Original Research Article

MenopausalInfluenceonWorkProductivityamongHealthWorkersinPublicHospitalsin KiambuCounty,Kenya.

ABSTRACT

Aims: Menopause is a normal process in women marked by a reduction in estrogen andprogesteronelevelsandeventualcessationofmenstruation.Despitemanystudiesonmenopause,influenceofmenopauseonworkproductivityandperformancearepoorlydocumented. The study sought to established the influence of menopause on work productivityamonghealthworkers.
Studydesign: Thestudyadoptedа cross-sectional study.
Methodology: A total of 239 women aged 40-60 years in menopause stage as the studygroupand239womenaged40-60 yearsnotinmenopausestageascontrolgroup.Thestudyusedmixed-methodsapproach;Simplerandomsamplingwasusedtoselectstudyrespondents while purposive sampling was employed in selecting 20 key informants. A semi-structured questionnairewasused to collect data fromthe study respondentswhileaninterview guide was used to interview key informants. SPSS version 20 was used to analyzequantitative data. Descriptive statistics, cross-tabulation, chi-square and regression analysiswereusedtoanalyzethequantitativedatacollectedwhilethematicanalysisofqualitativedatausingNVIVOsoftware.
Results: Thefindingsshowthatmenopausewasassociatedwithworkabsenteeism ($\chi 2=21.549$, p=0.001) and productivity impairment ($\chi 2=76.979$, p=0.001). Regression analysisshowed that nervousness (p=0.005, df=1, OR=7.909), lack of concentration (p=.032, df=1,OR=4.608), breathing difficulties (p=0.010, df=1, OR=6.587) and anorexia (p=0.09, df=1,OR=6.880)increasedworkproductivityimpairment.
Conclusion: Menopause impairs work productivity and increases work absenteeism. Thereisneedforworkplacestoadoptmeasuresforsupportingmenopausalwomentoimproveworkproductivity and to mitigate its adverse effects particularly, recognizing menopause as aworkplaceissue.Thisrequiresorganizationstodevelopandinstitutionalizeappropriatepoliciesandstaffsupportprogramstosupportwomenduringmenopausetransitionand improvetheirworkproductivity.

Keywords: *Climacteric,HealthWorker,Menopause, Work Productivity*

Abbreviations:*FSH(FollicleStimulatingHormone),LH(LeiutenizingHormone),WPAI Work ProductivityandActivity Impairment*

1. INTRODUCTION

Menopause, which is also referred to as the climacteric, is the time in most women's lives when monthlymenstrualflowstoppermanently,andbecomesunabletobearchildren.Menopauseisdefinedasanormal process that mark end of a woman reproductive life by the gradual cessation of menstrual cycle, firstbecomingirregularandthenstoppingaltogether.However,thisphaseends12monthsafterthelast

menstrual period. Menopause occurs around the age 50 years but it should not be assumed that theclimacteric is complete until two years have elapsed since the last period (1). Menopause happens whentheovariesnolongerreleaseaneggeverymonthand menstruationstops(2).Followingtheremovaloftheuterus, symptoms typically occur earlier at the average of 45 years of age (1). Generally, women fromdevelopingcountries,includingthoseofthepresentstudy,tendtoviewmenopauseanditssymptomsasanatural process that does not require medical care, so they are less aware about the health-related issuesofmenopause(3).Moreover,acultureofsilencepreventsthemfromseekinghealthcare.However,studies have shown that educated women from developing countries are now seeking treatment for menopausalproblems (4,5). Past studies have associated menopause with decreased quality of life, increased cost ofhospitalization,workabsenteeism,limitationsinphysicalfunctioningandactivityimpairmentwhichadverselylimitstheabilityofwomentobeproductiveatwork.Atwork,discussionaboutthemenopauseiswidelyperceivedasataboo(6)andheemployershadlittleornoconsiderationofwhatorhowtoprovidenecessary support. Lack of adequate knowledge on menopause, its effects and how to cope with theassociatedproblemscontinuestoadverselyimpactonthe productivityofhealthworkersat work.
According to (5), over eighty percent (80%) of women in Kenya are not sufficiently knowledgeable onmenopause and how to cope with associated symptoms which impair their work productivity. Forty fourpercent (44%) of menopause women attribute menopause problems to sickness while fifty six percent(56%)attributedthemto beingbewitched, pregnancy anduseofcontraceptives.
AlthoughmanystudieshavebeendoneonMenopause,therearefewstudiesdoneinAfricaandKenyaoninfluence of menopause on work productivity. Most of the studies are focused on clinical aspects ofmenopause.

2. Methodology

2.1 Studydesign

Study adopted a cross-sectional comparative study design constituting of women aged 40-60 years inmenopause as the study group and women aged 40-60 years and not in menopause as a control group.The study design used mixed-methods approach, that is, a combination of qualitative and quantitativetechniquesofdatacollection.

2.2 Studyarea

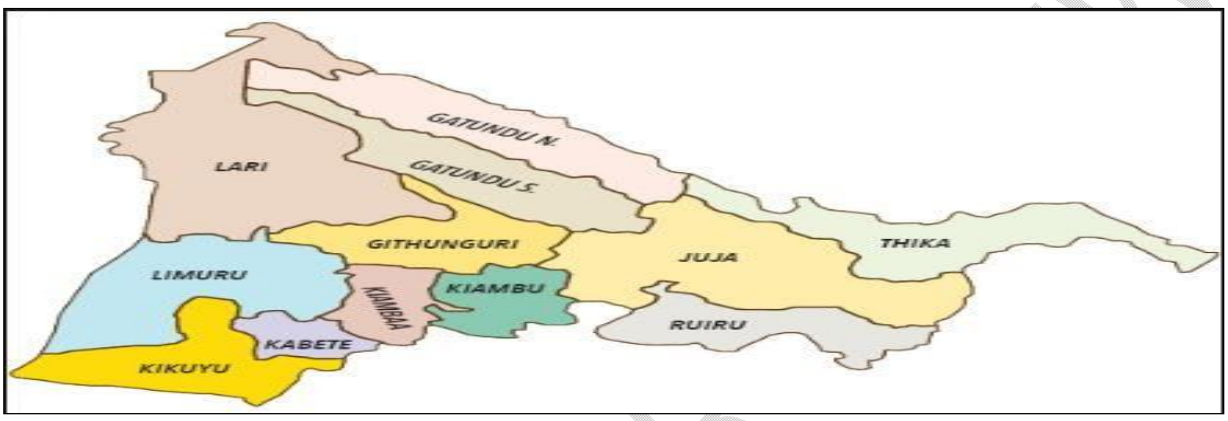
ThestudywascarriedoutinKiambuCountyamonglevel4and5hospitals.Thesehospitalswereselectedbecause they provided a large sampling frame for the study. Kiambu County is located at 1.1^{0} South and36.5˚ East. The county enjoys temperatures ranging between 12˚C and 18.7˚C, warm climate with rainfallaggregate1000mmeachyear.Farming becomes more conducivedue cool climate with the coldest monthsin June and July while January-March and September-October are the hottest months. Kiambu County issustained in its economy mostly through agriculture and industries. There are several large-scale coffeeand tea farms which are serviced by local industries though majority of residents are small scale farmersgrowing teaandcoffee,whichareservicedby localindustries.
Women comprise approximately 827,874 of the population, of which about 90,238 is estimated to be aged40-60years.KiambuCountyhasover300healthfacilitieswithareliablehealthservicenetworkcomprisingDistrictHospitals,Sub-DistrictHospitals,Dispensaries,HealthCentres,MedicalClinicsandNursingHomes. Kiambu county citizens are served by the following facilities classified in the following tiers: Tier 5-Inter-county facility (1); Tier 4 -Hospitals (13); Tier 3 -Health Centres (24) and Tier 2 -Dispensaries (70).Kiambu County was purposively selected because of the high number of women health workers within thetargetedagecategoryof40-60years.

The study design poses a problem. This is an observational study, an analytical etiological study of the case-control survey type. The cases (patients) represent postmenopausal women aged 40-60 who must be matched with women free of the disease, i.e. non-menopausal (during a period of reproductive activity, therefore including those aged 50,55,...60 who no longer

UNDER PEER REVIEW

menstruate in the control group would lead to confounding bias
Furthermore, this type of study cannot be a cross-sectional survey but a case-control survey. The relevant indicators to calculate are the ORs and the chi-square are calculated but the confidence interval for the ORs would be very interesting

Very interesting subject, due to its frequency in outpatient gynecology consultations, interesting on the problem of managing the manifestations of menopause in certain women.



Map 1 : Map showing study location
Source:Google maps,2021

2.3 Samplingtechnique

The study respondents comprised 478women aged40-60years; 239women aged 40-60yearsinmenopauseand239womenaged40-60yearswhowerenotinmenopause.Thesamplingframecomprised1052womenaged40-60yearsworkinginlevel4and5hospitalsinKiambuCounty.Thestudyusedmixed-methods approach; Simple randomsampling was used to select study respondents while purposivesamplingwasemployedinselecting20keyinformants.

2.4 Samplesizedetermination

Sample size was determined using the power and sample size estimation formula by Rosner (2011) asshownbelow:

$$n = \frac{pq(Z_{1-\alpha/2} + Z_{1-\beta}\sqrt{\frac{pq}{pq}})^2}{(p_1 - p_0)^2}$$ Equation1

Where:

$P_1$is thedesired level of accuracy=0.05levelq_1=1-p1=0.95
$p_o$is the prevalenceofthemenopause inthe targetpopulation$q_o$is1-po=89.1%or0.89

UNDER PEER REVIEW

Z is standard normaldeviation at95% confidenceintervalsetat1.96

$Z_{1-\beta}$ isthestandard normaldeviation at the powerof1-βwhichis80%= 1.28

$$n = \frac{0.109 \times 0.891 \left(1.96 + 1.28 \sqrt{\frac{0.05 \times 0.95}{0.109 \times 0.891}}\right)^2}{[0.05 - 0.109]^2}$$

Therefore, n=228

Tocaterfornon-response,anallowanceof10%wasaddedwhichtranslatedtoasamplesizeof251respondentsforeachgroup.However,duetonon-response,95%responserateofatotal239

UNDER PEER REVIEW

questionnaires were properly filled and returned which translates to a response rate of 95%. The samplesizedistributionofthestudyrespondentswithinKiambuCountyisshowninTable1.

Table1: Samplingframe

No	Facility	Level	Sub countyHospital			
				Inmenopause	Not inmenopause	Total Samples ize
1.	Thika	5	Thika	62	60	122
2.	Lari	4	Lari	4	6	10
3.	Kiambu	4	Kiambu	56	57	113
4.	Karatu	4	Gatundu North	2	2	4
5.	Gatundu	4	Gatundu North	48	46	94
6.	Igegania	4	Gatundu South	5	6	11
7.	Ruiru	4	Ruiru	19	18	37
8.	Tigoni	4	Limuru	22	18	40
9.	Lusigetti	4	Kikuyu	4	5	9
10.	Wangige	4	Kabete	7	5	12
11.	Kihara	4	Kiambaa	5	4	9
12.	Nyathuna	4	Kabete	2	2	4
13.	Karuri	4	Kiambaa	8	9	17
Total	**13**		**13**	**239**	**239**	**478**

2.6 Datacollectiontoolsandmethods

AvalidatedstudytoolknownasWorkProductivityandActivityImpairment(WPAI)(7)wasusedtomeasureofworkproductivityimpairmentforwomeninmenopause.WPAIisavalidatedinstrumentusedtomeasureloss of productivity at work and impairment in daily activities. The tool has 4 sub-scales: absenteeism,presenteeism, overall work impairment and activity impairment that range from 0% to 100% with highervalues indicating greater impairment. A questionnaire was administered. The questionnaire had foursections; section one comprised of questions on background characteristics of the study participants;sectiontwocomprisedquestionsonmenopausesymptoms;sectionthreecomprisedquestionsonmenopause coping mechanisms used by women and section four comprised questions on WPAI.A keyinformantguidewasusedtoconductkeyinformantinterviews.

2.7 Dataanalysis andpresentation

Statistical Packages for Social ScientistsVersion 25 for used for analysis. Descriptive statistics likefrequency, mean, standard deviations and percentages were used in summarizing the data and resultswere presented in frequency tables and graphs. Cross-tabulation was used to determine relationshipbetween variables, chi-square established associations between variables and regression analysis
wasusedtoestablishpredictorsofworkproductivity.Aregressionanalysismodelemployingcomplementary

UNDER PEER REVIEW

log-log function was used to establish the influence of menopausal symptoms on work productivity. Thefunction indicated that higher categories in the models were more probable in predicting outcomes. All themenopause symptoms which had a statistically significant relationship at 0.05% were subjected to aregression model to establish predictors of work productivity. The qualitative data from key informantinterview were coded, entered, cleaned and analyzed thematically using Nvivo software. The data wasanalyzedthematicallyafterwhichpatternsandrelationshipswithinthethemeswerestudiedandsynthesized toprovideinsightofthefindings.

3. RESULTS

Work ProductivityImpairmentIndex

Resultsontheworkproductivityimpairmentarepresentedin Figure1.ResultsindicatedthatoverallWPAIindex was 28%. Women in menopause had the highest WPAI index of 38%. Menopause women had a20%WPAImorethanthatnotinmenopause.

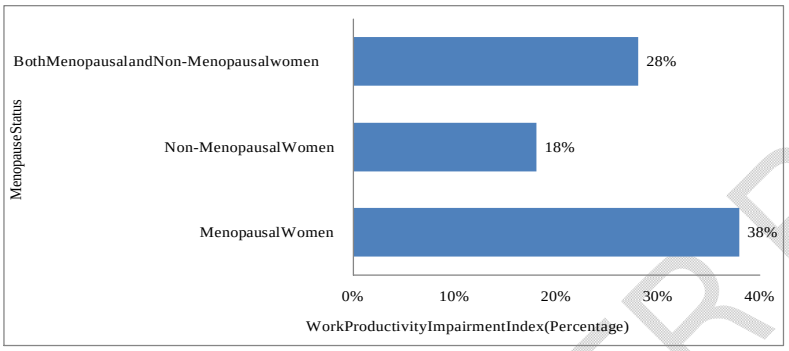


Figure1:WorkProductivityImpairmentIndex

Associations betweenmenopause andWorkProductivityImpairment

To examine association between menopause and WPAI was expressed in terms of percentage andcategorized into five categories as follows:No effect at all for 0%, mild for 1-25%, moderate for 26-50%,severefor51-75%andveryseverefor76-100%.Resultsontheassociationbetweenmenopauseandworkabilityimpairmentarepresentedin Figure2.

UNDER PEER REVIEW

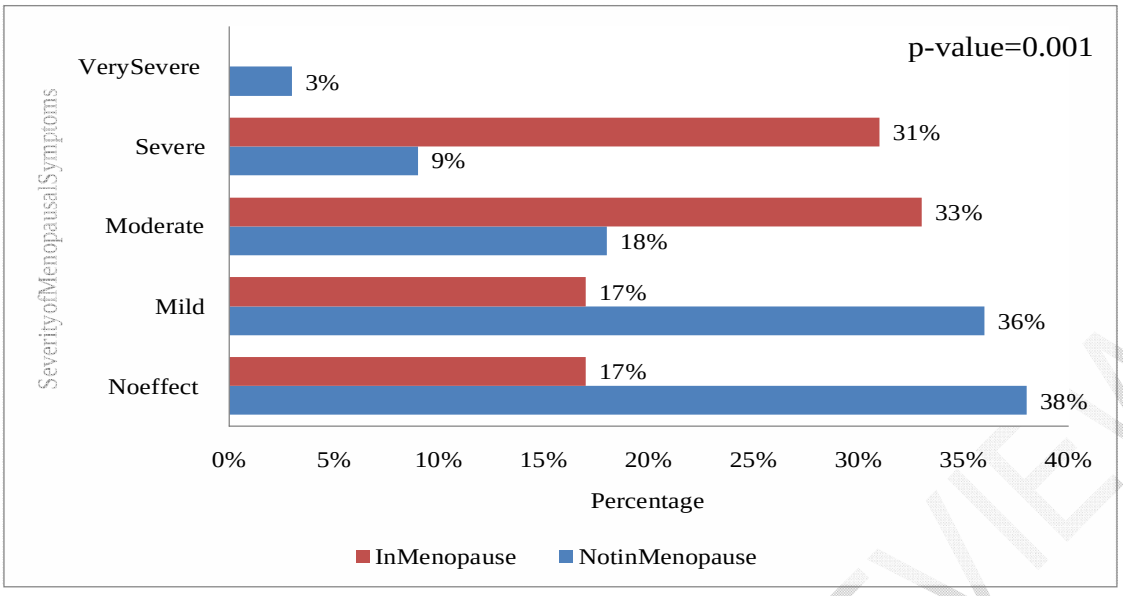


Figure2:AssociationofMenopauseonWorkProductivity

Majority (72.6%)of the women had theirworkproductivity impaired (mild to severe). A third (33%)of womenin menopause reported impairment of moderate to severe compared to 13% of women not in menopause.Menopause had a statistically significant association with work ability impairment ($\chi 2=76.979$, p=0.001).Qualitative findings indicated that menopause impairs work ability, affects performance and quality ofoutcome depending on severity of symptoms. The following statement from one of the key informantinterviewexpounds:

> *"…Dependingonseverityofthemenopauseproblems,workperformancehassignificantlybeen affected.Amongthosewhoreportproblemslikelackofconcentrationandforgetfulness,Iamkeen tocheck theirworkandoutputstoensureitiswithouterrorswhichattimeis veryhard…"*~Headofdepartment

AssociationbetweenmenopauseandWorkAbsenteeism

Workabsenteeismwasmeasuredintermsofpercentageworktimemissedduetohealth-relatedproblems.ResultsonworkabsenteeismareshowninFigure3.

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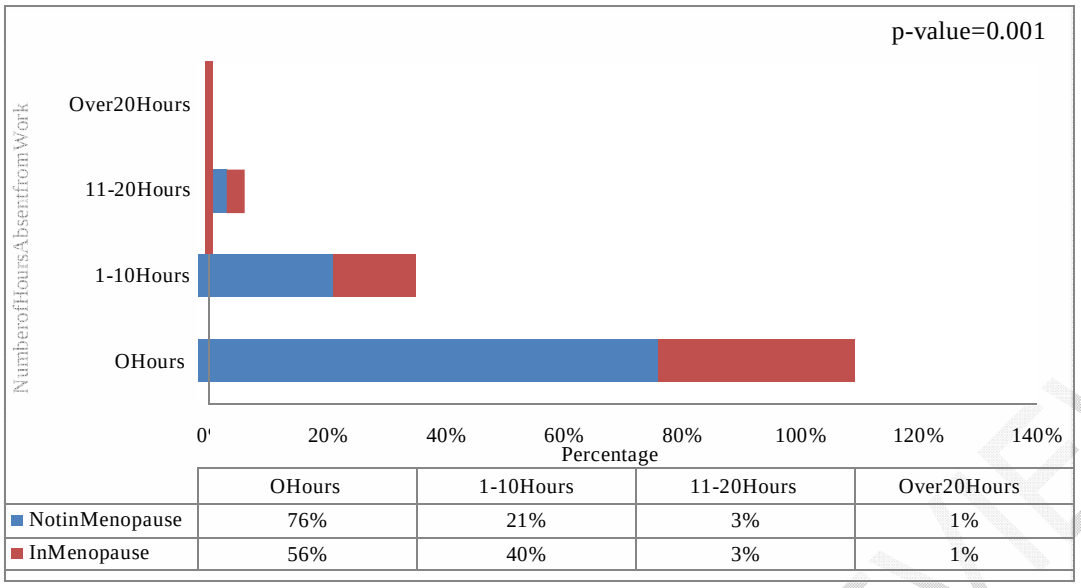

	OHours	1-10Hours	11-20Hours	Over20Hours
NotinMenopause	76%	21%	3%	1%
InMenopause	56%	40%	3%	1%

Figure3Associationof MenopauseonWorkAbsenteeism

Workabsenteeismwashigheramongrespondentsinmenopausethanthosewhowerenotinmenopause.Time spent away from work due to health problem was higher for women in menopause than the rest.Menopause had a statistically significant association with work absenteeism ($\chi 2=21.549$, $p=0.001$) (Figure3)

Qualitativeresultsindicated highworkabsenteeismamong menopausalstaffdueto healthproblemsassociated with menopause which affects facility performance because these women are the most skilledandexperiencedworkforceas illustratedinthefollowingstatement froma keyinformantinterview:

> *"…absenteeism is more common among staff who have reached menopausethan the rest yet these are the most experienced, reliable and skilled staff I have. Theyrequest for sick offs very often…that definitely affect our performance"*~Head of Nursingdepartment

MenopauseSymptomspredictingWorkProductivityImpairment

Allthe symptomswhich had a statisticallysignificant relationship($p<0.05$)with menopauseweresubjected to a regression analysis model to establish menopause symptoms predicting work productivityimpairmentandtheresultsasshowninTable2.

Table2 MenopauseSymptomspredictingWorkProductivity

	Estimate	Std. Error	Wald	df	Sig.	95% CI	
						Lower	Upper
PsychologicalSymptoms							
Feeling tenseor nervous	.402	.143	7.91	1	.005	.122	.682
Difficultyinsleeping	.025	.152	0.03	1	.868	-.273	.324
Difficultyinconcentrating	.400	.187	4.61	1	.032	.035	.766
Feelingtiredorlackingine nergy	.009	.170	0.00	1	.959	-.324	.342
Loss ofinterestin mostthings	.158	.164	0.93	1	.336	-.164	.479

UNDER PEER REVIEW

Feeling unhappyor depressed	-.201	.166	1.46	1	.227	-.527	.125
Irritability/irritation	.041	.173	0.06	1	.814	-.299	.381
Muscleandjoint pains	-.100	.156	0.41	1	.521	-.406	.205
Breathingdifficulties	.417	.163	6.59	1	.010	-.736	-.099
Loss ofeatingappetite	.457	.174	6.88	1	.009	.115	.798
Increaseineatingappetite	.057	.214	0.07	1	.792	-.363	.476
Pressureor tightnessinhead	.132	.147	0.80	1	.370	-.156	.419
VasomotorSymptoms							
Hotflushes	.191	.207	0.85	1	.356	-.215	.597
Sweatingat night	.101	.207	0.24	1	.627	-.305	.507
GynecologicalSymptoms							
Loss of interestinsex	-.191	.196	0.95	1	.330	-.576	.194
Increased interestinsex	-.285	.240	1.41	1	.235	-.757	.186

Nervousness had a statistically significant association with work productivity. A menopausal staff whoreportedanervousfeelingwas7.9timeslikelytoreportworkproductivityimpairmentcomparedtoonewhowas not feeling nervous (P=0.005, df=1, OR=7.909). Lack of concentration had a statistically significantrelationshipwithworkproductivity.Menopausalstaffwhoreportedlackofconcentrationwas4.6timesmorelikelytohaveworkproductivityimpairmentthanonewhoreportedconcentration(p=.032,df=1,OR=4.608).Dyspnea had a statistically significant relationship with work productivity. A menopausal woman whoreported dyspnea was 6.6 times more likely to report work ability impairment than one without dyspnea(p=0.010, df=1, OR=6.587). Anorexia had a statistically significant relationship with work productivity. Amenopausal woman who reported anorexia was 6.9 times more likely to report work ability impairmentcompared toonewhodidnothaveanorexia(p=0.09,df=1, OR=6.880).

Symptomssuchashotflushes,insomnia,anhedoniaanddepression,sweatingatnight,lossofsexdesire,increaseinsexdesire,hadnostatisticallysignificantassociationwithworkproductivityimpairment(p>0.05).

According to qualitative results, influence of menopause on work ability differed across women due tovariationintheirseverityandcopingstrategiesadopted.Symptomswhichreducedconcentration,increased forgetfulness and affected team work such as loneliness, irritability, hot flushes, anxiety andmoodswingsdecreasedworkproductivity.Thefollowingstatementfromoneofthekeyinformantinterviewillustratesthispoint:

> *"…Menopause affects performance but this depends on how one is abletocopebecauseit'salifetransitionstage.Someofmyjuniorstaffinthisstagehasbad moodsswingsandirritation.Assigningthemtodemandingresponsibilitieshasbeen adifficult task…"*~HeadofPublicHealthDepartment.

4. DISCUSSION

Inthisstudy, womeninmenopausehavebeenshown tohavemoreworkimpairment(moderatetosevere)intheircapacitytofunctionatworkcomparedtothosewhowere notinmenopause.Thisresult wassimilarto past studies done by (8) and (9) in which menopausal women were reported to have stopped workingandorsoughtearlyretirement.

Menopause problems have significant effect on women work ability and overall quality of life (10). The studyshowed that women affected by the menopause problems reported negative influence on their physical,socialandsexuallife.Thiswasarticulatedinastudyby(11)whoshowedasignificantrelationshipbetween severemenopausesymptomsanddecreaseinthequality oflife.

UNDER PEER REVIEW

Psychologicalsymptomswerethemainsymptomsshowntohaveseriousnegativeimpactonwomenworkabilities .Someofthesesymptomsincludednervousness,lackofconcentrationandanorexia,irritabilityandlackofconcentrationtocausediscomfortamongwomenatworkhencelimitingtheirproductivity.Thestudyalso showed that vasomotor symptoms especially hot flushes, affected concentration, and hence reducingworkproductivity.

The study showed no association between muscle and joint pains, loss of sexual interest and workproductivity among menopausal women. This was contrary to a study by (12) who found back aches andjoint pains to reduce work productivity. The difference in findings can be attributed to difference in contextof study; this study focused on health care professionals who were more aware of symptoms and able toaccessappropriatetherapiescomparedtothegeneralpopulations.
The study has linked menopause with increase in work absenteeism. Women in menopause were shownto ask for more time off at work (sick off, leaves) due to health reasons which affected their performance.Thiswassimilartoastudyby(7)whoreportedhigherstaffabsenteeism amongwomeninmenopauseduetо health problems related to menopause. Although this study did not examine determinants of workproductivity impairment,(7) showed that some factors aggravate menopause symptomsand make itdifficultforwomentobeoptimallyproductiveintheirworksuchasworkingpoorlyventilatedenvironmentsandhigh visibility work duties (especially for women presenting with hot flushes) such as long training and formalpresentations(7).Thisisasignificantstudygapwhichhasnotbeenwellresearchedacrossavailablebodyof literature. The demonstrated influences of menopause on work productivity impairment underscore theneed for recognition of menopause as a work place issues to facilitate adoption of appropriate mitigationstrategies.

5. CONCLUSIONANDRECOMMENDATION

Menopause has adverse effect on a woman's work ability but varies across individuals. Menopause isassociated with higher work absenteeism and productivity impairment. Due to the invaluable experienceand skills of menopausal women, absenteeism and work productivity impairment adversely affect facilityperformance.Physiologicalsymptoms,whichincludenervousness,anorexia,andlackofconcentrationan dbreathing difficulties, impair work productivity. Vasomotor, neurological and orthopedic symptoms had nostatistically significant relationship with work productivity impairment. County government in consultationwithrelevantstakeholders,todevelop,implementandinstitutionalizepolicyguidelinestorecognize menopause as a work place issue to facilitate adoption of acceptable programs, guidelines, interventionsand facilitate mobilization of resources for managing and mitigating influence of menopause on personallifeandoverallworkproductivityimpairment.

ETHICALAPPROVALANDCONSENT

Authority to undertake the research was obtained from Kenyatta University Graduate School and Ethicalclearance was obtained from Kenyatta University Ethics Review Committee. A research permit was alsoobtained from the National Commission for Science, Technology and Innovation. approval to carry out thestudy was sought from respective county administrative offices which included research approval fromKiambu County commissioner (Appendix 2), County Director of Education (Appendix 3) and Departmentof Health Services, Health Research and Development Unit (Appendix 4). Informed consent was soughtfromthe respondentsusing aninformed consent form(Appendix1).Participationto the studywascompletely voluntary and the respondents had the choice of not answering any question or withdraw fromthe study at any time. Confidentiality and privacy of respondents were assured by ensuring their identitiesoftherespondentsinvolvedinthestudyweredulyprotectedbyensuringthatthenamesoftheparticipants were not indicated in the data collection tools. Data collected from the field was kept in a lockable box toensure security and confidentially. The principle researcher is the only one who had access to the datacontentstherof.

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UNDER PEER REVIEW

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