THERAPEUTIC EXERCISES FOR FEMALE BREAST CANCER SURVIVORS: ASSESSMENT OF CARDIOPULMONARY, ANTHROPOMETRIC AND QUALITY OF LIFE OUTCOMES

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THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, UNIVERSITY OF LAGOS IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF DOCTOR OF PHILOSOPHY (Ph.D) DEGREE IN PHYSIOTHERAPY.

FEBRUARY, 2014.

DECLARATION

With the exception of duly acknowledged references, I hereby declare that this research work was carried out by me at the Department of Physiotherapy, College of Medicine of the University of Lagos, under the supervision of my supervisors and has not been submitted to any other institution for the purpose of obtaining another degree.

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SCHOOL OF POSTGRADUATE STUDIES

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CERTIFICATION

This is to certify that the thesis:

"Therapeutic exercises for female breast cancer survivors: assessment of cardiopulmonary, anthropometric and quality of life outcomes"

Submitted to the School of Postgraduate Studies, University of Lagos for the award of the degree of

DOCTOR OF PHILOSOPHY (Ph.D)

Is a record of original research work carried out

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DEDICATION

This thesis is dedicated to all breast cancer survivors in Nigeria, their families and care givers.

ACKNOWLEDGEMENTS

My profound gratitude goes to the Almighty God whose grace and mercy guided me through this programme.

My special appreciation goes to the main supervisor, Professor SRA Akinbo whose diligent efforts made this work a reality. My gratitude also goes to Dr. OA Olawale, the second supervisor who contributed immensely to the quality of this work. Their sound judgement, constructive criticism, guidance and counsel led to the quality of this work.

I wish to extend my appreciation to Professor IO Owoeye; Professor SI Jaja; Dean, Faculty of Clinical Sciences, Professor FEA Lesi; Dean, School of Postgraduate Studies, Professor LO Chukwu; Sub-Dean, School of Postgraduate studies, Dr. EA Adedun; Dean, Basic Medical Sciences, Professor OO Adeyemi; Provost, College of Medicine (CMUL), Professor FT Ogunsola; Deputy Provost, Professor A Okonlawon and Vice Chancellor of the University of Lagos, Professor RA Bello for their support throughout the programme. Thank you all.

Special thanks to my senior colleagues in the Department of Physiotherapy, CMUL - Mr. CB Aiyejunsule, Dr. DO Odebiyi, Dr. BA Tella and Dr. AI Aiyegbusi, for their meaningful contributions to this work. My thanks also go to the Deputy Director of Physiotherapy, Lagos University Teaching Hospital (LUTH), Mrs OA Ajiboye for her concerns and contributions towards the success of this work. I appreciate my colleagues in the Department of Physiotherapy, CMUL - Dr. AK Akodu, Dr. UAC Okafor, Mr. OBA Owoeye, and Dr CA Gbiri, and those in the clinical section of the Department of Physiotherapy, LUTH, Idi-Araba, Lagos - Mr. AG Awe, Mrs. OAT Oluwale, Mr. AS Olaniyan, Mrs. RO Alao, Mr. AM Akinfeleye, Dr. RO Kareem, Mr. OA Adamson, Mr. OA

Fapojuwo, Mrs. AO Taiwo, Ms. U Bakare, and others for their support towards the success of this work. I also acknowledge other colleagues and Ph.D Scholars - Squadron Leader NV Esionye-Uzodinmma and Mrs. O Akanle for their support and prayers. Thank you to both present and former administrative staff of the Department of Physiotherapy, CMUL - Mrs. ME Umeh, Mrs. EB Isong, Mr. SA Jegede, Mr. OA King, Mr. TR Alonge, Mrs E Ogunnubi, Mr. AD Ogunbamise, Mr. K Abioye and Mrs. MF Udeme for all their support throughout this academic programme. My thanks also go to the staff of School of Postgraduate studies who assisted me during the course of the study - Mr. OS Olowe, Mr. O Olaleye, Mr. S Agbetile, Mr. TO Akeju and Mr. K Okehiria. Thank you all.

I appreciate the support given to me by the Head of Department, Radiotherapy and Oncology department of LUTH, Prof AT Ajekigbe, the physicians, matrons and other members of staff of the department during the subjects' recruitment. I also say a big thank you to Dr. BA Akodu for his encouragements during the course of this study.

I appreciate my friends and colleagues at the National Orthopaedic Hospital, Igbobi (NOHI) – Mrs. O Molokwu, Mrs. TO Abolarin, Mrs. C Chibuzor, Mrs. OO Osuji and Mrs. KA Obehriri who ceaselessly prayed and encouraged me throughout the programme. My gratitude also goes to our family friends – Pastor and Mrs. CJ Ogbuokiri, Mr. Harrison Nnadozie and Mr. and Mrs. A Olatunji for their ceaseless prayers towards the success of this study.

To my beloved husband – Mr. HE Digun-Aweto, words cannot express my gratitude to you for the physical, spiritual, emotional and financial support that you gave me throughout the study. You were simply exceptional and I say a big thanks to you. To my wonderful children – Egbaoghene, Onanefe, Chukwuemelie, and Esther, I appreciate your support for me throughout this programme both by upholding me in your prayers and bearing with my

inadequacies due to excessive workload. May the good Lord bless and preserve you all. I love you all. To my brother Mr. Ugochukwu Okeke, thank you very much for being there for me throughout this programme. God will surely reward you abundantly. My gratitude also goes to my mother, Mrs. RC Okeke; my siblings – Pharm. VU Nwankwo, Engr. RC Okeke, Mrs. FO Igwe, Mr. OJ Okeke and Mrs. IG Anyiam for all their support and encouragement. To my father – Hon. RO Okeke who died during the course of this study, I deeply appreciate the fact that you laid the foundation and handed to us the legacy for good education. My zeal and drive to get this far in my academics was borne out of those your beliefs and teachings. You will always be fondly remembered by me. Continue to rest in perfect peace. To my in-laws especially Dr. and Mrs. JK Akpobvobvo, I appreciate all your concerns and encouragements.

To the Breast cancer survivors who participated in this study, I appreciate your cooperation and efforts during the course of the study. I am very grateful to you and pray that God will lead us to the cure of cancer through the enormous research work being carried out in the field.

AWETO, HAPPINESS ANULIKA

TABLE OF CONTENTS

TITLES		PAGES
Title page… … … … … … … … … … ... …		i
Declaration … … … … … … … … … … … …		ii
Certification … … … … … … … … … … … …		iii
Dedication … … … … … … … … … … … …		iv
Acknowledgements . … … … … … … … … … … …		v
Table of contents … … … … … … … … … … …		viii
List of Tables … … … … … … … …… … …		xiv
List of Figures … … … … … … … … … … … …		xvii
Appendices …… … … … … … … … … … …		xiv
Abstract … … … … … … … … … … … … …		xx
CHAPTER ONE: INTRODUCTION		
1.1	Background to the study … … … … … … … …	1
1.2	Statement of the Problem. … … … … … … … … …	4
1.3	Aim and Objectives … … … … … … … … … …	7
1.4	Specific Objectives. … … … … … … … … … …	7
1.5	Significance of the Study … … … … … … … … …	7
1.6	Limitations of the study … … … … … … … … …	8
1.7	Scope of the study.... … … … … … … … … …	9
1.8	Definition of Terms … … … … … … … … … … … …	9
1.9	List of Abbreviations … … … … … … … … …	10

CHAPTER TWO: LITERATURE REVIEW

2.1 Definition of Cancer … … … … … … … … … 12

2.1.1 Definition of Breast cancer … … … … … … … … 12

2.2 Epidemiology of Breast cancer … … … … … … … … 13

2.3 Aetiology of Breast cancer / Risk Factors … … … … … … … 15

2.4 Pathogenesis … … … … … … … …… … … … … 20

2.4.1 How Free Radicals are formed in the Body … …… … … … … 23

2.4.2 Biomarkers for measurement of Oxidative Stress … … … … … … 23

2.4.3 Relationship of Mitogenesis (Cell proliferation) and Mutagenesis

(Free Radical production) … … … … … … … … … … … 24

2.4.4 Race and Oxidative Stress … … … … … … … … 25

2.4.5 Exercise and Oxidative damage … … … … … … … … 25

2.4.6 Antioxidants and Free Radicals … ... … … … … … … 26

2.5 Types of Breast cancer … … … … … … … … … 27

2.6 Symptoms of Breast cancer … … … … … … … … 30

2.7 Screening … … … … … … … … …… … … … 34

2.8 Staging and other Prognostic Determiners … … … … … … 36

2.9 Treatment of Breast cancer … … … … … … … … 37

2.9.1 Surgery … … … … … … … … … … … 38

2.9.2 Radiation Therapy … … … … … … … … … … … 38

2.9.3 Chemotherapy … … … … …… … … … … … 39

2.9.4 Hormone Therapy … … … … … … … … … … 39

2.9.5 Biologic Response Modifier … … … … … … … … 39

2.9.6 Therapeutic Exercise … …… … … … … … … … 39

2.10 Complications of Breast Cancer and its Standard Treatments … … … … 44

2.10.1 Cardiopulmonary Toxicity of Cancer Treatment … …… … … … 45

2.11 Cardiopulmonary Capacity of Breast Cancer Survivors … … … … … 48

2.12 Physical Activity and Breast Cancer Risk … … … … … … 48

2.12.1 Recommended Frequency, Length of Time or Intensity of Exercise that will best reduce Breast Cancer Risk …… … … … … … … … … … 50

2.12.2 Physical Activity and Body Mass Index (BMI) … … … … … 51

2.13 Biological Mechanisms by which Exercise reduces Risk of Breast Cancer Recurrence … … … …. … … … … … … … … 52

CHAPTER THREE: MATERIALS AND METHODS

3.1 Materials … … … … … … … … … … 62

3.1.1 Subjects Selection … … … … … … … … … 62

3.2 Ethical Consideration … … … … … … … … … 63

3.3 Instrumentation … … … … … … … … .. … 64

3.4 Research Design … … … … … … … … … … 65

3.5 Sampling Size Determination … … … … … … … … 65

3.6 Sampling Technique… … … … … … … … … 66

3.7 Pre-intervention Assessment … … … … … … … … 68

3.8 Research Procedures … … … … … … … … … … 69

3.9 Outcome Measures … … … … … … … … … … 85

3.10 Data Analysis … … … … … … … … … … 88

CHAPTER FOUR: RESULTS

4.1 Physical characteristics of premenopausal and postmenopausal Breast cancer subjects 90

4.2 Cardiopulmonary and anthropometric variables of subjects in Group A_1 … … … 92

4.3 Cardiopulmonary and anthropometric variables of subjects in Group A_2 … … 92

4.4 Cardiopulmonary and anthropometric variables of subjects in Group B_1 … … 95

4.5 Cardiopulmonary and anthropometric variables of subjects in Group B_2 … …… … 95

4.6 Cardiopulmonary and anthropometric variables of subjects in Group C_1 … … … … 98

4.7 Cardiopulmonary and anthropometric variables of subjects in Group C_2 … … … … 98

4.8 Cardiopulmonary and anthropometric variables of subjects in Group D_1 … … … … 101

4.9 Cardiopulmonary and anthropometric variables of subjects in Group D_2 … … … … 101

4.10 Comparison of changes in cardiovascular variables between pre-treatment (baseline) and post-treatment (12^{th} week) of the premenopausal study groups … … … 104

4.11 Comparison of changes in cardiovascular variables between pre-treatment (baseline) and post-treatment (12^{th} week) of the postmenopausal study groups … … … 104

4.12 Comparison of changes in pulmonary variables between pre-treatment (baseline) and post-treatment (12^{th} week) of the premenopausal study groups … … … 107

4.13 Comparison of changes in pulmonary variables between pre-treatment (baseline) and post-treatment (12^{th} week) of the postmenopausal study groups … …. … 107

4.14 Comparison of changes in anthropometric variables between pre-treatment (baseline) and post-treatment (12^{th} week) of the premenopausal study groups … … … 110

4.15 Comparison of changes in anthropometric variables between pre-treatment (baseline) and post-treatment (12^{th} week) of the postmenopausal study groups … … … 110

4.16 Comparison of changes in cardiopulmonary and anthropometric variables of subjects in Group A_1 with those of subjects in Group D_1 (Control group) at the 12^{th} week … 113

4.17 Comparison of changes in cardiopulmonary and anthropometric variables of subjects in Group A_2 with those of subjects in Group D_2 (Control group) at the 12^{th} week … … 113

4.18 Comparison of changes in cardiopulmonary and anthropometric variables of subjects in Group B_1 with those of subjects in Group D_1 (Control group) at the 12^{th} week … … 116

4.19 Comparison of changes in cardiopulmonary and anthropometric variables of subjects in Group B_2 with those of subjects in Group D_2 (Control group) at the 12^{th} week … 116

4.20 Comparison of changes in cardiopulmonary and anthropometric variables of subjects in Group C_1 with those of subjects in Group D_1 (Control group) at the 12^{th} week … 119

4.21 Comparison of changes in cardiopulmonary and anthropometric variables of subjects in Group C_2 with those of subjects in Group D_2 (Control group) at the 12^{th} week … 119

4.22 Comparison of changes in cardiovascular variables of premenopausal BCS with that of postmenopausal BCS and the cumulative mean changes in the variables of different groups at the 12^{th} week … … … … … … … 122

4.23 Comparison of changes in pulmonary variables of premenopausal BCS with that of postmenopausal BCS and the cumulative mean changes in the variables of different groups at the 12^{th} week … … … … … … … 124

4.24 Comparison of changes in anthropometric variables of premenopausal BCS with that of postmenopausal BCS and the cumulative mean changes in the variables of different groups at the 12^{th} week … … … … … … … 126

4.25 Changes in the mean RSBP of premenopausal and postmenopausal BC study groups 128

4.26 Changes in the mean VO_2max of premenopausal and postmenopausal BC study groups 128

4.27 Comparison of Changes in Quality of Life subscales of premenopausal BC subjects … 133

4.28 Comparison of Changes in Quality of Life subscales of postmenopausal BC subjects … 135

CHAPTER FIVE: DISCUSSION

5.1 Discussion… … … … … … … … … … … 137

5.1.1 Physical Characteristics … … … … … … … … … 137

5.1.2 Cardiopulmonary Parameters … … … … … … … … 137

5.1.3 Anthropometric Parameters… … … … … … … … 144

5.1.4 Quality of Life Parameters… … … … … … … … … 146

CHAPTER SIX: SUMMARY OF FINDINGS, CONCLUSION AND CONTRIBUTIONS TO KNOWLEDGE

6.1 Summary of Findings … … … … … … … … … 148

6.2 Conclusion… … … … … … … … … … … 150

6.3 Recommendations … … … … … … … … … … 151

6.4 Implications for Further Studies….. ….. … … … … … 151

6.5 Contributions to Knowledge … … … … … … … … 152

REFERENCES … … … … … … … … … … 154

APPENDICIES … … … … … … … … … … 171

LIST OF TABLES

Table 1: Physical characteristics of premenopausal and postmenopausal BC subjects 91

Table 2: Cardiopulmonary and anthropometric variables of subjects in Group A_1 … 93

Table 3: Cardiopulmonary and anthropometric variables of subjects in Group A_2 … 94

Table 4: Cardiopulmonary and anthropometric variables of subjects in Group B_1 … 96

Table 5: Cardiopulmonary and anthropometric variables of subjects in Group B_2 … 97

Table 6: Cardiopulmonary and anthropometric variables of subjects in Group C_1 … 99

Table 7: Cardiopulmonary and anthropometric variables of subjects in Group C_2 … 100

Table 8: Cardiopulmonary and anthropometric variables of subjects in Group D_1 … 102

Table 9: Cardiopulmonary and anthropometric variables of subjects in Group D_2 … 103

Table 10: Comparison of changes in cardiovascular variables between pre-treatment (baseline) and post-treatment (12^{th} week) of the premenopausal study groups … … … … … … … … … 105

Table 11: Comparison of changes in cardiovascular variables between pre-treatment (baseline) and post-treatment (12^{th} week) of the postmenopausal study groups … 106

Table 12: Comparison of changes in pulmonary variables between pre-treatment (baseline) and post-treatment (12^{th} week) of the premenopausal study groups … … 108

Table 13: Comparison of changes in pulmonary variables between pre-treatment (baseline) and post-treatment (12^{th} week) of the postmenopausal study groups … … 109

Table 14: Comparison of changes in anthropometric variables between pre-treatment (baseline) and post-treatment (12^{th} week) of the premenopausal study groups 111

Table 15: Comparison of changes in anthropometric variables between pre-treatment (baseline) and post-treatment (12^{th} week) of the postmenopausal study groups … 112

Table 16: Comparison of changes in cardiopulmonary and anthropometric variables of subjects in Group A_1 with those of subjects in Group D_1 (Control group) at the

12th week … … … … … … … … … …. 114

Table 17: Comparison of changes in cardiopulmonary and anthropometric variables of subjects in Group A_2 with those of subjects in Group D_2 (Control group) at the 12th week … … … … … … … … … 115

Table 18: Comparison of changes in cardiopulmonary and anthropometric variables of subjects in Group B_1 with those of subjects in Group D_1 (Control group) at the 12th week … … … … … … … … 117

Table 19: Comparison of changes in cardiopulmonary and anthropometric variables of subjects in Group B_2 with those of subjects in Group D_2 (Control group) at the 12th week… … … … … … … … 118

Table 20: Comparison of changes in cardiopulmonary and anthropometric variables of subjects in Group C_1 with those of subjects in Group D_1 (Control group) at the 12th week … … … … … … … … … .. 120

Table 21: Comparison of changes in cardiopulmonary and anthropometric variables of subjects in Group C_2 with those of subjects in Group D_2 (Control group) at the 12th week … … … … … … … … 121

Table 22: Comparison of changes in cardiovascular variables of premenopausal BCS with that of postmenopausal BCS and the cumulative mean changes in the variables of different groups at the 12th week … … … … 123

Table 23: Comparison of changes in pulmonary variables of premenopausal BCS with that of postmenopausal BCS and the cumulative mean changes in the variables of different groups at the 12th week … … … … … .. 125

Table 24: Comparison of changes in anthropometric variables of premenopausal BCS with that of postmenopausal BCS and the cumulative mean changes in the variables of different groups at the 12th week … … … … … 127

Table 25: Comparison of Changes in QoL subscales of premenopausal BC subjects … 134

Table 26: Comparison of Changes in QoL subscales of postmenopausal BC subjects ……. 136

LIST OF FIGURES

Figure 1: Lymphatic drainage and other structures around the breast … … … 22

Figure 2: The breast showing the milk glands … … … … … … 28

Figure 3: Festering sores on a breast with cancer … … … … … … 32

Figure 4: An advanced inflammatory breast cancer … … … … … … 33

Figure 5: An illustration of a woman having a mammogram … … … … 35

Figure 6: Flexibility/Stretching exercise for the upper body in a kneeling position using a medicine ball … … … … … … … … … 42

Figure 7: Breast cancer survivors performing therapeutic exercises …… … … 43

Figure 8: A chart that describes how the body converts cholesterol to oestrogen … 57

Figure 9: A flow chart showing the recruitment and randomization of subjects into groups 67

Figure 10: A subject performing aerobic exercises on treadmill … … … … 72

Figure 11: A Subject performing pectoralis stretch exercise … … … … … 74

Figure 12: A Subject performing right triceps stretch exercise … … … … 76

Figure 13: A Subject performing standing calf stretch exercise … … … … 77

Figure 14: A subject performing chest / biceps stretch exercise … … … … 78

Figure 15: A subject performing neck (upper trapezius) stretch exercise … … … 80

Figure 16: A subject performing shoulder stretch exercise … … … … … 81

Figure 17: Schematic representation of changes in the mean RSBP of premenopausal BC

study groups … … … … … … … … … 129

Figure 18: Schematic representation of changes in the mean RSBP of postmenopausal BC study groups … … … … … … … … 130

Figure 19: Schematic representation of changes in the mean VO_2max of premenopausal BC study groups … … … … … … … … … 131

Figure 20: Schematic representation of changes in the mean VO_2max of postmenopausal BC study groups … … … … … … … … … 132

LIST OF APPENDICES

Appendix 1: Ethical approval from Lagos University Teaching Hospital Health Research and Ethics Committee … … … … … … … … 171

Appendix 2: Informed Consent … … … … … … … … … 172

Appendix 3: Assessment Form … … … … … … … … … 174

Appendix 4: Functional Assessment of Cancer Therapy-Breast (FACT-B) questionnaire 175

Appendix 5: Educational and Counseling sessions' Content … … … … … 178

ABSTRACT

Breast cancer (BC) is a prevalent disease whose incidence continues to rise especially in economically developing countries. Reduction in cardiopulmonary capacity of BC Survivors, which is positively associated with reduction in quality of life (QoL) and premature death, is a major problem associated with the disease. Therapeutic approaches that will improve cardiopulmonary capacity, QoL and survival rate of BC survivors are pressing concern. This study therefore investigated the effects of therapeutic exercises on selected cardiopulmonary, anthropometric and QoL parameters in premenopausal and postmenopausal BC survivors.

Ninety-six (96) female BC survivors with stage I, II and III BC, recruited through referrals by physicians from the Radiotherapy and Oncology Department of Lagos University Teaching Hospital (LUTH), Idi-Araba, Lagos State completed the study. They were randomly assigned to 4 groups (A, B, C and D) and each group was further subdivided into 2 subgroups (1 and 2) based on their menopausal status. Group A underwent moderate intensity aerobic exercise using treadmill with educational and counseling sessions, Group B, stretching exercises with educational and counseling sessions and Group C, combined moderate intensity aerobic exercise using treadmill and stretching exercise with educational and counseling sessions. Group D was the control group which had no therapeutic exercise intervention but had only group educational and counseling sessions. Topics discussed during the group educational and counseling sessions included problems BC survivors are faced with as a result of the disease and its treatments as well as the means to deal with them. The duration of therapeutic exercises started at 15 minutes for weeks 1 – 3 and systematically increased by 5 minutes after every 3 weeks. Therapeutic exercise frequency was 3 times a week for 12 weeks. The moderate intensity for aerobic exercise was calculated as the equivalence of the subjects' target heart rates. Statistical Package for

Social Sciences (SPSS) version 20.0 was used to analyse the data. Data was analysed using descriptive statistics of mean and standard deviation. Analysis of variance (ANOVA) was used to compare the physical characteristic variables of subjects across groups. Repetitive ANOVA was used to compare the cardiovascular, pulmonary and anthropometric variables across the baseline, end of 3^{rd}, 6^{th}, 9^{th} and 12^{th} weeks within the groups. Paired *t* test was used to compare the pre and post treatment mean values of the same outcome variables within groups. Paired *t* test was used to compare the changes in the selected variables of premenopausal BC survivors with those of postmenopausal BC survivors at the end of 12^{th} week. Paired *t* test was also used to compare the changes in the various exercise groups with those of the control group. Friedman test was used to analyse QoL values within groups and Kruskal-Wallis H test across groups. Level of significance was set at $p \leq 0.05$.

Subjects in the three therapeutic exercise groups had significant improvements in the cardiopulmonary and QoL variables although in various degrees. Those in Group C recorded the highest improvements followed by those in Group A and then those in Group B. Improvements in the cardiovascular variables of Groups B and C were more in the postmenopausal BC survivors than those of the premenopausal BC survivors while the reverse was the case for Group A. No significant improvement was observed in the anthropometric variables of any of the groups.

Combined aerobic exercise using treadmill and stretching exercise brought about the most significant therapeutic effects on selected cardiovascular and pulmonary parameters in BC survivors. This was followed by aerobic exercise using treadmill alone and then stretching exercise alone. All the therapeutic exercises brought about significant improvements in the QoL of the BC survivors. The combined exercise therapy and stretching exercise alone brought about more prominent therapeutic improvements in the cardiovascular parameters

of postmenopausal BC survivors than those of premenopausal BC survivors. None of the therapeutic exercises brought about significant improvements in the anthropometric variables of the BC survivors. Therefore, an ideal dosage of therapeutic exercise intervention that improves cardiopulmonary functions and QoL of BC survivors is combined moderate intensity aerobic exercise using treadmill and stretching exercise performed for 30 minutes, 3 times a week for at least 12 weeks.