that has made me live to see the successful completion of this work- Ebenezer, thus far have you brought me.

Also to my supervisor and Head of the Population, Family and Reproductive Health (PFRH) Department, Professor Augustine Ankomah, for being a real father to me throughout this program: I really appreciate you.

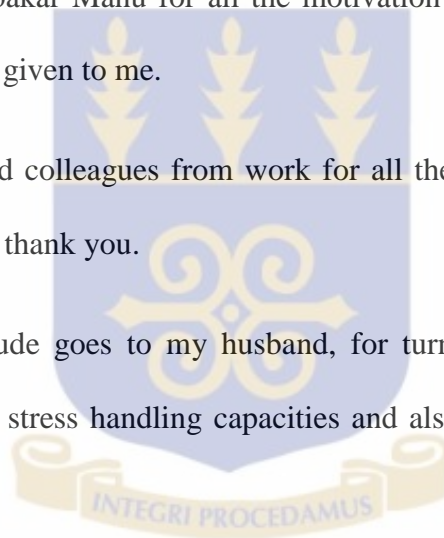
I also wish to thank the Dean (Professor Richard Adanu) as well as faculty and all other staff members of the School of Public Health , University of Ghana, especially Dr. Samuel Bosomprah and Dr. Abubakar Manu for all the motivation and selfless pieces of advice and constructive criticism given to me.

To my family, friends and colleagues from work for all the support and care shown me during this study period: I thank you.

A special heartfelt gratitude goes to my husband, for turning up the stress levels and enabling me to know my stress handling capacities and also for the subsequent support, love and care.

To my mystery clients who were willing to go the extra mile to bring in the data and also to the President of the Community Pharmacy Practice Association.

Last but definitely not the least, to all my colleagues who in diverse ways helped in making this past year a memorable and colourful one as well as making my life bearable on campus, notably Dr. Emmanuel Adofo, Isaac Nkrumah, Bertha Agbodeka, Emmanuel Kona and Callista Egwungu: God bless you all.



ABSTRACT

Emergency Contraceptive Pills (ECPs) are being used as regular contraception even though they should rather be used as a bridge to regular contraception. This could be achieved if pharmacy staff were to dispense ECPs such that clients would be informed and encouraged to access some form of regular contraception. This would involve good history taking as part of assessment prior to ECP provision by pharmacy staff. This study was aimed at assessing the dispensing practice of pharmacy staff in the provision of ECPs.

Employing the mystery client approach, this study was a quantitative, cross-sectional study in which a 19 item pre-coded data collection instrument was used to assess the dispensing practice of 220 randomly selected pharmacy staff in Accra as they provide ECPs on over-the-counter (OTC) basis. Data were analysed through Chi-square testing and multivariate logistic regression using STATA version 13.

The results indicate that even though counselling is inadequate pharmacists are more likely to exhibit high quality dispensing practice (HQDP) as compared to the other groups of pharmacy staff assessed. Generally, pharmacy staff are friendly and clients are served upon arrival. Also, pharmacy staff tend to exhibit HQDP if the client is third party.

In conclusion, ECPs are not being used as a bridge for future/regular contraception in Ghana as most pharmacy clients are not being educated on the need for regular contraception post ECP use. This is due to the inadequate knowledge base of most pharmacy staff on this need.

Recommendations offered include continuing professional education for pharmacy staff especially in the dispensing of OTC drugs such as ECPs. Development of standard checklists or protocols in the dispensing of ECPs should also be looked at and considered by the relevant authorities so that all pharmacy staff would be trained in its use. Further research is also needed in this area possibly a qualitative one to further explore the exact interaction between pharmacy staff and MCs.

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LIST OF ABBREVIATIONS

ACOG	American College of Obstetricians and Gynaecologists
EC	Emergency Contraception
ECPs	Emergency Contraceptives Pills
F/P	Family Planning
HQDP	High Quality Dispensing Practice
LNMP	Last Normal Menstrual Period
LQDP	Low Quality Dispensing Practice
MCs	Mystery clients
OTC	Over-the-counter
WHO	World Health Organization

CHAPTER ONE

1.0 INTRODUCTION

1.1 Background of the Study

Emergency Contraceptive Pills, ECPs (also called postcoital pills or morning after pills) are taken to prevent pregnancy after a woman has had unprotected sex, in cases of contraceptive failure or misuse and also in cases of sexual assault (American College of Obstetricians and Gynaecologists (ACOG) recommendations). There are three (3) types of ECPs: Progestin-only pills, Combination pills and Ulipristal. The recommended type however, is the progestin only pills and specifically the Levonorgestrel containing pill. The recommendation is that it should be taken as a single dose of 1.5mg within 5days (120 hours) of unprotected sex although it can also be taken in 2 divided doses 12 hours apart (WHO, 2012).

ECPs work primarily by ovulation suppression and prevention and are not effective if the woman is already pregnant. Based on literature from 9 studies involving 10,500 women, ECPs are 52-94% effective, although it is known to be highly effective when taken soon after unprotected sex. (WHO, 2011; WHO, 2012).

ECPs provide contraception only for the act of sex that took place up to 5days earlier. In fact, the risk of pregnancy is increased right after taking ECPs due to the ovulation delay it causes. Therefore in order for a woman to stay protected from pregnancy, she needs to start a regular method of contraception immediately. Side effects of ECPs include nausea, headaches, vomiting, breast tenderness, abdominal pains and menstrual irregularities. Due to the increased risk of pregnancy and menstrual irregularities, repeat doses are not recommended especially within the same menstrual cycle (WHO, 2011).

ECPs thus provide a bridge/pathway for a woman to use regular contraception therefore meeting her contraceptive needs.

In various developed countries such as Australia, there are protocols regarding the dispensing practice of ECPs and self-medications in general, to clients by pharmacy staff. (Queddeng, Char & Williams, 2011; Brata, Gudka, Schneider and Clifford, 2014). In a study conducted among 40 community pharmacies in UK, Glasier, Manners, Loudon & Muir (2010) found out that quality of consultation in pharmacies on Emergency Contraceptives were good but only a minority of respondents discussed ongoing contraception. This could lead to repeat use. Erhle and Sarker (2011), in studying the knowledge and practice of 93 pharmacy employees in Managua, Nicaragua, also found out that personnel frequently dispensed ECPs but needed more education in order to properly counsel their clients. In Kenya, Keesbury, Morgan and Owino (2011) in a study conducted by interviewing clients of private pharmacies in 5 urban areas, revealed that half of the interviewees bought ECPs at least twice in the preceding month of the study.

In Ghana, Emergency Contraception (EC) is one of the least known contraceptive methods among the populace. In 2008, the Ghana Demographic and Health Survey (GDHS) revealed that only 35.4 % of women and 37.1% of men know about EC. (Ghana Statistical Service, 2008). ECPs are considered over-the-counter (OTC) drugs and can be accessed in pharmacies or at family planning facilities without a prescription. (Steiner, Raymond, Attafuaah and Hayes, 2000). Earlier this year, the Planned Parenthood Association of Ghana (PPAG) with support from the West Africa Health Organization (WAHO) undertook a study among 1013 female students of three tertiary institutions in

Ghana. It was found that about four out of every ten female student use ECP after unprotected sex but the knowledge and usage of regular contraception was generally low (PPAG & WAHO, 2015). The pharmacies are a preferred option for citizens to access ECPs as about four out of every ten women use it (Ghana Statistical Service, 2008). It is therefore important that pharmacy staff dispense ECPs in a proper manner, in order to avoid inappropriate repeat use.

Documented literature for effects of repeated use of ECPs in Ghana is nonexistent even though repeat use has been identified in the Ga- East Municipality of the Greater Accra Region (Afreh, 2009).

This study intends to find out whether due process is being followed by pharmacy staff in Accra when they dispense ECPs to their clients.

1.2 Problem Statement

In 1996, ECPs were adopted by the Ministry of Health in the Reproductive Health Service Policy and Standards and made available for sale at pharmacies and in clinical settings. However, with a high client to provider ratio which causes an increase in waiting time in clinical settings, clients would rather acquire ECPs over-the-counter at pharmacies (Anderson & Blenkinsopp, 2006).

In a study conducted in 2009 in the Ga West Municipality on the use of Emergency Contraception, Afreh identified repeat use of ECPs and recommended that providers must encourage the use of regular contraception especially in repeat users. Also, results from a study conducted by Baiden, Awini & Clerk in 2002 among 194 students of the

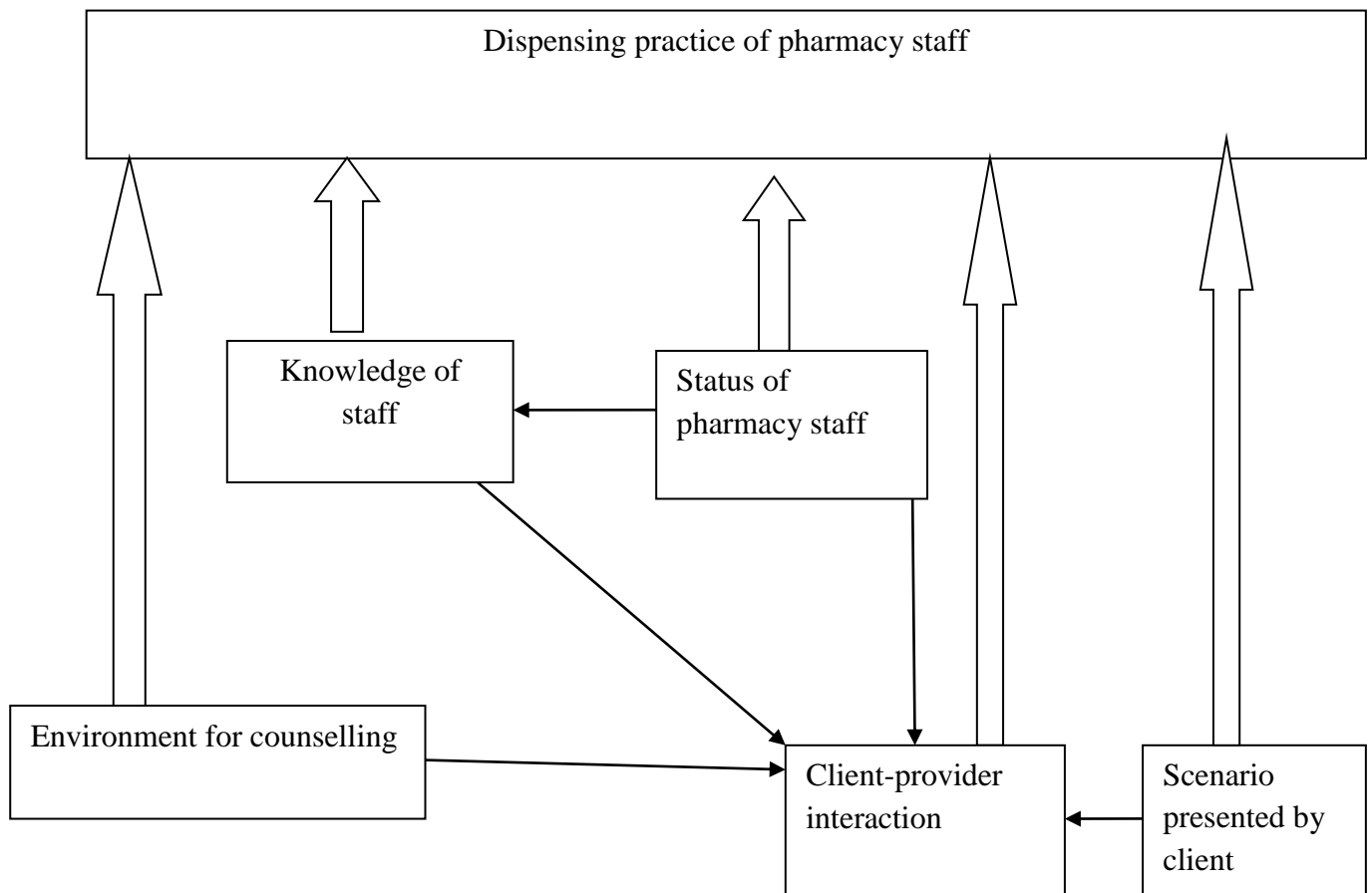
University of Ghana indicate that majority of respondents had heard of ECPs from the media (radio and television) but knowledge of the correct timing for taking it was quite low. Thirteen years on, with the upsurge of social media and other forms of media in the country, advertisements about ECPs on radio, television, internet and in print are very common. However, these commercials fall short of the need for ECPs being used as per its name: for emergencies. Besides, a study in the United Kingdom revealed that even when women access information on ECPs via the internet they still want to talk to a service provider (Wu, Gipson, Chin, Wynn, Cleland, Morrison & Trussell, 2007). Are pharmacy staff providing this information and filling in the gap left by advertising companies?

This study aims at examining the dispensing practices of pharmacy staff in the provision of ECPs in Accra.

1.3 Research Questions

1. Do clients receive good quality of care in the provision of ECP?
2. Are provider-client relationships good in the provision of ECPs?
3. Are clients given advice on regular contraception?
4. Do clients undergo good counselling sessions before the provision of ECPs?

1.4 Conceptual Framework



Source: Author's Construct

1.4.1 Description of Conceptual Framework

The Dependent variable is dispensing practice of pharmacy staff. The independent variables are environment for counselling, knowledge of pharmacy staff, status of pharmacy staff, scenario presented by client and client-provider interaction.

Dispensing practice of pharmacy staff is directly influenced by environment for counselling, knowledge of pharmacy staff, status of pharmacy staff, scenario presented by client and client-provider interaction. The status of the pharmacy staff also influences the knowledge of staff which in turn influences client-provider interaction and dispensing practice of pharmacy staff. Client-provider interaction is also influenced by

the scenario presented by the client, environment for counselling, status of pharmacy staff as well as knowledge of pharmacy staff.

1.5 Justification of the Study

This study would help to improve the counselling skills of pharmacy staff in the provision of ECPs by helping to standardize the quality of care in the provision of ECPs by pharmacy staff. This might be done possibly by the formulation of protocols to this effect and its enforcement. Results from this study would also add to the body of knowledge about ECP use in Ghana.

1.6 Objectives

Generally,

To assess the dispensing practice of pharmacy staff in the provision of ECPs in Accra.

Specifically,

1. To assess the quality of counselling given to clients by pharmacy staff before provision of ECPs.
2. To assess the information given by pharmacy staff about using ECPs.
3. To assess the provider-client relationship in the provision of ECPs.
4. To assess factors that influence the dispensing practice of pharmacy staff in the provision of ECPs.

1.7 Operational Definitions

Emergency Contraceptive Pills- Progestin-only hormonal contraceptive pills which are specially formulated to be used as such.

Pharmacy- shop located in a community which is licensed by relevant authorities to sell drugs prescribed or non-prescribed and having a pharmacist responsible for the provision of these services.

Pharmacy staff- any individual who dispenses drugs at a pharmacy.

Status – the position of the pharmacy staff (a pharmacist, a pharmacy attendant or a dispensing technician etc.).

Repeat use-use of ECPs more than once within one menstrual cycle.

CHAPTER TWO

2.0 LITERATURE REVIEW

2.1 Dispensing practice of Pharmacy Staff

In the provision of OTC drugs, patient's assessment and provision of advice is considered. With regards to patient's assessment, it is expected that pharmacy staff take a comprehensive history from the client to be able to elicit eligibility for the requested drug. Provision of advice borders on the pharmacy staff providing information about the requested drug. Here, information such as possible side effects and dosage are provided (Berardi, Ferreri, Hume, Kroon, Newton, Popovich ... & Tietze, 2009)

In developed countries such as Australia, a protocol has been developed for the provision of ECPs. In 2011, a study conducted by Queddeng, Chaar, & Williams assessed the use of this protocol in a hundred community pharmacies over a five week period. The mystery client approach was used and it revealed that only 18% of clients were completely assessed for eligibility even though 95% of the pharmacies visited provided the ECPs. They concluded that there is the need to standardize and simplify the protocol. It has also been established that comprehensive history taking among pharmacy staff in Mexico is low and inconsistent (Becker, Garcia, & Ellertson, 2004)

In a study of the dispensing practice of staff of 60 drugstores in Thailand with the use of both questionnaire and mystery clients, Ratanajamit & Chongsuvivatwong (2001) found out that provision of oral contraceptives and ECPs (specifically in the area of history taking and ECP indication) were significantly better in pharmacists than in non-pharmacists.

It has also been found that even though attitude towards ECP among pharmacists were positive, counseling given to ECP clients were inadequate (Apikoglu-Rabus, Sancar, Okuyan, & Izzettin, 2011).

Knowledge level especially regarding mode of action and side effects of ECPs was found to be low in pharmacists in South Dakota thus the knowledge to be imparted to clients was also expected to fall short. This was revealed in a study in which mailed questionnaires were sent to over five hundred pharmacists. Also evident from this study was the relatively low levels of support for OTC ECP provision among pharmacists in small communities. It was therefore recommended that a form of continuous professional development should be organized to ensure that better practice are exhibited in the provision of OTC ECPs (Van Riper & Hellerstedt, 2005).

In assessing the dispensing practice of pharmacists in Gold Coast, Australia, it was revealed that there were gaps with respect to the areas of history taking and advice provision among pharmacists. (Higgins & Hattingh, 2013)

In Kenya, Liambila, Obare, & Keesbury (2010) detected disparities between dosage and side effects across pharmacies used by mystery clients. They also found no significant difference in information provided to clients across the different scenarios presented. However, a study conducted among University students in Cameroon revealed that accurate information from health professionals is essential for clients to initiate or continue using regular contraception (Kongnyuy, Ngassa, Fomulu, Wiysonge, Kouam & Doh, 2007).

In a randomized control trial conducted in Jamaica in which ECPs users were given coupons for future contraceptive use after the ECP use, it was concluded that over 40%

of the intervention group adopted male condoms. Thus even though the intervention did not work because future contraception did not include condom use, it revealed that most ECP users were condom users and are therefore at risk of repeat use with its attendant increase in unintended pregnancies. This buttresses the need for good counselling skills of the pharmacy staff in providing ECPs (Chin-Quee, Wedderburn, Otterness, Janowitz & Chen-Mok, 2010).

2.2 Continuing/Regular Contraception

Initiation of regular contraception is essential following ECP use if unintended pregnancy is to be avoided. This is due to an increased chance of pregnancy brought about by the ovulatory suppression effect of the ECPs. (Salcedo, Rodriguez, Curtis, & Kapp, 2013). ECP provision therefore, serves as a bridge to regular and effective contraceptive methods (Cameron, Glasier, Johnstone, & Rae, 2014). Thus any service provider who provides ECPs should, as a part of best practice, counsel their clients on regular contraception.

In a study to compare ECP provision at clinical settings and pharmacies in London, Black, Mercer, Kubba & Wellings (2008) concluded that clients were better informed about continuing contraceptive use at the clinical setting than at the pharmacies. However, a study conducted in Sweden among eight hundred randomly selected young women revealed that accurate information about and attitude towards ECPs by health professionals would help clients decide on future use of contraception. (Larsson, Eurenus, Westerling, & Tydén, 2004). Majority of Australian Pharmacists in a study agree that it was their obligation to counsel ECP clients on regular contraception.

(Hussainy, Stewart, Chapman, Taft, Amir, Hobbs... & Smith, 2011). In a special report written on a project survey in which almost 12,000 women in the Washington State of the United States of America received ECPs from pharmacies, most of the respondents indicated that the area of future contraception was not well addressed during their interaction with the pharmacist (Gardner, Hutchings, Fuller & Daning, 2001)

In a study conducted to ascertain the existence of repeat use of ECPs in Kenya, clients revealed that they would have wanted more information during the consultation especially regarding efficacy and side effects so as to make a decision in respect of regular contraception (Keesbury et al, 2011).

2.3 Environment for Counseling

ECP being a contraceptive implies that some form of counselling is needed especially concerning its administration and expected side effects. Van Riper & Hellerstedt (2005) revealed that pharmacists in community shops were more comfortable counselling clients on ECPs thus providing a good environment than pharmacists in clinical settings.

A study in Australia revealed that 90% of simulated clients were provided privacy during their counseling sessions at the community pharmacies (Ratanajamit & Chongsuvivatwong, 2001). Hariparsad (2001) also found out that a counseling area was provided in some pharmacies in South Africa whilst Hussainy et al (2011) also concluded that pharmacists in Australia counselled only when confidentiality was assured.

Furthermore, a study by Schneider, Gudka, Fleischer and Clifford in 2013, aimed at assessing the use of a standardized checklist in dispensing EC in Australia also assessed the environment for counselling. The assessed areas here included how busy the pharmacy was at the time of visit, waiting time before being served as well as friendliness of staff.

CHAPTER THREE

3.0 METHODS

3.1 Type of Study

This study was a quantitative study. Using the mystery client approach, it was a descriptive cross-sectional study which aimed at assessing the dispensing practice of Pharmacy staff in the provision of ECPs. A mystery (simulated) client is an individual who is trained to visit a service provider and enact a scenario in order to test a specific behavior/practice of the provider. This approach to data collection has been used extensively in developed countries but less so in developing ones. It has been proven to be very useful in pharmaceutical research, especially with regards to practice (Watson, Norris, & Granas, 2006).

Mystery clients (MCs) are usually used in cases where quality of care is being assessed from the clients' point of view with eventual benefits to both service provider and clients. Immediately after their encounter, a pre-designed data collection tool (usually a checklist) is filled, in order to avoid memory loss (Boyce & Neale, 2006). For example, in a study in Nigeria to assess the advice given by patent medicine vendors in the provision of oral contraceptive pills (OCPs), Ujuju, Adebayo, Aanyanti, Oluijbo, Muhammad & Aankomah (2014) used the simulated client approach. In Tanzania, with two research assistants posing as MCs, Minzi & Manyilizu (2013) conducted a study to assess the dispensing practice in the provision of antibiotics in Tanzania, 9 scenarios were used.

3.2 Study Location/ Area

Accra is the capital city of Ghana and also the capital of the Greater Accra Region, the smallest of the ten regions of Ghana. Accra spans an area of about 200 square kilometers. There are various government, private and quasi government health institutions scattered around the city. It can also boast of one of the three Teaching Hospitals in the country: Korle-Bu Teaching Hospital. Accra is divided administratively into Accra Metropolitan Area (AMA) and eight (8) Municipal Areas (MAs). Metropolitan areas are usually more developed in terms of infrastructure and revenue and is also more populated than Municipal Areas. Thus Metropolitan areas are usually subdivided into sub-metropolitan areas.

The AMA is further subdivided into ten (10) sub-metropolitan areas namely Ablekuma Central, Ablekuma North, Ablekuma South, Ayawaso Central, Ayawaso East, Ayawaso West, Ashiedu Keteke, Okaikoi South, Okaikoi North and Osu Klottey, The Municipal Areas are Adentan, Ga East, Ga Central, Ga South, Ga West, La Dade-Kotopon, La-Nkwantanang Madina and Ledzokuku Krowor.

3.3 Study Variables

The dependent (outcome) variable was Dispensing practice of Pharmacy staff. This was assessed by measuring as a composite variable developed from scores regarding history taken before provision of ECPs and post dispensing advice concerning the use of ECPs.

The independent (exposure) variables were environment for counselling, knowledge of pharmacy staff, status (type) of pharmacy staff, scenario presented by client and client-

provider interaction which was measured using a checklist filled by mystery clients after their encounter with the pharmacy staff.

3.4 Study Population

There are 1194 pharmacies located in Accra. 219 are wholesale only pharmacies, 222 are both wholesale and retail pharmacies whilst 753 are retail only pharmacies. For this study, retail only pharmacies were used on account of cost to researcher as well as short time frame allocated for this study.

Citable literature on the use of MCs in the provision of ECPs in Ghana and West Africa is nonexistent. However, according to Ujuju et al, (2014) who used the MC approach to study the provision of Oral Contraceptive Pills in Nigeria, 28% of providers gave good advice.

3.5 Inclusion Criteria

3.5.1 For Pharmacies

1. Pharmacies in Accra, registered with the Pharmacy Council of Ghana.
2. Pharmacies in Accra which were opened for business at the time of visit by the mystery clients.
3. Pharmacies in Accra which had ECPs in stock at the time of visit by the mystery clients.

3.5.2 For Individual Pharmacy staff

1. Pharmacy staff who were free or available at the time of visit by the mystery clients.

3.6 Exclusion Criteria

3.6.1 For the Pharmacies

1. Pharmacies in Accra which were not registered with the Pharmacy Council of Ghana.
2. Pharmacies in Accra which were closed for business at the time of the visit by the mystery clients.
3. Pharmacies in Accra which had no ECPs in stock at the time of the visit by the mystery client.

3.7 Sampling

3.7.1 Sample Size calculation

The sample size was calculated using Epi Info (version 7) software and based on the following figures: Confidence interval =95%, prevalence of good dispensing practice (from literature) =28%, population =753. A value of 219 was obtained. Rounding up, a total of 220 pharmacies were visited.

3.7.2 Sampling procedure/method

The pharmacies were stratified according to the Sub-Metropolitan or Municipal Area in which they were located. By dividing the number of pharmacies in a particular area by 753 and then multiplying the result by 220, the number of pharmacies visited in each area was calculated.

A simple random sampling technique (without replacement) was then used to identify which particular pharmacies (sample) are to be visited within a particular Sub-Metropolitan or Municipal Area. The pharmacies were numbered alphabetically within their areas. Random numbers were then generated and all the pharmacies corresponding to the numbers generated were visited as part of the study.

Pharmacies which were closed for business or did not have ECPs in stock at the time of the visit were replaced with the next pharmacy on the numbered list which is not originally selected randomly.

3.7.3 Data collection procedure

The mystery client approach was used in this study. Three mystery clients (a male and two females), who also doubled as research assistants, were trained for two days prior to the data collection period. Scenarios were assigned to each of them. Three scenarios were used:

Scenario One: 28 year old female repeat user, personal assistant at a private law firm, married to a banker, has used ECPs thrice before (last time was last week), not on any

regular contraception, 2days post coitus, last normal menstrual period (LNMP) about a week ago (not sure), has a two- year old daughter.

Rationale for Scenario 1: depicts repeat use of ECPs, not on regular contraceptive, not sure about LNMP implies possible pregnancy.

Scenario Two: 34 year old female first time user, businesswoman, married to a teacher, heard about ECPs in the media, not on any regular contraception, 6 days post coitus, LNMP 2 weeks ago, has a son and a daughter (last child 3years), no reproductive wishes.

Rationale for Scenario 2: depicts first time use of ECPs, 6 days post coitus is a contraindication to ECP use.

Scenario Three: 22 year old male client wants ECPs for girlfriend (no contraceptive use, no children), LNMP unknown and 4days post coitus.

Rationale for Scenario 3: third party user, LNMP unknown is a probable contraindication

Each pharmacy received a visit from one of the MCs, each enacting an assigned scenario. MCs talked to any pharmacy staff who was available at the time of the visit. In places where there were more than one staff in the pharmacy, MCs talked to any pharmacy staff who was unoccupied at the time of the visit.

During the training sessions, the mystery clients were informed of the general and specific objectives of the study and told what was expected of them. Role plays were used to ensure that the mystery clients were conversant with the scenarios assigned. Great emphasis was placed on the explanation and clarification of the data collection checklist as well as ways/strategies by which information on the checklist could be elicited without giving out any clues to the pharmacy staff. MCs were also informed that

due to ethics and cost, they were not required to purchase the ECPs, but rather give the staff a reason to return after all needed data had been obtained.

The checklist was filled immediately upon exit from each pharmacy to avoid memory loss, at a pre-selected spot/ restaurant nearby. If, at the time of the visit by the research team, a randomly selected pharmacy was closed for business, difficult to locate or had no ECPs in stock, the next pharmacy on the original list of 753, situated in the same sub metro but not randomly selected, was then visited as part of the study.

Also, daily sessions were held at the close of day for debriefing and also address any challenges arising from the day's work.

3.8 Data Collection Tool

A data collection instrument (checklist) was developed taking into consideration other studies which used the same approach but in other countries. Immediately upon exiting each pharmacy, MCs filled a checklist to provide information about their encounter inside the pharmacy. This checklist assessed the encounter in the pharmacy by asking about the counselling environment, the history taken before provision of ECPs and the advice given after provision of ECPs.

The pre-coded checklist was made up of four sections:

- A. Information about pharmacy staff which had information such as gender of staff and age (best guess) of staff.
- B. Environment for counselling which elicited information such as number of clients and staff in the pharmacy at time of entry.

- C. History taking which elicited information such as time elapsed since unprotected sex, use of regular contraception and reason for request.
- D. Post dispensing advice which elicited information such as possible side effects, dosage and rate of administration and future/continuing contraception.

Responses to questions in Section C and D were coded as Yes=1 or No=0. Some responses were however weighted (Yes=5) to put emphasis on them.

3.9 Quality Control

To achieve quality control the research assistants /MCs underwent a two-day intensive training session before pretesting was done. This training helped them to understand the research topic, objectives and the approach to be used and also ensured that they were adequately equipped for this study. Meetings were held at the close of each day to go over the day's activities, assess progress and address any challenges encountered.

3.10 Data Processing and Analysis

Data collected through the checklist filled by MCs, were checked for completeness. Data were then entered into Microsoft Excel 2013. The variables were used to design the data entry sheet. Data entry was doubly done to help minimize errors. The final data were then exported to Stata SE version 13.0 (StataCorp, College Station, Texas, USA) for analysis.

Section A and B were analysed into frequency tables. Status of staff was then categorised into Pharmacist, nonprofessionals and 'other' before been analysed and

displayed also using tables. Scenarios presented were also analysed into frequency tables.

Responses from Section C and D were summed and the scores categorised into 'high quality dispensing practice' and 'low quality dispensing practice' with 0 being the minimum and 27 being the maximum and based on literature. Proportions of High Quality Dispensing Practice (HQDP) & Low Quality Dispensing Practice (LQDP) were compared among Pharmacists, nonprofessionals and 'others' and also among scenarios presented. A Chi-square test was carried out to test association of dispensing practice with independent variables such as status and gender of staff. Multivariate analysis was used to establish the true strength of the association between the various variables and the results presented in tables. Statistical significance was established at $p < 0.05$.

3.11 Ethical Considerations/Issues

To conduct this study, permission was obtained from the School of Public Health (SPH), University of Ghana. Ethical approval was obtained from the Ghana Health Service Ethical Review Committee. Due to the nature of this study, permission was only obtained from the President of the Community Pharmacy Practice Association, CPPA (Greater Accra Region). All information obtained was treated as strictly confidential. The checklist was coded such that pharmacies would not be identified with their checklist. Data were entered into the computer using codes and saved in a password protected file on the principal investigator's personal laptop.

3.12 Pretest/Pilot Study

This study approach was pretested in 22 selected retail pharmacies other than those selected for the main study. This pretest helped to test the reliability of the data collection instrument, the feasibility of the sampling procedure and the ability of the research team to carry out the study. The feedback from this pretest was used to review and modify the final approach.

CHAPTER FOUR

4.0 RESULTS

4.1 Background Information/Demographic Characteristics

Two hundred and twenty (220) randomly selected pharmacies were visited within the city of Accra by three mystery clients: a male and two females. The mystery clients were randomly assigned numbers: one, two and three. **Table 1** shows the distribution of pharmacies visited according to mystery clients (MCs). MCs one and three each visited 34.1% (n=75) of all the pharmacies whereas MC two visited 31.8% (n=70) of the pharmacies.

Table 1: Distribution of Mystery Clients (MCs) and Pharmacies visited.

Id number of MCs	Frequency	Percentage
1	75	34.1
2	70	31.8
3	75	34.1
Total	220	100

The proportionate and randomly selected pharmacies according to Sub-Metropolitan/Municipal Areas are shown in **Table 2**. Among the Sub-Metropolitan Areas, the one with the most and least pharmacies visited was Ablekuma South (16.2%, n=20) and Ayawaso East (4.1%, n=5) respectively. Adentan and Ga East, with about 21% (n=20) of pharmacies each assessed, were the Municipal Areas with the most pharmacies while that with the least was Ledzokuku Krowor Municipal Area with about three percent (n=3) of pharmacies assessed within the Municipal Areas. These pharmacies however span across ninety five suburbs within these Sub Metropolitan and Municipal Areas.

Table 2: Distribution of Pharmacies visited across Sub-Metropolitan and Municipal Areas

Sub-metropolitan Area (n=123)	Frequency	Percentage
Ablekuma Central	9	7.3
Ablekuma North	12	9.8
Ablekuma South	20	16.2
Ashiedu Keteke	8	6.5
Ayawaso Central	14	11.4
Ayawaso East	5	4.1
Ayawaso West	15	12.2
Okaikoi North	18	14.6
Okaikoi South	10	8.1
Osu Klottey	12	9.8
Municipal Areas (n=97)		
Municipal Areas (n=97)	Frequency	Percentage
Adentan	20	20.6
Ga Central	7	7.2
Ga East	20	20.6
Ga South	15	15.5
Ga West	8	8.3
La Dade Kotopon	12	12.4
La Nkwantanang	12	12.3
Ledzokuku Krowor	3	3.1
Total	220	100

4.2 Information about Pharmacy Staff

The information assessed about pharmacy staff by the MCs are shown in **Table 3**. Majority of the pharmacy staff were females (64.5%, n=142) while 35.5% (n=78) were males. Since MCs could not ask questions on age, they were trained to estimate the ages of pharmacy staff. At best guess by the MCs, 40.9% (n=90) were less than 30 years old while 45.5% (n=100) were between 30 and 39 years of age. However, only 30 of the staff assessed were thought to be over 39 years old (13.6%).

Table 3: Distribution of various characteristics of Pharmacy staff (n=220)

Variables	Frequency	Percentage
Gender		
Male	78	35.5
Female	142	64.5
Age (Best guess)		
<30 years	90	40.9
30-39 years	100	45.5
>39 years	30	13.6
Status of staff		
Pharmacist	88	40.0
Medicine Counter Assistant	67	30.5
Sales Attendant	24	10.9
Pharmacy Assistant	17	7.7
Dispensary Technician	15	6.8
Unsure/Unwilling	6	2.7
Owner/Relative	3	1.4

From this study, in addition to pharmacists, various categories of staff were found in the pharmacy shops even though a pharmacist, who is a professional, must always be present in a pharmacy once it is opened for business. Within these categories are the Pharmacy Assistants, Dispensing Technicians and Medicine Counter Assistant. These three categories of staff have undergone varying levels of basic dispensing training. These were designated as Nonprofessional pharmacy staff. Another category of staff found were those with no official training in dispensing. This category includes sales attendants, owners as well as their relatives. A few persons were unsure/unwilling to disclose their status/type to the MCs. These staff together with the owners and relatives were therefore designated as ‘others’

Forty percent (n=88) of the pharmacy staff were pharmacists. For the non-pharmacists, Medicine Counter Assistants (MCAs) made up the largest proportion

(30.5%, n=67) while the least was Relative/Owner with under two percent of staff assessed.

4.3 Counselling Environment

Due to the private nature of contraception as well as the mode of action of ECPs, counselling is necessary in its provision. The counselling environment for ECPs therefore should be conducive such that privacy is assured as well as friendliness of staff and also should be conducted in a language of mutual understanding to both client and staff. In this study, the counselling environment of pharmacies was also assessed by MCs. The areas of assessment and the results are presented in **Table 4**.

A pharmacy's busyness was ascertained by comparing the number of clients to the number of staff present at the time of visit. If the number of clients outnumbered or is equal to the staff then the pharmacy is designated as busy whereas in cases where the clients are less than the staff in number, then the pharmacy is said not to be busy. Based on this definition, majority (77.7%, n=171) of the pharmacies were not busy at the time of the visit by the MCs while the rest (22.3%, n=49) were busy.

Table 4: Assessment of Counselling Environment of Pharmacies (n=220)

Areas	Frequency	Percentage
Pharmacy Busyness		
Yes	49	22.3
No	171	77.7
Request to wait		
Yes	14	6.3.0
No	206	93.7
Staff friendliness		
Yes	170	77.3
No	50	22.7
Language used		
English	110	50.0
Twi	82	37.3
Ga	23	10.4
English + Twi	5	2.3
Place of counselling		
Secluded place	6	2.7
Counter	214	97.3
Visit time		
<1 minute	3	1.4
1-5 minutes	116	52.7
> 5 minutes	101	45.9

For pharmacies which were busy at the time of the visit, duration of waiting time before being attended to by the pharmacy staff was also assessed by MCs. This ranged from one minute to fifteen minutes with the modal waiting time of two minutes. However, in majority of the visits (93.7%, n=206), MCs did not wait before being attended to by the pharmacy staff.

Staff friendliness was assessed by the MC's observation of the willingness to interact and the facial expression as well as general demeanor of the pharmacy staff with which they interacted. Over three quarters (77.3%, n=170) were assessed to be friendly while 22.7% (n=50) were not.

Half (n=110) of the interactions were in English, 37.3% (n=82) used Twi, 10.4% (n=23) used Ga while 2.27% (n=5) combined English and Twi.

Most (97.3%, n=214) of the interactions between pharmacy staff and mystery clients were conducted at the counter while only a small proportion (2.7%, n=6) were conducted at a secluded place. Privacy was therefore not assured during most of the interactions.

Duration of waiting time plus interaction time used for the visit by the mystery clients was mostly 1-5 minutes (52.7%, n=116) while 45.9% (n=101) used more than five minutes for the visit. However, less than two percent (1.4%, n=3) used less than one minute for the visit.

4.4 History Taking

In providing ECPs to clients, history taking is essential. This is especially so as it aids the service provider to assess the client's eligibility for the use of the ECP due to its peculiar nature. In this study, areas assessed with regards to history taking were: reason for request, ever use, time elapsed since unprotected sex, time elapsed since last normal menstrual period, request for prescription, decline of staff to sell ECP after history taking and regular contraception. The results of this assessment is presented in **Table 5**.

Request for reason for purchase of ECPs were made by 20.9% (n=46) of the pharmacy staff while 79.1% (n=174) did not ask for the reason for the purchase of the ECPs. About 23% (n=50) of pharmacy staff assessed sought to ascertain whether or not MCs had ever used ECPs while the majority (77.3%, n=170) did not.

Table 5: Distribution of Areas of Assessment during history taking, (n=220)

Assessment Area	Yes (%)	No (%)
Reason for request	46 (20.9)	174 (79.1)
Ever use	50 (22.7)	170 (77.3)
Time since unprotected sex	121 (55.0)	99 (45.0)
Time since last menstrual period	14 (6.4)	206 (93.6)
Did not ask for prescription	220 (100.0)	0 (0.0)
Decline to sell after history	78 (35.4)	142 (64.6)
Regular contraception	39 (17.7)	181 (82.3)

More importantly, more than half of the staff assessed (55%, n=121) enquired about duration since last unprotected sex from the mystery clients while the rest did not. Nearly seven percent (n=14) enquired about the first day of the last normal menstrual period whereas majority (93.6, n=206) did not. However, all pharmacy staff assessed did not request for a prescription which indicates that all of the staff know of the over-the-counter (OTC) status of ECPs in Ghana.

Most of the staff assessed (64.6%, n=142) were ready to sell the ECPs to the mystery clients after taking their history. This was wrong practice because the scenarios (history taken by staff) were developed such that ECP use is contraindicated. However, 35.5% (n=78) correctly declined selling the ECP after the history taking session.

Also only 17.7% (n=39) of the pharmacy staff interacted with enquired whether or not mystery client was on regular contraception while majority (82.3%, n=181) did not.

4.5 Post Dispensing Advice

Due to the peculiar mechanism of action of ECPs, it is prudent in practice to educate ECP clients on its use. This advice should include the following areas which were also assessed: mode of action, dosage and rate of administration, side effects, effectiveness, issues relating to the menstrual cycle and future contraception. The results of this assessment is shown in **Table 6**.

Table 6: Distribution of Areas of Assessment during Post dispensing advice (n=220)

Assessment Area	Yes (%)	No (%)
How ECPs work	182 (82.7)	38 (17.3)
Dosage and rate of Administration	128 (58.2)	92 (41.8)
Side effects	108 (49.1)	112 (50.9)
Effectiveness	146 (66.4)	74 (33.6)
Issues about Menstrual cycle	21 (9.5)	199 (90.5)
Future/Continuing contraception	36 (16.4)	184 (83.6)

Majority (82.7%, n=182) of pharmacy staff assessed explained the mechanism of action of ECPs to mystery clients while 17.3% (n=38) did not. Also, 58.2% (n=128) educated clients on dosage and rate of administration of ECPs while 41.8 (n=92) did not. Concerning side effects of ECPs, less than half (49.1%, n=108) of staff assessed explained the side effects to MCs whereas over half (50.9%, n=112) did not explain to them. Effectiveness of ECPs was explained by majority of staff (66.4%, n=146) while the minority (33.6%, n=74) of staff did not. Less than 10% (n=21) explained issues about menstruation such as when to expect next menses and what to do if menstruation does not occur as expected. Most (90.5%, n=199) of the staff assessed did not explain issues related to menstruation. However, only 16.4% (n=36) of pharmacy staff mentioned the

need for future/continuing contraception to MCs while the majority (83.6%, n=184) did not.

4.6 Interactions by Type of Service Provider

Different categories of staff were found to be dispensing in the pharmacies assessed, according to the results of this study. These categories were grouped into three: Pharmacists, nonprofessional pharmacy staff and 'others'.

The first group was distinctly the pharmacists who were professionals and were supposed to be present in the pharmacy for as long as it was opened for business and were expected to play a supervisory role in the pharmacy by supervising the activities of the other two groups. The second group was classified as nonprofessional pharmacy staff. This group was made up of Pharmacy Assistants, Medicine Counter Assistants and Dispensary Technicians. Staff who fell in these categories had undergone some level of basic training in dispensing drugs and were ideally supposed to work under the supervision of the Pharmacist. The third group was classified as 'others' and included staff who had no official training in dispensing of drugs. They included assessed staff who were sales attendant owners or relatives of the owner of the pharmacy as well as staff whose type /status could not be assessed as the staff either refused to inform MCs of their status/type.

Ideally pharmacists, being professionals, were expected to interact better with clients than the other categories of pharmacy staff. A comparison was made for the rates of performance of the interaction between the three types of pharmacy staff and the MCs at a 95% significance level. The results of this is shown in **Table 7**.

Assessment of the interaction was based on assessment of the different aspects involved in history taking and post dispensing advice. Under history taking, areas assessed were reason for request, ever use (whether an MC was a first time user of ECP or not), time elapsed since last unprotected sex, time elapsed since last normal menstrual period (LNMP), request for prescription, decline to sell and regular contraception.

Under post dispensing advice, areas assessed were mode of action, dosage and rate of administration, side effects, effectiveness, issues about menses and future contraception.

The results indicate that nearly 30% of pharmacists enquired about reason for the request of ECPs while about 15 % each of the nonprofessional and the 'others' group made the enquiry as well. This interaction was found to be statistically significant ($p=0.037$). Significantly ($p<0.001$), 37.5% of pharmacists took a history of ever use of ECP followed by the 'others' group with about 15% and 12% for the nonprofessional group. Also statistically significant ($p=0.002$) is the enquiry about time since last unprotected sex. Here, majority (68.2%) of pharmacists made the enquiry as compared to 49.5% in nonprofessional group and 36.4% in the 'others' group.

Table 7: Cross tabulation of various assessment areas and type of pharmacy staff

Variable	Type of Pharmacy staff (n=220)			Chi-Square	p-value
	Pharmacist (n=88)	Non Professional (n=99)	Others (n=33)		
Reason for request	29.6	15.2	15.2	6.6	0.037*
Ever use	37.5	12.1	15.2	18.4	0.000*
Time since sex	68.2	49.5	36.4	12.0	0.002*
Time since LNMP	9.1	3.0	9.1	3.4	0.187
No prescription asked	100.0	100.0	100.0	-	-
Decline to sell	36.4	34.3	36.4	0.1	0.953
Regular contraception	25.0	12.1	15.2	5.5	0.065
How ECP works	89.8	76.8	81.8	5.5	0.063
Dosage and rate of admin.	55.7	62.6	51.5	1.6	0.442
Side effects	47.7	56.6	30.3	6.9	0.031*
Effectiveness	67.1	68.7	57.6	1.4	0.497
Issues about menses	12.5	9.1	3.0	2.5	0.281
Future contraception	18.2	15.2	15.2	0.35	0.838

Statistically significant interactions are marked with *

Enquiries about time since last normal menstrual period (LNMP) was found not to be statistically significant ($p=0.187$) with 9.1% each of the pharmacist and ‘others’ group taking this history whereas only three percent of the nonprofessional group took this history. With regards to request for prescription for ECPs, none of the staff assessed asked for a prescription. Also, 36.4% each of pharmacists and ‘others’ group declined to

sell ECPs to the MCs after history had been taken whereas 34.3% of the nonprofessional group also declined. This interaction was found not to be statistically significant ($p=0.953$). A history of regular contraception was taken by one out of four (25%) pharmacists assessed whereas 12.1% and 15.2% of nonprofessional and 'others' group respectively enquired about regular contraceptive use.

For post dispensing advice, mode of action of ECPs were explained by nearly 90% of pharmacists while 76.8% of nonprofessional and 81.8% of the 'others' group also explained the mode of action of ECPs to MCs. This interaction was however found not to be statistically significant ($p=0.063$). Similarly, the interaction regarding the dose and rate of administration of ECPs were also found not to be statistically significant ($p=0.442$) with over half (55.7%) of the pharmacists explaining it to MCs. Meanwhile, 62.6% and 51.5% of the nonprofessional and 'others' group also explained the side effects of ECPs to MCs. This interaction was however found to be statistically significant ($p=0.031$).

The effectiveness was also explained by nearly seven out of ten pharmacists (67.1%) and 68.7% of nonprofessionals. The 'others' group however had 57.6% of them explaining the effectiveness of ECPs to MCs. This interaction was also found not to be statistically significant ($p=0.497$). Issues about menses were explained by only 12.5% of pharmacists, about nine percent of nonprofessionals and three percent of staff in the 'others' group. This interaction was also found not to be significant statistically ($p=0.281$). With regards to the advice given for the use of future contraception, 67.1 % of

pharmacists, 68.7% of nonprofessionals and 57.6 % of 'others' group discussed it. This interaction was also found not to be statistically significant ($p=0.838$).

Generally, the results indicate that out of thirteen areas assessed across the different groups of pharmacy staff, pharmacists had the highest proportion in seven areas while the nonprofessional group had the highest proportion in three areas of the interaction.. However, with respect to not asking for prescription, all pharmacy staff assessed correctly practiced it.

4.7 The Overall quality of dispensing practice

In order to quantify the dispensing practice of pharmacy staff, a composite variable was created. It consisted of the scores of the various areas (items) mentioned earlier and assessed under history taking and post dispensing advice. Performance of a particular area was scored as one while nonperformance was scored as zero. However, as explained in Chapter Three, some of the areas were weighted (scored five for performance) to put emphasis on them.

Potentially, the scores ranged from zero to thirty two, but actual scores from this study ranged from two to twenty seven. Those who scored ten or less (73.2%) were considered to be offering low quality services while those with scores over ten (26.8%) were classified as providing high quality services. This is similar to findings from other studies. From literature, good (high quality) dispensing practice has been documented to

be 28% in pharmacy staff (Ujuju et al, 2011). In applying this, a total of 72 pharmacy staff were classified as possessing high quality dispensing practice (HQDP) while 148 possess low quality dispensing practice (LQDP). This distribution and classification is shown in **Table 8**.

Table 8: Distribution of Total scores accrued by pharmacies (n=220)

Score	Frequency	Percentage	Cumulative Frequency	Classification	
27	2	0.91	100		
25	1	0.45	99.09		
23	2	0.91	98.64		
22	3	1.36	97.73		
21	3	1.36	96.36		
20	5	2.27	95.00		
18	2	0.91	92.73	High quality dispensing practice	
17	6	2.73	91.82		
16	10	4.55	89.09		
15	8	3.64	84.55		
14	6	2.73	80.91		
13	6	2.73	78.18		
12	5	2.27	75.45		
11	13	5.91	73.18		
10	30	13.64	67.27		Low quality dispensing practice
9	23	10.45	53.64		
8	14	6.36	43.18		
7	6	2.73	36.82		
6	12	5.45	34.09		
5	25	11.36	28.64		
4	20	9.09	17.27		
3	10	4.55	8.18		
2	8	3.64	3.64		
Total	220	100			

A Chi-square test was then run between independent variables (status of pharmacy staff, scenario, locality of pharmacy, age of staff, pharmacy busyness, language used and gender of pharmacy staff) and the outcome variable (dispensing practice) to identify significant associations at a level of 95% confidence. The results are shown in **Table 9**.

These results indicate that the status or type of pharmacy staff was found to be statistically significantly associated with dispensing practice ($p=0.007$). This means that the type of pharmacy staff had an effect on the dispensing practice. Evidently, 44.3% of Pharmacists exhibited HQDP while 27.3% of the nonprofessional group and 18.2% of staff in the 'others' group exhibited HQDP.

Table 9: Associations between Outcome Variables and Independent variables.

Variable	Categories	Dispensing Practice				Chi-Square	p-value
		High Quality		Low Quality			
		Frequency	%	Frequency	%		
Status	Pharmacists (n=88)	39	44.3	49	55.7	9.9	0.007*
	Nonprofessional (n=99)	27	27.3	72	72.7		
	Others (n=33)	6	18.2	27	81.8		
Gender	Male (n=78)	18	23.1	60	76.9	5.1	0.024*
	Female (n=142)	54	38.0	88	62.0		
Pharmacy busyness	Busy (n=49)	18	36.7	31	63.3	0.5	0.498
	Not busy (n=171)	54	31.6	117	68.4		
Scenario	One (n=70)	7	10.0	63	90.0	75.0	0.000*
	Two (n=75)	12	16.00	63	84.0		
	Three (n=70)	53	70.7	22	29.3		
Age	<30 years (n=90)	26	28.9	64	71.1	4.8	0.091
	30-39 years (n=100)	31	31.0	69	69.0		
	>39 years (n=30)	15	50.0	15	50.0		
Language used	English (n=110)	31	28.2	79	71.8	8.0	0.046*
	Twi (n=82)	34	41.5	48	58.5		
	Ga (n=23)	4	17.4	19	82.6		
	English + Twi (n=5)	3	60.0	2	40.0		
Locality	Sub-Metro (n=123)	31	25.2	92	74.8	7.2	0.007*
	Municipal (n=97)	41	42.3	56	57.7		

Significant associations are marked with *.

Also associated statistically with dispensing practice was the gender of pharmacy staff ($p=0.024$) with 23.1% of males compared to 38% of females exhibiting HQDP. Thus the dispensing practice of pharmacy staff was affected by the gender of the staff. With 31.6% of pharmacies which were not busy exhibiting HQDP, it was revealed that the busyness of the pharmacy had no effect on dispensing practice ($p=0.498$). Meanwhile, 70.7% of scenario three presented elicited HQDP while 16% of scenario two and 10% of scenario one elicited HQDP from pharmacy staff thus dispensing practice was found to be affected by the scenario presented by the MCs ($p<0.001$). It was found that age is not statistically associated with quality of dispensing practice: 31% of pharmacy staff aged between 30 and 39 years exhibited HQDP compared to 69% of the same age who exhibited LQDP. Language used in the interaction was also found to influence dispensing practice ($p=0.046$) with 60% of interactions conducted in a combination of English and Twi exhibiting HQDP while 41.5% of interactions conducted in Twi was of high quality. Meanwhile 17.4% and 28.2 % of interactions took place in Ga and Twi respectively.

Also, locality of pharmacy was found to be significantly associated with dispensing practice ($p=0.007$). While one out of every four pharmacy staff located in a sub-metropolitan area exhibited HQDP, 42.3% of staff in the Municipal areas did.

In summary, status of pharmacy staff, gender of pharmacy staff, scenario presented by MCs, language used during the interaction and locality of pharmacy were all found to be significantly associated with the dispensing practice of ECPs.

4.8 Assessing strength of associations

A multivariate logistic regression model was then run between the significantly associated independent variables (status, gender, scenario, language used and locality of pharmacy) and the outcome variable (dispensing practice) to assess the strength of the associations. The Crude as well as the Adjusted Odds Ratios were found and are shown in **Table 10**.

The results indicate that pharmacists had 50% increase in the odds of exhibiting HQDP as compared to the nonprofessional group (OR=0.5, CI=0.3-0.9, p=0.016) but 70% more than 'others' group (OR=0.3, CI=0.1-0.9, p=0.011). This implies that nonprofessional pharmacy staff are 50% less odds to exhibit HQDP than pharmacists whereas pharmacy staff in the 'others' group were 30% decrease in the odds of exhibiting HQDP. However, after adjusting for gender, scenario, language and locality of pharmacy, the odds of pharmacists exhibiting HQDP as compared to the nonprofessional group remained the same (AOR=0.5, CI=0.3-0.8, p=0.003) while the odds of exhibiting HQDP by pharmacists increased to 90% as compared to pharmacy staff in the 'others' group (AOR=0.1, CI=0.0-0.5, p=0.002).

Furthermore, the odds of HQDP by a staff is increased by two folds comparing females to males (C.I=1.1-3.8, p=0.025). But after adjusting for status of pharmacy staff, scenario presented, language used during the interaction and locality of the pharmacy, the odds of exhibiting HQDP by a staff was unchanged, comparing females to males, from the crude OR (AOR=2.0, C.I=1.0-4.5, p=0.066). Thus, there was no significant difference between the crude and the adjusted odds ratios. The odds of HQDP was however found to be 1.7 folds higher comparing scenario two to scenario one (CI=0.6-4.6, p=0.289). However,

comparing scenario three to scenario one, the odds of exhibiting HQDP was 21.7 folds (CI=8.6-54.7, $p<0.152$). But, after adjusting for status, gender, language and locality, the odds of exhibiting HQDP was 1.5 folds comparing scenario two to scenario one (CI=0.5-4.5, $p=0.463$) and was also found to be 22.7 folds comparing scenario three to scenario one (CI=7.9-65.4, $p<0.01$).

Table 10: Multivariate Logistic regression between outcome variable and significant independent variables.

	Crude OR (95% CI)	p-value	AOR (95% CI)	p-value
Status				
Pharmacist	1.0			
Nonprofessional	0.5 (0.3-0.9)	0.016	0.5 (0.2-1.2)	0.104
Others	0.3 (0.1-0.7)	0.011	0.1 (0.0-0.5)	0.002
Gender				
Male	1.0			
Female	2.0 (1.1-3.8)	0.025	2.0 (1.0-4.5)	0.463
Scenario				
1	1.0			
2	1.7 (3.6-9.8)	0.289	1.5 (0.5-4.5)	0.463
3	21.7 (8.6-54.7)	0.152	1.5 (0.2-11.8)	0.000
Language				
English	1.0			
Twi	1.8 (1.0-3.3)	0.056	1.4 (0.6-3.2)	0.392
Ga	0.5 (0.2-1.7)	0.291	0.9 (0.2-3.8)	0.866
English + Twi	3.8 (0.6-23.9)	0.152	1.5 (0.2-11.8)	0.72
Locality				
Sub-metropolitan	1.0			
Municipal	2.2 (1.2-3.9)	0.008	0.8 (0.4-1.7)	0.553

AOR- Adjusted Odds Ratio (OR)

It was also evident that the odds of exhibiting HQDP by a staff is 80% more comparing Twi use to English use during the interaction (CI=1.0-3.3, $p=0.056$) whereas there was 50% less odds of exhibiting HQDP comparing Ga use to English use during the interaction (CI=0.2-1.7, $p=0.291$). Also, the odds of exhibiting HQDP by a pharmacy staff is 3.8 folds higher if the interaction is conducted in a combination of English and Twi as compared to English alone (CI=0.6-23.9, $p=0.152$). However, after adjusting for status, gender, scenario and locality of pharmacy, the odds of exhibiting HQDP was found to be 1.4 folds comparing Twi to English use (CI=0.6-3.2, $p=0.392$) while the odds of exhibiting HQDP was 0.9 folds comparing Ga to English use (CI=0.2-3.8, $p=0.866$). However, there was 50% increase in the odds of HQDP to be exhibited if the language used during the interaction is a combination of English and Twi (CI=0.2-11.8, $p=0.720$).

Finally, it was found that pharmacy staff of pharmacies located in Municipal areas had twice the odds of possessing HQDP as those in sub-metropolitan areas (OR=2.2, CI=1.2-3.9, $p=0.008$). But on adjusting for status, gender, scenario and language, staff in the Municipal areas had 80% less odds to exhibit HQDP as compared to those in the Sub-metropolitan areas (AOR=0.8, CI=0.4-1.7, $p=0.553$).

CHAPTER FIVE

5.0 DISCUSSION

Results from this study indicate that information given by pharmacy staff to their clients about using ECPs was inadequate. This is evident in the fact that in applying the scoring only 72 pharmacy staff were classified as having exhibited HQDP while majority (n=148) of the staff assessed were classified as exhibiting LQDP. This then implies that clients receive poor quality of care from pharmacy staff as information giving is a core ingredient in assessing quality of care (Bruce, 1990)

Also, over 70% of pharmacy staff assessed in this study were friendly during their interaction with the mystery clients. Thus it can be concluded that the provider-client relationship in the provision of ECPs is generally good even though there is room for improvement. Generally, clients are promptly attended to upon entry into a pharmacy.

It was also revealed that factors such as type of pharmacy staff influences the dispensing practice of pharmacy staff in the provision of ECPs. This is to say that generally pharmacists are more likely to exhibit HQDP than the nonprofessionals. Similarly, access to ECPs by third party clients induce HQDP while pharmacy staff in the municipal areas have a higher likelihood of exhibiting HQDP compared to those in the sub-metropolitan areas. This is however contrasting with results from South Dakota where it was found that ECP provision was better in pharmacies in small communities than in larger ones (Van Riper & Hellerstedt, 2005).

5.1 Dispensing Practice

From the results of this study, three groups of pharmacy staff were identified as described in Chapter Four. These are the pharmacists, nonprofessionals and the ‘others’ group. The pharmacists are professionals and are expected to be present in the pharmacy at all times and for as long as it is open for business. The other categories of staff (nonprofessional and ‘others’) must be supervised by the Pharmacist. However, from the results of this study, four out of every ten visits to a pharmacy had a pharmacist present and attending to MCs. However, considering that only the attending staff was assessed by the MC for status/type, it is likely that the pharmacist, even though present was not assessed in some visits by the MCs. Besides, it also likely that since staff status/type were assessed by MCs enquiry, the staff may not have been wholly truthful about their status.

The results of this study also indicate that although the three groups dispensed ECP poorly, pharmacists dispensed significantly better than the staff in the other two groups. This is consistent with a study conducted in Thailand by Ratanajamit & Chongsuvivatwong in 2001 and also with Van Riper & Hellerstedt (2005) in South Dakota, which both found out that pharmacists gave out more education than non-pharmacists (nonprofessional and ‘others’ group). Therefore, when appropriately trained, professionals provide more education with regards to ECPs.

5.2 Environment for counselling

Less than 3% of pharmacy staff assessed in this study counselled clients in a secluded place/area (away from the counter) even though about 65% of the staff assessed agreed to sell ECPs to MCs. This is quite low considering the fact that contraception is somewhat a private issue in Ghana. This might also buttress the point that the interaction between staff and clients in pharmacies are devoid of proper counselling.

The lack of a designated area for counselling may account for this as evidenced by findings from other studies. A systematic review conducted by Eades, Ferguson & O'Carroll (2011) also buttresses the fact that lack of adequate counselling area among other things, was a barrier to appropriate counselling by pharmacists. Hussainy et al (2011) also conducted a study which concluded that pharmacists in Australia counselled only when confidentiality was assured. Therefore, it could be said that most of the pharmacy staff assessed would probably have counselled their clients (MCs) if privacy and confidentiality were assured in the pharmacy.

However, 68% of pharmacy technicians reported of the presence of private counselling area in their facility in Turkey and similarly in South Africa. (Apikoglu-Rabus, Sancar, Okuyan, & Izzetin, 2011; Hariparsad, 2001). Thus, it is essential for pharmacies to have a designated/secluded area for private counselling whiles providing ECPs especially.

Generally, however, clients of pharmacies in Ghana are attended to promptly upon arrival as MCs were not asked to wait in over 90% of visits. This is comparable, even though the figures are high here, to Australia where Schneider, Gudka, Fleischer &

Clifford (2013) found that about 53% of MCs were immediately attended to in pharmacies assessed.

Besides, three out of four pharmacies were not busy at the time of visit by the MCs because the staff were more in number than the clients. One would expect that if the pharmacy was not busy then the staff was more likely to exhibit HQDP due to the availability of time. However, results of this study indicate that busyness of the pharmacy was not associated with HQDP. This is comparable to the findings in a study conducted by Schneider, Gudka, Fleischer & Clifford (2013) in Australia. Results from their study indicate that even though 59% of the pharmacies assessed were found not to be busy, there was 80% inappropriate outcome of MCs been supplied with EC.

5.3 History Taking

For the sake of assessing the eligibility of clients for ECPs, history taking is an essential aspect of ECP provision. History taking also aids the provider to decide on how to gear the post dispensing advice. For example, knowing whether or not the client has used ECP before (ever use) would aid in identifying repeat use and this would help in gearing the post dispensing advice towards regular contraception. In this study, ever use of ECP was assessed by only 23% of pharmacy staff. Thus for about three out of four visits, client were not assessed for ever use therefore possibly losing the chance of identifying repeat users. Keesbury (2011) in a study to assess repeat use identified 58% of repeat users in Kenya.

Scenarios in this study were constructed in such a way that there were contraindications for ECP use, yet nearly two thirds of pharmacy staff assessed in this study, agreed to sell ECPs with some even willingly volunteering to directly observe the administration of the ECPs. This indicates lack of knowledge and is consistent with a study by Schneider, Gudka, Fleischer & Clifford (2013) where over three quarter of MCs were inappropriately supplied with ECPs. Further, a study by Ragland & West in 2009 revealed that only four percent of pharmacy students studied knew that ECPs were effective only when taken within five days of unprotected sex which also indicates lack of knowledge. These documented reasons could be said to be the reason for some pharmacy staff in this study's inability to correctly identify eligibility for ECPs.

In this study, it was also found that the odds of exhibiting HQDP was high for Scenario three. This particular scenario was for a third party purchase of ECPs where the third party had no history of ever use, LNMP and use of regular contraception. It can therefore be said that pharmacy staff assumes that female clients have knowledge on ECPs when they walk in themselves to purchase ECPs. In such situations therefore, staff do not take clients through appropriate counselling thus resulting in LQDP. But the reverse is what is supposed to happen. This is because a client who walks into a pharmacy and seeks an OTC drug and in this case an ECP would either have heard about it from some other place or have actually used it before. For either of these reasons, an even more thorough counselling session is needed if the client is to fully benefit from the use of the drug.

Timeframe/duration since last unprotected sex is a vital component of history taking as it is indispensable in assessing eligibility for ECPs. This is so because ECPs work up to five days from the last unprotected sex. It is evident from this study that only 55% of

pharmacy staff assessed made enquiries about this area. Across type of staff however, about 68% of pharmacists made these enquiries while about 50% and 36% of the staff from nonprofessional and 'others' group. These rates are generally low in comparison to Turkey where 68% of pharmacy technicians took a history relating to timeframe of unprotected sex (Apikoglu-Rabus, Sancar, Okuyan, & Izzetin, 2009). But these are however quite low compared to 65% of pharmacy staff in Sweden (Aneblom, Lundborg, Carlston, Eurenus & Tyden, 2004).

Largely, knowledge and consequently practice was poor with regards to ECP provision by pharmacy staff assessed. But it is somewhat better in pharmacists than in non-pharmacists (non-professionals and 'others' group) especially with regards to history taking and ECP eligibility assessment. This is similar with findings of a study by Ratanajanamit & Chongsuvivatwong (2001) in Thailand.

5.4 Post dispensing Advice

According to Apikoglu-Rabus et al (2011), the most crucial aspect of ECP provision is the advice given in relation to future contraception and dosage of ECPs. In line with this, it could therefore be said that in this study, the most crucial aspect of ECP provision is being fairly assessed. This is because generally about 58% of pharmacy staff discussed dosage of ECPs while about 16% discussed future contraception. However slight variations occur over the type/status of staff. Majority of the nonprofessional staff (62.6%) discussed dosage while about 55% and 52% of pharmacists and staff from the 'others' group respectively discussed dosage. This is slightly lower than findings from a

study by Apikoglu-Rabus, Sancar, Okuyan, & Izzetin (2011) where 67% of pharmacy technicians counselled on dosage.

Another essential area of advice in the provision of ECPs is on future contraception. This is particularly so if ECPs are to be used as form of bridge to regular contraception. Results from this study indicate that only 16.4% of pharmacy staff assessed gave advice on future contraception. This is quite low compared to a study conducted in Australia in which 42% of pharmacy staff gave advice on future contraception (Quedding, Char & Williams, 2011). However, across staff type, only 18% of pharmacists and 15% each of nonprofessional and 'others' group gave advice on future contraception. But this is still in the minority and moreover in contrast with findings from a study by Hussainy et al (2011) where most pharmacists counselled for future contraception with the majority (62.8%) counselling only when privacy is assured. But the results of this study is however in line with a project survey conducted in which most of the respondents indicated that the area of future contraception was not well addressed during their interaction with the pharmacist (Gardner, Hutchings, Fuller & Daning, 2001).

5.5 Limitations

This study utilized the mystery client approach in collecting data about the dispensing practice of pharmacy staff in Accra.

The approach implies the reliance on MCs recollection for assessment of the interaction thus it is possible that some assessment areas could be forgotten even though this was minimized by ensuring that MCs filled the data collection instruments immediately upon exit from the pharmacy.

The approach also relied on the observation by MCs with regards to some areas of assessment such as friendliness and age of staff. This is subjective and could be inaccurate. This has however been shown to account for up to 10% inaccuracy (Schneider, Gudka, Fleischer & Clifford, 2013).

Lastly, status or type of staff was assessed by word of mouth of the staff. It is therefore likely that the staff may not be wholly truthful with regards to their status thereby the data and subsequently the results would be inaccurate.

CHAPTER SIX

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusion

In the provision of ECPs on OTC basis in Ghana, pharmacists exhibit a better dispensing practice than the other categories of pharmacy staff even though inadequate information is given to clients especially in the area of post dispensing advice. Thus ECPs are not being used as a bridge for future contraception as most pharmacy clients are not been educated on the need for regular contraception post ECP use. This is due to the inadequate knowledge base of most pharmacy staff on this need as well as lack of privacy.

Results from this study indicate that generally service provision was prompt, pharmacy staff was friendly but privacy was not assured during the interaction between pharmacy staff and MCs as most of the interactions took place in the presence and to the hearing of other staff and clients.

To reverse these trends especially in these times that Ghana intends to increase its contraceptive prevalence rates, pragmatic efforts should be geared at equipping pharmacy staff with knowledge about ECPs and also ensuring that practically this knowledge is transferred to all ECP clients as well as ensuring that privacy is assured in the provision of ECPs on OTC basis.

6.2 Recommendations

In order to increase the knowledge of both pharmacy staff and ECP clients on ECP and its use, continuous professional education for all pharmacy staff should be geared towards good dispensing practice for OTC drugs especially for ECPs. Also, the possibility of the development of a standard checklist or protocol in the dispensing of ECPs should be looked at and considered by the relevant authorities so that all pharmacy staff would be trained in its use. These measures could be implemented by bodies such as the Pharmaceutical Society of Ghana and the Community Pharmacy Practice Association in collaboration with other stakeholders.

Additionally, designation of counselling areas in pharmacies in Ghana will go a long way to improve privacy during the provision of ECPs. This could be considered and ensured by the Pharmacy Council of Ghana as a prerequisite for registration and or renewal of pharmacy licenses.

Also, counseling on ECPs should be added to the protocols of contraceptive provision so that all clients are informed about ECPs by family planning providers. This could be implemented by the Ghana Health Service and the Ministry of Health in partnership with other stakeholders.

Furthermore, there is also the need for further research possibly qualitative with a recorder, into the exact interactions between the pharmacy staff and MCs.

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APPENDICES**DATA COLLECTION INSTRUMENT****Project Title: DISPENSING PRACTICE OF PHARMACY STAFF IN THE
PROVISION OF EMERGENCY CONTRACEPTIVE PILLS**

Pharmacy Code:

Identity number of Mystery Client:

Sub-metro:

Suburb/Area:

Date of visit (Day/month/year):/...../..... .

Day of the week

.....

Time of Entry

Time of Exit

Scenario presented: 1

2

3

Please circle the number corresponding to the most appropriate response.**SECTION A: INFORMATION ABOUT PHARMACY STAFF**

NUMBER	QUESTION	RESPONSE/ CODING CATEGORY	SKIP TO
A1	Gender of pharmacy staff	Male 1 Female 0	
A2	Age of pharmacy staff (best guess)	<20 years 1 20-29 2 30-39 3 40-49 4 >50 5	
A3	Status of Staff	Pharmacist 1 Pharmacy Assistant 2 Dispensary Technician 3 Intern 4 Sales attendant 5 Owner 6 Relative to the owner 7 Medical Counter Assistant 8 Others/unsure (please specify)...	

SECTION B: ENVIRONMENT FOR COUNSELLING

NUMBER	QUESTION	RESPONSE/ CODING CATEGORY	SKIP TO
B1	How many other clients were in the pharmacy at the time of entry?	0 1 2 3 4 or more	
B2	How many employees did you see in the pharmacy at the time of entry, including the one you interacted with?	1 2 3 4 5	
B3	Were you asked to wait before being attended to?	Yes 1 No 2	If No, skip to B5
B4	How long did you wait for? minutes	
B5	Was the staff friendly?	Yes 1 No 0	
B6	What language was used during the interaction/counselling?	English 1 Twi 2 Ga 3 Others (specify) 4	
B7	Where was counselling done?	At a secluded place 1 At the counter 0	
B8	Visit time (minutes)	<1 1 1-5 2 >5 3	

SECTION C: HISTORY TAKING

NUMBER	QUESTION	RESPONSE/ CODING CATEGORY			
C1	Reason for request	Yes	1	No	0
C2	Ever use	Yes	1	No	0
C3	Time since unprotected sex	Yes	5	No	0
C4	Time since last menstrual period	Yes	5	No	0
C5	Did not ask for prescription	Yes	1	No	0
C6	Disagree to sell after history taking/persuasion	Yes	1	No	0
C7	Regular contraception	Yes	5	No	0
	TOTAL				

SECTION D: POST DISPENSING ADVICE

NUMBER	QUESTION	RESPONSE/ CODING CATEGORY			
D1	How it works	Yes	1	No	0
D2	Dosage and rate of Administration	Yes	1	No	0
D3	Side effects e.g. nausea, vomiting	Yes	1	No	0
D4	Effectiveness	Yes	1	No	0
D5	Effective for only this cycle	Yes	1	No	0
D6	When to return	Yes	1	No	0
D7	When to expect next menses	Yes	1	No	0
D8	What to do if menses does not occur	Yes	1	No	0
D9	Future/Continuing contraception	Yes	5	No	0
	TOTAL				