CERVICAL CANCER PREVENTION IN LIBYA – PUBLIC AWARENESS, BARRIERS TO SCREENING AND THE ATTITUDES OF HEALTH CARE PROFESSIONALS

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FACULTY OF MEDICINE

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CERVICAL CANCER PREVENTION IN LIBYA – PUBLIC AWARENESS, BARRIERS TO SCREENING AND THE ATTITUDES OF HEALTH CARE PROFESSIONALS

ABSTRACT

The age-standardized incidence rate of cervical cancer in Libya is 4.8 per 100,000. Free screening is only available for women who are at high risk or exhibit one or more symptoms and who have been recommended by healthcare providers. Asymptomatic women need to go to private healthcare facilities and pay out of pocket for regular screening. A cross-sectional survey was carried out in Az-Zawiya city to explore the population's awareness of cervical cancer, their willingness to pay for screening tests and the anticipated delay in help seeking. A total of 412 face-to-face interviews were conducted, using Arabic version of the Cervical Cancer Awareness Measure questionnaire and willingness to pay questions. Descriptive statistical analysis was performed to assess the socio-demographic characteristics of the respondents and their awareness of cervical cancer. Then, Analysis of variances was done to identify socio-demographic variances in the knowledge score on the warning signs and risk factors of cervical cancer. The logistic regression was performed to identify socio-demographic variations in the willingness to pay for cervical cancer screening. Moreover, a binary logistic regression was conducted on anticipated delay in help seeking. Furthermore, qualitative studies based on in-depth interviews were done to assess the healthcare providers' attitude towards and recommendation practices for cervical cancer screening. The other qualitative study was based on focus group discussions held with women from Az-Zawiya city to define the perceived barriers toward cervical cancer screening practice. Both qualitative studies were analysed using thematic analysis. The study revealed the existence of socio-demographic variation in awareness of both warning

signs and risk factors. Knowledge scores of cervical cancer symptoms and risk factors were higher in women who were aged 30–39 years, were married, had obtained a higher education qualification and earned a higher income. In addition, 54.6% of the respondents indicated that they would seek for help within two weeks if there were any warning signs of cervical cancer. Women who had mentioned that they would not delay were more likely to be younger than 40 years, married and have higher socio-economic status. Furthermore, only 37.9% indicated that they would be willing to pay for a regular screening test. The in-depth interviews explored the reasons for the lack of recommendations being given by providers of Libyan healthcare facilities to women on the need for them to have a cervical cancer screening test. The results highlight the role played by healthcare professionals in motivating women to attend cervical cancer screening programmes. Healthcare providers stressed the necessity for implementation of a reminder system for cervical cancer screening and the awareness campaigns about cervical cancer screening. Finally, numerous barriers preventing women from undertaking a Pap smear test were identified; lack of knowledge, financial constraints and accessibility to screening services being the main ones. The study offers some suggestions to the authorities to improve health education as it is essential to maximize public awareness of cervical cancer prevention. Firstly, more information on cervical cancer and screening should be disseminated through educational and awareness campaigns. Secondly, healthcare providers should play an important role in providing clearer information about cervical cancer and the benefits of screening. As a conclusion, the awareness of cervical cancer symptoms and risk factors among women from the city Az-Zawiya in Libya was low. Suggestions are made to the respective authorities to improve existing health education programme, which is essential to maximise public awareness of cervical cancer prevention. In addition, more information on cervical cancer and its screening should be disseminated through educational and awareness

campaigns. Moreover, health care providers should play an important role to provide clearer information about cervical cancer and the benefits of its screening. There is also a promising possibility to increase the cervical cancer screening rate by implementing low cost or free organized population based screening programme.

PENCEGAHAN KANSER SERVIKS DI LIBYA - KESEDARAN AWAM, HALANGAN KEPADA PEMERIKSAAN, DAN SIKAP PROFESIONAL KESIHATAN

ABSTRAK

Kadar insidens umur terpiawai bagi kanser serviks di Libya ialah 4.8 bagi setiap 100,000 orang. Saringan percuma hanya tersedia untuk wanita yang berisiko tinggi atau menunjukkan satu atau lebih gejala serta mereka yang disyorkan oleh penyedia penjagaan kesihatan. Wanita asimptomatik perlu hadir ke pusat penjagaan kesihatan swasta dan membayar sendiri untuk menjalani saringan biasa. Satu kaji selidik keratan rentas dijalankan di bandar Az-Zawiya untuk mengkaji tahap kesedaran penduduk mengenai kanser serviks, kesediaan mereka untuk membayar (willingness to pay) kos ujian saringan, dan jangkaan kelewatan mendapatkan bantuan. Sebanyak 412 temu bual secara bersemuka dijalankan menggunakan borang soal selidik Ukuran Kesedaran Kanser Serviks (Cervical Cancer Awareness Measure) dalam versi bahasa Arab dan soalan-soalan willingness to pay. Analisis statistik deskriptif dijalankan untuk menilai ciri-ciri sosiodemografi responden dan tahap kesedaran mereka terhadap kanser serviks. Seterusnya, analisis varians (analysis of variance) dijalankan untuk mengenal pasti varians sosiodemografi bagi skor pengetahuan mengenai tanda amaran dan faktor-faktor risiko kanser serviks. Regresi logistik dijalankan untuk mengenalpasti kepelbagaian sosiodemografi dalam willingness to pay untuk saringan kanser serviks. Tambahan pula, regresi logistik perduaaan turut dijalankan terhadap jangkaan kelewatan mendapatkan bantuan. Selain itu, kajian kualitatif berdasarkan temu duga mendalam (in-depth interview) dilaksanakan untuk menilai sikap penyedia penjagaan kesihatan serta amalan mereka untuk mencadangkan saringan kanser serviks. Kajian kualitatif kedua pula adalah berdasarkan perbincangan dalam kumpulan fokus (focus group

discussion) dalam kalangan wanita dari bandar Az-Zawiya yang bertujuan menentukan tanggapan halangan terhadap amalan saringan kanser serviks. Kedua-dua kajian kualitatif ini dianalisis menggunakan analisis tematik. Kajian ini menunjukkan kewujudan kepelbagaian sosiodemografi dalam tahap kesedaran tentang tanda amaran dan faktor risiko kanser serviks. Skor pengetahuan berkaitan gejala kanser serviks dan faktor risikonya adalah lebih tinggi dalam kalangan wanita berumur 30-39, berkahwin, mempunyai tahap pendidikan yang lebih tinggi dan berpendapatan lebih tinggi. Tambahan pula, 54.6% daripada responden menyatakan bahawa mereka akan mendapatkan bantuan dalam tempoh dua minggu jika wujud sebarang tanda amaran kanser serviks. Wanita yang menyatakan bahawa mereka tidak akan berlengah kebanyakannya berusia kurang daripada 40 tahun, berkahwin dan mempunyai status sosioekonomi yang lebih tinggi. Tambahan pula, hanya 37.9% responden menyatakan mereka sanggup membayar kos ujian saringan. In-depth interviews kajian ini turut meneliti sebab-sebab kekurangan cadangan oleh penyedia penjagaan kesihatan di pusat-pusat penjagaan kesihatan di Libya kepada wanita agar mereka menjalani ujian saringan kanser serviks. Keputusan kajian ini menonjolkan peranan yang dimainkan oleh penyedia kesihatan profesional dalam mendorong wanita supaya menghadiri program saringan kanser serviks. Penyedia penjagaan kesihatan menekankan kepentingan pelaksanaan sistem peringatan saringan kanser serviks serta mengadakan kempen kesedaran. Akhir sekali, halangan yang menyekat wanita daripada menjalani ujian calitan Pap dikenal pasti sebagai kekurangan pengetahuan, kekangan kewangan dan tahap ketersampaian kepada perkhidmatan saringan merupakan antara halangan utama. Kajian ini menawarkan beberapa cadangan kepada pihak berkuasa untuk meningkatkan mutu pendidikan kesihatan kerana ia penting untuk memaksimumkan kesedaran awam berkenaan pencegahan kanser serviks. Pertama, maklumat lanjut mengenai kanser serviks dan ujian saringannya harus disebarkan melalui kempen-kempen pendidikan dan

kesedaran. Kedua, penyedia penjagaan kesihatan perlu memainkan peranan penting dengan cara menyediakan maklumat yang lebih jelas mengenai kanser serviks serta faedah saringannya. Kesimpulan, Tahap kesedaran tentang gejala kanser serviks dan faktor risiko dalam kalangan wanita di bandar Az-Zawiya di Libya masih rendah. Beberapa cadangan diberikan kepada pihak berkuasa untuk meningkatkan mutu pendidikan kesihatan yang penting untuk memaksimumkan kesedaran awam berkenaan pencegahan kanser serviks. Di samping itu, maklumat lanjut mengenai kanser serviks dan ujian saringannya harus disebarkan melalui kempen pendidikan dan kesedaran. Selain itu, penyedia penjagaan kesihatan perlu memainkan peranan penting secara menyediakan maklumat yang lebih jelas mengenai kanser serviks serta faedah saringannya. Terdapat juga kemungkinan yang cerah ke arah meningkatkan kadar saringan kanser serviks melalui pelaksanaan program saringan berasaskan populasi yang berkos rendah ataupun dianjurkan secara percuma.

Kata kunci: Kesedaran, kanser serviks, pemeriksaan, profesional Kesihatan, Libya.

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LIST OF SYMBOLS AND ABBREVIATIONS

AIDS   Acquired Immune Deficiency Syndrome

ANOVA   Analysis of Variance

CAM   Cancer Awareness Measure

CC   Cervical Cancer

CCS   Cervical Cancer Screening

EMENA   Extended Middle East and North Africa

FGD   Focus Group Discussion

GP   General Practitioner

HBM   Health Belief Model

HIV   Human Immunodeficiency Virus

HPV   Human Papilloma Virus

IDI   In-Depth Interview

NHS   National Health Service

SPSS   Statistical Package for Social Sciences

STD   Sexually Transmitted Disease

UK   United Kingdom

USA   United States of America

USD	United States Dollar
WHO	World Health Organization
WTP	Willingness to Pay
SSA	Sub-Sahara Africa

LIST OF APPENDICES

CHAPTER 1 : INTRODUCTION

This introduction chapter starts with brief information about Libya's context, and then it goes on to clarify the health profile of the country with particular attention to that of Az-Zawiya city. Next, the chapter describes the burden of cervical cancer, which is followed by some background on the prevention of cervical cancer in Libya. Following this, the chapter describes the principles underpinning this study by providing the problem statement, study rationale, research questions, study objectives, and the public health significance.

Cancer has been defined by the World Health Organization (WHO) as a collective term used to classify a set of diseases affecting any area of the body that are characterized by the rapid proliferation of abnormal cells that have the potential to metastasize to other areas of the body (Hamilton & Aaltonen, 2000). The International Agency for Research on Cancer currently recognizes more than 100 different types of cancer (Hamilton & Aaltonen, 2000).

Cancers figure among the leading causes of morbidity and mortality worldwide, with approximately 14 million new cases and 8.2 million cancer-related deaths in 2012 (American Society of Clinical Oncology, 2016). Early detection, accurate diagnosis, and effective treatment, including pain relief and palliative care, help to decrease cancer mortality rates and improve quality of life. Cancer poses a major threat to public health worldwide, and incidence rates have increased in most countries since 1990 (Global Burden of Disease Cancer Collaboration, 2015). According to the WHO, lung, prostate, colorectal, stomach, and liver cancer are the most common types of cancer in men, while breast, colorectal, lung, uterine cervix, and stomach cancer are the most common among women (World Health Organization, 2013a).

Cancer of the cervix uteri, generally known as cervical cancer, is a global public health problem. Although it could be avoidable and treatable, it remains a leading cause of cancer mortality worldwide and one of the greatest threats to women's lives. It is the second most common cancer among women worldwide, with an estimated 528,000 new cases in 2012 (Ferlay et al., 2015). Almost 80% of total cases and an even higher proportion of deaths from cervical cancer occur in low- and middle-income countries (Masood, 1999), which is attributable to the low level of awareness of cervical cancer and the absence of effective cervical cancer screening programmes in these countries (Valdespinoa & Valdespinoc, 2006). Meanwhile, the prevalence of cervical cancer in developed countries has evidently dropped as a result of effective screening programmes (Valdespinoa & Valdespinoc, 2006). In 2010, 76% of the total number of cervical cancer cases was occurred in developed countries (Forouzanfar et al., 2011). Cervical cancer is one of the cancers that can be prevented by early detection through regular screening. The Pap smear test is the commonly used tool for early detection of cervical cancer and having regular screening tests has been shown to reduce cervical cancer incidence and death rates (Engelstad et al., 2001).

1.1 The country of Libya

Libya is an Arabic country located in North Africa. The United Nations Development Programme (UNDP) listed Libya 53rd out of 169 countries in the 2010 Human Development Index, as published in the *UNDP Human Development Report 2010* (Human Development Report 2010 team, 2010). The main cities are located in the northern part of the country along the coast. The six largest cities are (in descending order of population size) Tripoli, Benghazi, Az-Zawiya, Musrata, Derna and Sirte (World Health Organization, 2015).

1.1.1 Geographical profile

Libya is the fourth largest country in Africa by area, and the 17th largest in the world (African Studies Center, 2015). It is located midway along the north coast of Africa on the southern coast of the Mediterranean Sea between 18° and 33° north latitude and 9° and 25° east longitude. It shares borders with four Arabic countries (Tunisia, Algeria, Egypt and Sudan) and two other African countries (Chad and Niger). The country is bordered by the Mediterranean Sea to the north (Figure 1.1), and has an area of almost 1.8 million square kilometres (700,000 square miles).
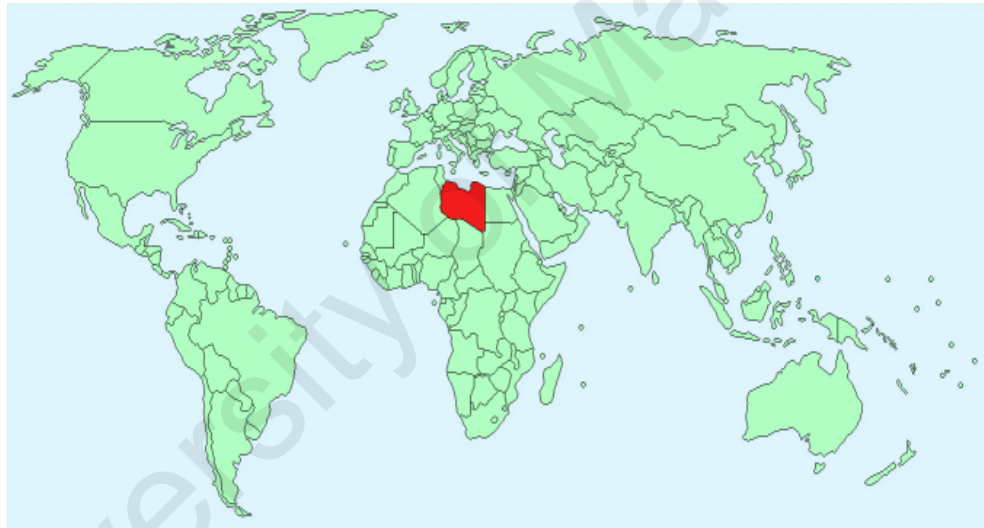
Figure 1.1: Location of Libya on the world

1.1.2 Demographic profile

Libya has a small population residing in a large land area, and the current population is 6,278,438 (ADP team, 2016). It is one of the most urbanized countries in North Africa with 79% of the population living in urban areas (United Nations et al., 2015). Thirty-seven per cent of urban residents are concentrated in the two largest cities

of Tripoli (1.1 million) and Benghazi (approximately 750,000) (UN-Habitat, 2012). The population growth rate was 0.84% in 2013, and it is estimated to reach 0.4% in 2045–2050 ("Libyan Population ", 2017). The key demographic indicators of Libya are illustrated in Table 1.1.

Table 1.1: Demographic indicators

Indicator	Value
Female population	49.99%
Rural population	21.83%
Urban population	78.17%

Life expectancy at birth (years)
    Males
    Females
    Total
	
	73.30
	77.15
	75.18

Population aged below 15	29.44%
Population aged 15 to 64	65.76%
Population aged above 64	4.79%
Population density (persons per km^2)	3.52
Average marriage age for male (years)	33.90
Average marriage age for female (years)	31.20
Fertility rate (per woman)	2.41
Population growth rate	0.84%
Crude birth rate (per 1000 inhabitants)	24.9
Crude death rate (per 1000 inhabitants)	4.0

1.1.3   Economic and social profile

Libya is a developing country and the Libyan economy depends primarily upon revenues from the oil sector, which contributes 95% of export earnings and 60% of public sector wages (World Health Organization, 2011). The country boasts the highest literacy rate and educational enrolment in North Africa. School education is mandatory until the end of secondary school (17 years old). The literacy rate for the population over 15 years old is 88.5% (males 93.7%, females 83.2%), which is well above that of the neighbouring countries. The substantial improvements in education in the past two decades have reduced illiteracy among females from 39% in 1980 to less than 16% in 2006 (World Health Organization, 2011).

1.1.4   Religion and language

In Libya, Islam is the major religion and the Arabic language is dominant. About 97% of the population in Libya are Muslims, most of whom belong to the Sunni branch of Islam, which acts as both a spiritual guide for individuals and a keystone of government policy. Very small numbers of Ibadi Muslims, Sufis and Ahmadis also live in the country, and these minorities, both linguistic and religious, suffer from a lack of consideration from official authorities. The main language spoken in Libya is the Arabic language and it is also the official language. Accordingly, there is a strong relationship between language and religion in Libya as the Arabic language is the language of the Quran.

1.1.5   Health service delivery

Libya's healthcare sector has suffered from neglect and mismanagement for over 40 years, despite many Libyans earning degrees in medicine and healthcare in universities around the world (Reis et al., 2011). Levels of healthcare in Libya are poor compared to international standards and are badly in need of substantial new investment.

Following the revolution in 2011, expectations of Libyans in regards to the standard of living that they require and the kind of health service they should enjoy have risen immensely. There is also great pressure on the Government to improve the health sector.

Generally, there is a mixed system of public and private healthcare in Libya. Healthcare is delivered through a series of primary healthcare units, polyclinics, rehabilitation centres, and general hospitals in urban and rural areas as well as tertiary care specialized hospitals. The healthcare delivery system operates on three levels (World Health Organization, 2007):

- The first level consists of primary healthcare units and polyclinics.
- The second includes general hospitals in rural and urban areas where care is provided to those referred from the first level.
- The third level comprises tertiary care specialized hospitals.

The administrative system of the country is relatively decentralized. The country is divided into 22 *Shabiat* (districts) (World Health Organization, 2007) . Before the revolution in 2011, the General People's Committee for Health and Environment was responsible for all health issues. Under the new government, a Ministry of Health was formed and the existing healthcare system gives the Ministry of Health full authority to deliver, regulate and finance healthcare (World Health Organization, 2011). The Ministry of Health is the body responsible for all matters relating to public health, preventive health, therapeutic medicine, medical institutions, pharmaceuticals, the control of drug circulation and the practice of medical and related professions (Bälz, 2012).

The public health sector is the main provider of health services in Libya, while the private sector is still emerging and has a currently limited role. The public health

sector is funded and controlled by the Ministry of Health, and governmental spending on healthcare in Libya is exclusively directed at this sector, hence most of the services in public institutions are either fully or partially subsidized. Roughly speaking, for each district in the country there is at least one public hospital with a minimum of 120 beds. All residents can freely access urgent and essential specialist services in addition to a 24-hour accident and emergency service. The private sector in Libya mostly provides primary and basic secondary care through 431 outpatient clinics and 84 inpatient clinics (World Health Organization, 2007); these inpatient clinics can be regarded as small private hospitals with a few beds.

1.1.6   Az-Zawiya city:

Az-Zawiya is one of the largest cities in Libya. According to the 2012 census, it has 157,747 inhabitants (Wikipedia, 2017). It is located in the northwest of Libya, on the Libyan coastline of the Mediterranean Sea about 45 km (28 mi) west of Tripoli (Library of Congress, 2005). The city has a good number of healthcare facilities in comparison with some other cities; it has 61 healthcare facilities out of total number of 1442 (Table 1.2) (World Health Organization, 2007).

In the city, there are two polyclinics that provide comprehensive services for all residents ranging from the management of acute and chronic medical conditions to health education, childhood immunization, vaccinations, radiology and laboratory services and minor surgical procedures. Moreover, there are 58 public health centres and units; the difference between public health centres and units is that, in addition to the services provided by the health units, the centres also provide educational services for medical students. The public health units administer health promotion and disease prevention programmes to inform the public about healthy lifestyles, communicable disease control, immunization, inspections of food premises, health education for all age

groups, health education campaigns in schools and selected screening services. Finally, there is one communicable disease centre that offers consultations and treatment for a variety of communicable diseases.

Table 1.2: Total number of public health facilities in libya by district

No	Names of shabiat	Health facilities			
		Poly-clinics	PHC centers & units	Communicable Disease Center	Total
1.	Albetnan	1	65	1	67
2.	Derna	2	55	1	58
3.	Al - Gebal - Alakhdar	3	58	1	62
4.	Almarege	0	70	1	71
5.	Benghazi	6	69	1	76
6.	Al - Wahat	1	47	2	50
7.	Al -Kufra	0	16	1	17
8.	Sirte	1	42	1	44
9.	Al – Jufra	0	12	0	12
10.	Misurata	4	68	2	74
11.	Al -Merghip	2	134	3	139
12.	Tripoli	11	96	1	108
13.	Joufara	0	121	0	121
14.	Alzawea	2	58	1	61
15.	Al - Gebal -Elgharbi	1	157	2	160
16.	Naloot	0	43	2	45
17.	Sebha	1	25	1	27
18.	Ghat	0	13	1	14
19.	Morziq	1	52	1	54
20.	Wadi-Alhiat	0	36	0	36
21.	Wadi- Alshati	0	65	0	65
22.	Al -Nequt-Alghmis	1	80	0	81
TOTAL		**37**	**1382**	**23**	**1442**

Currently, there is no private hospital in Az-Zawiya city, but there are two main public hospitals (Table 1.3) (World Health Organization, 2007). Table 1.4 lists the total number of private healthcare facilities in Libya. In Az-Zawiya city, in addition to three inpatient clinics, there are 32 outpatient clinics.

Table 1.3: Total number of hospitals and hospital beds in libya by district

NO	Names of Shabiat	Hospitals				
		Specialized	General	Rural	Total	No, of beds
1.	Albetnan	0	1	2	3	540
2.	Derna	0	1	2	3	632
3.	Al - Gebal - Alakhdar	1	1	2	4	752
4.	Almarege	0	1	3	4	615
5.	Benghazi	10	2	2	14	3245
6.	Al - Wahat	0	2	1	3	402
7.	Al -Kufra	0	1	1	2	180
8.	Sirte	0	1	1	2	283
9.	Al – Jufra	0	1	1	2	196
10.	Misurata	2	3	1	6	1840
11.	Al -Merghip	0	3	3	6	864
12.	Tripoli	9	4	0	13	4777
13.	Joufara	1	0	0	1	201
14.	Alzawea	0	2	0	2	616
15.	Al - Gebal -Elgharbi	0	3	6	9	1110
16.	Naloot	0	2	3	5	552
17.	Sebha	0	1	0	1	480
18.	Ghat	0	1	0	1	120
19.	Morzig	0	1	1	2	180
20.	Wadi-Alhiat	0	0	1	1	120
21.	Wadi- Alshati	0	1	2	3	240
22.	Al -Nequt-Alghmis	0	4	0	4	723
23.	Central Hospitals	4	0	0	4	2041
	TOTAL	**27**	**36**	**32**	**95**	

Table 1.4: Number of private health facilities and beds by district

NO	Names Of Shabiat	Private Sector				
		In Patient Clinics	No of Beds	Out Patient Clinics	Dental Clinics	Pharma cies
1.	Albetnan	1	20	7	2	38
2.	Derna	2	12	7	4	38
3.	Al - Gebal - Alakhdar	0	0	11	4	42
4.	Almarege	0	0	9	3	33
5.	Benghazi	16	272	78	41	250
6.	Al - Wahat	0	0	10	4	27
7.	Al -Kufra	0	0	3	1	5
8.	Sirte	2	26	6	5	45
9.	Al – Jufra	0	0	3	1	12
10.	Misurata	9	112	27	25	81
11.	Al -Merghip	11	120	33	5	39
12.	Tripoli	27	502	126	124	426
13.	Joufara	1	120	26	7	135
14.	Alzawea	3	82	32	6	79
15.	Al - Gebal -Lgharbi	0	0	16	7	55
16.	Naloot	0	0	2	2	20
17.	Sebha	4	25	7	12	57
18.	Ghat	0	0	0	0	2
19.	Morzig	0	0	2	1	9
20.	Wadi-Alhiat	0	0	2	2	16
21.	Wadi- Alshati	0	0	6	2	29
22.	Al -Nequt-Alghmis	8	70	18	1	64
	TOTAL	**84**	**1361**	**431**	**259**	**1502**

1.1.7   Health expenditure

The healthcare system in Libya has suffered long periods of neglect, poor funding, and lack of development and modernization programmes. While all Libyan citizens have enjoyed an all-encompassing healthcare package that is technically free at the point of use, there has been growing concern about the quality of services provided. Consequently, people may opt to purchase private medical care in order to receive a higher level of service. Together with a general distrust of public facilities, this has meant that a multimillion dollar medical tourism industry has developed in neighbouring countries, and wealthy Libyans, for example, will always go to Tunisia for treatment. As a result, out-of-pocket expenditure on healthcare is thought to be closer to 20%, compared to the Government's figure of 12% (Reis et al., 2011). Out-of-pocket spending is the most frequently used method of paying for health services around the world. However, as a share of the total value of global health spending, it is eclipsed by social insurance, private insurance and general taxation (Liu et al., 2015).

On the other hand, Libya provides a national umbrella of social security through the implementation of a comprehensive social security system. Social security is guaranteed to all citizens and is extended to foreigners living in Libya. It also includes all schemes or procedures instituted to promote the welfare of Libyan and foreign workers in the event of old age, disability, sickness, employment, accident or occupational disease, disaster, death, pregnancy, and childbirth.

According to the WHO, the total expenditure on health as a percentage of gross domestic products (GDP) in Libya reached 5.0% in 2014. The value of health expenditure per capita was US dollars (USD) 371.72 as of 2014, which covers the provision of health services (preventive and curative), family planning activities,

nutrition activities, and emergency aid designated for health but does not include provision of water and sanitation (Cancer Research UK, 2014c).

1.2   Cervical cancer

Cervical cancer is one of the most common genital tract cancers in women, and it begins in the cells lining the cervix (American Cancer Society, 2016). Clinically, it is defined as abnormal cellular changes that have originated from the surface of the cervix (DiSaia & Creasman, 2002). The cervix is the anatomical junction between the lower part of the uterus and the upper part of the vaginal canal.

Cellular level changes in the cervix are often referred to as dysplastic or carcinoma-in-situ. In both stages, cells have changed in appearance, shape, size, or rate of proliferation. However, the primary pathological characteristic that distinguishes dysplasia from carcinoma-in-situ is that dysplastic cells may either revert to normal cells or progress to cancer. In carcinoma-in-situ, the biological and genetic characteristics of the cells have been changed irreversibly and the abnormal cells have the potential to metastasize to other anatomical regions (DiSaia & Creasman, 2002).

Cervical cancer can be classified based on where it originates in the cervix. The most common type of cervical cancer is squamous cell carcinoma, which originates in the ectocervix or side facing the vaginal canal. On the other hand, an adenocarcinoma is a cervical cancer that develops in the endocervix or portion of the cervix facing the uterus. Cervical cancer that originally involves both the ectocervix and endocervix is usually classified as an adenosquamous carcinoma or mixed carcinoma (DiSaia & Creasman, 2002).

Cervical cancer is a sexually transmitted disease (STD) that is caused mainly by human papilloma virus(HPV) (Muñoz, 2000; Todda & Shafib, 2004). Human

papillomaviruses is a tem for a group of viruses that are extremely common worldwide, and there are more than 100 related viruses (Elfström et al., 2015). More than 40 HPV types can be easily spread through direct sexual contact, from the skin and mucous membranes of infected people to the skin and mucous membranes of their partners. They can be spread by vaginal, anal, and oral sex (Elfström et al., 2015). Other HPV types are responsible for non-genital warts, which are not sexually transmitted. Sexually transmitted HPV types fall into two categories (Elfström et al., 2015; Sancho-Garnier et al., 2013):

- Low-risk HPVs, which do not cause cancer but can cause skin warts (technically known as condylomata acuminata) on or around the genitals, anus, mouth, or throat. For example, HPV types 6 and 11 cause 90% of all genital warts. These two types can also cause recurrent respiratory papillomatosis, a less common disease in which benign tumours grow in the air passages leading from the nose and mouth into the lungs.

- High-risk HPVs, which can cause cancer. About a dozen high-risk HPV types have been identified. Two of these, HPV types 16 and 18, are responsible for most HPV-caused cancers.

Most high-risk HPV infections occur without any symptoms, go away within 1 to 2 years, and do not cause cancer. Some HPV infections, however, can persist for many years. Persistent infections with high-risk HPV types can lead to cell changes that, if untreated, may progress to cancer. Consequently, cervical cancer can be prevented and cured through early detection and treatment, such as having regular screening tests, an approach that has been shown to reduce the rates of cervical cancer incidence and death (International Agency for Research on Cancer, 1986). In addition to HPV, various other factors have been recognized as risk factors of cervical cancer, such as smoking,

weakened immune system, use of contraceptives, high parity, family history of cervical cancer and having multiple sexual relationships (Ezechi et al., 2013; Hildesheim et al., 2001; Hinkula et al., 2004; International Collaboration of Epidemiological Studies of Cervical Cancer, 2007; Negri et al., 2005; Waller et al., 2004).

In the early stages of cervical cancer, typically there are no apparent symptoms (Martínez, 2005). In such cases, the cancer may be detected by a Pap smear screen and subsequent testing even before symptoms have developed. When symptoms do occur, one of the most common symptoms is abnormal vaginal bleeding (Low et al., 2012). This includes vaginal bleeding between periods, during/after sexual intercourse and after the menopause. There are also some other symptoms: unusually heavy menstrual periods, vaginal discharge and lower back and pelvic pain (Low et al., 2012; Varma & Gupta, 2005).

1.2.1 Cervical cancer worldwide

Cervical cancer is considered as a global public health problem. Worldwide, cervical cancer is ranked as the seventh most common cancer, but among women it is the third most common cancer, with an estimated 530,000 new cases and 275,100 deaths in 2008 (Arbyn et al., 2011; Jemal et al., 2011). Cervical cancer is the most common cancer among women in 45 countries around the world, and it kills more women than any other form of cancer in 55 countries. These countries include many in sub-Saharan Africa and Asia, and some in Central and South America (World Health Organization, 2014).

Differences in the incidence and mortality rates of cervical cancer are observed between countries. In developed countries, cervical cancer screening programmes enable women to get screened regularly, making it possible to identify most

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precancerous lesions at stages when they can easily be treated. In developing countries, cervical cancer is ranked as the second most common cancer among women, and almost 80% of cervical cancer cases occur in these countries (Jemal et al., 2011). This percentage clearly illustrates the great divide between women living in high-income versus low- to middle-income countries (World Health Organization, 2014).

In the Extended Middle East and North Africa (EMENA) region, the majority of countries, according to World Bank criteria, can be classified as developing countries (The World Bank, 2015). The age-standardized incidence of cervical cancer is estimated to be 6.4 per 100,000 women per year in North Africa, 2.7 per 100,000 women per year in the Middle East, 10.8 per 100,000 women per year in the Extended Middle East, and 3.1 per 100,000 women per year in the Gulf States (Jemal et al., 2011; Khan & Woolhead, 2015). In most of the countries of the EMENA region, national population-based and organized cervical cancer screening programmes have not yet been established. Therefore, most patients with cervical cancer are diagnosed in the late stage, resulting in a high mortality rate (Sait, 2009). The lack of awareness and knowledge among women in these countries, together with socio-cultural barriers and difficulties in accessing medical services, hinders the participation of women in cervical screening (Sait, 2009).

Generally, limited access to effective screening means that the disease is often not identified until it is at an advanced stage and symptoms have presented. In addition, prospects of receiving effective treatment for a late-stage form of the disease may be poor, resulting in a higher death rate from cervical cancer. Yet, the high mortality rate from cervical cancer globally (52%) could be reduced by the implementation of effective screening and treatment programmes (Elfström et al., 2015).

1.2.2 Cervical cancer in Libya

Regrettably, cancer has become a major public health problem in Libya. Despite some progress in cancer prevention across the world, Libya still lacks a national cancer control plan like those found in many countries of the Eastern Mediterranean region (Mistiri et al., 2010). Cervical cancer ranks as the third most frequent cancer among women in Libya and the seventh most frequent cancer among women between the ages of 15 and 44 (Institut Català d'Oncologia, 2014). Annually, 241 new cervical cancer cases are diagnosed with an estimated 95 deaths registered every year (Bruni et al., 2015). In 2012 alone, the age-standardized incidence rate of cervical cancer was 9.7 per 100,000 of Libyan females (Bruni et al., 2015) .

1.2.3 Cervical cancer screening

Screening is the best way to detect the early changes that might lead to cervical cancer. Cervical cancer was the first malignancy world-wide for which an effective method of screening was introduced (Busuttil et al., 2006).The objectives of the screening are to achieve an early diagnosis, to reduce morbidity and mortality, and to improve the quality of life of women at risk of developing the late stage of the disease (Luis G. et al., 2002). Generally, the Pap smear screening test is regarded as the oldest and primary tool for cervical cancer screening, and is widely available and accepted. The Pap smear test is a procedure to collect cells from the surface of the cervix and vagina. A piece of cotton, a brush, or a small wooden stick is used to gently scrape cells from the cervix and vagina. The cells are then viewed under a microscope to find out if they are abnormal. The Pap smear test can detect any abnormalities of the cervix at an early stage (Queensland Cervical Screening Program, 2009), and it has been effective in detecting cervical cancer since the 1940s (Mahlck et al., 1994; Papanicolaou, 1948).

The WHO recommends specific target ages and frequencies of cytological screening (World Health Organization, 2013c):

- Women of the age 30 years and older are recommended to start screening because of their higher risk of cervical cancer.

- Priority should be given to screening women aged 30–49 years, rather than maximizing the number of screening tests in a woman's lifetime. So, if a woman can undergo screening only one time in her lifetime, the best age is between 30 and 49.

- In women aged over 50, a five-year screening interval is appropriate.

- In women aged 25–49, a three-year interval can be considered if resources are available. Consequently, the screening intervals may depend on financial, infrastructural, and other resources.

- Annual screening is not recommended at any age.

- Screening is not necessary for women aged over 65, provided the last two previous smears in mid-life were negative.

1.2.4   Pap smear practice among Libyan women

As mentioned above, the Pap smear test is a screening procedure for cervical cancer. It tests for the presence of precancerous or cancerous cells on the cervix. Cervical cancer is usually a slow-growing cancer that may not result in any symptoms but can be found by regular Pap testing. With regular screening tests and follow-up, cervical cancer could be the easiest gynaecological cancer to prevent. In Libya, the Ministry of Health typically follows the screening guidelines of the WHO, and cervical cancer screening is recommended for women who are 30 years or older and usually after marriage. Cervical cancer is almost always the result of a STD. Therefore, unmarried women or those who are not sexually active are less likely to be infected with HPV.

The Pap smear test is available in Libya as a screening tool for cervical cancer. It is offered in some of the general hospitals and a number of private clinics. Nevertheless, the screening uptake is still low in Libya, as is the case in most Middle East and Arabic countries, and this is related to the low level of awareness of cervical cancer screening in these countries (El-Hammasi et al., 2009).The major problem with respect to cervical cancer in Libya is delayed presentation (Khaial et al., 2014); the majority of cervical cancer cases in Libya are discovered at the advanced stages (stages III and IV) (Sabratha Oncology Centre, 2007). Detection of cervical cancer in its earliest stages is lifesaving as survival from cancer of the cervix uteri strongly depends on the stage at diagnosis. The outcome or chance of being cured is better the earlier the cancer is detected. The smallest tumours of only a few millimetres are very unlikely to come back if they are completely removed (Cancer Research UK, 2014b).

The stages of cervical cancer are numbered from I to IV, and each stage number indicates how far the cancer has spread. It is important to determine the stage of cervical cancer because the treatment depends mainly on the stage of the cancer. According to the American Society of Clinical Oncology, when cervical cancer is detected at an early stage, the five year survival rate for women with invasive cervical cancer is 92%. However, if cervical cancer has spread to surrounding tissues or organs and/or the regional lymph nodes, the five year survival rate is 57%. If the cancer has spread to a distant part of the body, the five year survival rate is 17% (American Society of Clinical Oncology, 2016).

Generally, no national studies have been done in Libya to quantify the total number of women who have chosen to undergo routine cervical smear tests. Moreover, to date there are no suitable statistics about the amount of smears performed every year in both the public and private sector. Nevertheless, through the researcher's visits to a

cancer registry in the west of Libya and a private clinic in Az-Zawiya city, the total number of women who had a smear test in 2012 was obtained. Firstly, the National Cancer Institute in Sabratha, which is about 26 km from Az-Zawiya, did 109 Pap smear tests on suspected patients from different cities in the west and 41 of them were diagnosed as cervical cancer cases, ten of whom were from Az-Zawiya city. Secondly, in Ibn El-Nafis private clinic in Az-Zawiya city, only 27 women had a Pap test and four of those were found to be suffering from cervical cancer. According to the clinic, most of the women who asked for a Pap smear test had some signs or symptoms of cervical cancer and were sent to the clinic by other hospitals.

1.2.5   Cervical cancer prevention programmes in Libya

The major aim of cervical cancer screening is to decrease the incidence and mortality of invasive cervical cancer. While population-based cervical cancer screening programmes have been introduced in most developed and developing countries, There are none in the Middle East or Arabic countries (El-Hammasi et al., 2009). Developed countries have established regular screening for eligible women, and this has reduced mortalities from invasive cervical cancer (Sankaranarayanan et al., 2001; P. B. Smith et al., 2003). For example, in Iceland, Finland, Sweden, and Denmark, the implementation of organized, population-based cervical screening programmes has significantly reduced cervical cancer morbidity and mortality (IARC et al., 1986).

In low- and middle-income countries, because of the high cost of setting up screening programmes based on cytology, the extent of screening coverage is very low and alternative screening methods are needed (World Health Organization, 2013c). In addition, follow-up of a positive cytology test with a colposcopy and biopsy requires resources and skilled personnel that are largely lacking in many countries. Other bottlenecks in screening programmes based on cytology include the need for referral to

distant health facilities for diagnostic and treatment services, and the long waiting times before cytology results are available (World Health Organization, 2013c).

In most developing countries, the opportunistic cervical screening programme is the commonly used approach. This type of programme is preferred rather than an organized screening programme due to limited resources. To date, there is still no organized national cervical screening programme in place in Libya, hence cancer screening activities in the country are opportunistic in nature. In the opportunistic type of screening, practitioners urge women visiting maternal and child healthcare or reproductive healthcare services to have a Pap smear test.

1.2.6 Health care professional's role in improving cervical cancer screening uptake

Cervical cancer prevention cannot be achieved if participation of women is low in cancer screening programmes (Donnelly, 2008). Cervical cancer screening uptake can be increased by approaching health professionals to discuss the symptoms, risk factors and the screening procedure of cervical cancer with women when they go to seek health care (Ndejjo et al., 2016). Health-care providers can influence women's screening behaviours, and their lack of recommendations for screening can be one of the barriers that affect women's participation in screening programmes.

1.3 Problem statement

Cervical cancer is a preventable and curable disease if detected and treated at an early stage, and generally, awareness about cervical cancer as well as availability of and accessibility to effective cervical cancer screening programmes could reduce its burden among women (Sankaranarayanan et al., 2001). The Pap smear test is one of the most effective cervical cancer screening tests available, and its ability to detect premalignant

conditions has contributed to a decline in cervical cancer morbidity and mortality in developed countries. For example, the cumulative incidence rate of cervical cancer in developed countries was 0.9% in 2008, while it was 1.9% in developing countries in the same year (Arbyn et al., 2011). One of the main reasons for the huge difference in the incidence between developed and developing countries is the lack of awareness of cervical cancer among the population and the unavailability of and limited access to the screening programme in the latter (Sankaranarayanan et al., 2001).

In less-developed countries, cervical cancer screening programmes may be available, but women may not have access to cervical cancer screening services. In these countries, screening services may be limited to urban communities or even be non-existent in some areas of the country, in addition to there being insufficient personnel and inadequate mechanisms in place to provide diagnostic and treatment services (DaCosta, 2009). Moreover, women in less developed countries may lack basic health education and often have poor knowledge about cervical cancer and screening (DaCosta, 2009). In most Arabic countries, women have been found to have very little knowledge about cervical cancer screening, with most of them never having had a Pap test (Amarin et al., 2008; Chaouki et al., 1998; El-Hammasi et al., 2009). Not surprisingly, most cervical cancer patients in these countries have an advanced stage of the disease.

In Libya, the Pap smear test is the tool most commonly used for the detection of cervical cancer. It is available in both the public and private sector. In the public sector, the test is free of charge, but it is only accessible for women who have one or more signs or symptoms of cervical cancer. The Pap test costs 50 USD in the private sector, which is equivalent to about 60 Libyan dinar (LD). Hence, women who want to do regular screening for cervical cancer have to fund the tests themselves.

1.4   Rationale of the study

Cervical cancer is still a major cause of morbidity and mortality worldwide. Cervical cancer screening is regarded as a major contributor to the decrease in cancer deaths. It can actually prevent most cervical cancers as it identifies abnormal cervix cell changes early on, so that the changes can be treated before they have a chance to turn into a cervical cancer. Screening tests offer the best chance of finding cervical cancer at an early stage when successful treatment is more likely.

In Libya, as in other developing countries, opportunistic cervical cancer screening is still practised, and screening practice is still low. It is therefore necessary to establish and enhance cervical screening programmes for the early detection of cervical cancer and to reduce morbidity and mortality caused by cervical cancer. The cancer burden can be reduced by implementing efficient and effective cervical cancer screening programmes in order to promote and maintain women's practice of having a regular Pap smear screening test. The uptake of a cervical cancer screening programme depends on the level of cervical cancer awareness among the target population and their willingness to pay (WTP) for the screening test.

The most common barriers related to cervical cancer screening practice in Arabic societies is the lack of awareness of the warning signs and symptoms, risk factors, and the screening test for cervical cancer (El-Hammasi et al., 2009). Women's awareness about cervical cancer and screening could be a major contributor in reducing the rates of morbidity and mortality caused by this cancer. Therefore, women have to be educated about cervical cancer and the need for regular screening.

On the other hand, lack of communication between health care professional and his patients may play a role in the poor uptake of cervical cancer screening (Al-Meer et

al., 2011). Consequently, the healthcare providers and professionals who serve women may also need education and retraining about cervical cancer screening.

1.5 Research questions

The research questions were developed in line with the rationale of the study, as follows:

1. What is the level of awareness of cervical cancer among Libyan women?

2. Are women interested in having a regular cervical cancer screening test and are they willing to pay for the tests? If so, what is the maximum amount women would be willing to pay for Pap smear tests?

3. What are the barriers that prevent women from having regular Pap smear tests?

4. How do healthcare providers encourage women to have regular Pap smear tests?

1.6 Objectives of the study

Generally, this study aimed at determining the awareness level of cervical cancer and willingness to pay for the screening programme among Libyan women, and highlighting whether the current recommendation practices of health care professional have the capacity to improve women's awareness and screening uptake.

The specific objectives are:

1. To assess the level of awareness of the warning signs and risk factors of cervical cancer;

2. To identify socio-demographic variation in the awareness of the warning signs and risk factors of cervical cancer;

3. To assess the users' willingness to pay for Pap smear screening test.

4. To highlight the cultural barriers that prevent women from undergoing cervical cancer screening tests;

5. To study the attitude towards and the recommendation practices for cervical cancer screening among healthcare providers.

Effective Pap smear screening practices and prevention strategies for cervical cancer are much needed in Libya, but there is no available evidence and information to guide their development and implementation. This study will help to fill that gap and provide the required information about cervical cancer awareness among women in Libya.

1.7   Public health significance

This study focuses on cervical cancer awareness among women in Az-Zawiya city in Libya. The study investigates women's awareness of the warning signs and symptoms of this cancer, as well as the risk factors. In addition to the perceived barriers that are preventing women from having cervical cancer screening tests, this research also determines women's WTP for a Pap smear test as a screening tool for cervical cancer. In addition, this study also explores the reasons behind the lack of recommendations given by healthcare providers in Libyan healthcare facilities.

The results of this study will be used to develop an intervention strategy to raise women's awareness of the symptoms and risk factors of cervical cancer, to encourage people to have medical check-ups, and to accelerate the treatment and early detection of cervical cancer in Libya. Consequently, it is hoped that this will facilitate the development of effective public health strategies for increasing the uptake of the Pap smear screening test and reducing cervical cancer morbidity and mortality. This will eventually contribute to promoting and maintaining the wellbeing and health status of women throughout the country.

1.8 Hypotheses

1.8.1 Null hypotheses

1. There is no association between demographic characteristics and awareness of cervical cancer warning signs and risk factors and having a screening test.

2. There is no association between demographic characteristics and anticipated delay in help seeking.

3. Women in Az-Zawiyah city are not willing to pay for cervical cancer screening tests.

4. There is no association between cultural barriers and having Pap smear test among women in Az-Zawiyah city.

1.8.2 Alternative hypotheses

1. There is an association between demographic characteristics and awareness of cervical cancer warning signs and risk factors and having screening test.

2. There is an association between demographic characteristics and anticipated delay in help seeking.

3. Women in Az-Zawiyah city are willing to pay for cervical cancer screening tests.

4. There is an association between cultural barriers and having Pap smear test among women in Az-Zawiyah city.

1.9 Organization of the thesis

This thesis consists of six chapters. Chapter 1, this chapter, provides an introduction that includes the background and motivation of the study. Chapter 2, the literature review, presents a review of the literature that is relevant to this research. Chapter 3 provides an outline of the research methodology adopted to answer the research questions. Chapter 4 details the research results obtained. Chapter 5 presents a

discussion of the results and analyses these in comparison to those presented in the relevant literature. Finally, Chapter 6 concludes the thesis by providing a summary of the main findings and also making some recommendations for consideration by the healthcare sector.

1.10   Summary

Cervical cancer is a preventable disease, yet it still constitutes a global public health problem, especially in developing countries such as Libya. Most of these developing countries lack population-based cervical cancer screening programmes, yet it is clear that such programmes have contributed to increase the coverage of cervical cancer screening uptake in most developed countries. This chapter provided details about Libya and cervical cancer issues in Libya. In addition, it elaborated the rationale for the study, research questions, study objectives, public health significance, and hypotheses, and also presented the organization of the thesis.

CHAPTER 2   : LITERATURE REVIEW

Following the introduction to this thesis, which highlighted the need for conducting this study, this literature review chapter further presents the relevant background knowledge to explain the importance to this research and clarify why the problem is a significant issue. A review of the literature helps to address the purpose of and the orientation of this study by identifying potential relationships between concepts and making recommendations for future research.

This review focuses on:

1. Cervical cancer signs and symptoms, risk factors and level of awareness of cervical cancer in the Middle East region;

2. Types of cervical cancer screening programmes;

3. Factors associated with access to cervical cancer screening programmes;

4. WTP for cervical cancer screening;

5. The attitude towards and recommendation practices for cervical cancer screening among healthcare providers.

The search of the literature was conducted to critically appraise the context related to the research objectives and to establish the theoretical framework for conducting the research to fulfil the study objectives.

2.1. Cervical cancer signs and symptoms, risk factors and level of awareness of cervical cancer in the Middle East region

Cervical cancer is a cancer that grows slowly and may not result in any symptoms, but it is treatable if diagnosed early through a screening test (Corusic et al., 2010). A Pap smear screening test can potentially identify pre-cancerous changes (Saonere, 2010).The treatment of precancerous lesions may prevent the development of cancer, save patients' lives, and protect them from unnecessary health, social and financial consequences (Saonere, 2010).Cervical cancer was the first cancer recognized by the WHO as completely related to an infection. Human papilloma virus is one of the most common sexually transmitted viruses. It is estimated that over 50% of sexually active women acquire high-risk HPV genotypes in their lifetime (Frazer et al., 2006). In addition to HPV, there is a number of factors that increase the possibility of developing cervical cancer, and these risk factors play a significant role in raising the incidence of cervical cancer.

Women's awareness of cervical cancer warning signs and risk factors provides a firm anchorage for targeted interventions to increase the uptake of preventive measures and promote early help seeking for cervical cancer symptoms (Mwaka et al., 2015). Awareness of cervical cancer plays an important role in improving women's attendance for cervical cancer screening programmes (Shankar et al., 2015) and preventing delayed help seeking (Morris et al., 2016). Countries in the EMENA region are considered to be conservative, and sex and related issues are still taboo among the general population. Therefore, women's knowledge about cervical cancer and cervical cancer screening is poor. In addition, the practising of cervical cancer screening among women in these communities is regarded as low. For example, a study conducted in Egypt reported that only 1.5% of urban women have had a Pap smear test (Abdelall et al., 2007). Moreover,

only 5% in Jordan and 23.8% in Kuwait had undergone a Pap test in their lifetime (Amarin et al., 2008; Sairafi & Mohamed, 2009). However, effective cervical cancer screening programmes have been implemented in developed countries, and they have dramatically reduced the incidence of and mortality from cervical cancer (Quinn et al., 1999; Willoughby et al., 2006).

On the other hand, Muslim societies have different views regarding premarital sex at an early age and before marriage, so they may not allow females to have the HPV vaccine or Pap smear test before marriage. For instance, 93% of Turkish parents against their daughters having a HPV vaccination and they think it may encourage them to have premarital sex (Ilter et al., 2010).

2.1.1   Signs and symptoms of cervical cancer

Cervical cancer is one of the cancers that usually show no specific signs or symptoms in the early stages. Women with early cervical cancers and a precancerous condition may have no symptoms or they may not be noticeable, unless detected through early screening. The symptoms typically only appear when the cancer cells grow through the top layer of cervical tissue into the tissue below. This occurs when the precancerous cells are left untreated and progress to invasive cervical cancer. Symptoms often do not appear until a pre-cancer develops into a true invasive cancer and grows through nearby tissue (American Cancer Society, 2016). Therefore, cervical cancer may not cause any symptoms until it reaches an advanced stage. When this happens, numerous symptoms of cervical cancer may appear, and the most common warning signs are discussed below.

2.1.1.1 Abnormal vaginal bleeding

Irregular vaginal bleeding is the most common symptom of invasive cervical cancer and typically occurs after the cancer has spread to nearby tissue. Any unusual bleeding could be a warning sign of getting cervical cancer, including bleeding and spotting between periods, a menstrual period that is longer and heavier than normal, bleeding during and/or after sex and after a pelvic examination. Vaginal bleeding can also occur in postmenopausal women who no longer have menstrual periods, which is regarded as very abnormal and could be a warning sign of cervical cancer (American Cancer Society, 2016; Cancer Research UK, 2011; Low et al., 2012).

2.1.1.2 Vaginal discharge

Persistent vaginal discharge that is unusual in amount, colour, consistency, or smell is another important symptom of cervical cancer. Usually, an increased flow of vaginal discharge that has an unpleasant smell and is blood-stained is regarded as a common sign of cervical cancer (American Cancer Society, 2016; Cancer Research UK, 2011; Low et al., 2012).

2.1.1.3 Pain in the pelvic and back area

Patients with cervical cancer may suffer a general pain in the pelvic area, pain during intercourse or at other times, which may be a sign of abnormal changes to the cervix. Generally, pain in the lower belly or pelvis and lower back pain are considered symptoms of cervical cancer. This type of continuous pain indicates that the cancer has spread to other tissues. Pelvic pain does not usually occur unless the cancer is in very advanced stages (American Cancer Society, 2016; Cancer Research UK, 2011; Varma & Gupta, 2005).

2.1.1.4 Painful sexual relations

Uncomfortable sexual relations could be another sign of cervical cancer, which can be attributed to vaginal changes. These changes may influence vaginal lubrication and genital swelling during sexual intercourse and this can lead to feeling pain and bleeding during sex (Bergmark et al., 1999; Cancer Research UK, 2011).

2.1.1.5 Unexplained weight loss

In general, weight loss is a very common symptom in people with all types of cancer. It often begins when a person experiences appetite loss or finds food unpleasant (Cancer Research UK, 2014c). Cervical cancer may cause some gastrointestinal disorders, such as loss of appetite, nausea, vomiting and diarrhoea. (Low et al., 2012). Consequently these symptoms will lead to weight loss.

2.1.1.6 Blood in stools or urine

Blood in stools or urine could also be another warning sign. Sometimes, cervical cancer may result in blood appearing in stools or urine (Cancer Research UK, 2011; Low et al., 2012).If the cancer spreads into the vagina, bowel or bladder, it can cause significant damage, resulting in bleeding. Bleeding can occur in the vagina or rectum, or blood may be passed during urination.

2.1.2 Risk factors of cervical cancer

In this context, a risk factor is something that increases the likelihood of developing cancer. Although risk factors often influence the development of cancer, most do not directly cause cancer. Several risk factors increase a woman's chance of developing cervical cancer. Various agents have been reported as either associated with or a cause of cervical cancer. Most women who develop cervical cancer tend to have one or more identifiable factors that increase their risk of contracting the disease (Reis et

al., 2011). Several of the predisposing factors that may increase the chance of getting cervical cancer are described below.

2.1.2.1 Human papilloma virus:

Human papilloma virus has the strongest link to cervical cancer development, more than 95% of confirmed invasive cervical cancer cases have been shown to be HPV positive (Catarino et al., 2015; Muñoz, 2000; Todda & Shafib, 2004). This virus mainly transmits through sexual relationships, where sexual activity with someone who has HPV is the most common way that a person gets HPV (American Cancer Society, 2016). To date, women have remained largely unaware of the association between HPV and cervical cancer. A study conducted in England to assess women's awareness about HPV showed that the women were extremely surprised when they learned that HPV is transmitted by sexual intercourse (Goldsmith et al., 2007).

The introduction of HPV testing into the cervical cancer screening procedure has the potential to influence women's perceptions of cervical cancer. Several studies worldwide have indicated that women's knowledge about HPV and its association with the development of cervical cancer is low. A survey of 70,000 women in the Nordic countries revealed that two thirds of them have never heard of HPV (Nøhr et al., 2008). In China, as a result of a misconception about the name of HPV, 90% have never heard of the term; the Chinese name for HPV includes characters pertaining to the breast or nipple (Hsu et al., 2011). Even in a developed country like Germany, a study reported that knowledge about HPV is poor and crucial gaps and misconceptions in people's understanding HPV infection were identified (Blödt et al., 2011). These results are similar to or may be better than

many other studies that have been conducted in developing countries (Eze et al., 2012; Mingo et al., 2012; Moreira et al., 2006; Stark et al., 2008; Tiro et al., 2007).

However, while HPV is a necessary factor, it is not the only cause of cervical cancer. Other factors are needed for a HPV infection to progress to cervical cancer.

2.1.2.2 *Human immunodeficiency virus (HIV)*

Human immunodeficiency virus (HIV) is the virus that causes acquired immune deficiency syndrome (AIDS), and it damages the immune system and places women at higher risk of contracting HPV infections (American Cancer Society, 2016). The immune system is important because it helps to destroy cancer cells and slows their growth and spread. In women with HIV, a cervical precancer might develop into an invasive cancer more quickly than it normally would. A Swiss HIV cohort study confirmed that persons infected with HIV are at excess risk of HPV-related cancers (Clifford et al., 2005). The risk of developing cervical cancer and increased aggressiveness of existing cervical cancer has been reported among HIV infected women (Ezechi et al., 2013).

2.1.2.3 *Smoking*

When someone smokes, those around them are exposed to many cancer-causing chemicals that affect organs other than the lungs. These harmful substances are absorbed through the lungs and carried into the bloodstream throughout the body (American Cancer Society, 2016). There is now a good amount of evidence suggesting that women who smoke are about twice as likely as non-smokers to get cervical cancer (Hildesheim et al., 2001). Smoking makes the immune system less effective in fighting HPV infections. Exposure to tobacco may have a detrimental effect on the ability of the host to mount an effective immune response against viral infections (Hildesheim et al., 2001). There is also good evidence that, for ~50% of

women with a low-grade cervical abnormality, stopping smoking leads to an improvement in their health (Marteau et al., 2002).

2.1.2.4 *Sexual activity and sexually transmitted diseases*

Women who become sexually active at a very young age or those who have different sexual partners are at greater risk of being infected with HPV and developing cervical cancer (Waller et al., 2004). In women who first have sexual intercourse at around age 15 it has been shown that the risk of getting infected with HPV is twice the risk of those who first have sex after the age of 20 (Reis et al., 2011; Shepherd et al., 2000). A sexual relationship with more than one person can also be a risk factor in HPV transmission (Liu et al., 2015). Even a woman with a single sexual partner can more easily get infected with the virus if her partner has had previous partners (Waller et al., 2004).

On the other hand, some STDs may increase the risk of developing cervical cancer. For instance, chlamydia is a STD that may act as a cofactor in the aetiology of cervical cancer (Koskela et al., 2000; J. S. Smith et al., 2002). A study published in 2004, showed that the chlamydia trachomatis infection may act in conjunction with HPV to increase the risk of invasive cervical cancer (J. S. Smith et al., 2004).

2.1.2.5 *Multiparity and young age at the first full-term pregnancy*

Multiparity seems to be an independent risk factor. Women who have had seven or more children have double the risk of developing squamous cell cervical cancer compared to women who have had only one child (Cancer Research UK, 2014a). There is no definitive reason but some research studies have found that women who have more children tend to develop weaker immune system, which results in increased susceptibility to becoming infected with HPV (American Cancer

Society, 2016). Another thought is that hormonal changes during pregnancy possibly make women more susceptible to HPV infection or cancer growth (American Cancer Society, 2016). In addition, being of young age at first birth also plays a significant role in the aetiology of cervical cancer (Cancer Research UK, 2014a; Hinkula et al., 2004). Women who were younger than 17 years old when they had their first full-term pregnancy are almost two times more likely to get cervical cancer later in life than others who delayed their pregnancy until they were 25 years or older (American Cancer Society, 2016).

2.1.2.6 *Family history of cervical cancer*

Cervical cancer may run in some families (American Cancer Society, 2016).Women with a family history of cervical cancer, especially those with a first degree relative (mother, sister or daughter) have a two-fold risk of developing cervical cancer (Negri et al., 2005). Some studies report that some cases of cervical cancer occur as a result of an inherited susceptibility, which makes some women less able than others to fight off an HPV infection. Other researchers have demonstrated that cervical cancer cases that occur in the same family could be the result of exposure to other non-genetic risk factors of cervical cancer (American Cancer Society, 2016).

2.1.2.7 *Use of hormonal contraceptives*

Oral contraceptives have been investigated as one of the risk factors that may lead to the development of cervical cancer. Women who take oral contraceptives for more than five years may have a doubled risk of developing cervical cancer (International Collaboration of Epidemiological Studies of Cervical Cancer, 2007).

A literature review by Smith, et al. (International Collaboration of Epidemiological Studies of Cervical Cancer, 2007) revealed the three following possible causal routes:

- Use of oral contraceptives may be behaviourally related to an increased risk of HPV transmission. Women who use oral contraceptives may be more sexually active, but they may not tend to use other barrier methods.

- Use of hormonal contraception may increase the biological vulnerability of the cervix.

- Use of oral contraceptives may increase the chances of or speed at which an HPV infection progresses to invasive cervical cancer.

2.1.2.8 *Chlamydia infection*

Chlamydia is a relatively common kind of bacteria that can infect the reproductive system and spread through sexual contact. A chlamydia infection can cause pelvic inflammation, leading to infertility. Women who are infected with chlamydia often have no symptoms, and they may not know that they are infected at all unless they are tested for chlamydia during a pelvic examination. Some studies have identified a higher risk of cervical cancer in women whose blood tests and cervical mucus show evidence of past or current chlamydia infection (Koskela et al., 2000; Zhu et al., 2016).

2.1.3 Level of cervical cancer awareness and screening practices in the Middle East region

The American Mathematical Society states that the countries in the Middle East region are considered as developing countries. The incidence and prevalence of cervical cancer varies between the developing and developed worlds. Worldwide, nearly half a million women develop cervical cancer every year, and it is estimated that more than

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85% of these cases occur in low- and middle-income countries (Jemal et al., 2011). Although the number of recorded cases of cervical cancer recorded has decreased dramatically in developed nations, the incidence rates remain stable in developing countries. The success of developed countries in reducing the prevalence of cervical cancer is attributed to effective cervical cancer screening programmes and early detection of the cancer (Dickinson et al., 2012). In developing countries and regions, patients visit a physician just in the final stage of cervical cancer, and some studies have confirmed that this is due to a low level of awareness, poorly designed screening programmes, lack of resources and limited access to existing healthcare (Demirhindi et al., 2012; Eze et al., 2012; Ezem, 2007). In the case of sub-Saharan Africa for example, the reasons for the high incidence and mortality from cervical cancer include lack of awareness of cervical cancer among the population, limited access to high-quality healthcare services and cervical screening programmes, and lack of functional referral systems (Mwaka et al., 2015).

A population-based survey conducted in 2008 in 57 different countries demonstrated that the coverage of cervical cancer screening in low- and middle-income countries is on average 19%, compared to 63% in developed countries, and ranges from 1% in Bangladesh to 73% in Brazil (Gakidou et al., 2008). This reflects a serious health problem in developing countries regarding cervical cancer morbidity and mortality.

Libya is one of the EMENA countries, and those countries still have inefficient cervical cancer screening programmes (El-Hammasi et al., 2009). The majority of EMENA countries are practising opportunistic screening using cytology (Pap smear testing) (Sancho-Garnier et al., 2013). And they lack national organized cervical cancer screening programmes. Consequently, most cervical cancer cases are diagnosed at a late stage, which leads to low survival rates and high mortality (Sancho-Garnier et al., 2013).

The main obstacle to the implementation of national organized cervical cancer screening programmes in EMENA countries is the lack of real political will to support such public health programmes and provide the necessary resources (Sancho-Garnier et al., 2013).

Furthermore, the lack of awareness and knowledge of cervical cancer and screening, coupled with socio-cultural barriers and difficulties in accessing medical services hinders women's participation in cervical cancer screening (Sancho-Garnier et al., 2013). There is little evidence on cervical cancer awareness among EMENA nations, and only a few studies have been performed on Arabic populations. The first study related to cervical cancer awareness in the North Africa region was done in 1998. It was a hospital-based case-control study that was completed at the National Institute of Oncology in Rabat, Morocco. The study reported that only 36% of the controls and 13% of the cervical cancer cases had ever had a Pap smear test (Chaouki et al., 1998).

Other studies performed among Arabic communities have also shown that women's knowledge about cervical cancer is very limited. For instance, a study in Kuwait published in 2009 showed that 46% are unaware of the symptoms and risk factors of cervical cancer (El-Hammasi et al., 2009). In Tunisia, a study of the knowledge, attitude, and practice among the population conducted in 2012 showed that only 22.8% of the participants have good knowledge of the cervical cancer risk factors and 38.2% have good knowledge of screening methods (ElMhamdi et al., 2012). Another study in Qatar reported a deficiency in knowledge about cervical cancer as well as a low Pap smear uptake, which was found to be surprisingly common among educated women (Al-Meer et al., 2011). Further, in Jordan, the knowledge of cervical cancer and the Pap smear test is inadequate in less-educated and older patients (Amarin et al., 2008). Similarly, lack of knowledge about cervical cancer and information about screening was reported by two studies performed in two different cities in the United

Arab Emirates. These studies showed that women have a poor knowledge about cervical cancer and the Pap smear test and therefore the frequency of taking the test is low (Khan & Woolhead, 2015; Metwali et al., 2015). Moreover, the awareness of cervical cancer among women in Saudi Arabia is regarded as far behind that in developed countries (Sait, 2009).

While all developed countries as well as some developing nations have introduced well-structured population-based screening programmes using the Pap smear test, there is no such screening programme in Libya or in the other countries in the Middle East. Moreover, there seems to be no previous study in Libya that has assessed the knowledge, attitude and practices regarding cervical cancer among Libyan women.

2.2 Types of cervical Cancer Screening Programme

Here, the term screening refers to looking for cancer before an individual has any symptoms, which may help in discovering cancer in its early stages. When abnormal tissue or cancer is found early, it may be easier to treat. By the time symptoms appear, cancer may have begun to spread. Symptoms remain elusive until the cancer progresses to advanced stages. However, if cervical cancer is detected early, it is one of the most successfully treatable cancers (American Cancer Society, 2016). This is thought to be mainly due to the effectiveness of Pap test screening. Cervical cancer screening aims to prevent cervical cancer by detecting early precancerous changes in the cervix. The United States Preventive Services Task Force recommends screening for cervical cancer in women aged 21 to 65 years using cytology (Pap smear) every three years or, for women aged 30 to 65 years who want to lengthen the screening interval, screening with a combination of cytology and HPV testing every five years (American Cancer Society, 2016).

Effective screening programmes, with high coverage, quality control, and follow-up, are essential for obtaining better results. It is known that 80% of cervical cancer cases occur in developing countries, and this is attributable to a low level of cervical cancer screening (Masood, 1999). Meanwhile, the prevalence of cervical cancer in developed countries has evidently dropped as a result of effective screening programmes (Valdespinoa & Valdespinoc, 2006). Cervical screening programmes have reduced cervical cancer incidence and mortality but the level of success is highly variable between countries, organization of programmes is essential for equity and cost-effectiveness (Elfström et al., 2015). Generally, there are two main approaches to cervical cancer screening: the opportunistic cervical screening programme and the organized cervical screening programme (Gustafsson et al., 1995; Sankaranarayanan et al., 2001; World Health Organization, 2002)

2.2.1 Opportunistic cervical screening programme

Cervical cancer screening started with the introduction of the Papanicolaou or Pap test into clinical practice. Later, opportunistic cervical cancer screening was initiated by encouraging women during their visits to maternal and child healthcare, reproductive healthcare, or outpatient clinics for any reasons to undergo a Pap smear test. Women screened via such services tend to assume there is no need for screening after they have completed their attendance (World Health Organization, 2002). Therefore, many women in countries using opportunistic screening may constantly lose the chance to use a cervical cancer screening service duo to the absence of an invitation mechanism (World Health Organization, 2002). Consequently, the rates of morbidity and mortality for cervical cancer are higher among those countries that use an opportunistic screening programme (Valdespinoa & Valdespinoc, 2006). This system is not effective in targeting the population at risk. Also, there are missed opportunities to

catch women for screening or follow-up, because people are not individually invited for screening (Abdullah & Su, 2010). Several countries have adopted nationally organized cervical screening programmes, but many particularly low- and middle-income countries still continue to use an opportunistic screening approach (Adab et al., 2004; Valdespinoa & Valdespinoc, 2006). The implementation of a national programme requires a national policy that is supported by sufficient political and financial investment. Many issues have to be considered, such as allocating a budget to run the programme, training healthcare providers, setting up national monitoring systems and increasing the population's awareness of cervical cancer (The International Agency for Research on Cancer, 2005). Therefore, most low-resource countries provide only opportunistic screening for cervical cancer, which achieves very low coverage (Adab et al., 2004).

2.2.2 Organised cervical screening programme (or call-recall system)

A nationally organized cervical cancer screening programme is a significant intervention in cervical cancer prevention; it is more effective and has greater coverage than an opportunistic screening programme (Sankaranarayanan et al., 2001). Basically, an organized programme operates by inviting women of the recommended age group for screening at regular intervals according to the country's screening policy. Cervical cancer screening targets the detection of precancerous cervical lesions, so women can be treated before the cancer develops (Tranberg et al., 2015). The organized programmes continuously invite women at the recommended age for screening, and its coverage spontaneously reduces the prevalence of cervical cancer (Tranberg et al., 2015).

The effectiveness of a systematic method of call-recall over an opportunistic approach in encouraging women to have a Pap test has led to a reduction in the morbidity and mortality of cervical cancer in a number of countries. In contrast to

opportunistic testing, organized screening programmes can achieve greater equity in screening access and more efficient use of healthcare resources by ensuring that all individuals at risk are targeted within the most appropriate time-frame (Elfström et al., 2015).

However, these countries are exclusively high-income countries; a study conducted on 57 countries to assess cervical cancer screening around the world concluded that effective coverage rates for cervical cancer screening services are very low apart from in developed countries that practise organized cervical screening programmes (Gakidou et al., 2008).

The organized cervical screening programme approach has been established as one of the best ways to ensure success in increasing Pap smear screening coverage and reducing cervical cancer incidence (Alliance for Cervical Cancer Prevention, 2004). Organized programmes are more effective and have a greater coverage than non-organized, or opportunistic, screening programmes in preventing cervical cancer, and it is well recognized that organized cervical screening reduces cervical cancer morbidity and mortality (Madlensky et al., 2003; Nygård et al., 2002; World Health Organization, 1986a).

The implementation of an organized cervical cancer screening programme is the key to reducing the incidence and mortality of cervical cancer. For example, in the United States of America (USA), the cervical cancer death rate declined by more than 50% over the last 30 years, and that is attributable to the implementation of organized cervical cancer screening programmes (American Cancer Society, 2016). Through organized cervical cancer screening, women undergo testing and they are more likely to be diagnosed with abnormal cytology. Hence, a woman with cervical cancer might be discovered at an early stage rather than tested after a delay or not tested at all. A study performed in Finland to improve cervical cancer attendance; stressed that to optimize

the impact of cervical cancer screening and minimize potential harms to psychological and reproductive health, a shift from opportunistic cervical cancer screening to organized screening programme is imperative (Virtanen et al., 2015).

2.3   Factors associated with access to cervical cancer screening programmes.

Awareness of cervical cancer screening and its benefits plays an important role in increasing screening uptake and reducing cervical cancer incidence and prevalence. Good cervical cancer screening programmes with high coverage, quality control, and follow-up lead to better results in terms of lowering the morbidity and mortality of cervical cancer. However, this outcome is also dependent on access and participation by women. Most cervical cancer cases occur in developing countries due to the low level of cervical cancer screening (Masood, 1999). In contrast, the prevalence of cervical cancer in developed countries has evidently dropped as a result of effective screening programmes (Valdespinoa & Valdespinoc, 2006).

According to the Centres for Disease Control and Prevention, cervical cancer can be easily prevented through regular screening tests and follow-up. The Pap test looks for precancers, which are cell changes on the cervix that might become cervical cancer if they are not treated appropriately. The Pap smear is recommended for all women of reproductive age and can be performed at any clinic or hospital. Cervical cancer screening detects precancerous changes in the cervix, such as cervical intraepithelial neoplasia or cervical dysplasia.

2.3.1   Barriers toward cervical cancer screening

The Pap smear screening test is the commonly used tool for early detection of cervical cancer worldwide (Mahlck et al., 1994). Although the test has been used for decades, its uptake is still at a low level, especially in low- and middle-income

countries. Barriers to cervical cancer screening have been explored by a number of studies in different countries worldwide (Abdullahi et al., 2009; Al-Meer et al., 2011; Amarin et al., 2008; Aswathy et al., 2012; Basu et al., 2006; Duggan et al., 2012; Ezem, 2007; Hanisch et al., 2008; Lyimo & Beran, 2012; Sairafi & Mohamed, 2009; Salman, 2012; Wong et al., 2009). These have identified several factors that may contribute to the underutilization of screening. Among the factors that prevent women from having a Pap smear test are:

    a. Inadequate knowledge about cervical cancer and screening

    b. The chance of recovering

    c. Embarrassment

    d. Fear and dislike of the test

    e. Belief that the test is painful

    f. Absence of symptoms

    g. Cultural barriers

    h. Sex of the health worker.

A comprehensive literature review published in 2013 that aimed to identify, analyse, synthesize and evaluate the best published information about perceived barriers within the health belief model (HBM) on Pap smear screening as a cervical cancer prevention measure, reported that embarrassment, fear of pain, knowledge and awareness, attitudes, accessibility, lack of support, time and cost, were the most common barriers related to non-attendance at cervical cancer screening tests (Julinawati et al., 2013).

In the United Kingdom(UK), the main reasons for noncompliance are fear and dislike of the test itself (Basu et al., 2006). Also, many women perceive the test to be painful and avoid going for that reason (Basu et al., 2006), while many others are not

interested in having the test because they have no symptoms (Basu et al., 2006; Lim. & Ojo., 2016). Other problems are rooted in misconceptions and inadequate knowledge about cervical cancer and the myths surrounding the disease. In some societies, cultural barriers play an important role in the low uptake of the Pap test. For example, cultural barriers in Somalia lead to negative opinions about the screening including concern about the exposure of private body parts. Moreover, the sex of the health worker performing the Pap smear test may be important as women may prefer someone who is female (Lyimo & Beran, 2012). In Singapore, the fear of discomfort and embarrassment are the most important barriers for women having Pap smear screening (Aswathy et al., 2012). In addition, there are some socio-demographic variation in the access to and participation in screening tests, which includes having a low income (Duggan et al., 2012) and education level (Ezem, 2007; Hanisch et al., 2008) .

Studies performed among Arabic communities and sub-Saharan Africa attested that lack of awareness and knowledge about cervical cancer screening are the most common barriers affecting women's attendance for screening, in addition to cultural beliefs and financial concerns. These barriers apparently lead to a low level of screening uptake among these countries (Al-Meer et al., 2011; Amarin et al., 2008; Lim. & Ojo., 2016; Sairafi & Mohamed, 2009; Salman, 2012).

The abovementioned barriers play a crucial role in preventing the early detection of cervical cancer. Delay in the diagnosis of cervical cancer is associated with complicated interactions between cultural, medical and other patient-associated factors leading to advanced stages of the cancer developing before detection, potentially result in g in high mortality.

2.3.2 Facilitators toward cervical cancer screening

Generally, this literature review shows that a large proportion of women are unaware of cervical cancer screening. The results reported in the literature indicate that there is a need to develop primary prevention strategies that will provide women with basic cervical cancer prevention messages, which consequently will reduce the morbidity and mortality resulting from cervical cancer among women worldwide.

2.4 Willingness to pay for cervical cancer screening

Cervical cancer is a major contributor to morbidity and mortality among women worldwide. However, it is treatable if it is diagnosed early. Treatment of the early stages of cervical cancer can potentially decrease a woman's risk and save her life. Simple screening tests look for particular changes and early signs of cancer before it has developed or before any symptoms emerge. The Pap smear test is the screening tool that is commonly used to detect cervical cancer in its early stages (Papanicolaou, 1948). According to the American Cancer Society guidelines, which were released in 2012, a Pap smear screening test should be done regularly every three years, starting from the age of 21 until the age of 65 (The United States Preventive Services Task Force (USPSTF) & (ACS). 2012). Women of reproductive age are highly recommended to have a regular Pap smear test, particularly those who are sexually active.

In some countries, a population-based cervical cancer screening programme is available free of charge and through insurance coverage. For instance, the Netherlands (Steens et al., 2013) and South Africa (Denny, 2008) provide a cervical cancer screening programme for free, in the effort to prevent cervical cancer. Nevertheless, many other countries including Libya lack such a programme and women need to pay for cervical cancer screening tests themselves.

Financial issues can play a crucial role in whether or not women are screened for cervical cancer. Women with lower incomes and those without health insurance are less likely to be screened (American Cancer Society, 2016). Some countries offer cervical cancer screening free of charge or through health insurance coverage for eligible women. For example, a free Pap smear screening test is offered in Australia every two years to women between the ages of 18 and 70 (Cancer Council Australia, 2015). Moreover, many states in the USA provide coverage and reimbursement for Pap test screening, or alternatively, there are other programmes that provide financial assistance to women on lower incomes and those without insurance (American Cancer Society, 2016).

On the other hand, in many developing countries people are expected to contribute to the cost of healthcare from their own resources (Aizuddin et al., 2012). For instance, several countries still require women to pay out of their own pocket for cervical cancer screening. An out-of-pocket payment for healthcare services is a key financial issue that may affect a woman's decision to have a cervical cancer screening test. The need to pay out-of-pocket expenses for healthcare services can mean that women do not seek care when they need it because they have to pay healthcare providers directly at the time of service use (Xu et al., 2005). Some may ignore the screening service and prefer not to pay as they have no symptoms. Many others may decide not to use services simply because they cannot afford either the direct costs, such as those for consultations, medicines and laboratory tests, or the indirect costs, such as those for transport and special food.

Willingness to pay is the maximum amount of money a person would be willing to pay to receive a necessary service to improve their health (Lin et al., 2013). A study published in 1999 that measured patient preference for colon cancer screening found

that individual preference to undergo screening is strongly sensitive to out-of-pocket costs (Pignone et al., 1999). Many studies that investigated the WTP method have focused on the willingness of the respondents to pay for therapeutic interventions. For instance, for treatment of acute and chronic diseases (Franica et al., 2005), for obesity treatment (Narbro & Sjöström, 2000), for AIDS treatment (Binswanger, 2003) and for new drug delivery in Parkinson's patients (Lökk et al., 2014). A few researchers have assessed WTP in relation to screening tests, for example, for mammography (Wanger et al., 2000) and for prostate cancer screening (Pedersena et al., 2001). A study published in 2002 to assess the willingness of women to pay for New Papanicolaou test technologies concluded that women with more than two children, older women, and women with more education are willing to pay more for liquid-based cytology technologies(Raab et al., 2002).

2.4.1   Factors influencing willingness to pay method

A number of factors have been identified as affecting or contributing to WTP. The factors discussed below are those that may increase or decrease the likelihood of a person being willing to pay for screening or treatment.

i.   *Income and economic status*

Household average income is believed to be one of the factors affecting WTP. Some studies have shown that WTP is highly influenced by the ability to pay, which is directly related to the income and economic status of an individual or family. The income factor has been found to have significant associations with WTP (Aizuddin et al., 2012; Kwak et al., 2006). For example, in Finland, people with a high income are willing and able to pay for urgent dental care more than those on a low income (Widström & Seppälä, 2012). However, a questionnaire-based survey

conducted in Pennsylvania, USA to assess WTP for the Pap smear test found no significant correlation between household income and WTP (Raab et al., 2002).

ii. *Education*

Education is another factor that may affect people's WTP. Educated women tend to be more health literate; consequently, they may be willing pay for a Pap smear test more than the uneducated (Raab et al., 2002). In India, a research study on childhood health found that educated parents are more willing to pay for their child's healthcare compared to uneducated parents (Amin & Khondoker, 2004). Similar results were obtained in a study of WTP for colorectal cancer screening, where people with more formal education are evidently willing to pay more for the screening test (Frew et al., 2001).

iii. *Family history*

A study conducted among five ethnic groups to assess WTP for mammography showed that women who have relatives with a cervical cancer history are willing to pay more than others (Wagner et al., 2000). Another study of WTP, in this case for genetic testing for cancer risk, reported similar results; the study demonstrated that people with a family history of cancer look for information about cancer prevention more than others and their family history directly increases the likelihood that they would be willing to pay for cancer prevention (Bosompra et al., 2001).

iv. *Age of woman*

Age has been found to have an important association with WTP (Aizuddin et al., 2012), so a woman's age may increase or decrease the willingness of the woman to pay for healthcare services (Bosompra et al., 2001). For example, older women in Pennsylvania, USA tend to pay more for cervical cancer screening than their

younger counterparts (Raab et al., 2002). This implies that WTP generally increases with age (Itaoka et al., 2005).

v.   Number of children

Another factor that may affect WTP is the number of children. A study has shown that women who have more than two children may pay more for cervical cancer screening than others (Raab et al., 2002).

2.5   The attitude towards and recommendation practice for cervical cancer screening among healthcare providers

Awareness of cervical cancer, its prevention, early diagnosis, and treatment have been shown to reduce mortality from the disease. Since the 1940s, the Pap smear test has been effective in detecting cervical cancer in its early stages (Papanicolaou, 1948). An organized cervical cancer screening programme is essential for the regular performance of the Pap smear screening test. Even though the Pap smear test is an effective mode of cervical cancer screening, many women choose not to be screened. Healthcare providers need to understand the reasons behind women's choices in order to improve screening practice and adherence. The primary healthcare providers can influence the number of women who undergo a regular Pap smear test, and they play a key role in cervical cancer control through informing women of the need to seek medical attention for abnormal vaginal bleeding and other clinical symptoms (BC Cancer Agency, 2013). Lack of recommendation by healthcare providers has been found to prevent women from taking the Pap smear test (Wong et al., 2009).

Healthcare providers can influence women's screening behaviours (Wong et al., 2009) and increase their confidence in cervical cancer screening by helping them understand the importance of regular screening and the benefits of the Pap smear test.

Healthcare providers play a crucial role in increasing women's cervical cancer awareness through health education. It is also important for healthcare providers to inform women that any symptoms, such as bleeding, discharge, or pain between Pap smear tests, may require investigation even if the previous result is normal (Queensland Cervical Screening Program, 2009). Healthcare providers play an important role in getting people screened for cancer. They should discuss with women the balance between the potential benefits and harms of screening with Pap tests. This will help women to make an informed decision about screening that is consistent with their values and preferences (Canadian Task Force on Preventive Health Care, 2013). Health education occurs through healthcare providers in various settings such as worksites, medical facilities and schools. Healthcare providers play a significant role in the dissemination of medical information in the community.

A qualitative study carried out in Malaysia 2010 to find ways to enhance the cervical cancer screening programme explored healthcare providers' perceptions about cervical cancer screening. The study demonstrated that the inadequacy of healthcare resources and poor cervical cancer screening programmes prevent women from going for a Pap smear test. Also, unfriendly healthcare services is one of the main identified barrier factors that hinder women from being screened regularly (Abdullah & Su, 2010).

An earlier qualitative study in Canada that sought to assess healthcare providers' perspectives on breast and cervical cancer screening services showed that discussing sexual issues or providing information about cervical cancer screening is not easy because of cultural barriers. In addition, an unfriendly relationship between a healthcare professional and patients may be one of the obstacles that might lead to a low level of information provision (Donnelly, 2008).

Another study conducted in 2006 among Hispanic women to assess the women's English proficiency and physicians' recommendation to have Pap smears showed that cultural sensitivity training among healthcare providers and educational campaigns identifying populations at greater risk of not being given a recommendation should be performed as a part of interventions to improve the Pap smear recommendation rate (Alba & Sweningson, 2006).

In order to reduce the morbidity and mortality of cervical cancer, the attitude and practice of healthcare providers towards cervical cancer should be taken into consideration. A healthcare provider's support, encouragement and recommendation as well as information about cervical cancer risk factors, warning signs and the benefits of screening can improve women's awareness and consequently decrease the incidence of cervical cancer.

2.5.1   Effective strategies for cervical cancer prevention

Cervical cancer is a STD that is caused by specific types of HPV (most frequently, types 16 and 18) (World Health Organization, 2013b). Cervical cancer prevention strategies can consist of several key components ranging from community education, social mobilization, vaccination, screening, and treatment to palliative care (World Health Organization, 2013b). Cervical cancer can be prevented by following the three levels of prevention measures, primary, secondary and tertiary prevention (Figure 2.1)
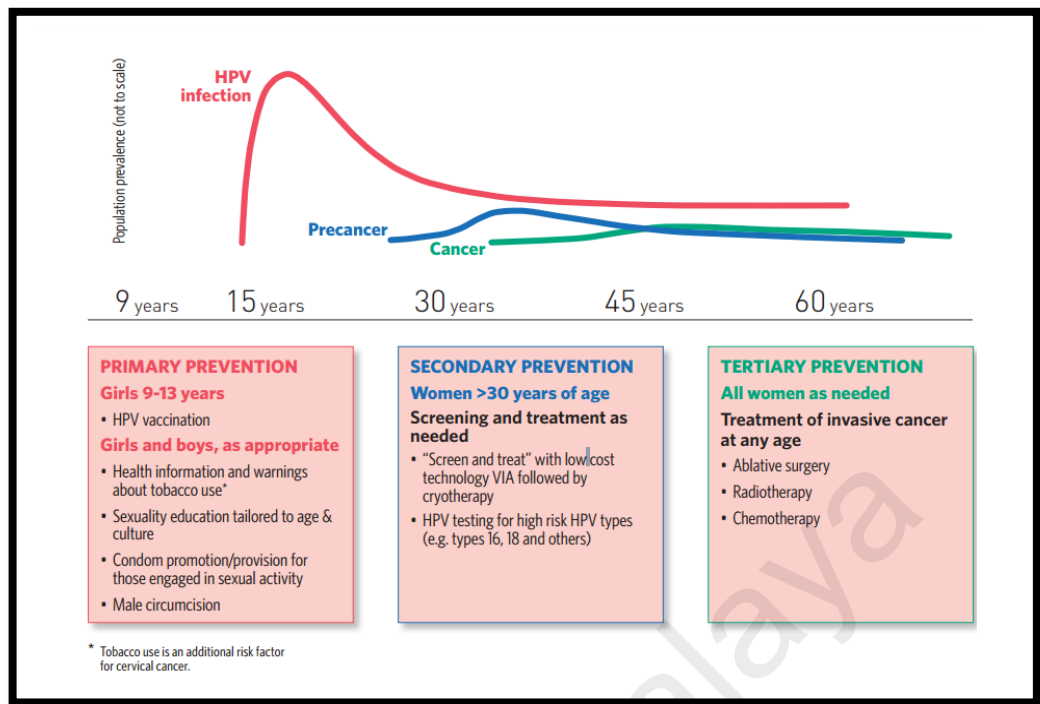
Figure 2.1: Interventions to prevent cervical cancer

Source: (World Health Organization, 2013b)

2.5.1.1 Primary prevention

Primary prevention of cervical cancer basically aims to avoid the formation of precancerous lesions. It is based mainly on vaccination against HPV and on following a healthy lifestyle mainly by avoiding unsafe sex and smoking (World Health Organization, 2006, 2013b). Cervical cancer is the result of a persistent sexually transmitted infection caused by certain strains of HPV and can be primarily prevented through vaccination against HPV (Dollin, 2013). Since most people are exposed to HPV when they become sexually active(Muñoz, 2000), an ideal way to prevent HPV infection would be vaccination prior to sexual exposure(World Health Organization, 2006). The WHO's recommended target group for vaccination is 9–13-year-old girls who have not yet become sexually active (World Health Organization, 2013b).

Provision of information about cervical cancer and the screening test in the community and via health services is the key to increasing awareness and reducing illness and deaths due to cervical cancer. Health education can enhance the demand for preventive health services and it may also improve understanding of information regarding cervical cancer warning signs, risk factors and also the Pap smear test, communication with healthcare providers and the interpretation of results (Sabates & Feinstein, 2006). Healthcare providers should provide correct and consistent information on cervical cancer, how it can be prevented, reasons for screening and the significance of the early detection of cervical cancer.

2.5.1.2   Secondary prevention

Secondary prevention of cervical cancer involves screening for early diagnosis and treatment of precancerous lesions (Botha, 2009). It concentrates on obstructing the transmission process of precancerous lesions developing into cancerous lesions (World Health Organization, 2013b). The Pap smear screening test is primarily aimed at detecting precancerous changes within the cervix before they have an opportunity to progress to invasive carcinoma (Everett et al., 2011). According to the WHO, cervical cancer screening is recommended for every woman who is 30–49 years of age at least once in their lifetime (World Health Organization, 2013b). Lack of awareness of cervical cancer screening is a major barrier that prevents women from seeking screening services and it is regarded as a main obstacle to the success of cervical cancer screening worldwide (World Health Organization, 2006).

2.5.1.3   Tertiary prevention

Generally, tertiary prevention has lagged behind other areas of cancer control (Moore, 2014). It includes activities aimed at reducing the progress or complications of the established disease and restoring as much function as possible by way of palliative

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treatment and follow-up care. Invasive cervical cancer is treated by surgery and/or radiotherapy, as well as by chemotherapy which can complement the treatment regime in the late stages (World Health Organization, 2013b). The main challenges faced in establishing well-functioning treatment systems are (1) establishing and maintaining a treatment referral network, which includes referral facilities, laboratories, diagnostic and treatment centres for cervical cancer; (2) compliance with treatment that requires a long stay at a treatment centre located at the regional or national level and (3) palliative care, which requires resources, special skills, and great supervision to ensure that cervical cancer patients are provided with relief from pain and physical and psychological suffering (World Health Organization, 2013b).

2.5.2   Health promotion in the context of cervical cancer prevention

Health promotion was defined by the WHO in 1986 as the process of enabling people to increase control over and to improve, their health. (World Health Organization, 1986b). It was also defined by the American Journal of Health Promotion in 1986, as "the science and art of helping people change their lifestyle to move towards a state of optimal health" (O'Donnell, 1986). Generally, health promotion is the process of enabling people to increase control over, and to improve, their health. It helps people to understand and decrease their personal risk of illness, avoid harmful behaviour and adopt a healthier lifestyle.

The overall goal of health promotion is to enhance positive health and prevent ill health. Moreover, health promotion has a role to play in well-established preventive health measures such as the screening and immunization (World Health Organization, 1986b). Promoting health at the personal and societal levels can assist individuals to understand and reduce their personal risk of illness, avoid harmful behaviours and adopt healthier lifestyles (World Health Organization, 2006).

Health promotion in cervical cancer can be implemented through different activities. Raising public awareness of the disease and the mechanisms of control as well as advocating appropriate policies and programmes are key strategies of population-based cervical cancer control and promotion. Health education and counselling are considered as the main approaches to achieve health promotion (National Screening Unit, 2004; World Health Organization, 2006).

2.5.3   Health education

Health education, as defined by the WHO, is comprised of consciously constructed opportunities for learning involving some form of communication designed to improve health literacy, including improving knowledge, and developing life skills that are conducive to individual and community health (R. Taylor & Parmar, 2011). Cervical cancer health education aims at ensuring that women at large understand that cervical cancer is preventable and curable when diagnosed in its early stages (World Health Organization, 2006). Women of reproductive age should be familiar with the co-factors related to the development of cervical cancer. Even though the understanding of these factors remains incomplete, healthcare providers should develop strategies to reach individuals and the community, to disseminate information and provide advice to change behaviour (World Health Organization, 2014). For instance, they could promote using condoms, stopping smoking, reducing the number of sexual partners, avoiding oral contraceptives and not having sex at an early age (Low et al., 2012).

In Alberta, Canada (R. Taylor & Parmar, 2011), cancer screening education activities are focused on providing important information regarding cancer screening to doctors, nurses and other healthcare providers. In addition, different resources are developed to support people to undergo cancer screening, such as brochures, toolkits, display models, clinical guidelines, promotional items, etc. Moreover, presentations are

made and public events are run to educate and motivate people to participate in a cancer screening programme.

2.5.4 Counselling

According to the WHO, counselling is face-to-face, personal, confidential communication in which the counsellor helps the client to make decisions and act on them. In the current context, the counselling process involves providing information on cervical cancer, such as the causes, risk factors, methods of screening and treatment of precancerous lesions (Ndikom & Ofi, 2011). It requires listening and conversational skills and knowledge of the subject being discussed. All healthcare providers should be trained in counselling skills to help them communicate effectively with their clients. Counselling can help a person to make a decision only if there is mutual trust between the client and counsellor and there is a two-way transfer of relevant, accurate and complete information (World Health Organization, 2006).

Every woman should be counselled before the cervical cancer screening so that they can make an informed decision. Also, adequate information about cervical cancer, screening methods, possible results and treatment options should be given before screening (Ndikom & Ofi, 2011). Counselling women will enable them to understand the risks and benefits of various screening tests and to make informed choices. Counselling therefore is more than advice giving. It is a two-way communication between a client and a health worker to identify and address the client's needs and concerns about cervical cancer screening (Ndikom & Ofi, 2011). The most common barriers in counselling in cervical cancer prevention are summarized by Ndikom and Ofi as follows (Ndikom & Ofi, 2011):

     i.   Insufficient time to properly counsel clients;

ii.   Inadequate space to ensure privacy and confidentiality during counselling;

iii.   Embarrassment about educating on sensitive concerns such as sexual issues with clients;

iv.   Lack of awareness of clients' questions and concerns.

2.5.5   Ottawa Charter for Health Promotion

The Ottawa Charter for Health Promotion remains a source of global guidance and continues to shape the development of health promotion (Figure 2.2). It represents a comprehensive approach to bringing about social change in order to improve health and wellbeing (World Health Organization, 1986b).
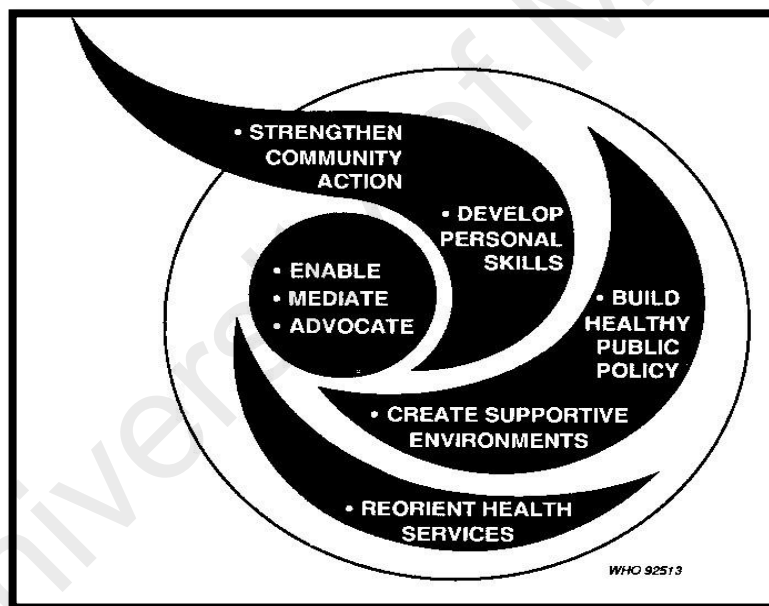
Figure 2.2: Ottawa Charter for Health Promotion (World Health Organization, 1986b)

The following are the five action strategies of Ottawa Charter for Health Promotion (World Health Organization, 1986b):

1. Build a healthy public policy

Health promotion goes beyond healthcare. It puts health on the agenda of policymakers in all sectors and at all levels, directing them to be aware of the health consequences of their decisions and to accept their responsibilities for health.

2. Reorient the health services

Share the responsibility for health promotion among individuals, community groups, health professionals, health service institutions and governments working together towards a system to contribute to health and wellbeing.

3. Create supportive environments

This strategy aims at making a link between people and their environments in order to improve health. It involves addressing the cultural values, social norms, physical surrounds, political and economic structures that make up the home, workplace and community environments in which we live.

4. Strengthen community action

Strengthening community actions involve empowering communities through strengthening social networks, and support for social change by providing information, learning opportunities and resources.

5. Develop personal skills

This strategy focuses on supporting personal and social development through providing information, education for health and enhancing life skills. This gives people options to take more control over their own health and over their environments and to make healthy choices.

The health promotion of cervical cancer prevention aims at increasing the number of women receiving the Pap smear test. Through the five abovementioned strategies of the Ottawa Charter, interventions can be made to overcome the common challenges that impede access to and utilization of cervical cancer screening.

2.5.6   Health promotion among Minority Ethnic groups

In most healthcare systems, it is acknowledged that black and minority ethnic populations have experienced poorer health and barriers to accessing certain services (Szczepura, 2005). A study conducted in 2001 to assess screening and early detection of breast and cervical cancer among racial and ethnic minority women mentioned that ethnic minority groups are frequently diagnosed at the late stage of cancer (E. D. Smith et al., 2001). The late detection of cervical cancer is a result of low rates of cervical cancer screening uptake among minority ethnic women (Thomas et al., 2005). A participatory action research project performed in 2004 stated that low uptake of cervical screening amongst minority ethnic women could be attributed to their lack of basic information, and the lack of information was identified as the major reason for low uptake of cervical screening among minority ethnic groups (Chiu, 2004).

Education of women from ethnic minorities about cervical screening should be distributed through community centres, which are a preferred location for obtaining health information for many such women (Gannon & Dowling, 2008). A systematic review by Forbes et al. reported that invitations and educational interventions are the most effective methods of increasing cervical screening uptake (Forbes et al., 2002). Another study performed to assess the barriers to effective uptake of cancer screening among black and minority ethnic groups living in the UK, concluded that community-based education is likely to go a long way towards increasing the screening uptake among these groups (Thomas et al., 2005).

Cervical cancer is a cancer that can be largely preventable when diagnosed at an early stage through regular screening. Nevertheless, many factors are still contributing to poor screening uptake. These factors have been grouped into three categories: (1) lack of cervical cancer awareness, (2) psychosocial beliefs about cervical cancer and perceived barriers to screening and (3) structural barriers to healthcare access (Fang et al., 2011). The beliefs about cervical cancer may increase or decrease the likelihood that an individual will undergo screening. The following section explains the various theories that have been used to explain the psychological determinants of behaviour in order to guide the development and refinement of health promotion programmes.

2.6   Theories and models of behaviour and behaviour change

A theory is a set of interrelated concepts, definitions, and propositions that explains or predicts events or situations by specifying relations among variables (Glanz, 2010). The most successful public health programmes and initiatives are based on an understanding of health behaviour theories and the context in which those behaviours occur (Forestry, 2012). Therefore, interventions to improve health behaviour can best be designed by having an understanding of the relevant theories of behaviour change and the ability to use them competently. Interventions are based on a few theories and models that attempt to explain people's health-related behaviour and behaviour change (Forestry, 2012).

There are many models and frameworks that attempt to predict or explain the nature and intensity of intervening variables on human behaviour. However, out of the vast body of literature on health behaviour, three general themes emerge (World Health Organization, 2012): intrapersonal, i.e. the individual's capacity, interpersonal relationships and supports, and environmental supports and contexts.

2.6.1 Intrapersonal capacity

The following are six theories that examine and attempt to modify individual characteristics at the intrapersonal capacity level and promote protective behaviour change through intrapersonal-level interventions, which are; awareness and knowledge, beliefs, opinions and attitudes, self-efficacy, intentions, and skills and personal power (World Health Organization, 2012).

2.6.1.1 The rational model

The rational model, also known as the knowledge, attitudes, practices model, is based on the premise that increasing a person's knowledge will prompt a behaviour change. Based on this model, education strategies target individuals and groups and strive to encourage positive and prevent negative health behaviour choices (World Health Organization, 2012). In this model, the efforts to encourage people to adopt health practices rely heavily on persuasive communications in health education campaigns (Green & Kreuter, 1991)

2.6.1.2 Health belief model

The HBM was developed in the 1950s to find a way to understand why people did or did not use preventive services offered by public health departments (Janz & Becker, 1984). It has since evolved to address newer concerns in prevention and detection in areas such as cervical cancer screening and influenza vaccination, and also lifestyle behaviours such as sexual risk behaviours and injury prevention (Glanz, 2010; Janz & Becker, 1984). Simply, the HBM seeks to understand the individual and mental representations and motivations behind a person's behaviour.

The HBM is regarded as one of the earliest frameworks for understanding human behaviour, and it posits that individuals will take health-related actions based on six associated beliefs (Forestry, 2012; Glanz, 2010; World Health Organization, 2012):

Perceived susceptibility: The perception of level of risk, where a higher risk perception may prompt people to adopt a healthier behaviour. Risk perceptions are influenced by modifying factors such as age, gender, history of disease, etc.

Perceived severity: The individual's beliefs about the seriousness of the disease, where the individual must have factual knowledge to know that the condition is severe enough to have a negative consequence.

Perceived benefits: A person's opinion of the value of a new behaviour in decreasing the risk of developing a disease and of the effectiveness of taking action to reduce the risk of its impact.

Perceived barriers: An individual's belief about the tangible and psychological costs of the adoption of a new behaviour.

Cues to action: Include providing 'how to' information, promoting awareness and employing reminder systems.

Self-efficacy: Performance of the desired behaviour, which may result from being provided with training and guidance on performing the new behaviour/action, using progressive goal setting, receiving verbal reinforcement and witnessing the desired behaviour.

2.6.1.3 The extended parallel process model

The extended parallel process model originated from the HBM (World Health Organization, 2012). It suggests that people can follow two appraisal processes when they are presented with a risk message (Murray-Johnson et al., 2004):

− First, people perceive whether they are susceptible to an identified threat and whether the threat is severe. (Perceived susceptibility is the extent to which one feels at risk from a particular health threat. Perceived severity is the degree to which one believes the threat to be serious or harmful.) If the threat is perceived as trivial or irrelevant, they generally ignore the risk message and the urging to take the recommended action.

− Second, if people believe they are susceptible to a severe threat and their level of fear is aroused, they are motivated to assess whether the recommended action can reduce that threat (i.e. response efficacy) and whether they can perform the recommended action (i.e. self-efficacy). When they feel capable of taking action, they will control the risk accordingly.

2.6.1.4 Stages of change (trans-theoretical) model

The stages of change model is also referred to as the trans-theoretical model. It aims to help people adopt healthy behaviours or eliminate unhealthy ones. The change from an unhealthy to healthy behaviour is a process divided into five stages, where at each stage, different intervention strategies are used to help people progress to the next stage (Forestry, 2012; World Health Organization, 2012). These five stages are:

Pre-contemplation: The individual is unaware of problem; no intention to change behaviour in foreseeable future.

Contemplation: The individual considers making a change to their behaviour, often due to an increased awareness or realization of the issue.

Preparation: Motivation and intention to take action, and organized steps to enact change within a specific time period.

Action: The behaviours are publicly modified to provoke change; assist with feedback, problem-solving, social support and reinforcement.

Maintenance: The final stage is designed to sustain the change in behaviour, where the individual works to prevent relapse and to consolidate gains through coping, reminders, and finding alternatives.

2.6.1.5 *Theory of reasoned action and theory of planned behaviour*

The theory of reasoned action provides a framework to study attitudes towards behaviours. According to the theory, the most important determinant of a person's behaviour is behaviour intent. The individual's intention to perform a behaviour is a combination of their attitude towards performing the behaviour and the subjective norm (Ajzen & Fishbein, 1980; Southey, 2011).

The major difference between the theory of reasoned action and the theory of planned behaviour is the addition in the latter of a third determinant of behavioural intention, which is perceived behavioural control (Ajzen & Fishbein, 1980). The theory of planned behaviour asserts that achieving and maintaining a behaviour change requires intent to adopt a positive behaviour or abandon a negative one (Ajzen, 2005). The theory holds that intent is influenced not only by the attitude towards the behaviour, but also the perception of social norms (the strength of others' opinions on the behaviour and the person's own motivation to comply with those significant others) and the degree of perceived behavioural control.

2.6.1.6 *The activated health education model*

The activated health education model is a three-phase model. The phases of the model are as follows (Becker, 1974; Dennison & Golaszewski, 2002; Kaplan et al., 1993)

‒ **Experiential**: This phase actively engages individuals in the assessment of their health. Through activities such as field study, laboratory testing/screening and surveys of the target behaviour, individuals become aware of their actual health behaviour. This phase establishes baseline measures and identifies observable behaviours for the setting of future goals.

‒ **Awareness**: This phase presents information that provides a rationale for the previously completed experiential activity and creates awareness of the target behaviour. This phase focuses on increasing feelings of susceptibility and creating tension between the actual and ideal behaviour.

‒ **Responsibility**: This phase involves participants in the change process, facilitates their identification and clarification of personal health values, and develops a customized plan for behaviour change. Self-management strategies are introduced and participants develop their own plans of action such as: self-monitoring, setting measurable goals, stimulus control, use of social support systems and visual imagery in goal achievement.

2.6.2 **Interpersonal support**

Social learning theory is based on the idea that people not only self-regulate their environments and actions, they are also acted upon by their environments. In other words, they create their surroundings and are influenced by their surroundings. Social cognitive theory is regarded one of the most frequently used and robust social learning theories currently available (World Health Organization, 2012).

2.6.2.1 Social cognitive theory

Social cognitive theory is a behavioural prediction theory that represents a clinical approach to health behaviour change. This theory has been widely applied to health behaviour with respect to prevention, health promotion and modification of unhealthy lifestyles for many different risk behaviours (Bandura, 1998). Social cognitive theory proposes that there is a continuous and dynamic interaction between individual, environment and behaviour (Bandura, 1998). It includes social support, self-regulation and self-efficacy (Anderson et al., 2007). A basic premise of social cognitive theory is that people learn not only through their own experiences, but also by observing the actions of others and the results of those actions (Glanz, 2010).

2.6.3 Environmental context

Some initiatives go beyond attempting to reach individuals and small groups and instead focus on influencing communities and larger populations (World Health Organization, 2012). Models that explore how social systems function and change, and how community members and organizations are mobilized begin to move beyond the scope of health education to encompass the broader aspects of health promotion (World Health Organization, 2012). The most commonly known community level health education theories are communication theory, which describes how different types of communication affect health behaviour, and diffusion of innovations theory, which addresses how new ideas, products and social practices spread within a community.

2.7 Conceptual frameworks

Based on the literature review presented in this chapter, the conceptual framework has been formed to make conceptual distinctions and organize ideas for this research (Figure 2.3). It provides the structure and content for the whole study based on the literature and the researcher's personal experience. This conceptual framework

graphically explains the efforts that were carried out to achieve the objectives of this research.
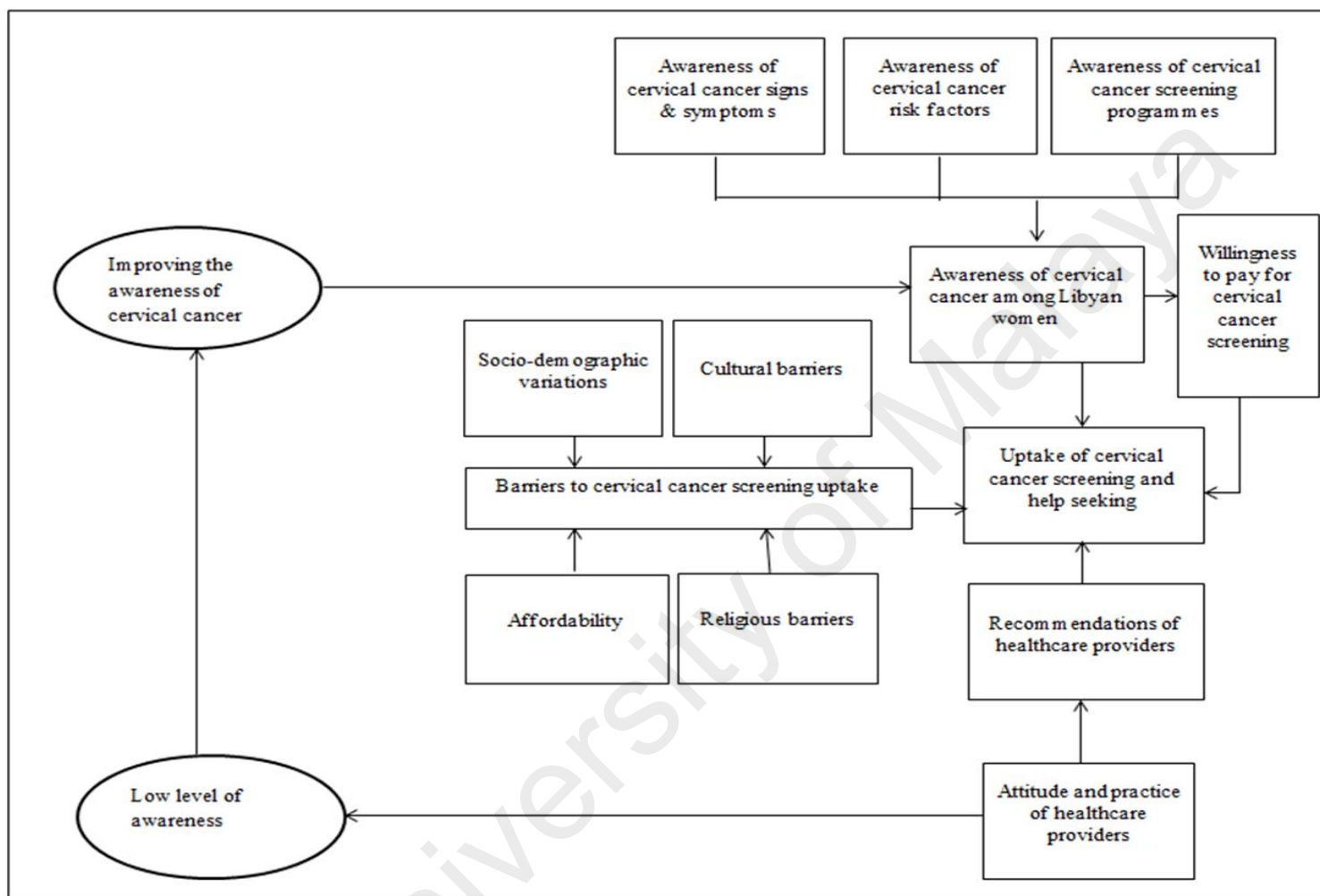
Figure 2.3: Conceptual framework
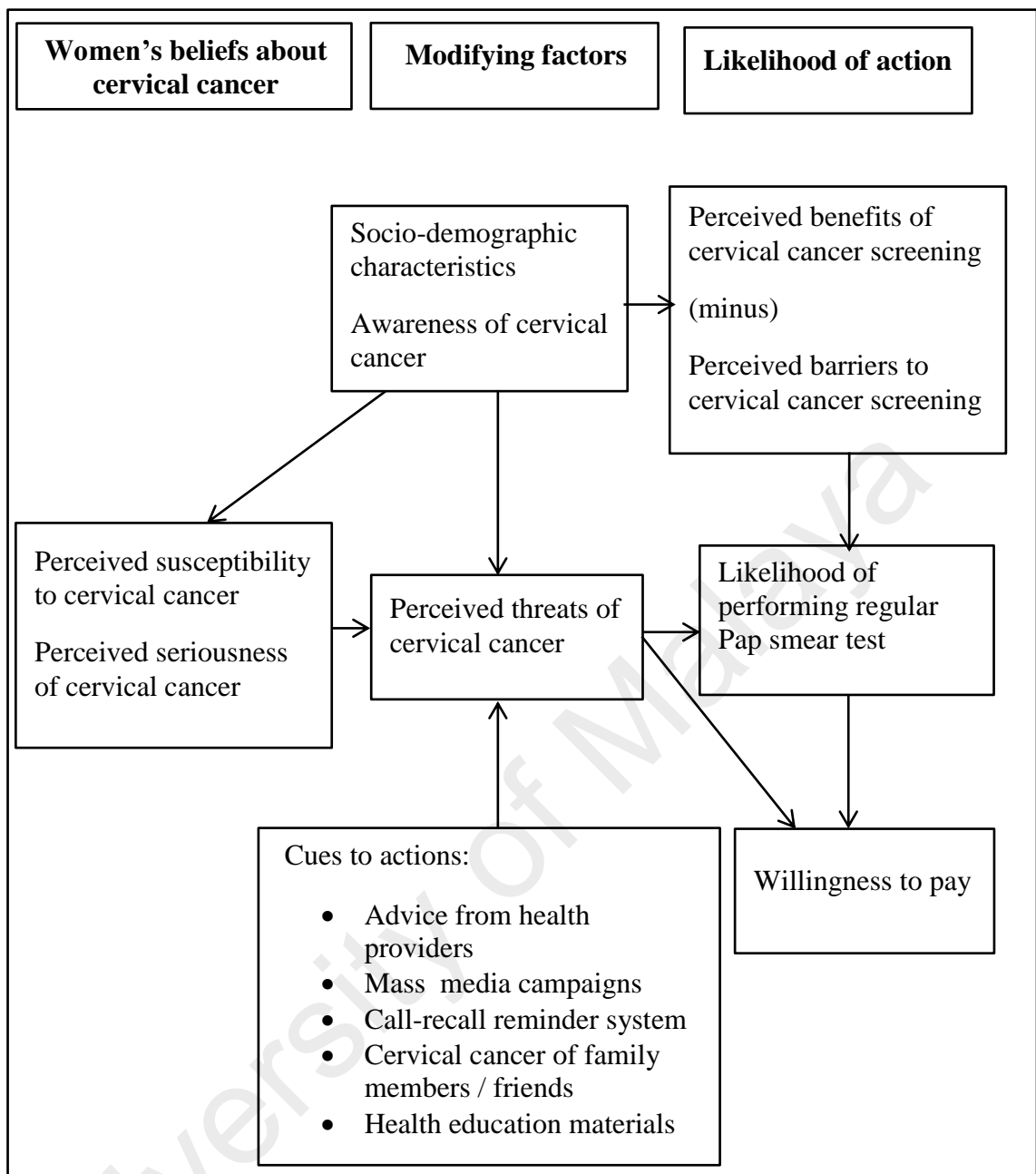
Figure 2.4: Health Belief Model Framework

2.8 Summary

Cervical cancer is still a major public health problem. Generally, the awareness of cervical cancer warning signs and risk factors is regarded as low among women in developing countries, including Libya. Cervical cancer screening uptake in developed countries has much higher coverage than in developing countries. Consequently, the burden of cervical cancer is lower among high-income countries. These findings are confirmed by most research studies on cervical cancer worldwide.

The main factor that leads to a lower burden of cervical cancer and higher screening uptake coverage in developed countries is the implementation of effective and efficient population-based cervical cancer screening programmes. In contrast, in low- and middle-income countries, opportunistic screening is still used. The difference between these approaches to cervical cancer screening programmes is that the organized screening programme depends on calling and recalling eligible women to have a screening test at a particular time.

According to the literature review, there are many barriers that may deteriorate woman's participation in cervical cancer screening programmes. These barriers vary according to socio-demographic characteristics, socio-economic status, reproductive history and beliefs about cervical cancer screening. The removal of such barriers plays a crucial role in achieving high coverage of cervical cancer screening uptake, which in turn, contributes to a successful screening programme.

Besides the above barriers preventing women having a cervical cancer screening test, financial issues may play an important role in whether or not women are screened for cervical cancer. Many countries, particularly low- and middle-income countries, still need people to pay out of their own pocket for health services. Therefore, women may

ignore screening for cervical cancer as long they have no cervical cancer warning signs or symptoms.

Further, healthcare providers can influence women's screening behaviours. Several studies have clarified that lack of recommendation by healthcare providers regarding cervical cancer screening can affect women's participation in screening programmes. The provision of information regarding cervical cancer and screening may help women to make an informed decision about screening. Definitely, that will contribute to a higher level of cervical cancer screening coverage.

CHAPTER 3   : METHODOLOGY

This chapter describes the methods that were applied to conduct the study. The operation implies all the stages that were involved in attaining all the objectives. The research consists of three different components: one quantitative study and two qualitative studies. The methodology of each approach is explained separately. For each study, the methodology covers the study design, study population, the area where the research was conducted, sample size and selection, and the study instrument.

3.1   The cross-sectional exploratory survey

The initial plan was to conduct a national representative survey on cervical cancer awareness. However, because of the political situation in Libya, we decided to conduct the study in an area where the safety of the survey employees could be ensured. Therefore a population-based cross-sectional exploratory survey was carried out in the city of Az-Zawiya in the west of Libya. The questionnaire-based survey was conducted to assess the population's awareness of cervical cancer and the willingness of the population to pay for Pap smear screening test. This quantitative study was designed to achieve the first three objectives of this research, which are

- To assess the level of awareness of the warning signs and risk factors of cervical cancer;

- To identify socio-demographic variation in the awareness of the warning signs and risk factors of cervical cancer;

- To assess women's willingness to pay for Pap smear screening test.

3.1.1 Study design

A cross-sectional study design was chosen as the most appropriate design to answer the research questions and meet the study objectives. A cross-sectional study is a type of observational study that analyses data collected from a population at a specific point of time, and it is regarded as relatively cheap, quick and easy to conduct because data on all the variables is only collected once (Olsen & George, 2004).

3.1.2 Study population

A study population is a well-defined collection of individuals or objects known to have similar characteristics, and it is selected from the target population to answer the research questions. The participants included in this study were 412 women in reproductive age (aged between 18 to 50 years) who had consented to take part in this study.

3.1.3 Study area

Since the revolution, Libya has remained trapped in a spiral of deteriorating security and political deadlock. Further, because of the many problems with respect to security situation in the country, travelling between its cities is not easy. For this reason, the research was conducted only in the city of Az-Zawiya. This city is one of the main cities in Libya. It lies in the northwest of Libya, about 45 km (28 mi) west of Tripoli. It has a good population size and, according to the 2011 census, there are 200,000 inhabitants.

3.1.4 Sample size estimation and sample selection

The sample size was calculated by using Openepi version 3.01 to estimate the sample size required to meet the study objectives. The calculated

sample size for this study with a 95% confidence level was 384 individuals. The calculation was based on the assumption that 50% of Libyan women could recall at least one warning sign or risk factor of cervical cancer with a 95% confidence interval and an 80% power. The sample size was also inflated by taking into account a 30% non-response rate.

The data was collected from adult women aged 18 to 50 who were selected from the records of the population register for the city of Az-Zawiya held by the Ministry of Interior Civil Status Department. The Civil register in Libya holds data on residents from birth until death; it compiled and held by the individual city and it records the key events in the lives of the city's citizens and residents. The registration of births and deaths is obligatory under the law by the Civil Registration Act, No. 36 of 1968 (Sattar, 1991). The law stipulates that failure to register the event of a birth after seven days and death after 24 hours results in a penalty being imposed on the person responsible for the registration (Sattar, 1991). Each citizen in the country has a national identification number which is a unique reference number (non-recurring) and is used to access all data relevant to the citizen.

Adult women aged 18 to 50 were selected to participate in the study as the cervical cancer incidence is greater in this age group. The respondents were selected randomly by using a computer-generated random number table. Adequate information about the study was given to each woman via a participant information sheet. Written informed consent was obtained from the participants before conducting the interview.

3.1.5   Study instrument

The survey was conducted by using a modified paper version of the Cervical Cancer Awareness Measure (Cervical CAM). The Cervical CAM was developed by the Health Behaviour Research Centre at University College London (UCL) in collaboration with the Department of Health Cancer Team and The Eve Appeal, with funding from The Eve Appeal. It forms part of the Cervical Cancer Awareness and Symptoms Initiative (CCASI). It is based on a generic CAM developed by Cancer Research UK, UCL, King's College London and Oxford University in 2007–08 (Cancer Research UK, 2011). For this research some modifications were made to the Cervical CAM questionnaire to suit the Libyan context.

3.1.5.1   Original Cervical CAM items

Cervical CAM Questionnaire has incorporated the Cervical CAM and socio-demographic questions (Refer to appendix 1).

Cervical CAM questionnaire:

The Cervical CAM is a semi-structured questionnaire containing both open-ended (unprompted) and closed (prompted) questions. It contains nine specific questions to assess women's awareness of the risk factors and the signs and symptoms of cervical cancer. The first and fifth questions are open-ended to measure how many of the warning signs and symptoms and how many of the risk factors of cervical cancer women mention, respectively. The second and sixth are close-ended questions to assess the extent of the women's knowledge of the signs and symptoms and the risk factors of cervical cancer. These scale questions ask for the subject's opinion about some given options related to cervical cancer. The fourth question is designed to elicit the subject's expectation

about the age group that is the most likely to develop cervical cancer in the UK or whether she thinks that cervical cancer is not related to age. Question seven covers self-related confidence levels about noticing cervical cancer. The remaining questions are related to the respondent's awareness of the National Health Service (NHS) cervical cancer screening programme and NHS vaccinations in the UK.

Questions on socio-demographic characteristics

There are also 12 questions in the Cervical CAM questionnaire to assess women's characteristics in addition to two other optional items. They are, respectively, questions about age, gender, ethnicity, language spoken, marital status, education level, living arrangements, postcode, number of years living in the UK, occupation, and car ownership and a question about whether the respondent, their partner, family or friends have had any type of cancer. The two optional questions ask whether the respondent is registered with a general practitioner (GP) and sexual orientation.

3.1.5.2   Modified Cervical CAM Questionnaire

A modified version of the above-described questionnaire was used for the present study. It has the same contents as the original Cervical CAM and similar socio-demographic questions (with some additional or excluded items) in addition to some questions on WTP that are included before the section on socio-demographic characteristics (refer to Appendix 2). Each of the three sections of the modified questionnaire is discussed in more detail below.

Cervical CAM

The version of the Cervical CAM used in this study was translated from English into Arabic and contained eight specific questions to assess women's awareness of the warning signs and risk factors of cervical cancer, which represent the outcome variables. In addition, some demographic questions were included, which signified the explanatory variables.

Knowledge of cancer warning signs and risk factors was assessed by using open-ended questions (Questions (1) and (5)) to ask the respondents to recall as many symptoms and risk factors as possible and by using closed-ended questions (Questions (2) to (6)) to determine the respondents' ability to recognize 11 signs/symptoms and 11 risk factors. The 11 signs listed in the Cervical CAM were vaginal bleeding between periods, persistent lower back pain, persistent vaginal discharge, pain during sex, heavy menstrual periods, persistent diarrhoea, vaginal bleeding after the menopause, persistent pelvic pain, vaginal bleeding during or after sex, blood in the stool or urine, and unexplained weight loss. The 11 risk factors mentioned in the Cervical CAM were infection with HPV, smoking, having a weakened immune system, long-term use of contraceptive pills, infection with chlamydia, having a sexual partner who is not circumcised, starting to have sex at a young age, having many sexual partners, having many children, having a sexual partner with many previous partners, and not going for regular Pap smear tests.

Question (7) was asked to identify how quickly a woman might go to the doctor for any sign of cervical cancer; this question was designed to measure the anticipated time taken to seek help from a GP for cervical cancer warning signs.

Questions concerning NHS cervical cancer screening programme and NHS vaccination (8 and 9, respectively) were excluded from the modified

version of the questionnaire as they are not relevant to the Libyan context. They were replaced by two other questions: Question (8) sought to elicit women's knowledge of screening test availability by asking: "As far as you are aware, is there any screening test that can detect cervical cancer early on?" and "If yes, at what age should women first have a test?" Question (9) was about the respondents' Pap smear practice and asked: "Have you ever undergone a Pap smear test?" Question (9) was added with the aim of identifying women in the sample who could be enrolled in a focus group discussion (FGD).

<u>Willingness to pay for screening test:</u>

A second, new, section of the questionnaire was added to assess the willingness of women to pay for a cervical cancer screening test. It aimed to discover the maximum amount of money that Libyan women would be willing to pay for cervical cancer screening and to identify how the women value the cervical cancer screening test. It also looks at how the WTP value differs according to socio-demographic characteristics such as age, marital status, education level and income.

This section on WTP for screening tests comprises a small introduction to cervical cancer prevalence and the importance of the Pap smear test. Following this introduction, there are two questions to assess Libyan women's willingness to have a Pap smear test. Then, the next section mentions that, in Libya, it is difficult for women who do not have any signs or symptoms of cervical cancer to get screened in the public sector, but that the test is widely available in private sector and women need to pay for it themselves and that it cost 50 LD (~40 USD) in 2014. The following questions ask the women if they are willing to pay the mentioned amount for a screening test and, if they are not,

what the maximum amount is that they would be willing to pay. The final question in this section of the questionnaire is designed to ascertain the reasons why women are not interested in having the test. These reasons were developed and summarized from different studies that assess the barriers toward cervical cancer screening (Abdullahi et al., 2009; Al-Meer et al., 2011; Amarin et al., 2008; Aswathy et al., 2012; Basu et al., 2006; Duggan et al., 2012; Ezem, 2007; Hanisch et al., 2008; Lyimo & Beran, 2012; Sairafi & Mohamed, 2009; Salman, 2012; Wong et al., 2009).

Socio-demographic characteristics

Many changes were made to the socio-demographic questions in the original Cervical CAM questionnaire in order to suit the Libyan context. Firstly, the questions that were excluded together with the reasons for their exclusion are listed below:

− Gender question: The current study targets only women.

− Language spoken question: Arabic language is dominant.

− Ethnicity: Libyan people are homogeneous.

− Postcode: There is no postcode system in Libya.

− Years living in the UK: Not relevant.

Secondly, in the majority of Arabic countries, men have a kind of authority over women, and they also have a crucial role in terms of providing financial assistance for many issues (Office of the deputy chief of staff for intelligence, 2006). For this reason, some questions were added to obtain the particulars of the husbands in addition to those of the women, such as education, income and occupation. Some questions about the number of children and monthly income were also added. Finally, some changes were made to refine the

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terms used for employment status and qualifications so that they would be consistent with usage in Libya.

3.1.5.3   *Description of variables*

With respect to the respondents' ability to recall the warning signs and risk factors of cervical cancer, the respondents were given the chance to freely respond and mention what they knew about them. Any of the 11 warning signs/symptoms and 11 risk factors that the respondents recalled were each scored '1'. These scores were then summed to give a total 'recall' score for each participant.

As for the recognition questions, the response options for recognizing the 11 warning signs/symptoms were 'Yes', 'No' or 'Don't know', while the response options for recognizing the risk factors were 'Strongly disagree', 'Disagree', 'Not sure', 'Agree' or 'Strongly agree'. For each symptom, a 'Yes' response scored '1', while a 'No' or 'Don't know' response scored '0'. For each risk factor, 'Agree' or 'Strongly agree' scored '1', while 'Strongly disagree', 'Disagree' and 'Not sure' scored '0'. This scoring approach is the same as that used in an earlier exploratory study of colorectal cancer awareness (Su et al., 2013).

The scores for the recall and the recognition of the warning signs were summed to obtain a total knowledge score for the warning signs, and the same was done for the recall and recognition of risk factors to obtain a total knowledge score for the risk factors.

The anticipated time taken to seek help was defined as 'No delay' and 'Delay'. 'No delay' was used for those who seek for help for any of cervical

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cancer warning signs in less than two weeks, while 'delay' was used to denote those who wait more than two weeks to contact their doctors and discuss any cervical cancer symptoms. This cut-off of two weeks was used previously in a study to assess public awareness of cancer warning signs, anticipated delay and perceived barriers to seeking medical advice in the British population (Robb et al., 2009).

In the WTP section of the questionnaire, ten reasons were presented and participants were free to choose any number of them that matched their own reasons. The knowledge score for the reasons that women are not interested in paying for screening ranged from 1 to 10.

The independent variables in this study consisted of a range of socio-demographic characteristics, namely age, marital status, level of education, employment, and monthly income. The age of the participants was defined as their current age during the data collection period. The variables marital status (single, married, divorced and separated) and level of education (primary, secondary, university degree, postgraduate degree, no formal education, still studying and other qualifications including completing training and courses) were categorized to suit the Libyan context. Employment was categorized into five groups (employed full-time, employed part-time, unemployed, retired, still studying and disabled). Monthly income was categorized into four groups starting from >500 LD (~ 360 USD); 500 LD is defined as the minimum wage by the National Wage Council (Mahmood, 2013). Moreover, the spouse's characteristics (education level, employment and monthly income) were categorized in the same way as those of the woman. Finally, the cancer history of

the woman herself and that of her family and friends categorized into no cancer history or has cancer history.

3.1.5.4   *Translation, validity, and reliability of the questionnaire*

Since the first language in Libya is Arabic, a forward and back translation of the survey questionnaire was made by two independent professional translators in order to test its validity and its suitability for participants in Libya.

Next, the validity and reliability of the translated questionnaire were evaluated by giving it to a representative sample of the population to whom the final questionnaire would be distributed. Content validity and reliability tests were performed to evaluate the appearance of the questionnaire in terms of feasibility, readability, the consistency of style and formatting, and the clarity of the language used.

- **Content validity:** Firstly, the questionnaire was assessed by the researcher's supervisor who is knowledgeable in the field of cancer research and practising in the area of public health. Then, content validity was checked with the assistance of another three experts; two gynaecologists and one cancer epidemiologist.

- **Reliability**: The questionnaire was piloted and validated on a sample of 30 women from the target population to determine the level of difficulty in answering the questions and the time needed for administration. The targeted women were selected randomly from the same sampling frame of the actual study. The average time taken to complete the questionnaire

was 15 to 20 minutes. Almost all the participants agreed that the questions were clear and easy to follow.

Data collected from the pilot survey was inserted into and analysed using IBM SPSS version 20 to test the internal consistency of the questionnaire based on the Cronbach's alpha coefficient. The Cronbach's alpha value for the closed (prompted) questions about awareness of the warning signs and risk factors of cervical cancer in the modified Cervical CAM was 0.74, which indicated that the questionnaire was suitable for use. After incorporating feedback from the pilot study, the questionnaire was ready to be administered to a sample from the target population.

3.1.6 Data collection process:

Data collection was conducted from 1 January 2014 to 31 August 2014. Four female trained interviewers with a medical background conducted face-to-face interviews with respondents; in the cultural context of Libya, female respondents feel more comfortable talking about health issues related to reproductive organs with another woman rather than a man. In addition, we considered that interviewers with a medical background would be better able to provide an explanation about cervical cancer for those who required additional information. Moreover, to ensure that data collection was consistent and accurate, clear instructions about the questionnaire were given to the data collectors in addition to an example of a completed interview transcript.

3.1.7 Data analysis:

The independent variables for this study were age, marital status, number of children, education, monthly income, occupation and husband's particulars (education, income and occupation). The dependent variables were women's

awareness of cervical cancer warning signs and risk factors, and cervical cancer screening uptake.

The collected data was entered into a computer and analysed using IBM SPSS version 20 for computer-assisted analysis. As a preliminary data analysis, a descriptive statistical analysis was performed to assess the socio-demographic characteristics of the respondents. Since a number of studies that have used the Cervical CAM questionnaire used ANOVA as a way to examine the relationship between demographic factors and awareness of cancer warning signs and risk factors (Radi, 2013; Su et al., 2013), this study also used ANOVA to identify socio-demographic variances in the knowledge scores for the warning signs and risk factors of cervical cancer. The scores for recall and recognition of warning signs were summed to get a total knowledge score of the warning signs, and likewise the recall and recognition of the risk factors was summed to obtain a total knowledge score for the risk factors.

Data on WTP was analysed using descriptive statistics while a logistic regression was performed to identify the reasons that women are not willing to pay for the screening test. Lastly, a binary logistic regression was conducted on anticipated delay in help seeking to identify whether the independent variable significantly predicts the odds of the dependent variable occurring.

3.2 Qualitative study on healthcare users

A qualitative study on healthcare users was carried out to achieve the fourth objective of the research, which was to highlight the perceived barriers that prevent women from undergoing cervical cancer screening tests in the city of Az-Zawiya. The study used a focus group approach to explore the shared meaning of cervical cancer and

experiences of cervical cancer screening barriers among Libyan women. A FGD is a way of gathering together people who have similar backgrounds or experiences to discuss a specific topic of interest and to freely share their knowledge with each other (Freitas et al., 1998). This method was chosen for data collection because group interactions provide a social context for the development of each participant's ideas, so the participant's thoughts and ideas can be stimulated (Owen, 2001). Participants are usually asked about their perceptions, opinions, beliefs, and attitudes towards a product, service, concept, advertisement, idea, or packaging (Freitas et al., 1998; Kitzinger, 1994). In the current study, the questions for the FGD were designed to investigate the barriers that prevent Libyan women from having an early cervical cancer screening test and to learn about the environmental cues that motivate women to take positive action regarding early screening.

3.2.1 Study population

Overall, 78 women participated in ten focus groups. The participants were recruited from among those who took part in the quantitative study. First the women were randomly selected to take part in the quantitative study. Then, purposive sampling was used to select potential participants from among that sample for the focus groups, depending on their Pap smear practice and age band (Figure 3.1). Women with cervical cancer were recruited from the register of Sabratha Oncology Centre, but only two focus groups could be set up because of the high refusal of patients to participate. It should be emphasized that informed consent was obtained from each and every participant in the focus groups.

3.2.2 Sample selection

A focus group needs to be small enough to give everyone the opportunity to express an opinion (Basu et al., 2006). On the other hand, it should be large

enough to generate rich discussion and provide diversity of opinions (Dilshad &
Latif, 2013). For this study, there were six to nine participants in each focus
group. The participating women were selected through purposive sampling.
First, the participants were recruited from 'women who had undergone a Pap
smear test' and from 'women who had never had a Pap smear test '. Then, those
two groups were separately subdivided into two age groups: an older age group
of 'women aged $\geq$ 45 years' and a younger age group of 'women aged < 45
years'. In Libya, younger women tend to be more educated than their elders
because of a high level of school enrolment in the last two decades (Hamdy,
2007). Then, from each group, two focus groups were formed for the FGDs.
Finally, two groups of women with cervical cancer were recruited from the
register of Sabratha Oncology Centre.
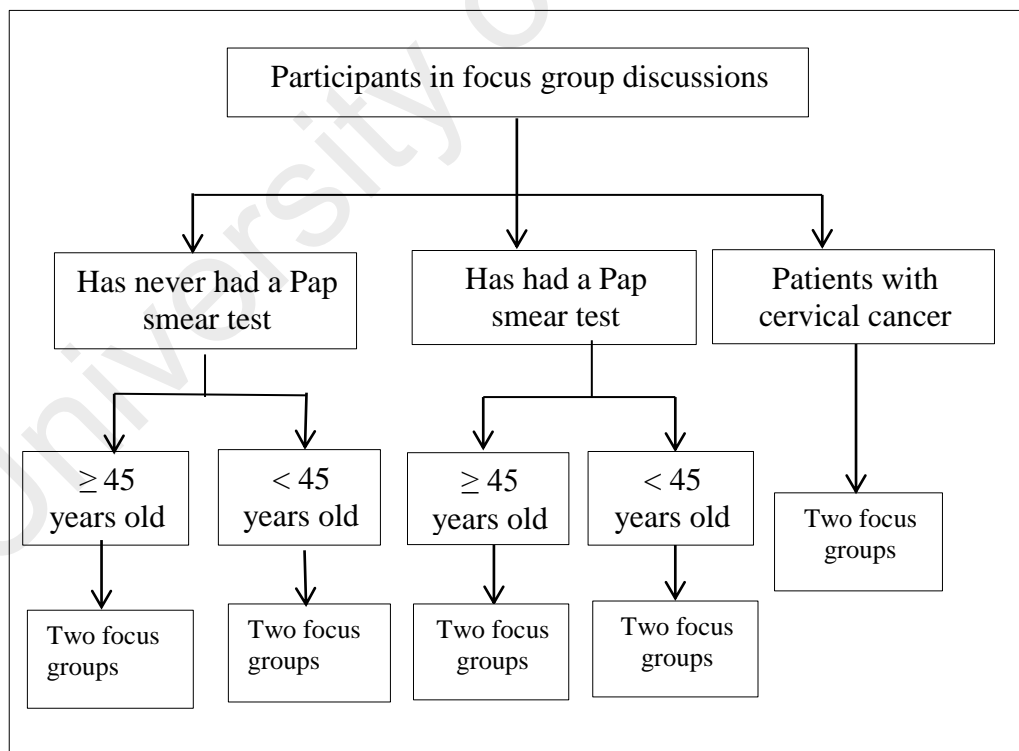
Figure 3.1: Purposive sampling for focus groups

3.2.3 Study Instrument

A series of questions based on the HBM was developed to serve as a guideline for the discussions (refer to Appendix 4). The HBM is by far the most commonly used theory in health education and health promotion (Glanz et al., 2008). It was developed in the 1950s as a way to explain why medical screening offered by US public health services (Hochbaum, 1958.). Essentially, the HBM seeks to understand the individual and mental representations and motivations behind a person's behaviour. Health behaviour is determined by personal beliefs or perceptions about a disease, and the availability of successful strategies to prevent its occurrence.

The model has been applied to examine a broad range of health behaviours that are either preventive, such as having cancer and tuberculosis screening tests, or that involve undergoing treatment in order to assess compliance with medical treatment and the effectiveness of the management of chronic diseases such as HIV and diabetes. Over the past two decades, the HBM has been extended to study people's responses to symptoms and to find ways to support interventions to change health behaviour (Glanz et al., 2008; Kirscht, 1974). The HBM considers four major components that may influence compliance with a recommended health action, which are perceived barriers to the health action, perceived benefits of the health action, perceived susceptibility to the disease and perceived severity of the disease (Turner et al., 2004). In addition, there are modifying factors that can affect compliance behaviour, which are the media, health professionals, personal relationships, incentives and self-efficacy of the recommended health action (Turner et al., 2004).

3.2.4 Data collection

Data were collected through ten FGDs; these discussions were conducted from 1 June 2014 until 30 August 2014.

3.2.5 Data management

Each FGD was conducted in Arabic for up to two hours. The discussion was audio-recorded, with permission, and notes were also taken during the discussion. The researcher conducted all the FGDs. A note taker and observer were recruited from among local women. The discussion started with the researcher introducing herself and explaining the purpose of the study and this was then followed by the main discussion. At the end of the session, pamphlets on cervical cancer and early detection were distributed among the participants. The pamphlets were written in Arabic (refer to Appendix 5). An English translation can be found in Appendix 6.

3.2.6   Data analysis

The data on the audiotapes was transcribed verbatim into written data. Since data was collected in the Arabic language, an English translation performed to help in analysing the data. Finally, a thematic analysis was conducted, which is regarded as the most commonly used method of analysis in qualitative studies (Guest et al., 2012).

A coding scheme was developed based on the focus group discussion guide described in the appendix 4 and also theme emerged during the discussion. For each code, a basic description of the code was written to provide contextual information. The textual data was decomposed into parts, which were marked and coded. Then, these parts were compared based on the similarities and

differences that combined to form new categories, which in turn answers the questions of FGD guide.

3.3   Qualitative study among healthcare providers

A second qualitative study was conducted for this research in order to address the fifth and final objective of the study, which was to study the attitude towards and the recommendation practices for cervical cancer screening among healthcare providers. The method selected for this qualitative study was the key informant interview, which is one of the main methods of data collection used in qualitative research. The key informant interview is useful when the researcher needs detailed and in-depth information about a person's thoughts and behaviours. An in-depth interview is carried out with people who are knowledgeable and expressive, and it can help in gaining a fuller understanding of a situation, can provide insights into the nature of the problems under study, and can lead to potential solutions to those problems. By conducting key informant interviews, this study managed to obtain important and useful information during a short period of time without the need for a large sample size (Patton, 2002). The qualitative research techniques usually conduct intensive individual interviews with a small number of respondents to explore their perspectives on a particular idea, programme, or situation (Boyce & Neale, 2006).

3.3.1   Study population

Healthcare providers from both the public and private sector in Az-Zawiya city were selected to for the qualitative key informant interviews. These interviews sought to identify the provider's attitude towards and recommendation practices for cervical cancer screening among women in Az-Zawiya city, Libya.

3.3.2   Study area

The study was conducted in Az-Zawiya city, Libya. This city has public hospitals, polyclinics, outpatient clinics and inpatient clinics. Therefore, it was suitable to select healthcare providers according to purposive sampling (see Figure 3.2).

3.3.3   Sample selection

For this type of qualitative study, the sample size is not as important as the depth and detail of the information obtainable (Sandelowski, 1995). For this study, 16 key informants were sufficient to reach the data saturation point and to achieve the study objective. The 16 key informants were selected from both the public and private sector by using purposive sampling.

Az-Zawiya city has 32 outpatient private clinics, three inpatient private clinics with a capacity of 82 beds and two main public hospitals with a total of 616 beds (World Health Organization, 2007). Also, according to the office of the Ministry of Health in the city, there are 45 public polyclinics. Regrettably, the two public hospitals and polyclinics do not provide cervical cancer screening and they usually refer symptomatic women to Sabratha Oncology Centre, which is located 25 km from the city centre. Within the city there are only two outpatient clinics and one inpatient clinic that provide the Pap smear test, which costs 50 USD.

In one of the two public hospitals there are six gynaecologists and 29 GPs. The other hospital has five gynaecologists and 32 GPs. Through the heads of department, one gynaecologist and one GP were approached at each hospital to participate in the study. In private clinics and public polyclinics, there are

usually one to four gynaecologists and GPs. Two gynaecologists and two GPs from each of them were approached. Figure 3.2 shows the sampling procedure used for selecting the healthcare providers and professionals. All of the doctors approached agreed to participate in the study.
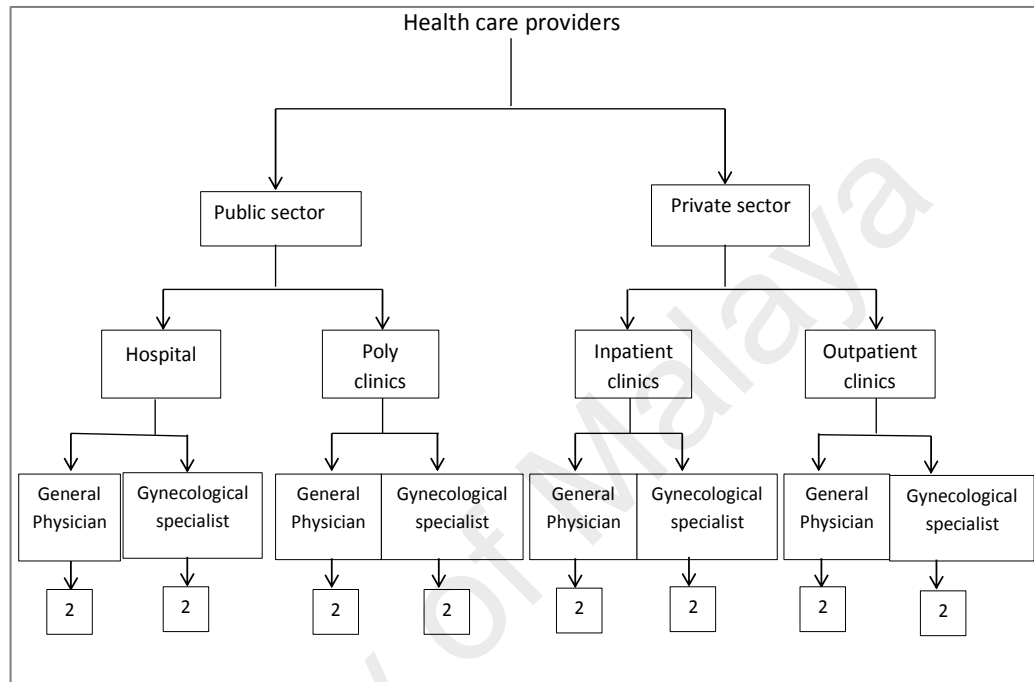
Figure 3.2: Purposive sampling diagram for key informants

3.3.4   Study instrument

A semi-structured interview guideline was developed to ascertain the provider's attitude towards and recommendation practices for cervical cancer screening. The interviews started with an introduction by the researcher that included the reasons for conducting the interview. After that, a number of questions were asked to enable the key informant to share information about his/her recommendation practice and attitude towards cervical cancer screening

(refer to Appendix 3). All the interviews were recorded on an audio recorder after getting permission from the key informants.

3.3.5   Data collection

Sixteen IDIs were conducted face to face from the month of February 2014 until July 2014, to study the provider's perceptions and attitude towards and recommendation practices for cervical cancer screening. As the Arabic language is dominant in Libya, the interviews were conducted in Arabic and were later translated into English by a local official translator for analysis. Each interview lasted 25 and 40 minutes.

3.3.6   Data management and analysis

Most of interviews were conducted in the participant's workplace. Three were conducted at the participant's home. To obtain more detailed information, the interviews were carried out in closed offices or rooms at the chosen place. All conversations were tape-recorded with permission and field notes were taken at the same time as the recording. Once completed, the interviews were transcribed verbatim to yield the textual data. The data were then checked with the field notes for consistency.

In qualitative research, thematic analysis is the most commonly used method of analysis used to capture the complexities of meaning within textual data (Ryan & Bernard, 2000). Codes were developed to serve as labels for sections of the data. The coding procedure consisted of two steps: (1) basic coding was done by summarizing the initial codes which then, were modified through comments and reflections. And (2) axial coding, which included conceptual ordering that forming the themes.

First, data for four successful interviews from both sectors was thematically analysed to highlight the beliefs that needed to be addressed in the remaining interviews. The subsequent interviews were continued until the data became saturated. Data saturation is logically achieved when the collected data reveals nothing new. Data saturation depends on the size of the original sample, the inclusion criteria and the exactness of the data analysis (Baker & Edwards, 2012).

3.4   Ethical considerations

The study protocol was approved by the Ethics Committee of the University Malaya Medical Centre (ref. no. 982.15). Written informed consent was obtained from the study participants and the personal data was collected, recorded, stored and processed in accordance with the Personal Data Protection Act of Malaysia and the Electronic Patient Information Security Policy of the University of Malaya. (See appendix 6)

3.5   Summary

In summary, this chapter presented the methodological framework used in this research. It explains that the research consists of a quantitative study and two qualitative studies. The research has five main objectives. The quantitative study is the main study of this research and employs a survey questionnaire to achieve the first three objectives. The first of the two qualitative studies uses the FGD approach to achieve the fourth objective, while the other qualitative study uses the in-depth interview approach to achieve the fifth and final objective.

In more detail, the quantitative study used a population-based survey to assess the population's awareness of cervical cancer and their WTP for a Pap smear screening

test. The survey was conducted among women aged 18 to 50 from Az-Zawiya city recruited from the records of the population registry in the city. Data was collected from 1 January until 31 August 2014 using a validated version of the Cervical CAM that had been translated into Arabic. The collected data was analysed using IBM SPSS version 20. An ANOVA was performed to identify socio-demographic variances in the knowledge score for the warning signs and for the risk factors of cervical cancer. A binary logistic regression was performed on both the WTP for the screening test and on the anticipated delay in help seeking.

The study was a qualitative study that used a FGD approach to identify the perceived barriers to cervical cancer screening programmes. The FGD participants were selected through purposive sampling depending on their Pap smear practice and age band. In addition, some women with cervical cancer were recruited from the registry of Sabratha Oncology Centre. Ten FGDs were conducted from the month of June 2014 until August 2014 using an instrument based on the HBM. The collected data was analysed using thematic analysis.

The third study was a qualitative study that employed the in-depth interview method with the aim of assessing healthcare providers' attitudes towards and recommendation practices and perceptions regarding cervical cancer screening. Sixteen healthcare providers from both the public and private sector were selected purposively to participate in the study. Data was collected from the month of February 2014 until July 2014, then analysed using thematic analysis.

The results of the analysis of the data gathered in the abovementioned quantitative and qualitative studies will be presented in the next chapter.

This chapter describes the research results of the three studies undertaken for this thesis. The results are presented separately in three different sections. The first section describes the results of the quantitative study, which was a community-based survey regarding awareness of cervical cancer and WTP for the Pap screening test. The second section reports the findings of the first qualitative study, which consisted of focus group discussions with women from Az-Zawiya city that were conducted to identify the barriers affecting their participation in regular cervical cancer screening. Finally, the last section describes the results of the second qualitative study, which consisted of in-depth interviews that sought to elicit healthcare providers' perceptions, attitudes towards and recommendation practices for cervical cancer screening.

4.1   Findings of the community-based survey

The findings are presented under the following different headings:

- Socio-demographic characteristics of the participants.

- Awareness of cervical cancer warning signs and risk factors and socio-demographic variations.

- Knowledge of screening test availability.

- Pap smear practice history.

- Anticipated delay of help seeking.

- Willingness to pay for Pap smear test.

4.1.1   Socio-demographic characteristics of the participants

Overall, 548 women were asked to take part in this study, and 412 agreed (response rate 75%). Most of the non-participating women did not respond to the invitation at all despite multiple requests and in some cases they could not be contacted

because of errors in some of telephone numbers. Of those who were contactable, some of them did not agree to take part in the study because their husband or father refused to let them do so. The 412 women who did participate in the study were aged 18–50 years. (Mean age = 34.59, standard deviation [SD] = 10.22). A total of 208 of them were married. The socio-demographic characteristics of respondents are shown in Table 4.1.

4.1.2. Awareness of cervical cancer warning signs and risk factors and socio-demographic variations

In this section, the findings regarding the women's knowledge of cervical cancer warning signs and risk factors are described. In addition, the factors associated with their knowledge score for recalled and recognized warning signs and risk factors, are also discussed.

Table 4.1: Socio-demographic characteristics of the respondents (N = 412)

Socio-demography		%
Age groups (n = 412)	18 – 29	36.16
	30 – 39	39.80
	40 – 50	24.02
Marital status (n = 412)	Single/never married	37.6
	Married	50.5
	Separate	11.9
Highest qualification (n = 412)	Primary level	4.9
	Secondary level	7.3
	University degree (Bachelor)	46.6
	Postgraduate degree (Master, PhD)	4.6
	no formal education	4.4
	still studying	14.3
	Other qualification (Skills qualifications)	18.0
Employment (n = 412)	Employed full-time	59.7
	Employed part-time	8.3
	Homemakers	16.7
	Retired	0.2
	Still studying	14.6
	Disabled	0.5
Monthly income (n = 412)	> 500 L.D.	27.9
	500 - 999 L.D.	39.3
	1000 - 1499 L.D	2.2
	1500 L.D. and above	3.2
	No income	27.4
Husband's highest qualification (n = 208)	Primary qualification	6.3
	Secondary qualification	10.7
	University degree (Bachelor)	21.1
	Postgraduate degree (Master, PhD)	3.4
	no formal education	1.0
	Other qualification (Skills qualifications)	8.0
Husband employment (n = 208)	Employed full-time	38.6
	Employed part-time	6.6
	Homemakers	0.7
	Retired	3.4
	Disabled	1.2
Husband monthly income (n = 208)	> 500 L.D.	11.4
	500 - 999 L.D.	23.1
	1000 - 1499 L.D	7.5
	1500 L.D. and above	7.5
	No income	0.7
	Refusal	0.2

4.1.2.1 *Knowledge of warning signs and Symptoms*

Among the 412 participants, 63.3% could not recall any warning signs of cervical cancer unaided. The remainder could not recall more than five signs of cervical cancer. The most commonly recalled symptom was vaginal bleeding between periods (22.3%). The recollection of other warning signs was very poor (e.g. 0% for persistent diarrhoea, 0.2% for blood in stools or urine and 1% for discomfort during sex). On the other hand, with respect to recognition, most of the respondents recognized that vaginal bleeding after menopause (60.4%), vaginal bleeding between periods (51.5%), menstrual periods heavier or longer than usual (42.0%) and unexplained weight loss (41.5%) as signs and symptoms of cervical cancer. The respondents' awareness of warning signs and symptoms as measured by their answers to a set of recall and recognition questions is summarized in Table 4.2.

Table 4.2: Awareness of warning signs and symptoms of cervical cancer (N = 412)

Signs and symptoms of cervical cancer	Recall (%)	Recognition (%)
Vaginal bleeding between periods	22.3%	51.5%
Persistent lower back pain	5.1%	20.9%
Persistent vaginal discharge	9.2%	38.1%
Discomfort or pain during sex	1%	24.5%
menstrual periods heavier or longer than usual	8%	42.0%
persistent diarrhoea	0%	7.5%
vaginal bleeding after the menopause	2.9%	60.4%
persistent pelvic pain	8%	38.3%
vaginal bleeding during or after sex	2.7%	36.4%
blood in the stool or urine	0.2%	24.0%
unexplained weight loss	2.9%	41.5%

4.1.2.2   *Knowledge of risk factors of cervical cancer*

In general, recollection of risk factors was very low level as compared to recognition. Approximately 66.7% of respondents could not recall any risk factors unaided. Having many sexual partners emerged as the most recalled risk factors (7.3%). As for recognized risk factors, a weakened immune system was the most commonly recognized factor (72.3%), followed by use of contraceptives (65.8%) and smoking (52.7%). Table 4.3 shows the respondents' awareness of risk factors as measured by their answers to the set of recall and recognition questions; similar to the data for warning signs, the recognition was higher than the recall of all the risk factors.

Table 4.3: Awareness of risk factors of cervical cancer (N = 412)

Risk factors	Recall (%)	Recognition (%)
HPV infection	2.2%	35%
Smoking	3.6%	52.7%
Weakened immune system	1%	72.3%
Use of contraceptive	6.1%	65.8%
Infection with chlamydia	0.7%	39.3%
Sexual partner who is not circumcised	0.2%	27.7%
Starting sex at young age	1.5%	30.1%
Many sexual partners	7.3%	49.8%
Having many children	0.2%	11.9%
Sexual partner with many previous partners	6.8%	54.1%
Not going for regular pap smear	1.2%	55.6%

4.1.2.3.   *Factors associated knowledge score on recalled and recognized warning signs*

Socio-demographic variances in the knowledge scores for recalled and recognized warning signs were identified using ANOVA (see Table 4.4). As can be seen

from the table, age was not significantly associated with awareness of cervical cancer warning signs. As for the effect of marital status, married women had the highest knowledge score for both recalled and recognized warning signs. The results also revealed that, compared to those who had their own house, women who rented or lived with family or friends had significantly lower knowledge of warning signs. On the other hand, respondents who had a post-secondary education, those who were in full-time employment and those with a higher monthly income had a significantly higher knowledge score for both recalled and recognized warning signs than their counterparts. Moreover, Table 4.4 also shows that participants whose husbands had a post-secondary education had a significantly better knowledge score for warning signs than others.

Table 4.4: Analysis of variance showing respondents' demographic predictors for recall and recognition of warning signs and symptoms of cervical cancer (N = 412)

	Sample size	Warning signs of cervical cancer	
		Mean (95% CI)	**ANOVA**
Age			
18-29	(n = 149)	0.59 (0.55 - 0.64)	F (1.48)
30-39	(n = 164)	0.64 (0.59 - 0.68)	P = 0.22
40-50	(n = 99)	0.65 (0.60 - 0.71)	
Marital status			
Single	(n = 155)	0.59 (0.54 - 0.64)	F (2.11)
Married	(n = 208)	0.65 (0.62 - 0.69)	P = 0.12
Separate	(n = 49)	0.59 (0.51 - 0.68)	
Living arrangement			
Own house	(n = 195)	0.68 (0.64 - 0.72)	F (11.40)
Renting	(n = 33)	0.44 (0.34 - 0.55)	P = 0.000
Others	(n = 184)	0.60 (0.55 - 0.65)	
Education			
Post-secondary	(n = 211)	0.66 (0.62 - 0.69)	F (2.61)
Primary and secondary	(n = 109)	0.63 (0.57 - 0.68)	P = 0.05
No formal education	(n = 18)	0.57 (0.38 - 0.76)	
Other	(n = 74)	0.55 (0.48 - 0.62)	
Employment			
Employed full-time	(n = 246)	0.64 (0.61 - 0.68)	F (1.52)
Employed part-time	(n = 34)	0.57 (0.47 - 0.67)	P = 0.20
Homemaker	(n = 69)	0.63 (0.56 - 0.70)	
Others	(n = 63)	0.57 (0.50 - 0.65)	
Occupation			
Professional & managerial	(n = 197)	0.65 (0.61 - 0.69)	F (0.58)
Skilled	(n = 41)	0.60 (0.51 - 0.69)	P = 0.55
Semi-skilled & unskilled	(n = 42)	0.62 (0.60 - 0.76)	
Monthly personal income			
≥ 500 L.D.	(n = 184)	0.67(0.52 - 0.63)	F (3.74)
< 500 L.D.	(n = 115)	0.58(0.63 - 0.71)	P = 0.02
No income	(n = 113)	0.61(0.55 - 0.66)	

Table 4.4 (Cont.): Analysis of variance showing respondents' demographic predictors for recall and recognition of warning signs and symptoms of cervical cancer (N = 412)

	Sample size	Warning signs of cervical cancer	
		Mean (95% CI)	**ANOVA**
Husband's education level			
Post-secondary	(n = 101)	0.68 (0.63 - 0.74)	F (2.78)
Other qualifications	(n = 33)	0.55 (0.44 - 0.66)	P = 0.04
Primary and secondary	(n = 70)	0.67 (0.61 - 0.73)	
No formal education	(n = 4)	0.46 (-0.14 - 1.07)	
Husband's employment			
Employed full-time	(n = 159)	0.65 (0.61 - 0.70)	F (0.60)
Employed part-time	(n = 27)	0.63 (0.55 - 0.72)	P = 0.61
Homemaker	(n = 3)	0.49 (-0.57 - 1.55)	
Others	(n = 19)	0.70 (0.58 - 0.80)	
Husband 's occupation			
Professional & managerial	(n = 110)	0.68 (0.63 - 0.73)	F (0.82)
Skilled	(n = 60)	0.64 (0.57 - 0.71)	P=0.44
Semi-skilled & unskilled	(n = 25)	0.61 (0.49 - 0.73)	
Husband's monthly income			
≥ 500 L.D.	(n = 157)	0.67 (0.63 - 0.71)	F (1.80)
< 500 L.D.	(n = 47)	0.60 (0.52 - 0.69)	P = 0.16
No income	n=(3)	0.49(-0.57-1.55)	

4.1.2.4. *Factors associated knowledge score on recalled and recognized risk factors*

Socio-demographic variances in the knowledge score for recalled and recognized risk factors were also identified using ANOVA (see Table 4.5).

From the table it can be seen that married women and those who had their own house had the highest knowledge score for both recalled and recognized risk factors. Similar to the results reported above, compared to those who had a post-secondary education, the other respondents had a lower knowledge score for both recalled and recognized risk factors.

Table 4.5: Analysis of variance showing respondents' demographic predictors of recall and recognition of risk factors of cervical cancer (N = 412)

	Sample size	Risk factors of cervical cancer	
		Mean (95% CI)	**ANOVA**
Age			
18 – 29	(n = 149)	0.70 (0.66 - 0.73)	F (1.92)
30 – 39	(n = 164)	0.68 (0.64 - 0.72)	P = 0.14
40 – 50	(n = 99)	0.64 (0.58 - 0.69)	
Marital status			
Single	(n = 155)	0.68 (0.64 - 0.72)	F (2.25)
Married	(n = 208)	0.69 (0.66 - 0.72)	P = 0.10
Separate	(n = 49)	0.61 (0.53 - 0.69)	
Living arrangement			
Own house	(n = 195)	0.69 (0.66 - 0.73)	F (1.77)
Renting	(n = 33)	0.61 (0.53 - 0.68)	P = 0.17
Others	(n = 184)	0.67 (0.64 - 0.71)	
Education			
Post-secondary	(n = 211)	0.69 (0.66 - 0.73)	F (4.26)
Primary and secondary	(n = 109)	0.69 (0.65 - 0.74)	P = 0.006
No formal education	(n = 18)	0.49 (0.31 - 0.66)	
Others	(n = 74)	0.68 (0.60 - 0.71)	
Employment			
Employed full-time	(n = 246)	0.68 (0.65 - 0.71)	F (3.30)
Employed part-time	(n = 34)	0.71 (0.64 - 0.77)	P = 0.02
Homemaker	(n = 69)	0.60 (0.53 - 0.67)	
Others	(n = 63)	0.73 (0.68 - 0.78)	
Occupation			
Professional & managerial	(n = 197)	0.68 (0.64 - 0.71)	F (0.32)
Skilled	(n = 41)	0.70 (0.63 - 0.77)	P = 0.72
Semi-skilled & unskilled	(n = 42)	0.70 (0.64 - 0.76)	
Monthly personal income			
≥ 500 L.D.	(n = 184)	0.69 (0.65 - 0.73)	F (1.92)
< 500 L.D.	(n = 115)	0.64 (0.59 - 0.69)	P = 0.14
No income	(n = 113)	0.69 (0.65 - 0.74)	

Table 4.5(Cont.): Analysis of variance showing respondents' demographic predictors of recall and recognition of risk factors of cervical cancer (N = 412)

	Sample size	Risk factors of cervical cancer	
		Mean (95% CI)	**ANOVA**
Husband's education level			
Post-secondary	(n = 101)	0.68 (0.64 - 0.73)	F (2.42)
Other qualifications	(n = 33)	0.59 (0.50 - 0.69)	P = 0.01
Primary and secondary	(n = 70)	0.74 (0.69 - 0.80)	
No formal education	(n = 4)	0.78 (0.62 - 0.95)	
Husband's employment			
Employed full-time	(n = 159)	0.69 (0.66 - 0.73)	F (0.77)
Employed part-time	(n = 27)	0.67 (0.56 - 0.78)	P = 0.50
Homemaker	(n = 3)	0.88 (0.36 - 1.40)	
Others	(n = 19)	0.67 (0.54 - 0.80)	
Husband 's occupation			
Professional & managerial	(n = 110)	0.68 (0.64 - 0.73)	F (0.52)
Skilled	(n = 60)	0.67 (0.61 - 0.73)	P = 0.59
Semi-skilled & unskilled	(n = 25)	0.73 (0.63 - 0.83)	
Husband's monthly income			
≥ 500 L.D.	(n = 157)	0.68 (0.65 - 0.72)	F (1.22)
< 500 L.D.	(n = 47)	0.71 (0.64 - 0.78)	P = 0.29
No income	(n = 3)	0.88 (0.36 - 1.40)	

4.1.3. Knowledge of screening test availability

One of the questions added to the Cervical Cancer Awareness Measure asked women about the availability of the cervical cancer screening test. Among the respondents, 54.1% indicated that they had no idea about early screening for cervical cancer. The remainder were aware of the test's availability but only 48% of them knew that the test mentioned that women should start screening from around the age of 20 years old.

4.1.4. Pap smear screening history

Participants were asked whether they had previously undergone a Pap smear test and when their last Pap smear had been done. The findings show that cervical cancer screening among the participants was low; only 7.3% of had been for a test and 92% had never been screened before. Those who had been for a Pap smear test clarified that they did so at the request of their gynaecologist, as a result of the existence of some warning signs and symptoms of cervical cancer. Some of the participants mentioned that the last Pap smear test they had attended was more than 10 years ago, which highlights that they do not have a test regularly.

4.1.5. Anticipated delay of help seeking

In general, 54.6% of women indicated that they would seek help within two weeks of finding out that they were exhibiting any of the warning signs of cervical cancer. Table 4.6 shows the anticipated delay in help seeking and the socio-demographic variations among the women. From the table, women who mentioned that they would not delay seeking help for more than two weeks were more likely to be younger than 40 years, married and have higher socio-economic status.

Table 4.6: Socio-demographic characteristics and the percentage of anticipated delay in help seeking (N=412)

Demographic characteristics	Delay (%) (n = 187)	No delay (%) (n = 225)
Age		
18 – 29	44.3	55.7
30 – 39	44.5	55.5
40 – 50	48.5	51.5
Marital status		
Single	50.3	49.7
Married	40.9	59.1
Separate	49.0	51.0
Living arrangement		
Own house	41.5	58.5
Renting	45.5	54.5
Others	49.5	50.5
Education		
Post-secondary	43.6	56.4
Other qualifications	54.1	45.9
Primary and secondary	42.2	57.8
No formal education	50.0	50.0
Employment		
Full time	47.6	52.4
Part time	83.2	61.8
Homemakers	44.9	55.1
Others	41.3	58.7
Occupation		
Professional and managerial	46.2	53.8
Skilled	63.4	36.6
Semi-skilled &unskilled	31.0	69.0
Monthly personal income		
≥ 500 L.D.	48.4	51.6
< 500 L.D.	43.5	56.5
No income	42.5	57.5

Table 4.6 (cont.): Socio-demographic characteristics and the percentage of anticipated delay in help seeking (N=412)

Demographic characteristics	Delay (%) (n = 187)	No delay (%) (n = 225)
Husband's Education		
Post-secondary	36.6	63.4
Other qualifications	45.5	54.5
Primary and secondary	44.3	55.7
No formal education	50.0	50.0
Husband's Employment		
Full time	38.8	61.6
Part time	48.1	51.9
Homemakers	33.3	66.7
Others	52.6	47.4
Husband's occupation		
Professional and managerial	38.2	61.8
Skilled	45.0	55.0
Semi-skilled &unskilled	36.0	64.0
Monthly personal income		
≥ 500 L.D.	40.1	59.9
< 500 L.D.	42.6	57.4
No income	33.3	66.7

A binary logistic regression was also performed on the data, the results of which are presented in Table 4.7. The table displays the factors that are related to the probability of delayed help seeking. Generally, the odds ratios (ORs) for most of the socio-demographic characteristics were similar to each other. However, delay among those with no formal education was nearly two times higher than among those with post-secondary qualifications. Similarly, delay in help seeking was nearly four times higher among women in the semi-skilled and unskilled employment categories than among those in the professional or managerial.

Table 4.7: Binary logistic regression of anticipated delay of help seeking (N=412)

Demographic characteristics	Odds ratios	Confidence interval
Age		
18 – 29	1.00	(Ref.)
30 – 39	0.84	(0.50 - 1.40)
40 – 50	0.85	(0.51 - 1.40)
Marital status		
Single	1.00	(Ref.)
Married	1.05	(0.55 - 2.00)
Separate	0.72	(0.38 - 1.34)
Living arrangement		
Own house	1.00	(Ref.)
Renting	0.72	(0.48 - 1.09)
Others	0.85	(0.40 - 1.79)
Education		
No formal education	1.00	(Ref.)
Primary and secondary	0.85	(0.30 - 2.38)
Post-secondary	0.62	(0.34 - 1.12)
Other qualifications	0.65	(0.38 - 1.11)
Employment		
Full time	1.00	(Ref.)
Part time	1.29	(0.73 - 2.26)
Homemakers	0.88	(0.37 - 2.70)
Others	1.16	(0.58 - 2.31)
Occupation description		
Professional and managerial	1.00	(Ref.)
Skilled	1.91	(0.94 - 3.90)
Semi-skilled &unskilled	3.86	(1.55 - 9.62)
Monthly personal income		
< 500 L.D.	1.00	(Ref.)
≥ 500 L.D.	1.04	(0.61 - 1.76)
Don't have income	1.26	(0.79 - 2.03)

In this study there were 208 married women. Table 4.8 presents the results of a binary logistic regression to highlight the relationship between the husband's characteristics and delayed help seeking. Generally, the findings do not exhibit too much difference in delayed help seeking between the different husband characteristics, which mean that husbands have no influence on the women's decision to seek help for cervical cancer warning signs and symptoms.

Table 4.8: Binary logistic regression of anticipated delay in help seeking (husband's characteristics) (n = 208)

Husband's demographic characteristics	Odds ratio	Confidence interval
Husband's education		
No formal education	*1.00*	(Ref.)
Primary and secondary	*1.20*	(0.15 - 9.57)
Post-secondary	*0.95*	(0.41 - 2.19)
Other qualifications	*0.69*	(0.31 - 1.53)
Husband's employment		
Full time	*1.00*	(Ref.)
Part time	*0.56*	(0.21 - 1.45)
Homemakers	*0.83*	(0.25 - 2.70)
Others	*0.45*	(0.03 - 5.84)
Husband's occupation description		
Professional and managerial	*1.00*	(Ref.)
Skilled	*1.09*	(0.44 - 2.70)
Semi-skilled &unskilled	*0.65*	(0.55 - 3.80)
Monthly personal income		
< 500 L.D.	*1.00*	(Ref.)
≥ 500 L.D.	*1.84*	(1.12 - 17.49)
Don't have income	*1.34*	(0.11 - 15.09)

The anticipated delay in seeking help for cervical cancer warning signs and symptoms seems to be higher among women who have poor knowledge about cervical cancer symptoms and risk factors. Table 4.9 shows the logistic regression results for knowledge of cervical cancer symptoms and risk factors and anticipated delay in seeking help for cancer symptoms. The findings show that women who did not recall any of the cervical cancer symptoms or risk factors, as well as those who could not recognize any of the cervical cancer warning signs, were significantly more likely to delay seeking help for cervical cancer symptoms. The anticipated delay in help seeking among women who could not recognize any of the cervical cancer warning signs was over two times higher than among others who could recognize six or more of the warning signs. Similarly, the anticipated delay in help seeking among women who could not recall any of the cervical cancer risk factors was also over two times higher than among women who could recall some risk factors.

Table 4.9: Knowledge of cervical cancer symptoms and risk factors and anticipated delay in help seeking for cancer symptoms (n = 412)

Knowledge of cervical cancer	Unadjusted odds ratio	95% CI	Adjusted odds ratio[*]	95% CI
Recalled symptoms				
Recall 6 and above (n = 0)				
Recall 1-5 (n = 151)	1.00		1.00	
No recalled symptoms (n = 261)	**1. 70**	**(1.13 - 2.57)**	**1.73**	**(1.15 - 2.62)**
Recognized symptoms				
Recognize 6 and above (n = 101)	1.00		1.00	
Recognize1-5 (n = 269)	1.19	(0.75 - 1.90)	1.16	(0.72 - 1.86)
No recognized symptoms (n = 42)	**2.15**	**(1.03 - 4.47)**	**2.16**	**(1.03 - 4.51)**
Recalled risk factors				
Recall 6 and above (n = 0)				
Recall 1-5 (n = 137)	1.00		1.00	
No recalled risk factors (n = 275)	**2.08**	**(1.35 - 3.18)**	**2.10**	**(1.37 - 3.23)**
Recognized risk factors				
Recognize 6 and above	1.00		1.00	
Recognize1-5	1.46	(0.97 - 2.19)	1.45	(0.97 – 2.18)
No recognized risk factors	1.51	(0.46 - 2.19)	1.40	(0.43- 4.60)

*Odds ratio adjusted for age, education and income.

4.1.6. Willingness to pay for Pap smear test

Among the respondents, 67.7% were interested in having a Pap smear test for cervical cancer screening, but only 23.1% of those who were interested in undergoing screening said that they would do the test regularly. As mentioned earlier, a Pap test in Libya costs around 50 US dollars and only 37.9% of women who were interested to do Pap smear test indicated that they would be willing to pay this amount for a screening test. Among those who were interested in doing the test, 32.8% stated that they would have a test only if it were available for free. Others proposed different acceptable fees ranging from 5 to 30 US dollars.

Table 4.10: Willingness to do and pay for Pap smear test

	N	Yes	No
Doing Pap smear test	412	67.7%	32.3%
Doing regular Pap smear test	279	23.1%	44.7%
Willing to pay 50$ for screening test	279	37.9%	29.9%

Table 4.11 shows the different reasons that women gave for not being interested in having a Pap smear test for the early detection of cervical cancer. From the findings in this table, it can be seen that more than 60% of the respondents were not interested in undergoing the test because they do not have any signs or symptoms. Following, 53.6% were worried about what the doctor might say regarding the test result. The third most common reason was the cost of test, which more than 40% regarded as expensive.

Table 4.11: Reasons why women are not interested in having a pap smear test (n = 412)

Reason (multiple response)	n	%
Don't have any symptoms	248	60.2
Being worried about the test result	221	53.6
Expensive	167	40.5
never been sexually active	74	18
Embarrassing	54	13.1
No time to go for the test	34	8.3
No more sexually active	21	5.1
No approval from husband	17	4.1
Painful	11	2.7

A logistic regression was performed to determine the relationship between awareness of cervical cancer and interest in having a screening test (see Table 4.12). The unadjusted ORs show that women who were able to recall and recognize five to nine cervical cancer warning signs as well as risk factors were more interested in having a Pap smear test than women who had a lower level of knowledge about the warning signs and risk factors.

Table 4.12: Knowledge of cervical cancer symptoms and risk factors and women's interest to do Pap smear screening

Knowledge of cervical cancer warning signs	Unadjusted odds ratio	95% CI	Adjusted odds ratio[*]	95% CI
Total recalled and recognized symptoms				
10-14 (n = 23)	1.00		1.00	
5-9 (n = 182)	2.85	(0.70 – 4.91)	0.89	(0.33 - 2.40)
0-4 (n=207)	**1.99**	**(1.29 – 3.09)**	1.83	(0.69 - 4.86)
Total recalled and recognized risk factors				
10-14 (n = 28)	1.00			
5-9 (n = 226)	2.20	(0.88 – 5.49)	1.02	(0.41 - 2.54)
0-4 (n = 158)	**2.08**	**(1.35 – 3.21)**	2.18	(0.87 – 5.47)

* Odds ratio adjusted for age, education and income

Further, a binary logistic regression was also performed to identify the ORs for socio-demographic variations in WTP for cervical cancer screening among women in Az-Zawiya city (Table 4.13). The findings show that the 40–50 years of age group were willing to pay for a cervical cancer screening test two times more than the youngest age group. Moreover, WTP for the screening test among women who had postgraduate qualifications was three and half times higher than others with primary and secondary qualifications. In addition, those who had a part-time job were willing to pay for cervical cancer screening more than others. Also, apparently, WTP was nearly five times higher among women with a monthly income of ≥ 500 LD than others whose income was less than that amount.

Table 4.13: Binary logistic regression of willingness to pay for cervical cancer

Demographic characteristics	Odds Ratios	Confidence Interval
Age		
18 – 29	1.00	(Ref.)
30 – 39	2.10	(1.05 - 4.20)
40 – 50	2.80	(1.45 - 5.40)
Marital status		
Single	1.00	(Ref.)
Married	1.56	(0.67 - 3.63)
Separate	1.50	(0.67 - 3.37)
Living arrangement		
Own house	1.00	(Ref.)
Renting	0.98	(0.59 - 1.61)
Others	0.47	(0.19 - 1.17)
Education		
No formal education	*1.00*	(Ref.)
Primary and secondary	*0.00*	(0.00)
Post-secondary	*3.054*	(1.56 - 5.97)
Other qualifications	*0.61*	(0.29 - 1.31)
Employment		
Full time	*1.00*	(Ref.)
Part time	*2.11*	(1.04 - 4.28)
Homemakers	*0.94*	(0.33 - 2.62)
Others	*0.35*	(0.13 - 0.95)
Occupation description		
Professional and managerial	*1.00*	(Ref.)
Skilled	*0.93*	(0.41 - 2.13)
Semi-skilled &unskilled	*0.19*	(0.06 - 0.57)
Monthly personal income		
< 500 L.D.	*1*	(Ref.)
≥ 500 L.D.	*4.89*	(2.63 - 9.10)
Don't have income	*1.18*	(0.61 - 2.28)

Similarly, Table 4.14 provides the results of a binary regression of WTP for cervical cancer screening test and husband's characteristics. The findings show that women whose husbands have an income of ≥ 500 LD were willing to pay better than others who do not have income.

Table 4.14: Binary logistic regression of willingness to pay for cervical cancer (husband's characteristics)

Husband's demographic characteristics	Odds ratio	Confidence interval
Husband's Education		
No formal education	1.00	(Ref.)
Primary and secondary	0.00	(0.00)
Post-secondary	2.20	(0.82 - 5.84)
Other qualifications	1.01	(0.36 - 2.81)
Husband's Employment		
Full time	1.00	(Ref.)
Part time	1.30	(0.37 - 4.52)
Homemakers	0.41	(0.09 - 1.85)
Others	0.83	(0.04 - 16.9)
Husband's occupation description		
Professional and managerial	1.00	(Ref.)
Skilled	2.61	(0.96 - 7.08)
Semi-skilled &unskilled	1.65	(0.55 - 4.92)
Monthly personal income(husband)		
< 500 L.D.	1.00	(Ref.)
≥ 500 L.D.	1.82	(0.11 - 30.0)
Don't have income	0.37	(0.02 - 6.65)

Similarly, Table 4.15 illustrates the results of a logistic regression for women's knowledge of cervical cancer warning signs and risk factors and WTP for a cervical cancer screening test. From the table, it can be seen that recalling and recognizing less than five cervical cancer warning signs is associated with unwillingness to pay for cervical cancer screening test (OR 1.53, 95% CI 1.01–2.31), whereas recalling and recognizing five to nine symptoms (OR 2.28, 95% CI 0.95–5.43) is associated with WTP .

Table 4.15: Knowledge of cervical cancer symptoms and risk factors and women's willingness to pay for Pap smear screening test

Knowledge of cervical cancer warning signs	Unadjusted odds ratio	95% CI	Adjusted odds ratio*	95% CI
Total recalled and recognized symptoms				
10-14 (n = 23)	1.00		1.00	
5-9 (n = 182)	**2.28**	**(0.95 - 5.43)**	1.39	(0.58 - 3.36)
0-4 (n=207)	**1.53**	**(1.01 - 2.31)**	**2.30**	**(0.95 - 5.54)**
Total recalled and recognized risk factors				
10-14 (n = 28)	1.00			
5-9 (n = 226)	1.36	(0.60 – 3.09)	1.14	(0.50 -2.55)
0-4 (n = 158)	1.16	(0.76 – 1.77)	1.31	(0.57 -3.02)

*Odds ratio adjusted for age, education and income.

As a summary of the key results from the regression analyses; women with low level of awareness of cervical cancer warning signs and risk factors are likely to delay in seeking help, and in the same time, they are not willing to pay for cervical cancer screening comparing to those who have higher knowledge about cervical cancer.

4.2. Findings from the focus group discussions on perceived barriers towards cervical cancer screening

The qualitative study on healthcare users was conducted using focus group discussions. These discussions were related to the perceived barriers towards cervical cancer screening among women in Az-Zawiya city. The results of this study are presented in the following two subsections; the first covers the demographic characteristics of the women who participated in the group discussions and the second contains the participants' beliefs about cervical cancer and its screening according to the Health Belief Model.

4.2.1. Demographic characteristics

Table 4.16 summarize the demographic characteristics of the study participants and demographic characteristics of their husbands.

Table 4.16: Demographic characteristics of participants in focus group discussions (n = 78)

Socio-demography		N	%
Age groups (n = 78)	< 45 years	35	44.9
	≥ 45 years	43	55.1
Marital status (n = 78)	Single/ never married	7	9
	Married	54	69.2
	Separate	17	21.8
Highest qualification obtained (n = 78)	No formal education	8	10.3
	Primary/ secondary	32	41
	Post-secondary	38	48.7
Employment (n = 78)	Employed full time	45	57.7
	Employed part time	10	12.8
	Unemployed	18	23.1
	Still studying/ retired/disable	5	6.4
Occupation description (n = 55)	Professional and managerial	37	67.3
	Skilled/ clerical/ sales	10	18.2
	Semiskilled/ unskilled	8	14.5
Monthly income (n = 78)	Don't have income	18	23.1
	<500 L.D.	26	33.3
	>500 L.D.	34	34.6

Table 4.18 (Cont.): Demographic characteristics of participants in focus group discussions (n = 78)

Socio-demography		N	%
Husband's highest qualification (n = 54)	No formal education	2	3.7
	Primary/ secondary	19	35.2
	Post-secondary	33	61.1
Employment (n = 54)	Employed full time	37	47.4
	Employed part time	9	11.5
	Still studying /retired /disable	8	10.3
Occupation description (n = 54)	Professional and managerial	28	51.9
	Skilled/ clerical/ sales	19	35.2
	Semiskilled/ unskilled	7	13
Monthly income (n = 54)	<500 L.D.	17	31.5
	>500 L.D.	37	68.5

4.2.2. Beliefs about cervical cancer and its screening

The current study used the Health Belief Model as a guide for the beliefs about cervical cancer screening among women in Az-Zawiya city, and it helps to understand the barriers toward cervical cancer screening. The model covers the following in relation to the disease and its prevention: perceived susceptibility, perceived severity, perceived benefits (of the Pap smear test), perceived barriers to cervical cancer screening and cues to action.

4.2.2.1 Perceived susceptibility

In general, the majority of participants who have never had a Pap smear test mentioned that they did not even think about cervical cancer; they were much more

aware of other diseases and conditions that figure prominently in the media, such as breast cancer, heart disease and diabetes. During the discussions, the researcher explained the cervical cancer warning signs and risk factors. After the sessions, most of the participants expressed their fear about getting cervical cancer in the future.

"I wasn't familiar with the risk factors of cervical cancer, but now I feel that I can't be excluded from getting cervical cancer, particularly when I have continuous vaginal bleeding" (Never had a Pap smear, < 45 age group).

Some of them did not care about cervical cancer and they mentioned that they do not have any warning signs or family history of cervical cancer, so they believed that their chance of getting this cancer in the future would be very low compared to other women who exhibit the signs or symptoms of cervical cancer.

"I have no symptoms and no family history of cervical cancer, so my chance of getting it… is low" (Never had a Pap smear, > 45 age group).

The women who have had a Pap smear test were more aware and fearful about being diagnosed with cervical cancer than the women in the other groups who have never been for a test.

"Last time I went for medical check-up because I had heavy bleeding and it continued for a long time. My doctor informed me about a Pap smear test and I was shocked when she told me that it [the bleeding] can be a sign of cervical cancer" (Has had a Pap smear, > 45 age group).

"To be honest, I have had vaginal bleeding and back pain for many years, so I can't exclude that I may get the cervical cancer in the future" (Has had a Pap smear, < 45 age group).

4.2.2.2. *Perceived severity*

Almost all the participants regarded cervical cancer as serious and they believed that women who are diagnosed with cervical cancer would have little chance of survival. In their opinion, those with cervical cancer would not live for long because there is no cure for cancer and they also believed that women with the disease would suffer because of the nature of cervical cancer and the treatment therapies.

"Cancer is not like other diseases. A patient may not be cured and she may die in a short time or may live with cervical cancer for years, but either way she will suffer physically and psychologically" (Practised Pap smear, > 45 age group).

Most of the participants have a family member or a friend with cancer, and some of them have a family history of cervical cancer. So, they know how much cancer patients can suffer.

"Getting any kind of cancer means getting into a situation of sadness, bleakness and depression" (Never had a Pap smear, < 45 age group).

Some of the participants in the cervical cancer patients groups described how cervical cancer had affected their daily life and marital relationship.

"I was very disappointed. I felt that I would die soon. I couldn't take care of my husband and kid. My mum helps me in everything" (Cervical cancer patient).

"For me, the moment I knew that I had cervical cancer was the end of life, because we know that it is difficult to treat cancer. I left my husband because I would not be able to have sex with him and I knew he would leave me" (Cervical cancer patient).

4.2.2.3 Perceived benefits

All the participants had heard about cervical cancer but they were not aware of how it could be prevented. The women who have never been for a Pap smear test had no idea about cervical cancer screening, and some of them mentioned that eating healthy food and keeping the vaginal area hygienic may protect them from the disease.

"Keeping the vaginal area clean and dry, proper hygiene especially during the menstrual period may keep away the cervical cancer... also healthy food plays a role in having good health" (Never had a Pap smear, > 45 age group).

Some of the women who have never had a Pap smear mentioned that a regular medical check-up is important in order to discover cervical cancer in its early stages, but they did not mention the Pap smear test as a screening tool for cervical cancer.

"A regular medical check-up is the best way to discover cervical cancer" (Practised Pap smear test, < 45 age group).

In contrast, the groups of cervical cancer patients were very aware of the strategies for the prevention of cervical cancer. They commonly quoted the benefits of having a regular Pap smear test.

"If a woman performs a Pap smear test every two or three years, she will protect herself from cervical cancer. Discovering cervical cancer at an early stage will help women to avoid what I am suffering now" (Cervical cancer patient).

4.2.2.4 Perceived barriers to cervical cancer screening

The following barriers to cervical cancer screening were explored in the focus group discussions: lack of awareness of cervical cancer screening, cost of the Pap smear test, accessibility of the test, lack of encouragement from healthcare provider, lack of

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husband's approval, absence of symptoms, fear of the result, embarrassment and fear of pain.

<u>Lack of awareness of cervical cancer screening</u>

A low level of awareness was the main factor mentioned by the majority of the women in all the focus groups. A lack of understanding about cervical cancer and its screening was regarded as the main barrier deterring women from participating in cervical cancer screening.

"If Libyan women knew about the Pap smear test and its effectiveness in saving their lives, there would not be any barriers that would prevent them from going for regular screening" (Cervical cancer patient).

<u>Cost of Pap smear test</u>

Participants who have never had a a Pap smear test felt that it was unnecessary to pay for the high cost of the test because they did not have any warning signs or symptoms.

"Because I have no symptoms, I may not pay attention to such a procedure. For example, I never go to the pharmacy and buy Panadol if I don't have a headache" (Never had a Pap smear, < 45 age group).

In contrast, cervical cancer patients considered this test necessary and that women should pay for it to save their lives.

"Cost should not be a barrier. I am suffering from cervical cancer, and I think that paying a little amount for screening every two or three years is much better than paying dozens of times for the therapy" (Cervical cancer patient).

<u>Accessibility of test</u>

The Pap smear test is available in Sabratha Oncology Centre and a number of private clinics in Az-Zawiya city. Sabratha Oncology Centre is the nearest facility that provides the test at no cost, but women have had problems getting to the Centre as it is quite far away from the city.

"when my doctor asked me to have a Pap smear test, I was confused about where to go exactly. If I go to a private clinic, I need to pay for the test. My doctor told me that the test is only available for free at Sabratha Hospital and I may face a problem in how to get there" (Has had a Pap smear, < 45 age group).

<u>Encouragement of healthcare provider to undergo cervical cancer screening</u>

Women in the groups that never had a a Pap smear test stated that they have never been asked to undergo cervical cancer screening.

"I usually go to the gynaecologist for different reasons. For example, for a pregnancy follow-up or miscarriage, but she [the gynaecologist] has never advised me to do a Pap smear test." (Never had a Pap smear, > 45 age group).

In contrast, women in the groups who have had a Pap smear test declared that they were asked to go for cervical cancer screening when they were symptomatic.

"Nobody told me until I got some symptoms of cervical cancer. I was getting heavy vaginal discharge and discomfort during sexual contact, so my doctor told me about the Pap smear test and she said it was a screening test for cervical cancer" (Has had a Pap smear, < 45 age group).

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The groups of cervical cancer patients affirmed what was mentioned by the other groups; they had never been asked to go for cervical cancer screening until they experienced some symptoms of cervical cancer.

"The first time I knew about cervical cancer screening was when I went for a check-up because of vaginal bleeding" (Cervical cancer patient).

Husband's approval

Some of the women mentioned that their husband would play an important role with regards to their taking of the test. These women required financial support to undertake the procedure and they believed that their husband might not help to pay for the test.

"The test is expensive so I may need financial support to do it and if my husband refuses to pay I can't go by myself" (Never had a Pap smear, > 45 age group).

Absence of symptoms

Asymptomatic women said that they would not have a Pap smear test until they exhibited any warning signs or symptoms of cervical cancer.

"While I feel that I am healthy and have no symptoms of cervical cancer, I will not go for a Pap smear test." (Never had a Pap smear, > 45 age group)

Fear of the result

Some women's fear of the Pap smear result has prevented them from taking up the test, and this was particularly the case for the women who did not have any symptoms of cervical cancer.

"When I think about cervical cancer screening, the first thing I consider is the result of the test. Fear of the result may prevent me from going" (Never had a Pap smear, < 45 age group).

Embarrassment

Embarrassment was discussed in the groups who have never had a Pap smear test. They were afraid of and embarrassed about the procedure.

"I hate having a vaginal examination. It is an uncomfortable examination. And I think many women prefer not to be screened because of embarrassment" (Has had a Pap smear, > 45 age group).

Fear of pain

Women with cervical cancer discussed how the test had been painful and they described it as an inconvenient test.

"The test is painful and uncomfortable and I didn't like doing it" (Cervical cancer patient).

4.2.2.5 Cue to action

The women in all the groups stressed the importance of the healthcare provider's advice and support for cervical cancer screening. They also discussed the role of the media in increasing women's knowledge about cervical cancer and its screening. The women in most of the groups stressed the need for cervical cancer awareness campaigns particularly in schools to increase young women's awareness of cervical cancer warning signs and risk factors and the screening procedure.

As a conclusion of the key results from the focus group discussions; there was a clear difference in knowledge between healthy women and cervical cancer patients. Compared to healthy participants, the cervical cancer patients were more knowledgeable about cervical cancer screening and its benefits. In additions, they had good knowledge about cervical cancer warning signs and risk factors.

4.3   Findings from the in-depth interviews with healthcare providers

The participants in the in-depth interviews consisted of 14 females and two males from the public and private sectors. The healthcare providers had at least seven years of work experience at the time of the interview. Generally, not much difference was noted between the comments made by the healthcare providers from the public or private sector, or between those from specialists or general practitioners. The following subsections explain the healthcare providers' perceptions, attitudes towards and recommendation practices for cervical cancer screening.

4.3.1   Healthcare providers' attitude towards cervical cancer screening

In general, the interviews revealed that most of the healthcare providers in both sectors did not provide enough information about cervical cancer screening to their patients. However, it is known that a lack of information about the Pap test results in low uptake of cervical cancer screening (Lim. & Ojo., 2016).

4.3.1.1   Explanation by healthcare providers about Pap smear test

All of the participants reported that they do not explain cervical cancer screening to healthy women. They said that they only explain the test to women who are suspected of having or are symptomatic of cervical cancer or women who are aged 30 and above. In cases when they do explain the test, the healthcare providers confirmed that they describe the nature of the Pap smear test and simplify their explanation by stating in

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simple terms that the test only screens for cancerous cells at the early stage. They also make it clear to patients that early detection of abnormal cells can save lives. However, as mentioned above, this information is given only to symptomatic or older women and rarely to young and healthy patients.

"I usually ask patients at risk, like those who have signs and symptoms of cervical cancer as well as those who are more than 30 years old, because this age is regarded as one of the cervical cancer risk factors" (Female GP [public], nine years of work experience).

4.3.1.2   *Acceptance of cervical cancer screening test*

Seven participants, five from a public hospital and two from private clinics, indicated that healthy women may agree to take a cervical cancer screening test if they get sufficient information about it. The other four participants, three from the public sector and one from a private inpatient clinic, mentioned that women do not go for a screening test without having any warning signs or symptoms. The healthcare providers also clarified that attendance for regular cervical cancer screening depends on many factors that vary from one woman to another, such as the woman's awareness of cervical cancer screening, education level, age, health status, family history and economic situation.

"Acceptance of doing a regular Pap smear depends on the woman herself, her education level and economic status. For example, educated women tend to accept screening more than uneducated women. In addition, those who have symptoms or a family history of cervical cancer usually accept and do the test directly, particularly when I explain to them that the test will protect their life" (Female GP [private], 12 years of work experience).

4.3.2   Barriers affecting women's participation in regular cervical screening

The healthcare providers' interviews also showed that there are several barriers that may hinder women's participation in cervical cancer screening. These barriers are classified into healthcare provider-related, healthcare system-related and consumer-related.

4.3.2.1   Healthcare provider-related barriers

The two main healthcare provider-related barriers that prevent healthcare providers from explaining or inviting women for cervical cancer screening are as follows:

a)   **Limited time for consultation:** Two specialists from private clinics and two general practitioners from the public sector mentioned that they lack the time to discuss cervical cancer screening with every patient. They attend to a large number of patients, which restricts the time available for consultations.

"I am working in a public hospital and usually there is a large number of patients every day. So, it is difficult to explain [cervical cancer screening] to each patient as a result of limited time" (Female specialist [public], seven years of work experience).

b)   **Gender of healthcare provider:** Two male participants indicated that the gender of the healthcare provider affects women's acceptance to do a Pap smear test.

"Because I am male doctor, many women feel uncomfortable talking about pelvic examinations. So, they always prefer to go to a female doctor. And fortunately, in our city, there are many more female gynaecologists than male" (Male GP [public], nine years of work experience).

4.3.2.2 Health system-related barriers

The two most prevalent health system-related barriers that impede cervical cancer screening are as follows:

a) **Accessibility of the screening test:** Most of the healthcare providers mentioned that a Pap smear test is not available in the public sector except at Sabratha Oncology Centre. This centre is remotely located, requiring some women to travel a long distance to access the service.

"When I ask the patient to go for this type of screening, I have to refer her to the place where she needs to do the test. And because Sabratha cancer centre is regarded as quite far from Az-Zawiya city, that may cause a problem for some women in terms of how to get there" (Male specialist [public], 20 years of work experience).

b) **Cost of the screening test:** The participants clarified that cervical cancer screening is not provided in the public sector and women have to pay for the test in a private clinic/hospital. The cost to conduct this test is around USD50, and according to the interview participants, women consider this cost to be unreasonable when they do not have any warning signs of cervical cancer.

"When I refer a woman to a private clinic, the first thing she asks about is the PRICE of the Pap smear test. And in this case, she may refuse to go because of the high cost of the test, ...especially if she doesn't have any signs or symptoms of cervical cancer" (Female GP [public], 18 years of work experience).

"Sometimes I ask some women to do a blood test which costs no more than 10 dollars; they may not come back with the result" (Female GP [Public], eight years of work experience).

4.3.2.3 Consumer-related barriers

The participants mentioned a number of barriers that hinder women from attending the screening programme. Primarily they perceive that the low level of awareness among Libyan women is the main reason for lack of attendance and also that women often refuse to do the test because they do not have any signs or symptoms.

The need for the husband's approval and support for doing a cervical cancer screening test was also mentioned as a barrier to women participating in a screening procedure by seven participants from both the public and the private sector.

"From my experience, I've seen some husbands who don't care about their wives. And they may prefer not to pay for a screening test when there are no any symptoms. Financial assistance from husbands is regarded as the main factor that enables women to participate in the screening programme" (Female specialist [Private], 13 years of work experience).

Some of the interview participants also mentioned that shyness, negligence, lack of time, fear of knowing the test result and accessibility to the test are barriers that deter women from having a screening test.

4.3.3 Healthcare providers' perceptions regarding improvements to cervical cancer screening

The healthcare providers expressed their concern about women's level of awareness about cervical cancer as well as the limited availability of cervical cancer screening. They also suggested ways to improve cervical cancer screening in Libya,

particularly by (1) motivating women to have a cervical cancer screening test on a regular basis, (2) implementing a reminder system and (3) charging a suitable fee for the Pap smear test.

Motivating women to attend cervical cancer screening tests regularly

According to the participants, women are mainly motivated by money and empowerment. Hence the healthcare providers proposed the following measures to motivate women and increase their attendance at regular cervical cancer screening tests:

Educational and awareness campaigns

Most of the participants explained the importance of running educational and awareness campaigns to increase women's awareness of cervical cancer warning signs and risk factors as well as the need for the early detection of cervical cancer through regular screening. A female specialist from a private inpatient clinic claimed the following:

"For the past four years, there has been a breast cancer awareness campaign performed for one month every year in all the secondary schools in Libya. This campaign has improved women's awareness of breast cancer. And because of these campaigns we have seen many patients come to us to receive an early diagnosis of breast cancer and consequently we were able to discover a number of cases in the early stages. So, these awareness campaigns will improve women's awareness of cervical cancer and will increase their attendance for the Pap smear test" (Female specialist [private], eight years of work experience).

Media, posters, and leaflets

The healthcare providers also mentioned the significance of the media in increasing women's motivation to attend regular screening. Posters and leaflets can explain the cervical cancer warning signs and risk factors as well as the importance of detecting the disease early to save a woman's life. This type of media can be distributed in schools, universities, clinics and hospitals.

"Information dissemination through posters and leaflets in public places may draw the attention of women. These posters should highlight cervical cancer risk factors, warning signs, and the importance of early screening" (Female GP [private], 12 years of work experience).

Offering a free Pap smear test

Five participants from both the public and private sectors stated that offering a Pap test free of charge may increase women's attendance for screening. Women usually will not pay for such a costly service without having any symptoms, so the provision of free screening in the public sector would motivate them to have the test regularly.

"The Pap smear is not available in the public sector. Usually, when I ask women to do a Pap test, they need to go to the private sector and in this case, they may not agree because of financial issues. But if the service is provided in the public sector for free, women's attendance will increase" (Male GP [public], nine years of work experience).

Reminding Women to do Regular Screening

Most participants indicated that reminding women that they should have a regular Pap smear test every three years is not easy. They believed that implementing a

reminder system requires good planning, time and effort, and the introduction of such a system was regarded as one of the main roles of the Ministry of Health.

Implementation of a proper reminder system

Seven healthcare providers mentioned the importance of implementing a call-recall system, such as the one available in developed countries, whereas the other five participants from both sectors highlighted the difficulty of implementing such a programme at the current time because of limited resources. Some indicated that awareness campaigns coupled with doctors' encouragement would improve women's attendance at screening programmes. A female specialist at a private outpatient clinic proposed compulsory attendance:

"We can do… that the attendance for Pap smear screening is compulsory. And small booklets can be given as a reminder, and those who don't come for their next screening date have to pay a fine. Then, we may get 100% Pap smear screening" (Female GP [private], 12 years of work experience).

Attendance without a reminder

The healthcare providers were asked whether women go for a Pap smear test without being encouraged and reminded. Fourteen participants answered "no" or that women would never attend without being given a reminder. The other two participants highlighted that women's awareness of cervical cancer screening plays an important role in their attendance without a reminder.

"Women's attendance without a reminder depends on women's awareness of cervical cancer screening. Most Libyan women have no idea about the Pap smear test, but if they got adequate information and the test was easily available, then their

attendance would improve and they might come without being reminded to do so" *(Male specialist [public], 20 years of work experience).*

Healthcare providers' opinions of the cost of the Pap smear test

Half of the participants indicated that 50 dollars is not that much money to pay for a test every three years. They explained that this amount of money would pay to detect any abnormal cells in the cervix, and then the woman's life could be saved, rather than discovering cervical cancer at later stages, when it would be more difficult to treat.

"Fifty dollars is not expensive at all, and a woman needs to pay it just once every three years…. And by paying this amount she may avoid paying thousands of dollars to receive treatment for cervical cancer lesions in the future" *(Female specialist [public], 16 years of work experience).*

4.4. Summary

The research results as presented in this chapter highlight awareness about the warning signs, risk factors and screening of cervical cancer among women from Az-Zawiya Libyan city. The results of the exploratory quantitative study showed that awareness was low and underlined the need to improve public awareness of cervical cancer and its prevention by using several health promotion strategies. On the other hand, the results of the FGD study identified numerous barriers that prevent women from undertaking a Pap smear test. The most important barriers that were revealed through the focus group discussions were lack of knowledge about cervical cancer and its screening, financial constraints, and accessibility of the screening service. Moreover, this research also paid special attention to discovering the healthcare providers' attitude towards cervical cancer screening through in-depth interviews, and the findings showed that health professionals play a key role in motivating women to attend cervical cancer

screening programmes. In addition, the participating healthcare providers highlighted that the implementation of a reminder system for cervical cancer screening would support them in improving attendance. Finally, the healthcare providers stressed the necessity of running educational and awareness campaigns on cervical cancer screening for Libyan women.

CHAPTER 5 : DISCUSSION

This chapter presents a discussion of the findings of this research. It also explains the results of the research by comparing them with other research findings in a similar field. The discussion proceeds in an organized manner in line with the research objectives.

The chapter commences by discussing women's awareness of cervical cancer warning signs/symptoms and risk factors and the screening procedure. It then goes on to explain the socio-demographic variations in the level of awareness among Libyan women. Following this, the discussion focuses on the barriers that affect women's participation in regular cervical cancer screening. Finally, the chapter ends by presenting the different arguments regarding the perceptions, attitude towards and recommendation practices for cervical cancer screening among healthcare providers.

5.1. Awareness of cervical cancer among women in Az-Zawiya city, Libya and the socio-demographic variations

This section discusses and assesses women's awareness of cervical cancer symptoms and risk factors in Libya and highlights the socio-demographic variations in their level of awareness. It also discusses delayed help seeking when women present with cervical cancer signs and symptoms. Moreover, it explains the reasons for women's WTP for the cervical cancer screening test.

5.1.1. Awareness of cervical cancer symptoms and risk factors

The results from this study demonstrate poor knowledge of cervical cancer among the respondents. Most respondents were unable to recall any symptoms or risk factors for cervical cancer. However, the awareness of the respondents was much higher for both when they were prompted. This is consistent with findings from other

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similar studies. For instance, a previous study conducted in the UK, which compared prompted and unprompted recall, found significantly higher knowledge of all symptoms and risk factors in the prompted compared to unprompted group (Waller et al., 2004).

As regards the most commonly recalled and recognized signs and symptoms, the current study found that vaginal bleeding between periods was the most commonly recalled symptom, which is consistent with the findings of many other studies (Adams & Denny, 2017; American Cancer Society, 2016; Cancer Research UK, 2011; Low et al., 2012), while vaginal bleeding after menopause and vaginal bleeding between periods were the most commonly recognized signs, which is similar to the results of a previous study performed in England in the UK (Waller, 2010). Moreover, in a study conducted in Uganda, inter-menstrual bleeding and post-menopausal bleeding were recognized by the majority of study participants (Mwaka et al., 2015).

In our sample, persistent diarrhoea was not recalled by any of the respondents and was recognized by only 7.5% of them when prompted, which supports the finding of the study in England that most women do not think that persistent diarrhoea could be one of the symptoms of cervical cancer (Waller, 2010).

The ability to recall all 11 risk factors was very low among all the respondents in this study. The most commonly recalled risk factor in this study's population was having many sexual partners (7.5%). This risk factor was the most commonly recalled in a study in England, which reported that 20% of English women could recall it (Waller, 2010). It was not surprising to find that awareness of HPV among the women in Az-Azawiya city was very poor, but this is also the case in some previous studies (Low et al., 2012; LAV Marlow et al., 2007; Waller, 2010). These results suggest that although many women knew that a link exists between cervical cancer and sex, the mechanism of contracting a HPV infection through sexual contact has yet to

understood by most (Low et al., 2012; Waller et al., 2004). A study performed in Egypt showed that 32.5% think that cervical cancer is caused by a viral infection (Shaltout et al., 2014), and similarly in our study, only 35% of participants were able to recognize that HPV is a main risk factor of cervical cancer..

In the recognition element of the study, many of the respondents asserted that a weakened immune system and the use of contraceptives were risk factors. In contrast only 11% of women recognized high parity as one of the risk factors. This was similar to the findings of some studies in sub-Saharan Africa, where only a low percentage of respondents identify high parity as a risk factor for cervical cancer (Maree et al., 2011; Mwaka et al., 2015). The participants in the current study each have between nil and nine children, so the underreporting of high parity as a risk factor may relate to the fact that most of the participants have experienced high parity themselves and would perhaps feel uncomfortable to perceive and report high parity as a risk factor of cervical cancer (Mwaka et al., 2015).

For both recall and recognition of cervical cancer warning signs and risk factor, higher scores were associated with the 30–39 age group, being married, having a higher education and a higher income. As expected, higher education predicted higher recall and recognition of symptoms and risk factors, as confirmed previously in two Arabic communities in Qatar and Jordan (Al-Meer et al., 2011; Amarin et al., 2008) and also among British women (Low et al., 2012). In addition, the participants whose husbands had a higher level of education got more correct answers than the other participants.

However, in general, the women participating in this study showed poor knowledge of the major symptoms and risk factors of cervical cancer. This result is similar to that reported by many other studies conducted in Arabic countries (El-Hammasi et al., 2009; ElMhamdi et al., 2012; Maaita & Barakat, 2002; Shaltout et al., 2014).

5.1.2. Practice of cervical cancer screening

More than half of participants in this study did not recognize that cervical cancer is caused by a virus and can be detected early through a screening test. Moreover, more than half of the women who knew about cervical cancer screening had no information about the age at which women should start attending regular screenings. This finding is compatible with several studies in both developing and developed countries, which found that women have a low level of knowledge about the association between cervical cancer and HPV(Blödt et al., 2011; Eze et al., 2012; Goldsmith et al., 2007; Hsu et al., 2011; Mingo et al., 2012; Nøhr et al., 2008).

In the current study, the total number of participants who had previously attended cervical cancer screening was low; only 30 of the 412 participants had previously undergone a Pap smear test. This low practice of cervical cancer screening could be due to limited awareness and knowledge about cervical cancer screening examinations (Suarez et al., 1996). The level of screening participation may also be associated with or determined by certain socio-demographic factors (Ahmed et al., 2013). Ignorance, misconceptions and religious beliefs could be other factors that lead to a low level of cervical cancer screening practice (Aboyeji et al., 2004; Adefuye, 2006; Gharoro & Ikeanyi, 2006).

Generally, the prevalence of cervical cancer in developing countries is significantly higher than in developed countries (Gakidou et al., 2008).The practice of cervical cancer screening highly depends on women's awareness and knowledge of cervical cancer warning signs, risk factors and the screening test itself (Masood, 1999; Valdespinoa & Valdespinoc, 2006). Moreover, the existence of an organized screening programme plays a crucial role in maximizing cervical cancer screening practice; it can achieve a greater equity in the practice of screening by ensuring that all women at risk of

cervical cancer are targeted within the most appropriate timeframe (Elfström et al., 2015). Most developed countries have managed to establish organized and well-functioning cervical cancer screening programmes (Gakidou et al., 2008), but developing countries are still struggling with overcoming the problems associated with the early and preparatory stages of implementing organized cervical cancer screening (Gakidou et al., 2008; Maver et al., 2013).

5.1.3. Anticipated delay in help seeking

The World Health Organization highlights two main components of early cancer detection: (1) education to promote recognition of warning signs and (2) cancer screening (World Health Organisation, 2016). The delay in help seeking is the time between the discovery of a cervical cancer symptom and the initial visit to a healthcare professional. This delay is attributed to the delay in symptom appraisal and lack of understanding and knowledge about the cancer(Shahid et al., 2016; J Waller et al., 2009). Patient delay in help seeking for cancer symptoms is associated with the symptom appraisal and it is considered as a key factor influencing the time taken to reach a diagnosis (Scott & Walter, 2010). The decision to consult a doctor is based on a mix of social and psychological factors (Scott et al., 2013). Better knowledge of cervical cancer signs and symptoms would help people to recognize them when they appear and thus reduce the anticipated delay in help seeking (Simon et al., 2010).

The current study found that increased knowledge of cervical cancer symptoms and risk factors was related to increased promptness in anticipated help seeking. This finding is compatible with a recently published study that evaluates the effectiveness of an information leaflet in increasing the promptness of help seeking for gynaecological cancer symptoms, and which indicates that providing women with knowledge of gynaecological cancer symptoms to encourage help seeking is important in improving

the rates of early diagnosis (Morris et al., 2016). In the Middle East, delayed help seeking and late presentation of breast cancer symptoms has been found to be due to a lack of knowledge and insufficient information about screening programmes (Elobaid et al., 2016). Paying attention to bodily changes could be an important factor in seeking help for cancer 'alarm' symptoms (Winstanley et al., 2016).

The current study explored the issue of anticipated delay in help seeking and the results indicated that nearly half of the women respondents would not seek medical help before two weeks had elapsed for any of the warning signs of cervical cancer. Women's educational level may affect their attitude towards seeking help and advice for cancer symptoms. A study performed in India to assess the stage at diagnosis and the seeking of medical care among women with breast cancer confirms that the delay could be due to differences in socio-demographic and cultural characteristics, such as a strong belief in traditional medicine, a negative perception of disease, poverty, and poor education (Pakseresht et al., 2014).

Further, the present study found that respondents with higher socio-economic status reported less anticipated delay than those with lower socio-economic status. The finding is compatible with that of a study performed in the UK to measure the anticipated time to seek help for ovarian cancer symptoms, which demonstrated that women with lower socio-economic status anticipated seeking help earlier for symptoms of ovarian cancer than those with higher socio-economic status (Low et al., 2013). In contrast, a study performed in 2009 to assess public awareness of cancer in the UK and which used the general Cervical Cancer Awareness Measure found that respondents with higher socio-economic status were more likely to say that being too busy was a barrier to seeking medical help (Robb et al., 2009).

A systematic review of studies on the influence of cancer symptom knowledge and the barriers to symptom presentation in relation to socio-economic deprivation

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concludes that knowledge of cancer symptoms is necessary for accurate symptom appraisal (McCutchan et al., 2015). Nevertheless, beliefs about cancer and barriers to symptom presentation could have an effect on the decision to seek medical help. This is especially important in the context of socio-economic deprivation, where lower knowledge and awareness, higher negative beliefs about cancer and perceived barriers may lead to avoidable delays, later stage of diagnosis and ultimately poorer survival outcomes (McCutchan et al., 2015). In addition fear, worry and embarrassment may strongly influence help seeking behaviour (Nooijer et al., 2001). A study performed among Omani adults highlighted that women tend to be too scared and worried about what the doctor might find, which consequently could lead to a delay in help seeking (Al-Azri et al., 2016).

Addressing the reasons behind delayed help seeking for cervical cancer could help to identify women at high risk and provide prompt assistance to those in need. A primary care-based survey published in 2016 concludes that cancer symptoms are regarded as a key driver of help seeking, i.e., they are associated with being more likely to seek help (Whitaker et al., 2016). However, failure to recognize the early warning signs and symptoms of cancer is a key contributor to delayed presentation (Mitchell et al., 2008). Thus, increasing public awareness about cervical cancer warning signs, risk factors and screening, in addition to continued efforts to improve healthcare access may prevent unnecessary delay in help seeking.

5.1.4. Willingness to pay

In the current study, the results for WTP for cervical cancer screening showed that nearly two thirds of the participants were interested in having a Pap smear test, but only 23% were willing to do so regularly. Moreover, few of those who were interested in having a Pap smear test were actually willing to pay for it. The study showed that age,

educational level and socio-economic status were the main factors that may affect women's participation in screening programmes. This finding is compatible with that of a study performed in 2006 to assess women's WTP for cancer screening, which clarified that being willing to pay or not for cancer screening is mainly associated with age, education and income (Kwak et al., 2006). Another previous study also confirms that older women and women with a higher level of education are willing to pay more for cervical cancer screening (Raab et al., 2002).

On the other hand, the present study identified a number of barriers that could make women uninterested in doing and not willing to pay for a Pap smear test. The most important barriers identified by this study were no symptoms or signs of cervical cancer, being worried about the result and the cost of the Pap smear test. This finding is in line with other studies that have shown that many women believe that their chance of getting cervical cancer is low in comparison with those who are symptomatic (Almobarak et al., 2016; Lim. & Ojo., 2016). Thus, women holding such a view would not be willing to pay for cervical cancer screening; they may ignore the opportunity to use a screening service and prefer not to pay because they have no serious symptoms of cervical cancer. Another previous study has also found that women may not be willing to pay for a screening test because they are afraid of the test result (Wendy et al., 2010).

Interestingly, in contrast to the finding of the current study, a study performed among Jordanian women clarified that payment for the Pap smear test is not a main barrier to regular screening. Nevertheless, the study stresses that the availability of screening services free of charge is important in order to reach everyone and completely remove the obstacle of financial problems that may deter women from attending a screening programme (Amarin et al., 2008).

Finally, the current study indicated that WTP for a cervical cancer screening test is influenced by women's socio-demographic characteristics such as age, education and

income. This has also been confirmed by a number of other studies that highlight the association between WTP and demographic characteristics [see the review in (Lin et al., 2013)]. Some of these studies indicate that WTP is affected by age (Caughey et al., 2004; Frew et al., 2001; Helvoort-Postulart et al., 2009) while a number of others found that the amount that women are willing to pay increases with respondent income (Appel et al., 1990; Caughey et al., 2004; Frew et al., 2001; Yasunaga H et al., 2006) and level of education (Kopits et al., 2011; Nayak et al., 2009; Raab et al., 2002).

Worldwide it seems that where there is limited knowledge about and awareness of cancer, people's willingness to pay for a cancer screening test is low. For instance, a study of 397 Japanese women found that WTP for breast cancer screening was higher among those who were more aware and concerned about their health (Yasunaga et al., 2007). However, the current study showed that cervical cancer awareness did not have a positive and significant effect on Libyan women's WTP for the Pap smear test. As mentioned above, possible reasons for their unwillingness to pay for the screening test might be feeling healthy and having no any warning signs of cervical cancer, being worried about the test result and the cost of Pap smear test.

5.2.   Perceived barriers to cervical cancer screening

The practice of cervical cancer screening among women differs significantly between developed and developing countries (Yu & Rymer, 1998). Not least because in recent decades, organized cervical cancer screening programmes have been put in place in most developing countries (Chorley et al., 2016). However, there is still a low level of participation in screening programmes in some developed countries and several reasons for this have been identified. For instance, qualitative studies have identified a general lack of knowledge about cervical cancer as one of the main barriers that prevents women from participating in cervical cancer screening (Abdullahi et al., 2009; Cadman

et al., 2014; Jackowska et al., 2012). A systematic review was recently performed on qualitative studies conducted in the UK, Australia, Sweden and Korea that reported a number of barriers that deter women from practising cervical cancer screening (Chorley et al., 2016), and these can be categorized as follows: (1) emotional experiences (embarrassment, shame and vulnerability), (2) physical experiences (painful, uncomfortable procedure), (3) health professionals (poor communication, disrespectful behaviour of smear taker), and (4) practical barriers to accessing screening.

The barriers to cervical cancer screening have also been assessed through a systematic review performed to evaluate a number of qualitative studies on this topic in sub-Saharan Africa (Lim. & Ojo., 2016). The review revealed that women in sub-Saharan Africa do not utilize cervical cancer screening for a range of reasons including fear of the screening procedure and a negative outcome, low level of awareness about the service, embarrassment and possible violation of privacy, lack of spousal support, societal stigmatization, and cost of accessing services as well as health service factors such as proximity to facility, facility navigation, waiting time and the attitude of healthcare personnel (Fort et al., 2011; Gatune & Nyamongo, 2005; Mutyaba et al., 2007; Ndikom & Ofi, 2012; Ngugi et al., 2012; Teng et al., 2014; H. L. White et al., 2012; William et al., 2013).

Thus far the quantitative research design seems to be the only approach that has been adopted by studies aiming to explore the barriers to cervical cancer screening in Arabic nations (Al-Meer et al., 2011; Amarin et al., 2008; El-Hammasi et al., 2009; Maaita & Barakat, 2002; Metwali et al., 2015; Sairafi & Mohamed, 2009). In other words, barriers to cervical cancer screening in the Arabic world have not been the subject of a qualitative study. Nevertheless, a qualitative research study can gather a large amount of data and thereby gain a deeper understanding of a specific topic and

then generate ideas that can lead to new strategies, interventions or theories. Therefore, the current study, in an attempt to fill this gap in knowledge, qualitatively explored the barriers to cervical cancer screening among Libyan women. The findings of this part of the study are discussed below.

The current study found from an analysis of the qualitative data that apparently healthy women had poor knowledge about cervical cancer and its screening compared to cervical cancer patients. They also lacked information about the prevention of cervical cancer and the benefits of regular screening. Nevertheless, the majority of the participants had a family history of cancer and they knew about the sufferings of cancer patients. A previous study in Qatar concludes that having a family history of cervical cancer could be one of the factors that increases the uptake of the Pap smear test (Al-Meer et al., 2011).

Some of the participants in the study perceived that cervical cancer can never be cured and it ultimately leads to death, and this may be one of the reasons why the cervical cancer screening uptake is not higher. Although this result contrasts with that of other studies conducted in Arabic communities in Qatar, Jordan and Kuwait (Al-Meer et al., 2011; Amarin et al., 2008; Sairafi & Mohamed, 2009), it is consistent with the finding of a 2015 study on Ghanaian women, which concludes that the respondents believe cervical cancer cannot be treated and prevented, and that this is why the practice of regular cervical cancer screening among them is still very low (Ebu et al., 2015).

The current study found that, compared to the healthy participants, the cervical cancer patients were more knowledgeable about cervical cancer screening and its benefits. The latter explained that their knowledge about cervical cancer and its screening had improved after having cancer due to continuously learning about the disease, either through the media or through consultation with specialists. In Ghana, the

majority of the patients confirmed that they received information about cervical cancer screening from healthcare providers after being diagnosed with cervical cancer (Gichangi et al., 2003). This reveals the significant role of healthcare professionals in motivating women to attend cervical cancer screening programmes.

The present study identified several reasons that may affect women's decision to take up cervical cancer screening. In general, the barriers that prevent women from attending cervical cancer screening identified by this study are consistent with those found by previous studies across the globe (Al-Naggar, 2012; Al-Naggar & Isa, 2010; Assoumou et al., 2015; Austin et al., 2002; Julinawati et al., 2013; Lim. & Ojo., 2016; Laura Marlow et al., 2015; Mupepi et al., 2011; Oon et al., 2011; Jo Waller et al., 2009; Wong et al., 2009). The main barrier was lack of knowledge and awareness of cervical cancer screening, which was manifested through the women's beliefs about cervical cancer. Poor knowledge about cervical cancer is also reported in a number of other studies conducted among Arabic communities. For example, studies performed in Qatar, Kuwait and Jordan found that a deficiency in knowledge about cervical cancer and its screening results in a low level of screening practice uptake (Al-Meer et al., 2011; Amarin et al., 2008; Sairafi & Mohamed, 2009). Additionally, a low level of knowledge and awareness about cervical cancer and its screening was also confirmed to be a barrier for women in sub-Saharan Africa (Lim. & Ojo., 2016).

Libya has good natural resources that could enable the country to pursue and attain the goal of universal health coverage. However, erratic planning and poor use of valuable resources have prevented the country from capitalizing on the global ambition of universal health coverage (Saleh et al., 2014). In this study, the cost and accessibility of a Pap smear test was identified as the main barrier preventing women from taking up cervical cancer screening. These two factors were discussed by all the focus groups;

participants who had never had a Pap smear test regarded the test as expensive and they said that they may not be willing to pay for this service unless they had symptoms of the disease. A study performed in the United States affirmed that the costly fee of cervical cancer screening prevents some women from attending screening programmes (Hewitt et al., 2004). Yet the cost of prevention is insignificant compared to the considerable financial burden of treating cervical cancer patients(Julinawati et al., 2013). Limited access to health centres providing cervical cancer screening and screening facilities being too far away can also affect women's attendance for cervical cancer screening (Ebu et al., 2015; Mupepi et al., 2011).

The women in the present study also mentioned that they lack encouragement and support from their gynaecologists to attend cervical cancer screening. A study in the UK was conducted to explore the barriers to attendance for cervical cancer screening among women who have been sexually abused, concluded that poor communication between healthcare staff and women affects their attendance for screening (Cadman et al., 2012). In the present study, the participants clarified that they have regularly consulted their gynaecologists yet they have never been advised about taking up cervical cancer screening. Those who had had a Pap smear explained that their doctors had asked them to do a Pap smear test only when they had exhibited some warning signs of cervical cancer. In contrast, the cervical cancer patients had good knowledge about cervical cancer warning signs, risk factors and screening. These findings reveal a shortcoming among healthcare providers with respect to informing their patients about cervical cancer screening; they only provide such information and a recommendation to those who are symptomatic of cervical cancer.

Many of the participating women thought that there was no need for a medical check-up and screening if they had no symptoms. They believed that their chance of

getting cervical cancer was lower than others who are symptomatic (Almobarak et al., 2016; Jia et al., 2013; Lim. & Ojo., 2016; Wong et al., 2009). In addition, a husband's support and approval may play a role in women's take-up of a Pap smear test. Some women may require their husband's permission before being screened because they depend on their husband's financial support (Almobarak et al., 2016; Modibbo et al., 2016). Furthermore, some women in this study mentioned their fear of the Pap smear result, those women prefer to stay unmindful of cervical cancer (Laura Marlow et al., 2015). Moreover, embarrassment in relation to the intimate nature of the cervical cancer screening procedure can influence screening uptake as many women feel uncomfortable about the idea of an internal pelvic examination (Almobarak et al., 2016). Also, many women prefer not to exhibit their private body parts even if the test is performed by a female doctor (K. White & Roydhouse, 2011). In the current study, fear of pain identified as a barrier to cervical cancer screening. In Qatar, the embarrassment and fear associated with cervical cancer screening may not encourage women to even discuss the issue (Al-Meer et al., 2011). Some of participating women mentioned that the practice of the Pap smear test before marriage would lead to loss of virginity and that the screening test was more beneficial for married women than others (Schulmeister & Lifsey, 1999; Suwaratchai, 1997).

5.3. The perceptions, attitudes towards and recommendation practices for cervical cancer screening among healthcare providers

Healthcare providers play a crucial rule in educating women about the benefits of cervical cancer screening and the importance of regular Pap smear tests (BC Cancer Agency, 2013; Wong et al., 2008). Encouragement and motivation from doctors appeared to be an important factor in ensuring that women go for a Pap smear test (Baharom & Ismail, 2008; Nguyen et al., 2002; V. Taylor et al., 2002). However, a

qualitative study performed among Malaysian women that the majority of the women are never informed by their healthcare professionals of the existence and importance of the Pap smear test (Wong et al., 2009).

Similarly, the healthcare providers in Az-Zawiya city are not managing to explain the test to their asymptomatic and younger patients. This study identified that very few healthcare providers inform their patients about cervical cancer screening. At most they only provide such information and a recommendation to attend to older women and those symptomatic of cervical cancer, and they clarify that this is as a result of the limited time for consultation. Yet, a study performed in 2009 among Vietnamese immigrants in Seattle, Washington in the United States highlighted the significance of intervention programmes to improve patient–provider communication, particularly by encouraging healthcare providers to recommend Pap smear testing (V. M. Taylor et al., 2009).

A few of the healthcare providers stated that the frequent refusal to participate in cervical cancer screening among their asymptomatic patients has made them unwilling to spend their time explaining the Pap smear test. This lack of acceptance has been identified by a previous qualitative study in Malaysia that found all the healthcare providers surveyed had observed women's poor acceptability of a cervical cancer screening programme although it was freely available (Abdullah & Su, 2010). This unacceptability and frequent refusal has discouraged the healthcare providers participating in this study from giving advice and support to asymptomatic women.

The gender of a healthcare provider is also regarded as a barrier to women's acceptance of doing a Pap smear test (Bakheit & Haroon, 2004; Queensland Cervical Screening Program, 2009). A study performed in the United Arab Emirates concluded that in most traditional Islamic societies, genital examination of a female by a male is culturally unacceptable except in extraordinary circumstances in secondary care

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(Badrinath et al., 2010; Bakheit & Haroon, 2004). Also, in the current study, the healthcare providers indicated the importance of the husband's approval and support to do a Pap smear test. This supports the finding of a Sudanese study, in which a number of women reported that thought that their husband might not allow them to have a cervical cancer screening test (Almobarak et al., 2016). The husband's decision can affect woman's participation in cervical cancer screening programmes. A case study performed in Malaysia highlighted the role of the husband in encouraging women to practise preventive healthcare (Baharom & Ismail, 2008)

However, according to the healthcare providers interviewed for this study, the most common barrier that prevents women from practising cervical cancer screening is the accessibility of a Pap smear test. According to the Ministry of Health in Az-Zawiya city, a Pap smear test is only available in one public hospital, the Sabratha Oncology Hospital. Although the hospital does not charge for the test, it only provides the service to patients who have been referred from other hospitals and clinics. Therefore, asymptomatic women who plan to undergo an early screening test have to go to private providers and pay for it. The participating healthcare providers also highlighted that the financial factor can significantly affect women's participation in cervical cancer screening. This issue was identified by a case study that examined the reasons behind a woman's decision to go for cervical cancer screening, and which found that a woman will only have a Pap smear done if she has extra money (Baharom & Ismail, 2008).

A low level of awareness about the screening test is another key factor that prevents women from undergoing a regular Pap smear test; women lack adequate knowledge about the importance of the Pap smear test. This is also the case in Malaysia; according to a study performed among Malaysian women, they are poorly aware of the indications and benefits of cervical cancer screening, and they are not aware that a Pap smear test is performed for the early detection of cervical cancer (Wong et al., 2009).

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This study has stressed the importance of educational and awareness campaigns to improve women's attendance at cervical cancer screening programmes. It has been shown by previous studies that improving education and information dissemination about the Pap smear test through awareness campaigns will increase women's awareness of cervical cancer screening (Javanmanesh et al., 2008; Kishore et al., 2009).

In developed countries, the implementation of organized call-recall cervical cancer screening programmes has resulted in reduced morbidity and mortality from cervical cancer (P. B. Smith et al., 2003). Most of the healthcare providers participating in this study mentioned the difficulty of reminding women every three years to practise a regular Pap smear test, and they stressed the importance of implementing a call-recall system to ensure success in increasing Pap smear test coverage.

5.4 Summary

In summary, this chapter discussed the implications of the study findings in terms of improving cervical cancer awareness and maximizing screening uptake in middle-income countries such as Libya. Basically, this research stressed the importance of enhancing awareness of cervical cancer warning signs and risk factors among women in Az-Zawiya city. However, unfortunately, the results demonstrated that the women have poor knowledge of cervical cancer symptoms and risk factors. In addition, delayed help seeking for cervical cancer warning signs and symptoms was observed among the respondents. Furthermore, paying for a Pap smear test was not an important issue for the women in Az-Zawiya city. Accordingly, these findings about women's awareness of cervical cancer and its screening are a cause for concern.

Several barriers to the practice of cervical cancer screening were identified by this research, and these barriers reflect the low level of awareness of cervical cancer among women and the inefficiency of the screening programme in Libya. On the other

hand, healthcare providers have an important role to play in cervical cancer control by informing women to seek medical attention for cervical cancer symptoms. This study showed that very few healthcare providers inform and give advice to women about cervical cancer screening.

5.5   Strengths and limitations of the study

5.5.1   Strengths

This study can be considered a novel study in Libya; to the best of the researcher's knowledge no previous studies have been conducted on cervical cancer awareness among the Libyan people. In addition, there is insufficient scientific evidence on cervical cancer awareness in other Arabic countries. This research consisted of three components: one quantitative study and two qualitative studies.

The quantitative study assessed women's awareness of cervical cancer warning signs, risk factors and the screening test. It also considered the anticipated delay in help seeking for cervical cancer symptoms. Additionally, it evaluated the willingness of women to pay for a Pap smear test. This quantitative study used a translated version of the Cervical CAM, which was developed by Cancer Research UK and others. Some modifications were made to this measure to accommodate the Libyan context. The use of an Arabic validated version of the Cervical CAM for this study has provided an indication that the Cervical CAM is likely to be accepted as a suitable tool for studying other Arabic communities without considerable modification. Moreover, using an internationally acceptable tool means that the findings of the study can be used in international comparisons. The study also assessed the socio-demographic variations that may affect women's awareness of cervical cancer, the anticipated delay in help seeking for cervical cancer symptoms and the WTP for a Pap smear test.

Focus group discussions were conducted to identify the perceived barriers to cervical cancer screening among women in Az-Zawiya city. Generally, a very limited number of studies on perceived barriers to cervical cancer screening have been conducted in the Arabic world, particularly in Libya. The findings of this study showed that there are a number of barriers to cervical cancer screening, which if taken into consideration by the Ministry of Health will improve women's participation in cervical cancer screening programmes and maximize the Pap smear uptake in the community.

Further, healthcare providers' attitudes towards cervical cancer screening were elicited through a qualitative study using an IDI method. This part of the research can also be regarded as a novel study, and its findings have the ability to emphasize the support of healthcare providers in recommending that women undergo cervical cancer screening. Consequently, it should help to improve the relationship between healthcare providers and their patients.

5.5.2 Limitations

One of the study limitations is the higher non-response rate among the older women group. The study showed a substantial difference in participation across the three age groups, where the response rate for older women (43–50 years) was lower than that of the other two groups (18–29; 30–42). This difference may lead to bias in the acceptance rate, which is likely to influence the generalizability of study results particularly for older adults.

Secondly, data was collected only from the city of Az-Zawiya in the west of Libya. The researcher could not expand the research area because of the unstable political situation in the country. However, Az-Zawiya is one of the biggest cities in Libya, is near the capital (Tripoli) and consists of a mix of urban and rural areas, so the

findings may not be too different to those for the rest of Libya. Moreover, this study can be taken as an exploratory study on cancer awareness among Libyan women and possibly initiate a larger study.

Thirdly, cultural validation of cervical CAM was not performed after the forward and back translation. Therefore, it is recommended to be performed in the future studies using the translated version of the cervical CAM, because of the potential cultural differences in the interpretation of some terms.

Lastly, the FGD component of the study was constrained by the refusal of the cervical cancer patients to participate in the study. They declined because their health condition did not allow them to attend the FGD.

CHAPTER 6 : CONCLUSION

This last chapter presents the conclusions derived from the conducted research and makes some recommendations based on the research outcome. First, the conclusion section summarizes the findings of the quantitative and qualitative studies with respect to the different issues surrounding cervical cancer awareness. Then, the recommendations section clarifies some of the requirements identified by the research that form the basis for recommendations for public health policy and future research.

6.1   Conclusions

This research consisted of three studies; the first one was a quantitative study which was designed to assess the awareness of cervical cancer warning signs, risk factors, its screening, anticipated delay in help seeking and willingness to pay for a Pap smear test. The second was qualitative study that aimed to identify the perceived barriers to cervical cancer screening among women in Az-Zawiya city through conducting focus group discussions. The third study was also qualitative and consisted of in-depth interviews performed among healthcare providers from the private and public sectors in order to assess their perceptions, attitudes towards and recommendation practices for cervical cancer screening.

Generally, the quantitative survey found low level of cervical cancer awareness among women in Az-Zawiya city, and through the focus group discussions, the reasons why those women have low awareness level were explored. Finally, suggestions were made through the health care providers in the in-depth interviews to improve women's awareness of cervical cancer.

Briefly, the effectiveness of the Pap smear screening test in reducing the incidence and mortality of cervical cancer has been well documented. However,

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mortality reduction has reached a plateau in countries where population-based Pap smear screening programmes have been implemented, the awareness of cervical cancer symptoms and risk factors among women in Az-Zawiyah city remains poor. Evidently, the quantitative study results revealed the existence of socio-demographic variation in awareness of both the warning signs and risk factors; educated women and those who belong to a higher socio-economic group had higher awareness of cervical cancer. Delay in help seeking for observation of warning signs of cervical cancer was also witnessed. The results of quantitative study also highlighted that women's socio-demographic characteristics influence the willingness to pay for cervical cancer screening.

In this research, focus group discussions were conducted to afford insight into the barriers that affect women's participation in cervical cancer screening in Libya. Several barriers to cervical cancer screening among women in Az-Zawiya city were identified by this research such as lack of knowledge about cervical cancer warning signs and risk factors, financial constraints, and accessibility of the screening service. The results also highlighted that the women lacked knowledge about cervical cancer screening and the Pap smear test.

Healthcare providers can play an important role in motivating women to attend a Pap smear screening test through providing continuous support and advice. Lack of physician's recommendation has been found to be one of the reasons for low Pap smear test coverage. The results in-depth interviews with healthcare providers conducted for this research strongly suggest that there is a strong need to improve the patient–provider relationship. The study also highlighted a shortage of advice from healthcare providers and a lack of recommendations as the reasons for low Pap smear test coverage.

6.2   Recommendations

In light of the research results, some recommendations are made that may improve women's awareness of cervical cancer and maximize their participation in screening programmes.

Generally, the research underlined a strong and urgent need to improve women's knowledge about cervical cancer symptoms, risk factors and its screening. Women need to understand the local cultural beliefs and attitudes about cervical cancer and its screening, and to recognize the warning signs and risk factors of cervical cancer.

Nationwide health educational campaigns should be carried out to maximize public awareness of cervical cancer prevention to combat this preventable cancer. Cervical cancer education campaigns involving the local media may be a good way to provide accurate information and to raise public awareness about cervical cancer screenings. Also, comprehensive information about cervical cancer and its screening should be disseminated especially via electronic media, besides running educational and awareness campaigns. Moreover, health education through healthcare providers can enhance the demand for preventive health services such as cancer screening. It is suggested that the authorities find ways to improve the health education offered by healthcare providers.

Furthermore, improving access to and utilization of cervical cancer screening can have a positive impact on reducing the incidence of cervical cancer and improving survival rates. Providing the Pap smear screening test free of charge may increase women's participation in cervical cancer screening programmes, particularly since the cost of the screening test was identified as one of the main barriers to having a test.

Provision of the test for free could therefore greatly increase screening attendance among women in Libya.

It is hoped that the findings of this research will have the potential to benefit the implementation of cervical cancer screening programmes in Libya and other developing countries, and consequently improve women's uptake of the Pap smear test in these countries.

RESEARCH PLAN

        The following Gantt chart provides details of the proposed research plan for thesis submission.

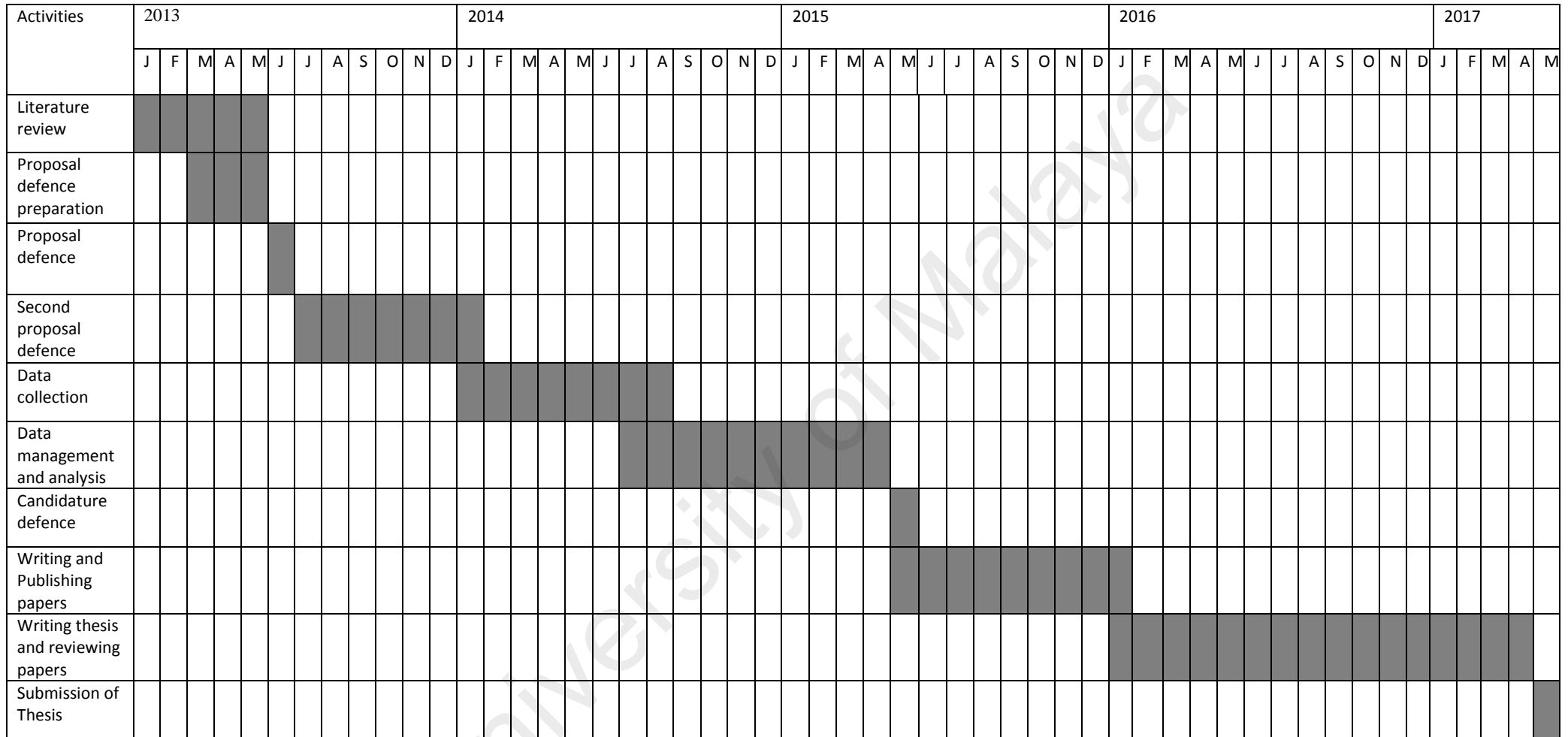| Activities	2013												2014												2015												2016												2017				
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Figure 6.1: Gantt chart

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LIST OF PUBLICATIONS AND PAPERS PRESENTED

The following are the works either published through journals or presented at conferences, seminars etc., which pertaining to the research topic of the thesis are suggested to be included in this section. The first page of the article may also be appended as reference.

I. Paper published at European Journal of Cancer Care in 2016 cited as; Hweissa, N.Ab., Lim, J.N.W. and Su, T.T.(2016), **Health-care providers' perceptions, attitudes towards and recommendation practice of cervical cancer screening**. *European Journal of Cancer Care*, 00: 1–7. doi: 10.1111/ecc.12537 (Tier 2, ISI Journal).

II. Paper published at European Journal of Cancer Care in 2017 cited as; Hweissa, N. A., & Su, T. T. (2017). Hweissa NA, Su TT. **Awareness of cervical cancer and socio-demographic variations among women in Libya: An exploratory study in Az-Zawiya city.** Eur J Cancer Care. 2017;e12750. https://doi.org/10.1111/ecc.12750 (Tier 2, ISI Journal).

III. A poster presented through at the 8th National Public Health Conference 2016 in Melacca, Malaysia on 2th to 4the August 2016, entitled; "**Perceived Barriers toward Cervical Cancer Screening Amongst Women in Az-Zawiya City, Libya: A Qualitative Study**". This paper was published in Malaysian Journal of Public Health Medicine, Vol. 16 (Suppl 4) 2016 (Scopus Journal).

IV. Orally presented paper in the 5th international public health conference in Kuala Lumpur on 26th to 27th august 2015, entitled; "**Awareness of**

Cervical Cancer and Socio-Demographic Variations among Women in Az- Zawiya city, Libya".

V.   Oral presentation entitled; **Health-care Providers' Perceptions, Attitudes toward, and Recommendation Practice of Cervical Cancer Screening** was presented in the Africa-Asia Development University Network (AADUN) Round-Table Discussion at the Asia-Europe Institute (AEI), University of Malaya, Kuala Lumpur, on 10 September, 2015.