

**PREVALENCE OF DE QUERVAIN
TENOSYNOVITIS AMONG PREGNANT WOMEN
IN UNIVERSITY OF ILORIN TEACHING
HOSPITAL, KWARA STATE, NIGERIA.**

**BY
RICKETTS, EBUNOLUWA EUNICE**

20/05PTP004

**A PROJECT SUBMITTED TO THE
DEPARTMENT OF PHYSIOTHERAPY,
FACULTY OF BASIC MEDICAL AND HEALTH
SCIENCES, THOMAS ADEWUMI UNIVERSITY,
OKO, IN PARTIAL FULLFILMENT FOR THE
AWARD OF BACHELOR OF PHYSIOTHERAPY
(B.PT) DEGREE.**

AUGUST, 2025.

CERTIFICATION

This project by **RICKETTS EBUNOLUWA EUNICE** is accepted in present form as satisfying the requirement for the award of Bachelor of Physiotherapy (BPT) degree, in the Department of Physiotherapy, Faculty of Basic Medical and Health Sciences, Thomas Adewumi University, Oko, Kwara State.

SUPERVISOR

SIGNATURE AND DATE

DR. H. MUHAMMED

EXTERNAL EXAMINER

DR. O. O. DADA

O. O. Dada 19/08/2025

APPROVED

DR. S.A AKINWALE

HEAD

DEPARTMENT OF PHYSIOTHERAPY

THOMAS ADEWUMI UNIVERSITY

DEDICATION

I dedicate this project to God Almighty, who has given me the wisdom, knowledge, understanding and strength to begin and complete the project work.

This project is also dedicated to my sister (Dr. Sharon Ricketts) who is my role model, my parents, Rev'd Dr and Mrs A.O. Ricketts for providing me of all support needed for their comforting words and advice. This work is a proof in the impact and influence you have on me.

ABSTRACT

Pregnancy usually triggers a wide range of changes that result in a variety of musculoskeletal disorders (MSDs). De Quervain's tenosynovitis (DQT) is a condition characterized by a degenerative process, triggered by stenosing inflammation of the tendon sheath in the first dorsal compartment of the wrist. This sheath surrounds the two tendons that move the thumb. These tendons run between the wrist and the thumb and this is where the pain is felt.

The aim of this study is to determine the prevalence of de quervain tenosynovitis among pregnant women in UITH Ilorin, Kwara State. This study was a descriptive cross-sectional study of pregnant women in University of Ilorin Teaching Hospital (UITH) Ilorin East Local Government area of Ilorin, Kwara State, Nigeria. It was done using self-administered questionnaires. DQT was accessed using Finkelstein's test. The data was analysed using statistical software (e.g., SPSS version 25), descriptive statistics, and Chi square tests.

A total of 157 participants were involved in this study. And the prevalence of DQT was 67.5%. Although the highest rate occurred in the second trimester (73.7%) using the total number of women in their 2nd trimester, in association with the gestational age the highest rate occurred in multiparous women (73.3%). there was statistically significant association between DQT and gestational age ($p < 0.0001$), and number of pregnancies ($p = 0.002$).

In UITH De Quervain's tenosynovitis is highly prevalent among pregnant women affecting approximately 67.5 out of every 100 pregnant women, particularly during the second trimester. the condition's frequency highlights the need for greater awareness and early screening during antenatal care to support maternal well-being.

Key words: De Quervain Tenosynovities, Pregnant women, Prevalence, Risk factors

ACKNOWLEDGEMENT

First and foremost I would like to acknowledge and give all glory to God, who by His mercies have brought me this far, for the wisdom, speed, and direction He has given me throughout this journey, His love and grace the has helped me perfect this research journey.

I am especially grateful to my father for his patience and support throughout this journey, even with the challenges that were faced, and to my mother for her selfless and steadfast belief in my abilities. Their continual encouragement has served as a wellspring of strength and motivation for me.

I am to especially grateful to my supervisor, Dr Mrs Mohammed, H, for her exceptional guidance, mentorship, and support. Your expertise and feedback was a very key and important instrument in shaping and reshaping, and in helping me successfully achieve my objectives and goals. I am truly thankful for the act of support especially in the rounding up of my project work. May God continue to bless and reward you abundantly.

To the Head of Department of Physiotherapy Thomas Adewumi University, Dr .S.G, Akinwale, who is also the head of department of the University of Ilorin Teaching Hospital (UITH), the space for our clinical training all through the years, thank you for your support and guidance throughout this journey. The consistent follow up, which encouraged me to work harder, while writing and carrying out this research.

I would like to specially thank the academic staffs and clinical staffs of the physiotherapy department, Dr. Akinwale S.G., Dr. Mohammed H.H., Dr. Aderibigbe, Dr. Abolarin, Dr. Alaba, Dr. Salisu, Dr. Jogunola, Dr. Abdulrahman, Dr. Adepoju, O.A, Dr. Asafa, S.A, Dr. Oseni, A.I., Dr. Balalola, O.N, Dr. Solagbade, R, Dr. Ogunsola, A, Dr. Oguntoyinbo, O, Dr. Wahab, M, Dr. Adeyanju, H, Dr. Akinyooye, J, Dr. Ademola, I, for equipping me with knowledge and clinical skills I need in this journey of becoming a physiotherapist. Your valuable insights and contirbution have helped be grow.

I express my gratitude to every other lecturer that have taught me at various levels of my academic journey. Your collective efforts have helped shape my learning process. Special thanks goes to Prof. Alabi A.S., and Prof. Enaibe B.U., whose care and support had a profound impact on my journey in this institution, Thomas Adewumi University. It has been a privilege learning from you.

I would like to also appreciate Thomas Adewumi University, Oke for providing the necessary resources, facilities, and support through my academic and research journey. The university's commitment academic and moral excellence has created a conducive environment for research and learning.

I am immensely grateful to the pregnant women, the participants of this study who agreed to participate in the study, giving out their consent. This research would not have been achievable without them. I hope this research will help to shed light on De Quervain Tenosynovitis being a notable condition among pregnant women.

To my colleagues and coursemates "PRIMA ASTRA'25", the pioneering students of the Thomas Adewumi University it was an honor starting this journey from the preclinical stage, to the very end of our time as students. I will cherish our discussions, debates, resolutions, even the conflicts, because this has made us grow into the persons we are becoming.

To my Parents, Rev'd Dr. Ricketts, A.O., and Mrs Ricketts, A.O., I want to appreciate you once again for your commitment and love you have shown me, this has helped me and molded me into the woman that I am now.

To my Elder Siblings, Mr. Israel Ricketts T, Pharm. Oluwatosin Ricketts F., Dr. Miss Sharon Ricketts T., who have played a role as models for the kind of life I should live, I really appreciate you. I specially want to acknowledge my sister, Dr. Miss Ricketts, S.T., whose love and advice have played a huge role in the completion of this journey. God bless you.

To my friends and loved ones, thank you for your support and words of encouragement. May God continue to bless and enrich you and your family abundantly.

TABLE OF CONTENT

CERTIFICATION.....	ii
DEDICATION.....	iii
ABSTRACT.....	iv
ACKNOWLEDGEMENT.....	v
TABLE OF CONTENT.....	viii
LIST OF TABLES.....	vi
LIST OF FIGURES.....	vii
CHAPTER ONE.....	1-5
INTRODUCTION	
1.1 BACKGROUND TO THE STUDY.....	1
1.2 STATEMENT OF THE PROBLEM.....	2
1.3 AIM OF THE STUDY.....	3
1.4 OBJECTIVE OF THE STUDY.....	3
1.5 SIGNIFICANCE OF STUDY.....	4
1.6 SCOPE OF STUDY.....	4
1.7 LIMITATIONS OF THE STUDY.....	4
1.8 DEFINITION OF TERMS.....	5
1.9 LIST OF ABBREVIATIONS USED.....	5

CHAPTER TWO.....	6-22
-------------------------	-------------

LITERATURE REVIEW

2.0 INTRODUCTION.....	6
2.1 TENOSYNOVITIS.....	6
2.2 PAIN	7
2.3 DE QUERVAIN TENOSYNOVITIS.....	8
2.4 FUNCTIONAL ANATOMY OF THE HAND.....	8
2.4.1 Structure and Function.....	9
2.4.2 Nerve and Blood Supply.....	11
2.5 EPIDEMIOLOGY.....	14
2.6 AETIOLOGY.....	15
2.7 CLINICAL RELEVANT ANATOMY.....	16
2.8 PATHOPHYSIOLOGY.....	17
2.9 LITERATURE REVIEW.....	17

CHAPTER THREE.....	23-26
---------------------------	--------------

MATERIALS AND METHODS

3.0 INTRODUCTION.....	23
3.1 DESCRIPTION OF STUDY POPULATION.....	23
3.2 PARTICIPANTS.....	23
3.2.1 Participants Selection.....	23
3.2.2 Inclusion/Exclusion criteria.....	23
3.3 MATERIALS/INSTRUMENTS.....	19
3.3.1 Apparatus/Instruments.....	19
3.3.2 Description of Instruments.....	19

3.4 METHODS.....	20
3.4.1 Sampling Technique.....	20
3.4.2 Sample Size Determination.....	
3.4.2 Research Design.....	20
3.4.3 Ethical Consideration.....	20
3.4.4 Research Protocol/Procedure for Data Collection.....	
3.5 DATA ANALYSIS	26
CHAPTER FOUR.....	27
RESULTS	
4.0 Intoduction.....	27
4.1 Result on the Socio-Demograpics.....	27
4.2 Possible risk factors of De Quervain Tenosynovitis.....	29
4.3 Difference between the positive and negative DQT.....	30
4.4 Relationship between the number of pregnancy and DQT.....	35
4.5 Relationship between gestational age and DQT.....	36
4.6 Relationship between dominant hand and DQT.....	37
4.7 Association between the age and the gravidity/parity of the mother and the prevalence of DQT.....	41
4.8 Association between gestational age and the prevalence of DQT.....	42
4.9 Summary of Findings.....	45
CHAPTER FIVE	
DISCUSSION, CONCLUSION AND RECOMMENDATIONS	
5.1 Discussion.....	46
5.2 Key Findings.....	47

5.3 Summary of Study.....	50
5.4 Conclusion.....	51
5.5 Recommendations.....	52
5.6 Suggestion for Further Studies.....	52
REFERENCES.....	54
APPENDIX I QUESTIONNAIRE USED: FINKELSTEIN TEST	
APPENDIX II QUESTIONNAIRE USED	
APPENDIX III CONSENT FORM	
APPENDIX IV ETHICAL APPROVAL	
APPENDIX V RAW DATA	

LIST OF TABLES

Table 1 Socio demographic information.....	28
Table 2 possible risk factors of De Quervain Tenosynovitis.....	29
Table 3 Difference between the positive and negative DQT result.....	30
Table 4 Relationship between number of pregnancy and DQT.....	35
Table 5 The relationship between gestational age and DQT.....	36
Table 6 Relationship between the dominant hand and DQT.....	37
Table 7 Association between the age and gravity/parity and the prevalence of DQT	39
Table 8 Association between gestational age and prevalence of DQT.....	40

LIST OF FIGURES

Figure1 The Brachial Plexus.....	12
Figure2 The Nerve Supply to the Hand.....	13
Figure3 The Blood Supply to the Hand.....	14
Figure4 Difference Between the positive and negative DQT result.....	31

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Hand and wrist problems are common complaints of pregnant females (Afshar and Tabrizi 2021). Hormonal changes, fluid retention, and weight gain may exacerbate or precipitate hand and wrist problems during pregnancy. Patients may complain of specific and non-specific problems, which may decrease pregnant females' quality of life (Afshar and Tabrizi 2021).

De Quervain Tenosynovitis a painful inflammatory condition involving the tendons of the abductor pollicis longus and extensor pollicis brevis in the first dorsal compartment. (Hassan, Kareem, et al. 2022).

In a descriptive study by Kesikburun *et al.* 61 (33.2%) out of 184 pregnant females complained of musculooskeletal pain in the hand and wrist in pregnancy. These problems were the third most common musculoskeletal complaints, after low back pain. One type of musculoskeletal disorder is De Quervain Syndrome. De Quervain Syndrome is a muscle injury characterized by inflammation followed by severe pain in the area of the tendon membrane located in the synovial sheath, which covers the extensor pollicis brevis and abductor Pollicis longus. Typical symptoms of this syndrome are pain, numbness and tingling, especially in the area of the extensor pollicis tendon which is at the base of the thumb towards the wrist (Nur Amanda *et al.*, 2020). Wrist pain that occurs in adults is called De Quervain's Syndrome. Most cases are related to overuse and local trauma that can cause it. Women between the ages of 30 - 50 years often experience this condition, and some of them experience it after giving birth to children (Naim, 2024).

Balik *et al.* studied the hand and wrist problems in 383 pregnant females at ≥ 28 weeks gestation and reported that there were 125 (32.6%) asymptomatic patients. In total, 67.4% of the pregnant females were suffering from hand and wrist problems. (Afshar, & Tabrizi, 2021).

Pregnancy is a physiological process that causes changes in the musculoskeletal system. Changes occur due to posture, hormones, weight gain and fluid retention. This occurs most often in the third trimester. These changes may lead to pathological events, such as low back pain, carpal tunnel syndrome, de quervain syndrome, soft tissue pain syndrome, chondromalacia patella, osteonecrosis of the femoral neck, and transient osteoporosis of hip and leg cramps. (Naim, Wahuni 2024).

According to Bae *et al* 2023, in the year 2013 and 2017, the total number of pregnant women who gave birth and the number of women with PRDQT was 2.1% out of 100 women. This research has revealed that de quervain tenosynovitis can occur as a result of pregnancy. (Bae, *et al* 2023).

1.2 STATEMENT OF PROBLEM

Several studies on the prevalence of de quervain tenosynovitis among pregnant women have been carried out in different parts of the world, including Enugu, Nigeria, as an example of a musculoskeletal disorder among pregnant women. However, there is still paucity of data on the prevalence of De Quervain Tenosynovitis among pregnant women in Ilorin. Studies on De Quervain Tenosynovitis have been done majorly abroad and only a few have been done in Nigeria using pregnant women as a population, it has also been noticed that majority of studies on PRDQT have been unable to clarify/understand the risk factors. This study hereby is being made to fill this research gap, determining the prevalence of De Quervain Tenosynovitis among pregnant women in Ilorin, and answering the following research questions:

1. What is the prevalence of de quervain tenosynovitis among pregnant women attending ante natal clinic at UITH.

2. What is the association between de quervain tenosynovitis and gestational age of pregnant women attending ante natal clinic at UITH.
3. What is the association between de quervain tenosynovitis and gravity or parity of pregnant women attending ante natal clinic at UITH.

1.3 AIMS OF THE STUDY

The aim of this study is to determine the prevalence of de quervain tenosynovitis among pregnant women in UITH Ilorin, Kwara State.

1.4 OBJECTIVE OF THE STUDY

- I. To determine the prevalence of DQT among pregnant woman in Ilorin, Kwara State.
- II. To determine the association between de quervain tenosynovities (DQT) and the gestational age of pregnant women.
- III. To determine the association between DQT and the number of pregnancy of the pregnant women.

1.5 SIGNIFICANCE OF THE STUDY

This study provides an insight to the prevalence of DQT among pregnant women in Ilorin and the results from the study creates a wider range of studies specific to de quervain tenosynovitis, in order to generate further advancement to the treatment plans of this disorder. This study also contributes data on the risk factors that may affect DQT among pregnant women, and it makes it possible to encourage early detection and furthermore, treatment in mothers that may have it.

Lastly, according to the Sustainable Development Goal 3, “to promote the good health and well-being”, this study should be of significance to determine if the occurrence of DQT can be prevented even during pregnancy and during nursing by the mothers

.1.6 SCOPE OF THE STUDY

This study will involve pregnant women in University of Ilorin Teaching Hospital, Ilorin, Kwara State.

1.7 DEFINITION OF TERMS

De Quervain Tenosynovitis - is a painful condition that occurs when the tendons on the thumb side of the wrist become constricted

Pregnancy - is the period when a fetus develops inside a woman's uterus

Prevalence - the measure of how common a disease or health condition is in a population at a specific time

Tenosynovitis - Tenosynovitis is a condition that causes inflammation of the fluid-filled sheath that surrounds a tendon.

1.8 LISTS OF ABBREVIATION USED

DQT - De Quervain Tenosynovities

NPRS - Numerical pain rating scale

PRDQT - Pregnancy-related de quervain tenosynovities

UITH - University of Ilorin Teaching Hospital

CHAPTER TWO

LITERATURE REVIEW

2.1 Tenosynovitis

Tenosynovitis is a broad term describing the inflammation of the fluid-filled synovium within the tendon sheath. It commonly manifests as pain, swelling, and contractures, depending on the etiology. The condition can affect any tendon in the body surrounded by a sheath but has a predilection for the hand, wrist, and foot.(Ray et al., 2023).

According to Ray, et al., 2023, tenosynovitis is a broad term describing the inflammation of the fluid-filled synovium within the tendon sheath. It commonly manifests as pain, swelling, and contractures, depending on the etiology. The condition can affect any tendon in the body surrounded by a sheath but has a predilection for the hand, wrist, and foot. Tenosynovitis is inflammation of the protective sheath (the synovial membrane) that surrounds your tendons. It can be painful and make it hard to move your joints like you usually can. (Cleveland clinic, 2022).

Tenosynovitis is inflammation of the lining of the tendon sheaths that enclose the tendons. The tendon sheath usually is the part that becomes inflamed, but both the sheath and the tendon can become inflamed simultaneously.

When the tendons and sheaths at the base of the thumb are inflamed, we call it de Quervain's tenosynovitis. The inflammation puts pressure on nerves and causes pain (Penn Medicine, Philadelphia, PA).

2.2 Pain

The International Association for Study of Pain (IASP) defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage” (IASP, 2021). According to Lee & Neu Neumeister, 2020, pain alerts the individual about a possible pathologic insult on the body and permits avoidance of the offending pathogen or stimulus. However, when the signaling becomes more chronic, the sensation of pain becomes detrimental to the individual, both physically and psychological. There are several types of pain that are descriptive and to some degree may identify sources of ongoing stimulus, examples include nociceptive pain, neuropathic pain, allodynia, acute pain, chronic pain etc. (Casiano, 2023).

Lee & Neumeister, 2020 also describes four processes that occur in the perception of pain. The first process is transduction, occurring in peripheral axons where primary afferent neurons are activated by a noxious stimulus. The second process is transmission, where pain impulses are carried by a 2-fiber system, including fast A delta fibers and slower C fibers, to the dorsal horn of the spinal cord. The third process is signal modulation, occurring peripherally, in the spinal cord, and in the brain. This final process involves third-order neurons in the thalamus projecting to specific cortical regions, mediating the perception, localization, and emotional aspects of pain (Lee & Neumeister, 2020).

The modulation of pain is an endogenous process that dissociates and modulates the transmission of pain. The body's endogenous mechanisms for pain modulation involve segmental inhibition (gate theory), the endogenous opioid system, and the descending inhibitory nerve system (Leung, 2015).

2.3 De Quervain Tenosynovitis

De Quervain tenosynovitis, named after Swiss surgeon Fritz de Quervain, is a condition that involves tendon entrapment affecting the first dorsal compartment of the wrist. With this

condition, thickening and myxoid degeneration of the tendon sheaths around the abductor pollicis longus and extensor pollicis brevis develop where the tendons pass in through the fibro-osseous tunnel located along the radial styloid at the distal wrist. Pain is exacerbated by thumb movement and radial and ulnar deviation of the wrist. The condition typically affects women in the late pregnancy or the postpartum period.(Satteson, Tannan, 2023).

De-Quervain tenosynovitis is an inflammatory disease caused by the chronic misuse of the tendons of the extensor pollicis brevis and abductor pollicis longus muscles. De-Quervain could be presented as a painful wrist secondary to stenosing tenosynovitis of the thumb abductors around the radial styloid.

2.4 Functional Anatomy of the Hand

The hand contains a number of joints that allow complex actions, such as manipulating, gripping and grasping objects. Optimal hand function requires adequate strength, sensation, range of motion, and dexterity. When one or more of these components are injured or impaired, an individual's participation in daily activities may be significantly limited. However, even a partial recovery of hand function can positively impact independence.

2.4.1 Structure and Function of the Hand

The human hand includes 27 bones. There are:

- i. eight carpal bones in the wrist.
- ii. five metacarpal bones
- iii. fourteen digital bones, including the fingers and thumb

The bony segments of the hand are arranged in a series of longitudinal and transverse arches. The bones of the five digital rays are part of the longitudinal arches. The proximal

transverse arch is made up of carpal bones. The distal transverse arch is made up of the metacarpal heads of the fingers. (Physiopedia; Functional Anatomy of the Hand).

Movements of the hand include; abduction and adduction of the fingers which are defined with respect to the middle finger. Skin of the hand, the palmar skin is thick and cornified for enhanced grip. The dorsal skin is thin, mobile and elastic to accommodate flexion. When this property is lost, there will be difficulty with flexing the fingers. The carpal bones are arranged in two rows with 4 bones each

1. Proximal row

- i. scaphoid
- ii. lunate
- iii. triquetrum
- iv. pisiform

2. Distal row

- i. trapezium
- ii. trapezoid
- iii. capitate
- iv. hamate

Joint Articulation

The Carpal bones articulate with each other to form intercarpal joints. Carpal bones in the distal row articulate with the metacarpals of the digits to form carpometacarpal joints. The bones are arranged in a bow shape fashion called the Carpal Arch. The lateral side of the arch is formed by the tubercles of the scaphoid and trapezium. The medial side is formed by the pisiform and the hook of hamate. The Arc is converted to a tunnel by the attachment of the flexor retinaculum

The Metacarpals

Each of the five metacarpal bones is related to one digit

- First metacarpal is related to the thumb
- Metacarpals II to V are related to the index, middle, ring, and little fingers, respectively.

Each metacarpal consists of a base, a shaft (body), and distally, a head. The bases articulate with the carpal bones, the sides of the bases of the metacarpal bones of the fingers (Not the thumb!) also articulate with each other. The heads articulate with the proximal phalanges of the digits. The heads form the knuckles on the dorsal surface of the hand when the fingers are flexed.

The Phalanges

The phalanges are the bones of the digits. The thumb has two-a proximal and a distal phalanx. The other digits have three-a proximal, a middle, and a distal phalanx. Each phalanx has a base, a shaft (body), and distally, a head. The base of each proximal phalanx articulates with the head of the related metacarpal bone. The head of each distal phalanx is non-articular and flattened into a crescent-shaped palmar tuberosity, which lies under the palmar pad at the end of the digit.

2.4.2 Nerve and Blood Supply

The cutaneous innervation of the hand is formed primarily by the terminal branches of 3 nerves: the median, radial, and ulnar. The brachial plexus forms These nerves proximally, which arise from the cervical root levels C5 to T1. The hands' major arteries are the radial and ulnar arteries, which bifurcate from the brachial artery.(Nguyen et al., 2023).

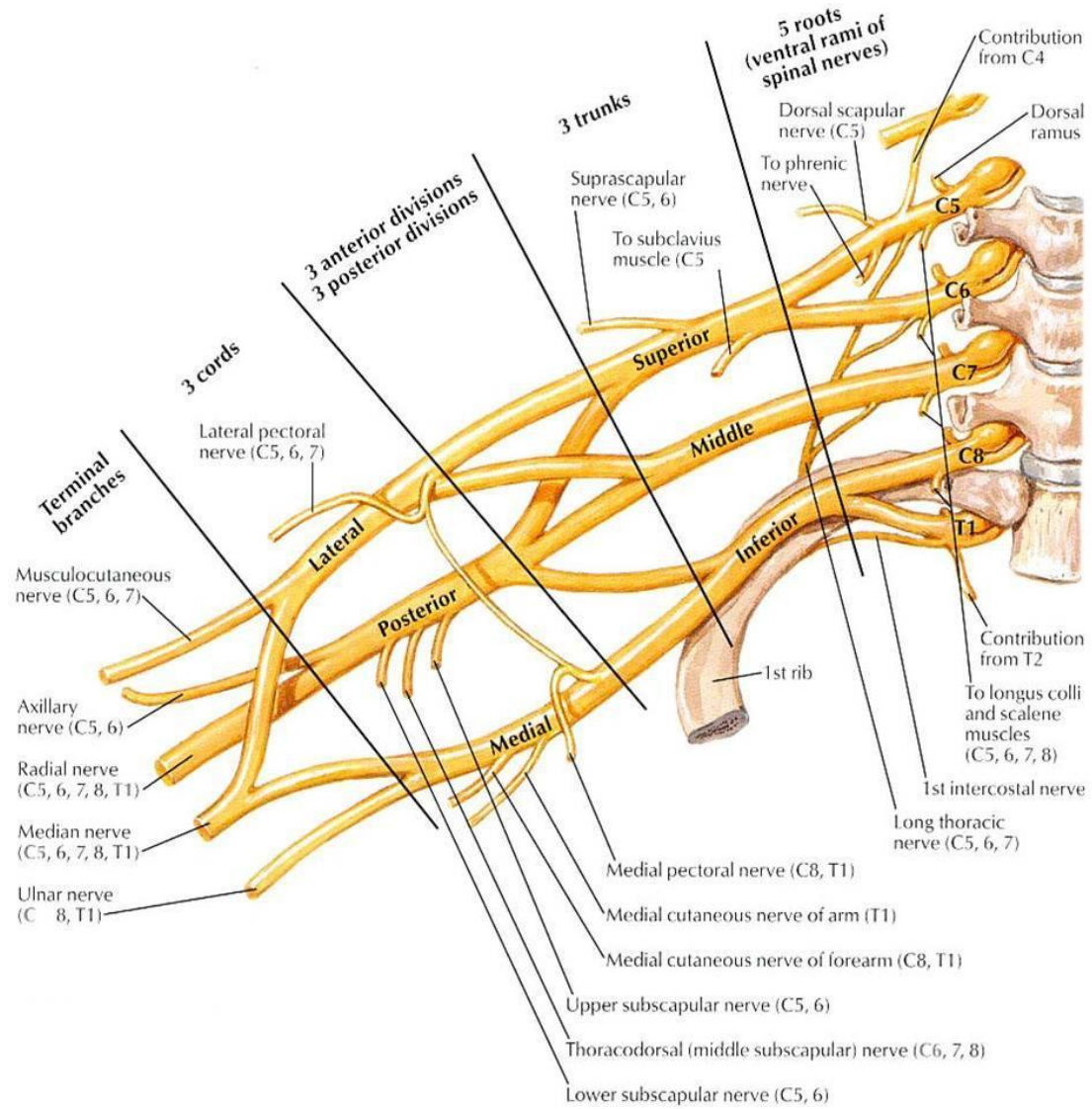


Figure 1 The Brachial Plexus

CUTANEOUS NERVE SUPPLY OF HAND

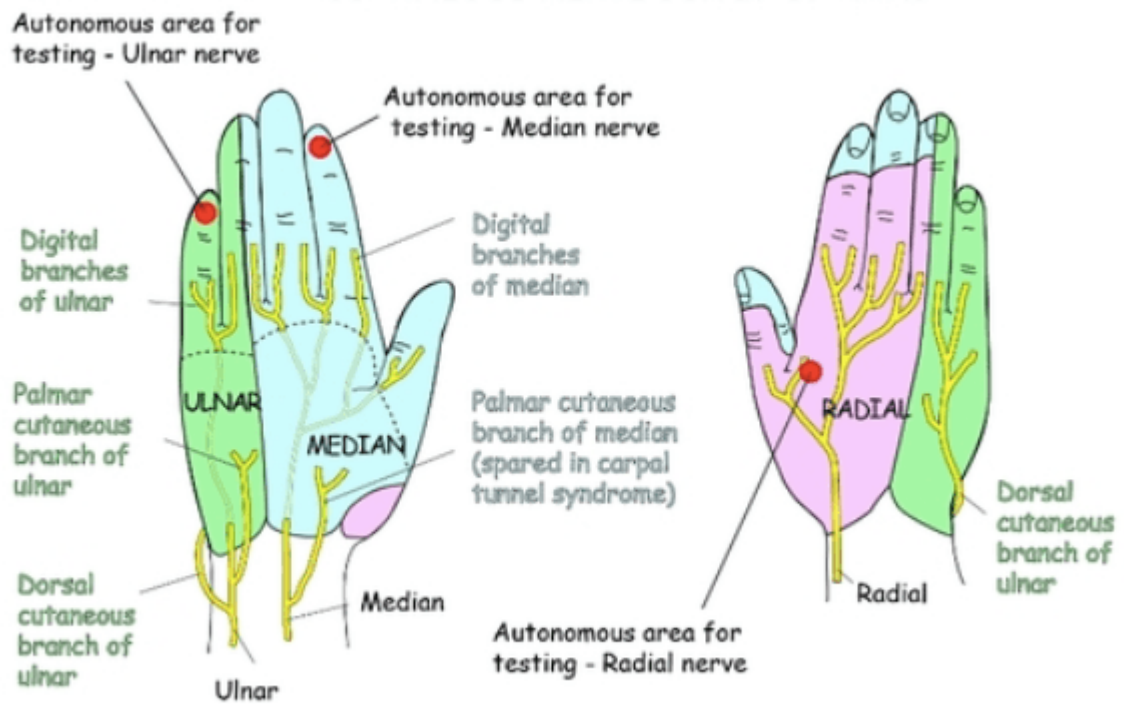


Figure 2 The nerve supply to the hand

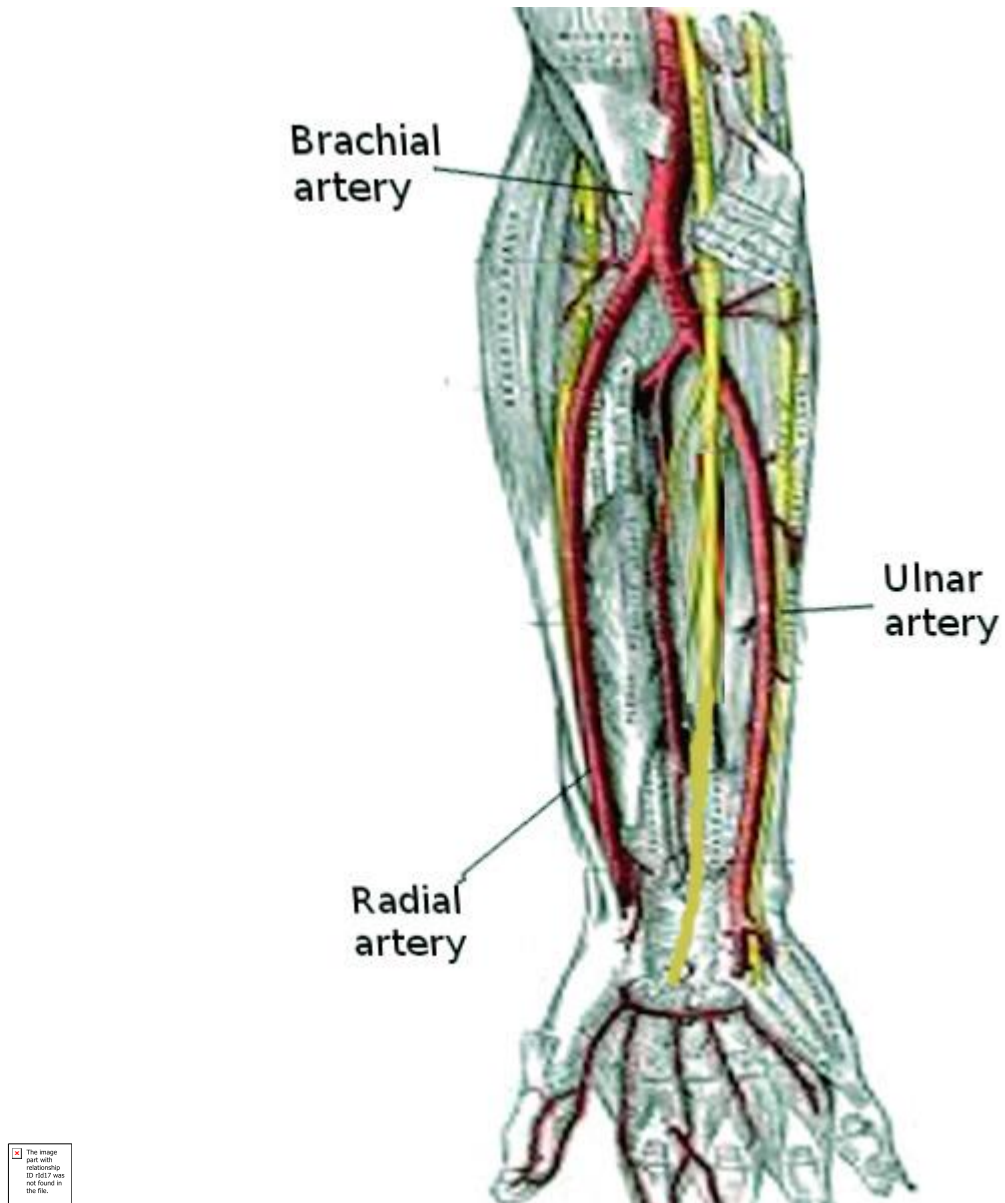


Figure 3 The Blood Supply to the Hand (Chaigasame)

2.5 EPIDEMIOLOGY

One study estimated the prevalence of de Quervain tenosynovitis to be 0.5% in men and 1.3% in women, with peak prevalence among those in their forties and fifties. The condition may be seen more commonly in individuals with a history of medial or lateral epicondylitis. Bilateral involvement is often reported in new mothers or child care providers in whom spontaneous resolution typically occurs once lifting of the child is less frequent. Pregnancy and manual labor are two significant risk factors for the disease. Another study determined the prevalence to be 0.36% in women and 0.13% in men. (Shen, et al. 2019).

2.6 AETIOLOGY

The most common cause of DQT is chronic overuse. Activities such as; golfing, playing the piano, fly fishing, carpentry, or activities by office workers and musicians can lead to chronic overuse injuries. The classic patient population is mothers of newborns who are repeatedly lifting their baby with their thumbs radially abducted and wrists going from ulnar to radial deviation.

Repetitive gripping, grasping or wringing of objects can cause inflammation of the tendons and tendon sheaths which narrows the first dorsal compartment limiting motion of the tendons. If left untreated, the inflammation and progressive narrowing (stenosis) can lead to scarring that further limits thumb motion.

De Quervain's has been "attributed to myxoid degeneration (the process in which the connective tissues are replaced by a gelatinous substance) with fibrous tissue deposits and increased vascularity rather than acute inflammation of the synovial lining."(Satteson, 2021). It is for this reason that is thought to be a tendinosis rather than a tendonitis. (Kate Thorn, 2021). This deposition of the fibrous tissues causes thickening of the tendon sheath,

and this can entrap the abductor pollicis longus and extensor pollicis brevis tendons and cause pain.

2.7 CLINICALLY RELEVANT ANATOMY

De Quervain's syndrome affects the extensor pollicis brevis (EPB) tendon and the abductor pollicis longus (APL) tendon. These muscles are located on the dorsal side of the forearm and go to the lateral side of the thumb through a fibrous-osseous tunnel made of the processus styloideus radii and the extensor retinaculum

1. Extensor pollicis brevis (EPB)

- i. Origin: $\frac{1}{2}$ dorsal side of the radius, the membrana interossea
- ii. Insertion: base of the proximal phalanx of the thumb
- iii. Function:
 - I. Wrist joint: radial abduction
 - II. Thumb: extension
- iv. Innervations: posterior interosseus branch of N. radialis
- v. Artery: A. interossea posterior

2. Abductor pollicis longus (APL)

- i. Origin: dorsal side of the radius and the ulna, the membrana interossea
- ii. Insertion: base of ossis metacarpi
- iii. Function:
 - I. Wrist joint: radial abduction
 - II. Thumb: abduction

- iv. Innervations: posterior interosseus branch of N. radialis
- v. Artery: A. interossea posterior

2.8 PATHOPHYSIOLOGY

The extensor tendons of the wrist are divided into 6 extensor compartments by the extensor retinaculum. The first dorsal compartment of the wrist contains the abductor pollicis longus and extensor pollicis brevis tendons lined by a synovial sheath that separates it from the five other dorsal wrist compartments. As these tendons pass through an approximately 2 cm long fibrous tunnel passing over the radial styloid and under the transverse fibers of the extensor retinaculum, they are at risk for entrapment, particularly in acute trauma or repetitive motion. The first compartment gets shrunk due to the thickening of the tendon sheath, causing a "stenosing" tenosynovitis of the wrist.

There is a formation of fibrocartilage in response to the increased stress over the tendon sheaths, leading to its thickening. There is neovascularization seen over the tendon sheaths. Myxoid degeneration is also seen in the tendons in this condition. A septum is often seen in the first dorsal compartment between the two tendons, which not only constricts the volume of the first compartment but also has important considerations in nonoperative as well as operative treatment. (Satteson, 2023).

2.9 LITERATURE REVIEW

According to research made by (Onyemaechi, et al., 2021). The most prevalent hand disorders in pregnancy are De Quervain's tenosynovitis and CTS. The prevalence of De Quervain's tenosynovitis in this study was 30% with an increased risk among the participants with previous pregnancies. The reason for this is not clear, however, a higher prevalence of the

disease has been reported during the second and 3rd trimesters, and during lactation which has been attributed to fluid retention associated with hormonal changes in pregnancy and lactation. De Quervain disease or stenosing tenosynovitis of the first extensor compartment is the second most common hand and wrist problem during pregnancy and the postpartum period. Fluid retention during the third trimester of pregnancy and repetitive picking up of the baby in particular positions that are needed for nursing and care of the child predispose the patient to De Quervain disease. De Quervain disease has a higher rate of bilateral involvement in pregnant females than in the general population. (Kee Jeong Bae *et al* 2022).

During pregnancy, many hormonal and anatomical changes occur that affect the musculoskeletal system in women. These changes may cause various musculoskeletal problems that may alter the course of the preexisting conditions or predispose to injury. A majority of pregnant women experience some degree of musculoskeletal pain during pregnancy and at least 25% have temporarily disabling symptoms. Musculoskeletal Disorders (MSDs) could be influenced by some factors such as level of activity, gestational age, cultural influences, and environmental factors. (Onyemaechi, *et al.*, 2021).

People between the ages of 30 and 50 have higher risk of developing De Quervain's tenosynovitis than people in other age groups (Kesikburun *et al.*, 2018). The condition may be associated with baby care, lifting a child and moves that involve repetitive movements using the thumbs as leverage. Studies showed that women who had caesarean section and multiple gestation were at higher risk for De Quervain's tenosynovitis (Štuhec Maša¹, Vauhnik Renata 2024).

According to the study findings of Daglan *et al*, 2023 that a first pregnancy was associated with a greater than 2-fold risk of developing DQT. A long pregnancy (>40 weeks of gestation) had a 5.8 times higher risk of developing DQT. This association may be explained by edema

of the first dorsal compartment. As the pregnancy progresses, the plasma volume increases, adding pressure to the first compartment. (Daglan et al, 2023).

In a study by Fulya Bakilan et al 2020, hand and wrist problems were reported by many patients. The most frequent problem was found to be carpal tunnel syndrome which was mostly detected in the third trimester. This can be due to the increased fluid retention during pregnancy. Another hand-related problem found in the study was tendinitis, which has a higher incidence during pregnancy due to the increased fluid retention. In particular, 4 cases of de Quervain's tenosynovitis was found, which may tend to reduce the quality of life of the mothers.

SUMMARY OF THE CORE LITERATURE

S/N	Author(s)& Year	Title of the study	Methodology	Research objectives	Key Findings	Relevance to Study
1.	Onyemaechi, et al (2021)	Prevalence and risk factors associated with Musculoskeletal disorders among pregnant women in Enugu, Nigeria.	Quantitative Research	To determine the Prevalence and risk factors Of Pregnancy -related MSDs in Enugu	MSDs are common in pregnancy with LBP and muscle cramps as the most prevalent conditions. Increasing gestational age, multigravidity, and occupation increased the risk of MSDs among our cohorts.	His study also revealed that there is a prevalence of DQT in the 2nd & 3rd Trimester
2.	Kee Jeong Bae <i>et al</i> (2022)	Incidence and Risk Factors for Pregnancy-Related de Quervain's Tenosynovitis in South Korea: A Population-Based Epidemiologic Study	Quantitative Research	to estimate the nationwide incidence of pregnancy related DQT (PRDQT) and to analyze risk factors using the Korean National Health Insurance(NHI) database.	: In South Korea, PRDQT was found to affect approximately 2.1 out of 100 pregnant women Between 2013 and 2017. The Incidence and risk factors identified in this study can be used for clinical consultations and prediction, as well as for development of national health policies.	It revealed that the gestational age of the mother is a contributing risk factor to the prevalence of DQT
3.	Štuhec Maša et al, (2024)	Physiotherapy Approach for De Quervain Tenosynovitis During and After Pregnancy	Quantitative Research	to evaluate the current literature surrounding evidence physiotherapy approach for treating De Quervain Tenosynovitis during and after pregnancy.	De Quervain's tenosynovitis has a good prognosis and non-surgical treatments are usually effective for pregnancy-related hand and wrist problems.	It reveals that DQT can be easily treated even though they are prevalent and reduce quality of life
4	Daglan et al, (2023)	Risk Factors Associated With de Quervain Tenosynovitis in Postpartum Women	Quantitative Research	this study, we described gestational risk factors associated	Gestational risk Factors associated with Developing postpartum DQT	It also supports the findings of my research concerning the risk factors that ma

				postpartum DQ	include first pregnancy and long pregnancy of than 40 weeks.	cause De Quervain (DQT)
5	Fulya Bakilan et al (2020)	Musculoskeletal problems during pregnancy	Quantitative Research	This study was conducted to identify the most common musculoskeletal problems according to trimester, experienced by pregnant women.	Determining the most common musculoskeletal problems experienced in pregnancy in a specific region is important for early diagnosis, increasing quality of life and preventing the development of chronic disorders.	As part of the findings from his research the relevance it has to my study is De Quervain Tenosynovitis is Prevalent in pregnant women, with gestational age as its risk factor.
6	Satteson, et al (2023)	De-Quervain Tenosynovitis	Quantitative Research			It shares definitions and relevance to the pathology and aetiology of DQT in individuals and pregnant women.
7	Naim et al (2024)	Relationship between Pregnancy and lactation Status and De Quervain Syndrome	Quantitative Research	To examine the relationship between pregnancy and lactation on the incidence of De Quervain syndrome	There is an increased incidence in pregnant and nursing mothers whose prognosis is generally good and only requires a temporary period	It reveals that de quervain tenosynovitis has a very good prognosis among pregnant women making it possible to improve the quality of life of these pregnant women.
8	Ahmadreza Afshar et al (2020)	Pregnancy-related Hand and Wrist Problems	Quantitative Research	This review study aimed to discuss pregnancy-related hand and wrist problems, and provide an overview of their pathology, clinical presentations, clinical Level of examinations, and treatment options.	In general, pregnancy-related hand and wrist problems have a Good prognosis and usually resolve after childbirth.	It reveals the clinical relevance and presentation of this DQT as an hand and wrist problem.
9	Bandar et al (2020)	Prevalence of De-Quervain's Tenosynovitis	Quantitative Research	The purpose of the study is to determine	De-Quervain tenosynovitis is a critical cause of	It reveals that even individuals in the medical

		Among Medical Professionals		prevalence of De-Quervain Tenosynovitis and its relationship to the frequency of cell phone usage among medical professionals.	hand dysfunction for health care providers. Further awareness will help researchers develop an education program for mobile texting and recommend suitable behavioral variations for avoiding this under-documented cause of tendinopathy	profession, due to the frequent use of the mobile phone as repetitive movement are being taken place.
10	Jai et al (2022)	Time to Reconsider Occupation Induced De Quervain's Tenosynovitis: An Updated Review of Risk Factors	Quantitative Research	This review aims to evaluate the current literature surrounding the risk factors which were divided into the anatomical, patient, occupational factors associated the condition.	DQT is more common in females and is often noted in pregnancy and the postpartum period.	It shows that DQT is also as a result of repetitive movement in the hand making it an occupation induced condition.

CHAPTER THREE

MATERIALS AND METHODS

3.1 Description of Study Location

University of Ilorin Teaching Hospital is located in Ilorin, Kwara State. It is located at Old Jebba road, Oke-Ose, Ilorin, Ilorin East Local Government Area. Ilorin East is a local government area in Kwara state with its headquarters at Oke-Oyi. The major languages spoken are Yoruba, Hausa, and Fulfude.

3.2 Participants

This consists of pregnant women attending ante natal clinic at UITH.

3.2.1 Participant Selection

The participant for this study were pregnant women who attend antenatal clinics (ANC). The participants recruited for the study were pregnant women between the ages of 18 and 40 years

3.2.2 Inclusion Criteria

The inclusion Criteria for this study include:

- I. If the individual has been pregnant multiple times
- II. The participant must be within the age of 18 and 40 years

3.2.3 Exclusion Criteria

Exclusion Criteria include:

- III. Women above 40, as she is getting closer to menopause.
- IV. If the pregnant woman had any history of surgery to the hand and wrist.
- V. If the pregnant woman has any disease in the hand, e.g., Arthritis, skin disease.

3.3 MATERIALS AND INSTRUMENTS USED

3.3.1 Materials used

- i. Finkelstein test
- ii. A researcher's Design Questionnaire

3.3.2 Description of Materials

- I. Finkelstein Test: It is a provocative test for diagnosis of De Quervain's disease that can easily be performed in an office setting or at the bedside. Finkelstein's test produces severe tenderness and usually pain on the radial aspect of the wrist when the thumb is flexed into the palm and the wrist is ulnar deviated. The Finkelstein test was performed in cases of wrist pain, especially in patients presenting with pain on the radial aspect of the wrist.
- II. A Research's Questionnaire: a biodata questionnaire form was created to document the participants biodata e.g., sociodemographics, gestational age, gravida, parity, etc.

3.4 METHODS

3.4.1 Sampling Techniques

The participants of this study were selected using the purposive sampling technique and only those who gave their consent and met the inclusion criteria participated in this study.

3.4.2 Sample Size Determination

The Fischer's formula was used to calculate sample size of pregnant women that participated in the study.

$$N = \frac{z^2 p(1-p)}{d^2}$$

Where:

N = Sample size (<10,000)

z = Normal deviation at desired confidence interval, in this case it will be taken by 95%, z value at 95% = 1.96.

p = Proportion of population with desired characteristics 73.9

d = degree of precision which will be taken to be 5%

n = sample size when the target population is greater than 10,000.

Therefore,

$$n = \frac{1.96^2 \times 0.50(1-0.739)}{0.05^2}$$

$$n = 200$$

The projected population of pregnant women receiving antenatal care in the University of Ilorin Teaching Hospital is less than 10,000. thus,

$$nf = \frac{n}{1 + \frac{n}{N}}$$

nf= desired sample size when the target population size is less than 10,000.

N= estimated population size, 740

n= sample size when the target population is greater than 10,000

$$nf = \frac{200}{1 + \frac{200}{740}}$$

$$nf = \frac{200}{1.27027}$$

$$nf = 157$$

3.4.3 Research Design

This proposed study was a descriptive cross-sectional study of pregnant women in University of Ilorin Teaching Hospital (UITH) Ilorin east local government area of Ilorin, Kwara State, Nigeria.

3.4.4 Ethical Consideration

Ethical approval for this study was obtained from the health Research Ethics Committee of the University of Ilorin Teaching Hospital. As well as consent from the pregnant women informing them about the research to be carried out, following the ethical standards in the 1964 Declaration of Helsinki.

3.4.5 Research Protocol/Procedure for Data Collection

After ethical approval and signed informed consent form of the study had been obtained. The questionnaire was clearly explained and clarified to participants, and the Finkelstein test was carried out on each individual in order to confirm the DQT. Afterwards, the questionnaires were retrieved back for analysis.

3.5 DATA ANALYSIS

The data was analysed using statistical software (e.g., SPSS version 25). Descriptive statistics (mean, standard deviation, frequency, and percentages) were calculated for demographic variables and prevalence rates of DQT.

Data obtained from the study was double checked to ensure proper/correct entry and documentation. Chi square was used to determine relationship between de Quervain tenosynovitis and gestational age and Gravity or Parity of pregnant women attending ante natal clinic at UITH.

CHAPTER FOUR

RESULTS

4.0 Variables of the Respondents

4.1 Socio-Demographics Variables

The data presented in table 1 includes demographic characteristics of the participants and their percentages. The moderating variables used were age, marital status, ethnicity and occupation. With the total sample size of participants at the location was 160, although 157 pregnant women were used for the completion of the research study due to 3 women not meeting one of the criteria of this study in relation to age.

Gender distribution, because this research focuses on pregnant women no male participants were involved in the study.

The age distribution reveals that majority of the participants of this study fall between the age range of 26-35 age range with a total number of 98 participants and a percentage of 62.4%. a total number of 34 participants between the age range of 18-25 (21.6%) and a total of 25 between the age range of 36-45 (16.1%).

The occupation distribution among the pregnant women reveals: 45 women are business women(28.7%), 12 are students (7%), 17 are traders(10.6%), 14 are tailors (9%), and 70 women have other jobs (44.7%), such as; house wife, teaching, hairdressing,etc.

The Ethnicity distribution among the pregnant women reveals that: 130 Yoruba women (81%), 15 Igbo women (9.5%), 5 Hausa women (3.2%) and 10 women with other ethnicity (6.3%).

The Marital Status of the pregnant women who participated during this research includes: 8 of them were single with a percentage of (5.1%) and 149 women married with a percentage of (94.9%).

Table 1: Socio demographic information

N=157

Variables	Frequency	Percentage (%)
Age group		
18-25	34	21.6
26-35	98	62.4
36-45	25	16.1
46& above	-	-
Occupation		
Business women	45	28.7
Student	12	7.0
Trader	17	10.6
Tailors	14	9.0
Others	70	44.7
Ethnicity		
Yoruba	130	81
Igbo	15	9.5
Hausa/Fulani	5	3.2
Others	10	6.3
Marital Status		
Single	8	5.1
Married	149	94.9

4.2 Possible risk factors of De Quervain Tenosynovitis

The data presented in the table 2 includes the gestational age of the pregnancy, the gravidity(number of pregnancy) in relation to the De Quervain Tenosynovitis(DQT). The dominant hand of each participant, the approximate number of hours spent on the their smart phones.

The gravidity of each mother (number of pregnancy) distribution reveals: 56 single gravidity with a percentage of (35.7%), and the total number of mothers with multiple pregnancy of 2 or more is 101 with a percentage of (64.3%).

The gestational age of the baby using the trimester as the age reference, where 1st trimester is between (1-3mths), 2nd trimester is between (4-6mths), and 3rd trimester is between (7-9mths). the total number of 1st trimester is 28 women with a percentage of 17.8%, 2nd trimester is 57 pregnant women with a percentage of 36.3%, and a total number of 72 3rd trimester women with a percentage of 45.9%.

The dominant hand of the pregnant women are right and left with 141 right hand women and 16 left handed pregnant women with a percentage of 89.8% and 10.2% respectively.

The smart phone usage behavior of the pregnant mothers also reveals that 152 out of 157 participants have a screen time of more than 6hrs per day (96.8%) and 8 pregnant women have a screen time of less than 6hrs per day (3.2%).

Table 2: Possible risk factors of De Quervain Tenosynovitis

Variable	Frequency	Percentage(%)
Number of pregnancy		
Single	56	35.7
Multiple (2 or more)	101	64.3
Gestational age		
1st	28	17.8
2nd	57	36.3
3rd	72	45.9
Dominant Hand		
Right handed	141	89.8
Left handed	16	10.2
Smart phone usage behavior		
<2-6 hrs screen time per day	5	3.2
>6 hrs screen time per day	152	96.8

4.3 The prevalence of De Quervain Tenosynovities (DQT) test result

This result represented in table 3 was derived using the Finkelstein's test that can either be positive or negative. It was further presented in the bar chart in fig 4, the prevalence of De Quervain Tenosynovitis(DQT) among pregnant women in the area of study. Notably, 67.5% of the respondents reported having pain after performing the assessment test.

The table 3 shows the frequency and percentage of the positive and negative result of the Finkelstein's test

Table 3: The prevalence of De Quervain Tenosynovities (DQT) test result

Variable	Positive	Negative
Frequency	106	51
Percentage(%)	67.5	32.5

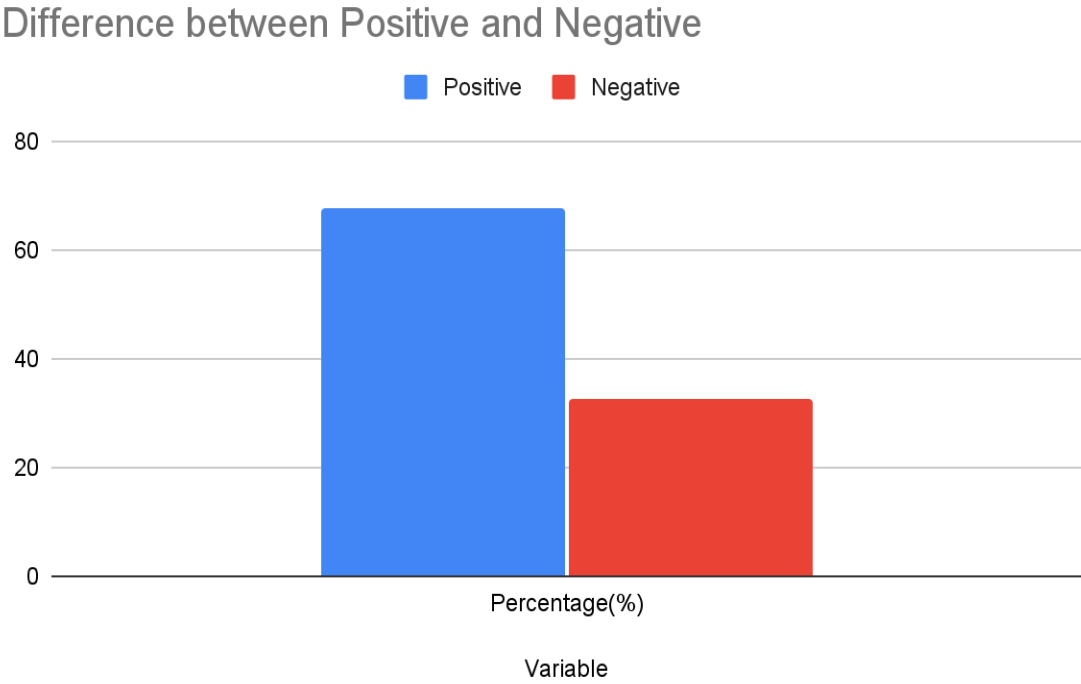


FIGURE 4: Difference between the positive and negative DQT result

4.4 The association between the gestational age and DQT

Table 4 shows the association between the gestational age of the mother and DQT. This distribution of De Quervain's tenosynovitis (DQT) across gestational age groups in this study reveals that, among the 157 pregnant women assessed, the second trimester recorded the highest proportion of positive DQT cases (26.7%), followed by the third trimester (29.3%), and then the first trimester (10.8%). In terms of prevalence within each group, the second trimester again showed the highest rate, with 73.7% (42 out of 57) of participants testing positive.

Table 4: The association between the gestational age and DQT

Variable	Frequency		Percentage (%)	
	Positive	Negative	Positive	Negative
1st trimester	18	10	10.8	7.0
2nd trimester	42	15	26.7	9.6
3rd trimester	46	26	29.3	16.6

4.5 The association between the number of pregnancy and DQT

In table 5, shows the association between the number of pregnancy and DQT among pregnant women examining the potential influence of parity on the occurrence of De Quervain's tenosynovitis (DQT) among pregnant women. The findings show that women with multiple pregnancies had a noticeably higher rate of DQT (74 positive cases) compared to women in their first or single pregnancy (32 positive cases). This translates to a DQT prevalence of **47.1%** among multiparous women, compared to a DQT prevalence of 20.4% among primiparous women.

Table 5: Relationship between number of pregnancy and DQT

Variable	Single	Multiple
Positive	32	74
Negative	24	27
Positive percentage	20.4%	47.1%
Negative percentage	15.3%	17.2%

4.6 Relationship between Dominant Hand and DQT

Table 6 shows the relationship between the dominant hand of the mother and DQT. This distribution of De Quervain's tenosynovitis (DQT) across the dominant hand groups in this study reveals that, among the 157 pregnant women assessed, the ones that are right handed have the highest proportion of positive DQT cases (61.1%), followed by the ones that are left handed with a percentage of (6.4%). In terms of prevalence within both groups, the pregnant women that are right handed show the highest rate, testing positive.

Table 6 Relationship between the dominant hand and DQT

Variable	Frequency		Percentage (%)	
	positive	negative	positive	negative
Right handed	96	45	61.1	28.7
Left handed	10	6	6.4	3.8

4.7 Association between gestational age and the prevalence of De Quervain tenosynovitis (DQT).

The Pearson Chi-Square analysis in table 7 indicates a statistically significant association between gestational age and the incidence of De Quervain tenosynovitis ($\chi^2 = 1.525$, $df = 2$, $p = 0.000$). This indicates that the stage of gestation markedly affects the prevalence of the illness in pregnant women. Consequently, the research question is validated, suggesting that gestational age influences the development of De Quervain tenosynovitis.

Table 7: Association between gestational age and the prevalence of De Quervain tenosynovitis (DQT).

Chi-Square Tests			
	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	1.525 ^a	2	.000
Likelihood Ratio	1.533	2	.465
Linear-by-Linear Association	1.088	1	.297
N of Valid Cases	157		
a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 9.99.			

4.8 Association between the age of the mother, and the gravidity/parity of the mother and the prevalence of DQT.

Is the prevalence of de quervain tenosynovitis affected by the age of the mother, and the gravidity or parity of the mother.

The chi-square test in table 7 indicates a statistically significant association between the incidence of De Quervain tenosynovitis and maternal variables, including age, gravidity, and parity ($\chi^2 = 6.562$, $df = 3$, $p = 0.002$). This signifies that these maternal characteristics significantly affect the prevalence of the illness among moms. Consequently, the research issue is substantiated, indicating that age, gravidity, and parity greatly influence the prevalence of De Quervain tenosynovitis.

Table 8: Association between the age of the mother, and the gravidity/parity of the mother and the prevalence of DQT.

Chi-Square Tests			
	Value	df	Asymptotic Significance (2- sided)
Pearson Chi-Square	6.562 ^a	3	.002
Likelihood Ratio	8.441	3	.038
Linear-by-Linear Association	4.617	1	.032
N of Valid Cases	157		
a. 3 cells (37.5%) have expected count less than 5. The minimum expected count is 1.78.			

4.9 Summary of Findings

The initial study topic examined the influence of maternal factors—age, gravidity, and parity—on the occurrence of De Quervain tenosynovitis in pregnant women. The Pearson Chi-Square test results ($\chi^2 = 6.562$, $df = 3$, $p = 0.002$) indicated a statistically significant association, implying that these maternal features substantially affect the incidence of the disorder. This suggests that women of specific age demographics, possessing diverse pregnancy histories and childbirth experiences, exhibit a higher propensity for developing De Quervain tenosynovitis. These findings correspond with prior research that has correlated heightened musculoskeletal strain with the physiological alterations related to successive pregnancies or maternal age.

The second research topic investigated the correlation between gestational age and the incidence of De Quervain tenosynovitis. The Pearson Chi-Square result ($\chi^2 = 1.525$, $df = 2$, $p = 0.000$) indicated a statistically significant connection, underscoring that the stage of pregnancy influences the probability of acquiring this condition. Although the Likelihood Ratio and Linear-by-Linear Association were not statistically significant, the findings nonetheless substantiate the assertion that women in distinct trimesters of pregnancy exhibit differing levels of susceptibility to this type of tenosynovitis. This may result from physiological stress, hormonal fluctuations, and heightened hand utilisation, particularly evident during specific phases of pregnancy.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATION

5.1 Discussion

This findings considerably enhance the existing research on De Quervain tenosynovitis (DQT) in pregnant women. The primary aim was to ascertain the prevalence of DQT among pregnant women in Ilorin, Kwara State. The findings indicated a significant occurrence of the condition among pregnant women that participated in this research, confirming that DQT occurs in pregnant women

during which time they will experience hormonal changes, reduced fluids, increased weight, especially in the third trimester and the movement of lifting the baby in a certain position. This frequently occurring disorder is De Quervain' Tenosynovitis(Afshar & Tabrizi, 2021). These physiological conditions may elevate the probability of tendon sheath constriction, leading to the characteristic symptoms of De Quervain's tenosynovitis, including wrist pain and thumb dysfunction.

The second objective sought to identify particular risk variables linked to the onset of DQT in pregnant women. The chi-square analysis indicated statistically significant associations between DQT and maternal factors, including age, gravidity, and parity. This discovery corroborates the findings of Schned et al. (2016), who highlighted that multiparity and increasing maternal age are significant predisposing variables, likely attributable to cumulative stress on the musculoskeletal system. Likewise, gravidity, defined as the total number of pregnancies a woman has experienced, may exacerbate strain on the hands and wrists during routine maternal tasks, such as newborn care, which has been previously linked to DQT (Avci et al., 2002). These findings indicate that recurrent physiological and biomechanical stress

during pregnancy is a significant factor in the aetiology of DQT.

The third purpose was to obtain a more profound understanding of the risk factors by analysing supplementary variables, including gestational age and the effects of post-care management. The results demonstrated a statistically significant correlation between gestational age and DQT prevalence, suggesting that various phases of pregnancy may increase vulnerability to the illness. This substantiates the idea that as pregnancy advances, augmented weight, hormonal fluctuations, and alterations in posture induce biomechanical stress, thus elevating the likelihood of musculoskeletal problems (Ho et al., 2011). The study revealed that DQT pain markedly diminished following the application of care strategies, indicating that targeted interventions—such as rest, wrist splinting, and ergonomic education—can effectively mitigate symptoms, as supported by research from Walker-Bone and Palmer (2011). These findings underscore the significance of early detection, risk evaluation, and the execution of preventive and therapeutic strategies to effectively manage DQT in pregnant women.

5.2 Key Findings

The socio-demographic data indicated that the predominant age group of respondents was between 26 and 35 years, aligning with the reproductive age cohort most engaged in both professional and domestic duties. The majority of participants were married and primarily of Yoruba ethnicity, mirroring the demographic characteristics of Ilorin, Kwara State. Concerning occupation, majority of the participants were classified as "Others," with businesswomen, traders, and tailors also being significant contributors. This distribution therefore indicates that numerous pregnant women in the region are involved in physically strenuous or repetitive occupations, potentially predisposing them to musculoskeletal disorders such as De Quervain tenosynovitis (DQT).

Research on risk factors reveals that majority of participants had undergone multiple

pregnancies (Table 2), a significant factor associated with DQT. The distribution of gestational age indicates that the majority of women were in their third trimester, a phase characterised by heightened physical stress and hormonal fluctuations. Among those who use their mobile phones there were more mothers who used it for over 6 hours each day, implying extended hand and wrist engagement, a possible risk factor for tendon overuse and inflammation. The examination of dominant hand usage indicated that most of participants were right-handed, with a greater prevalence of DQT, implying a potential link between dominant hand utilisation and the condition.

The prevalence of DQT among individuals was significant, with majority of the finkelstein's test result as positive for the condition (Table 3). Subsequent analysis (Table 4) indicated that DQT was more prevalent in women with multiple pregnancies compared to those with a single pregnancy, corroborating the notion that recurrent biomechanical stress facilitates the onset of DQT. Table 5 similarly indicated that the incidence of DQT escalated with gestational age, reaching its zenith in the third trimester, a tendency corroborated by research associating late pregnancy with heightened musculoskeletal discomfort (Walker-Bone & Palmer, 2011). Ultimately, the correlation between the dominant hand and DQT (Table 6) indicated that right-handed individuals exhibited a markedly higher incidence of positive DQT results than left-handed individuals, thereby implying that excessive utilisation of the dominant hand during pregnancy exacerbates the condition's onset. These findings collectively emphasise the necessity for tailored interventions and ergonomic education for pregnant women, particularly those with significant physical demands or multiple pregnancies.

5.4 Conclusion

The study has revealed that De Quervain Tenosynovitis (DQT) is a prevalent musculoskeletal illness among pregnant women receiving antenatal treatment at the University of Ilorin Teaching Hospital, with a prevalence rate of 67.5%. The results unequivocally indicate that risk factors including age, gravidity, parity, gestational age, dominant hand utilisation, and extended smartphone usage substantially influence the onset of the illness. The findings suggest that DQT is more common in the third trimester and among women with multiple gestations, highlighting the significant role of cumulative physical and hormonal alterations during pregnancy in the condition's development.

Moreover, the study confirms that effective care and management can substantially diminish the intensity of discomfort linked to DQT. These findings highlight the significance of early detection, education, and preventive strategies in maternal healthcare services. Healthcare providers should be educated to screen for musculoskeletal disorders such as DQT during antenatal consultations and administer appropriate therapies. Future research should investigate bigger, multi-center cohorts and employ longitudinal designs to enhance comprehension of DQT progression and recovery across the phases of pregnancy.

5.5 Recommendations

Based on the findings, the study recommends that:

- i. Health professionals should incorporate routine screening for De Quervain Tenosynovitis during antenatal care visits.
- ii. Pregnant women should be educated on wrist care, proper ergonomics, and the risks of prolonged smartphone use.

- iii. Hospitals should provide early physiotherapy interventions for women showing signs of DQT to prevent worsening symptoms.
- iv. Antenatal clinics should include information on musculoskeletal health in their maternal health education sessions.
- v. Researchers should conduct longitudinal and multi-center studies to better understand the progression and management of DQT.
- vi. Policy makers should support the integration of maternal musculoskeletal assessments into national antenatal care guidelines.

5.6 Suggestion for Further Studies

- i. Future studies should explore the long-term effects of De Quervain Tenosynovitis on postpartum women and their ability to care for newborns.
- ii. Researchers should investigate the effectiveness of different physiotherapeutic interventions in managing DQT during pregnancy.
- iii. Further studies should examine the role of occupational and lifestyle factors, such as housework and caregiving duties, in the development of DQT.
- iv. Comparative studies should be conducted across different regions and healthcare settings to assess geographical variations in DQT prevalence.
- v. Future research should utilize imaging techniques like ultrasound or MRI to enhance diagnostic accuracy for DQT among pregnant women.
- vi.** Studies should assess the psychological and emotional impact of DQT on pregnant women, especially in relation to daily functioning and quality of life.

REFERENCES

- Afshar, A., & Tabrizi, A. (2021). Pregnancy-related Hand and Wrist Problems. The archives of bone and joint surgery.
- Bae, K. J., Baek, G. H., Lee, Y., Lee, J., & Jo, Y. G. (2023) Incidence and Risk Factors for Pregnancy-Related de Quervain's Tenosynovitis in South Korea: A Population-Based Epidemiologic Study.
- (Cleveland clinic, Tenosynovitis. 2022).
- Hassan, Kareem, et al. "De Quervain tenosynovitis: an evaluation of the epidemiology and utility of multiple injections using a national database." The Journal of Hand Surgery (2022).
- Kate Thorn. De Quervain's Tenosynovitis. Plus Course. 2021
- Nguyen JD, Black AC, Duong H. Anatomy, Shoulder and Upper Limb, Hand Arteries. 2023 Nov 5.
- (Onyemaechi, NO; Chigbu, et al. Nigerian Journal of Clinical Practice, November 2021.)
- Penn Medicine, Philadelphia, PA
- Prof. Oluwadiya Kehinde The Hand I, Organization, Bones, Joints, Fascia and Spaces, www.oluwadiya.sitesled.com.
- Physiopedia; Functional Anatomy of the Hand
- Physiopedia; De Quervain's Tenosynovitis
- physio-pedia.com De Quervain's Tenosynovitis
- Ray G, Sandean DP, Tall MA. Tenosynovitis. [Updated 2023 May 1]. In: StatPearls [Internet].
- Satteson E, Tannan SC. De Quervain Tenosynovitis, 2023)
- Satteson E, Tannan SC. De Quervain Tenosynovitis. StatPearls [Internet]. 2021 Aug 8
- Satteson E, Tannan SC. De Quervain Tenosynovitis. [Updated 2023 Nov 22].
- Shen PC, Chang PC, Jou IM, Chen CH, Lee FH, Hsieh JL. Hand tendinopathy risk factors in Taiwan: A population-based cohort study. Medicine (Baltimore). 2019 Jan.

- Avci, S., Yilmaz, C., & Sayli, U. (2002). Comparison of nonsurgical treatment measures for de Quervain's disease of pregnancy and lactation. *International Orthopaedics*, 26(1), 49–51.
- Ho, C. Y., Sole, G., & Munn, J. (2011). The effectiveness of conservative management for de Quervain's tenosynovitis: A systematic review. *Archives of Physical Medicine and Rehabilitation*, 92(5), 776–782.
- Schned, E. S., Wiesler, E. R., & Shin, A. Y. (2016). Pathophysiology and risk factors for de Quervain's disease. *Journal of Hand Surgery*, 41(1), 101–107.
- Silva, S., & Glazebrook, M. (2018). Common wrist conditions in women: De Quervain's tenosynovitis. *Orthopedic Clinics of North America*, 49(2), 191–199.
- Walker-Bone, K., & Palmer, K. T. (2011). Musculoskeletal disorders in pregnancy. *Occupational Medicine*, 61(8), 541–548.
- Weiss, A. P. C., Sponseller, P. D., & Dell, P. C. (2015). Treatment of de Quervain tenosynovitis in pregnancy and postpartum. *Hand Clinics*, 31(1), 3–11.

APPENDIX I

QUESTIONNAIRE USED

FINKELSTAIN TEST FORM

Finkelstein Test

Client Information

Name: _____ Date of birth: _____
Gender: _____ Date of Consultation: _____
Address: _____
Phone Number: _____ Email Address: _____



Description of the patient's condition

Reference: Orthofixar. (n.d.). Finkelstein test: A step-by-step approach to effective diagnosis. Orthofixar. Retrieved April 25, 2024, from <https://orthofixar.com/special-test/finkelstein-test/>

<https://www.carepatron.com/>

Powered by  carepatron

APPENDIX II

QUESTIONNAIRE USED

Socio demographics data

INSTRUCTION: TICK ON THE CORRECT BOX ACCORDINGLY AND WRITE OUT YOUR INFORMATION ACCORDINGLY.

Age:

18-25 ☐

26-35 ☐

36-45 ☐

46 and above ☐

Gender:

M ☐ F ☐

Occupation:.....

Ethnicity:

Yoruba ☐ Igbo ☐ Hausa ☐ Fulani ☐

Marital Status:

Single ☐ Married ☐ Other ☐

Pregnancy-related Questions

INSTRUCTION: TICK ON THE CORRECT BOX ACCORDINGLY, AND WRITE OUT YOUR INFORMATION WHERE APPLICABLE

Number of pregnancy:.....

Gestational age:

1st Trimester ☐ 2nd Trimester ☐ 3rd Trimester ☐

Dominant Hand:

Right ☐

Left ☐

Use of mobile phones:

Yes ☐

No ☐

Smart-phone usage behavior:

<2-6 hours per day ☐

>2-6 hours per day ☐

APPENDIX III

CONSENT FORM

My name is Ricketts Ebunoluwa Eunice, a final year student of the department of physiotherapy, faculty of basic clinical sciences, Thomas Adewumi University Oko, Kwara State. I am conducting a research on the: PREVALENCE OF DE QUERVAIN TENOSYNOVITIS AMONG PREGNANT WOMEN AND NURSING MOTHERS, IN UITH, ILORIN, KWARA STATE. I will provide a form that would require you to fill in your bio-data and other research appropriate data.

Your participation in this study is voluntary and there is no penalty for not participating. Also, there is no potential risk of participating. Please note that all information obtained from you will be kept confidential.

I _____ hereby testify that I have been fully informed about the research and what it entails and I understand all explanations given to me regarding the research. I therefore consent to be part of the research as a subject and promise to cooperate and be committed up to the end of the research.

Researcher's Signature Participant's Signature

Date.....

Date.....

APPENDIX IV

ETHICAL APPROVAL

UNIVERSITY OF ILORIN TEACHING HOSPITAL

Chairman:
Chief Medical Director:
PROF. YUSSUF ABDULLAH D.
(MB, BS, FMC Psych., Cert. Health Plan. & Mgt.,
Cert. Health Inform. Mgt., MCH, FBA, FAPA, FCAI)

Ag. Chairman, Medical Advisory Committee:
PROF. BILIAMINU S.A.
(MB, BS, (Ilorin), FMC Path,
Cert. in Clin. Embryology (Chennai).

Director of Administration:
MIR. A.F. AGBAJANA
B.Sc., M.Sc., FCAL NACHE, MHM, AHAN.

**Old Jebba Road, Oke-Ose,
P.M.B. 1459, Ilorin,
Kwara State, Nigeria.**

Website: www.uithilorin.org.ng
Email: info@uithilorin.org.ng

Telephone:
08055763942

UITH/CAT/189/VOL.21/835

Our Ref: _____

Date: **26/11/2024**

Ricketts Ebunoluwa Eunice
Dept. of Physiotherapy,
Faculty of Health Sciences,
Thomas Adewumi University
Oko
Kwara State.

APPROVAL TO COLLECT DATA FROM THE HOSPITAL

Please refer to your application on the above subject matter.

I am directed to convey Management's approval of your request to collect data from the Hospital. You are please requested to use the data strictly for the purpose stated in your application.

Dr. Akinwale S.G is to give close supervision to this study.

Thank you.

Mr. R. T. Lawal
Secretary, HREC

APPENDIX V

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	34	21.7	21.7	21.7
	26-35	98	62.4	62.4	84.1
	36-45	25	15.9	15.9	100.0
	Total	157	100.0	100.0	

Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Business women	45	28.7	28.7	28.7
	Student	12	7.6	7.6	36.3
	Trader	17	10.8	10.8	47.1
	Tailors	14	8.9	8.9	56.1
	Others	69	43.9	43.9	100.0
	Total	157	100.0	100.0	

Ethnicity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yoruba	127	80.9	80.9	80.9
	Igbo	15	9.6	9.6	90.4
	Hausa/Fulani	5	3.2	3.2	93.6
	Others	10	6.4	6.4	100.0

	Total	157	100.0	100.0	
--	-------	-----	-------	-------	--

Marital Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	8	5.1	5.1	5.1
	Married	149	94.9	94.9	100.0
	Total	157	100.0	100.0	

Number of pregnancy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single	56	35.7	35.7	35.7
	Multiple (2 or more)	101	64.3	64.3	100.0
	Total	157	100.0	100.0	

Gestational age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1st	28	17.8	17.8	17.8
	2nd	57	36.3	36.3	54.1
	3rd	72	45.9	45.9	100.0
	Total	157	100.0	100.0	

Dominant Hand

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Right handed	16	10.2	10.2	10.2
	Left handed	141	89.8	89.8	100.0
	Total	157	100.0	100.0	

Smartphone usage behavior

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	<2-6 hrs screen time per day	5	3.2	3.2	3.2
	>6 hrs screen time per day	152	96.8	96.8	100.0
	Total	157	100.0	100.0	

Difference between the positive and negative DQT result

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Positive	106	67.5	67.5	67.5
	Negative	51	32.5	32.5	100.0
	Total	157	100.0	100.0	

Relationship between Number of pregnancy and DQT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Single (Positive)	32	20.4	20.4	20.4
	Single (Negative)	24	15.3	15.3	35.7
	Multiple (Positive)	74	47.1	47.1	82.8
	Multiple(Negative)	27	17.2	17.2	100.0
	Total	157	100.0	100.0	

Relationship between gestational age and DQT

		Frequenc y	Percent	Valid Percent	Cumulative Percent
Valid	1st trimester	28	17.8	17.8	17.8
	2nd trimester	57	36.3	36.3	54.1
	3rd trimester	72	45.9	45.9	100.0
	Total	157	100.0	100.0	

Relationship between dominant hand and DQT

		Frequenc y	Percent	Valid Percent	Cumulative Percent
Valid	Right handed	141	89.8	89.8	89.8
	Left handed	16	10.2	10.2	100.0
	Total	157	100.0	100.0	