

Original Research Article

Determination of Menopausal Influence on Work Productivity among Health Workers in Public Hospitals in Kiambu County, Kenya

ABSTRACT

Aims: Menopause is a normal process in women marked by a reduction in estrogen and progesterone levels and eventual cessation of menstruation. Despite many studies on menopause, influence of menopause on work productivity and performance are poorly documented. The study sought to establish the influence of menopause on work productivity among health workers. **In this study, menopausal women refer to those in either of the four stages associated with menopause.**

Study design: The study adopted case-control study design.

Methodology: A total of 478 women working in public hospitals in the study area and aged between 40-60 years were selected for study where 239 were the case study group with menopause related symptoms and the control group was 239 women who were in same age but had no menopause related symptoms. In total, those aged 40-45 were 139, while those aged 45-50 and 50-55 were each 124 in number and those aged 55-60 were 91 in number. The study used mixed-

methods approach; Simple random sampling was used to select study respondents while purposive sampling was employed in selecting 20 key informants. A semi-structured questionnaire was used to collect data from the study respondents while an interview guide was used to interview key informants. SPSS version 20 was used to analyze quantitative data. Descriptive statistics, cross-tabulation, chi-square and regression analysis were used to analyze the quantitative data collected while thematic analysis of qualitative data using NVIVO software.

Results: The findings show that menopause was associated with work absenteeism ($\chi^2=21.549$, $p=0.001$) and productivity impairment ($\chi^2=76.979$, $p=0.001$). Regression analysis showed 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 ($p=0.09$, $df=1$, $OR=6.880$) increased work productivity impairment.

Conclusion: Menopause impairs work productivity and increases work absenteeism. There is need for workplace to adopt measures for supporting menopausal women to improve work productivity and to mitigate its adverse effects particularly, recognizing menopause as a workplace issue. This requires organization to develop and institutionalize appropriate policies and staff support programs to support women during menopause transition and improve their work productivity.

Keywords: Climacteric, Health Worker, Menopause, Work Productivity

Abbreviations: FSH (Follicle Stimulating Hormone), LH (Leutenizing Hormone), WPA (Work Productivity and Activity Impairment)

1. INTRODUCTION

Menopause, is the time in most women's lives when monthly menstrual flow stops permanently, and becomes unable to bear children. Menopause is defined as a normal process that mark end of a woman reproductive life by the gradual cessation of menstrual cycle, first becoming irregular and then stopping altogether.

However, this phase ends 12 months after the last menstrual period. Menopause occurs around the age 50 years but the climacteric is complete when one year (sometimes two years) have elapsed since the last period (1). Menopause happens when the ovaries no longer release an egg every month and menstruation stops (2). The mean menopause age is 51 in United States (3) but can be much lower in developing countries. Some of work related menopause challenges may arise from the worker experiencing hot flashes, disrupted sleep, mood changes, weight gain among others (3). Natural menopause occur in stages where the first stage is the pre-menopause usually referring to the years leading up to the last period, when the levels of reproductive hormones are already becoming more variable and lower, and the effects of hormone withdrawal are present (4). This transition can begin as early as age 35, although most women become aware of the transition in their mid to late 40s. The second stage is peri-menopause which refers to the menopause transition years, a span of time both before and after the date of the final episode of flow (4). This transition can last for four to eight years. However, this phase ends 12 months after the last menstrual period. The third phase is the menopause when it's been a year since a woman last had her last menstrual period. The fourth and final stage is the as postmenopause which describes women who have not experienced any menstrual flow for a minimum of 12 months, assuming that they do still have a uterus, and are not pregnant, are not using FP or lactating (4).

Generally, women from developing countries, including those participated in the present study, tend to view menopause and its symptoms as a natural process that does not require medical care, so they are less aware about the health-related issues of menopause (5). Moreover, a culture of silence prevents them from seeking healthcare. However, studies have shown that educated women from developing countries are now seeking treatment for menopausal problems (6,7). Past studies have associated menopause with decreased quality of life, increased cost of hospitalization, work absenteeism, limitations in physical functioning and activity impairment which adversely limit the ability of women to be productive at work. At work, discussion about the menopause is widely perceived as a taboo (8) and the employers had little or no consideration of what or how to provide necessary support. Lack of adequate knowledge on menopause, its effects and how to cope with the associated problems continues to adversely impact on the productivity of health workers at work.

According to (5), Over eighty percent (80%) of women in Kenya are not sufficiently knowledgeable on menopause and how to cope with associated symptoms which impair their work productivity (7). Forty four percent (44%) of menopause women attribute menopause problems to sickness while fifty six percent (56%) attributed them to being bewitched, pregnancy and use of contraceptives. Although many studies have been done on Menopause, there are few studies done in Africa and Kenya on influence of menopause on work productivity. Most of the studies are focused on clinical aspects of menopause.

2. Methodology

2.1 Study design

Study adopted a case-control study design constituting of women aged 40-60 years in menopause as the study case 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 quantitative techniques of data collection.

2.2 Study area

The study was carried out in Kiambu County among level 4 and 5 hospitals. These hospitals were selected because they provided a large sampling frame for the study. Kiambu County is located at 1.1° South and 36.5° East. Women comprise approximately 827,874 of the population, of which about 90,238 is estimated to be aged 40-60 years. Kiambu County has over 300 health facilities with a reliable health service network comprising District Hospitals, Sub-District Hospitals, Dispensaries, Health Centres. The County was purposively selected because of the high number of women health workers within the targeted age category of 40-60 years.

Map 1 : Map showing study location

Source:Google maps,2021

2.3 Sampling technique

The study respondents comprised 478 women aged 40-60 years; 239 women aged 40-60 years in menopause and 239 women aged 40-60 years who were not in menopause. The sampling frame comprised 1052 women aged 40-60 years working in level 4 and 5 hospitals in Kiambu County. The study used mixed-methods approach; Simple random sampling was used to select study respondents while purposive sampling was employed in selecting 20 key informants.

2.4 Sample size determination

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

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

Where:

p_1 is the desired level of accuracy = 0.05 level $q_1 = 1 - p_1 = 0.95$
 p_0 is the prevalence of the menopause in the target population $q_0 = 1 - p_0 = 89.1\%$ or 0.89

$Z_{1-\alpha/2}$ is standard normal deviation at 95% confidence interval set at 1.96

$Z_{1-\beta}$ is the standard normal deviation at the power of $1 - \beta$ which is 80% = 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, $n = 228$

To cater for non-response, an allowance of 10% was added which translated to a sample size of 251 respondents for each group. Ho

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

Table1: Samplingframe

No	Facility	Level	Sub countyHos pital			
				Inmenop ause	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

A validated study tool known as Work Productivity and Activity Impairment (WPAI) (9) was used to measure of work productivity impairment for women in menopause. WPAI is a validated instrument used to measure loss 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 high values indicating greater impairment. A questionnaire that had four sections; section one comprised of questions on background characteristics of the study participants; section two comprised questions on menopause symptoms; section three comprised questions on menopause coping mechanisms used by women and section four comprised questions on WPAI was administered to the respondents. A key informant guide was used to conduct key informant interviews.

2.7 Data analysis and presentation

Statistical Packages for Social Scientists Version 25 for used for analysis. Descriptive statistics like frequency, mean, standard deviations and percentages were used in summarizing the data and results were presented in frequency tables and graphs. Cross-tabulation was used to determine relationship between variables, chi-square established associations between variables and regression analysis was used to establish predictors of work productivity. A regression analysis model employing complementary

log-log function was used to establish the influence of menopausal symptoms on work productivity. The function indicated that higher categories in the models were more probable in predicting outcomes. All the menopause symptoms which had a statistically significant relationship at 0.05% were subjected to a regression model to establish predictors of work productivity. The qualitative data from key informant interview were coded, entered, cleaned and analyzed thematically using Nvivo software. The data was analyzed thematically after which patterns and relationships within the themes were studied and synthesized to provide insight of the findings.

3. RESULTS

Work Productivity Impairment Index

Results on the work productivity impairment are represented in Figure 1. Results indicated that overall WPAI index was 28%. Women in menopause had the highest WPAI index of 38%. Menopause women had a 20% WPAI more than that not in menopause.

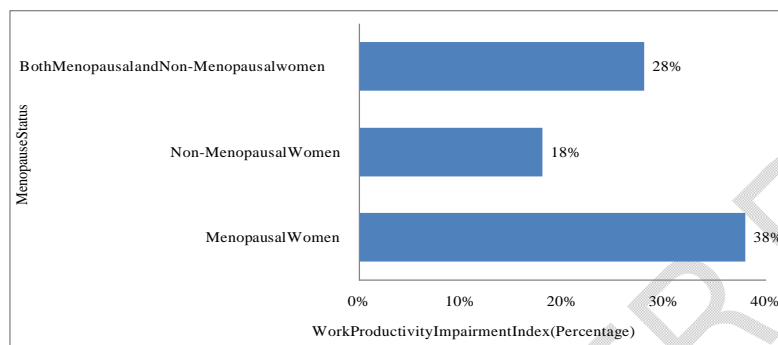


Figure 1: Work Productivity Impairment Index

Associations between menopause and Work Productivity Impairment

To examine association between menopause and WPAI was expressed in terms of percentage and categorized into five categories as follows: No effect at all for 0%, mild for 1-25%, moderate for 26-50%, severe for 51-75% and very severe for 76-100%. Results on the association between menopause and workability impairment are represented in Figure 2.

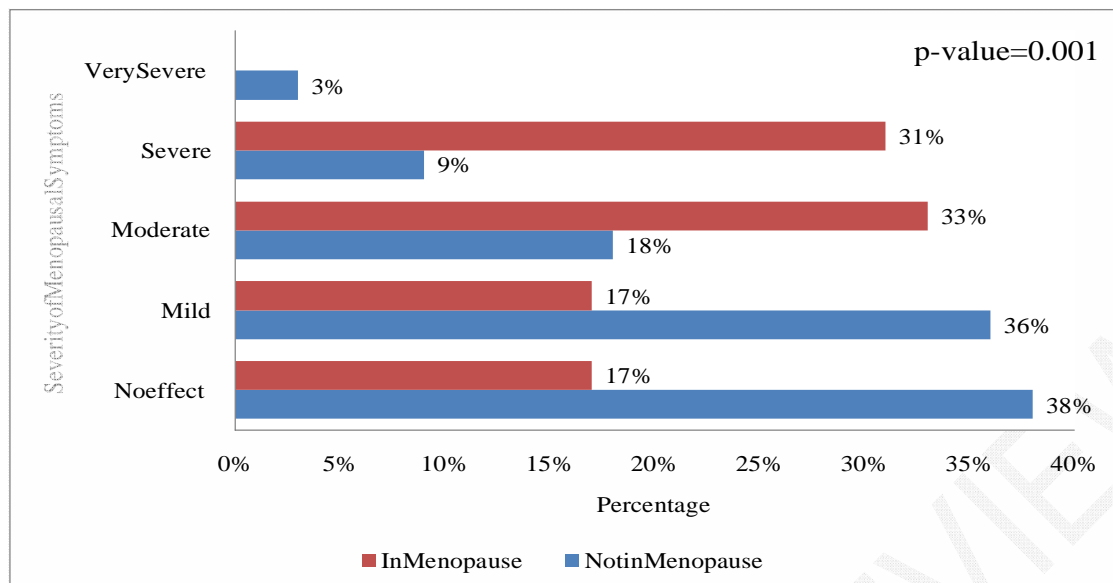


Figure 2: Association of Menopause on Work Productivity

Majority (72.6%) of the women had their work productivity impaired (mild to severe). A third (33%) of women in 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 of outcome depending on severity of symptoms. The following statement from one of the key informant interview expounds:

"... Depending on severity of the menopause problems, work performance has significantly been affected. Among those who report problems like lack of concentration and forgetfulness, I am keen to check their work and output to ensure it is without errors which at times is very hard..." - Head of department

Association between menopause and Work Absenteeism

Work absenteeism was measured in terms of percentage work time missed due to health-related problems. Results on work absenteeism are shown in Figure 3.

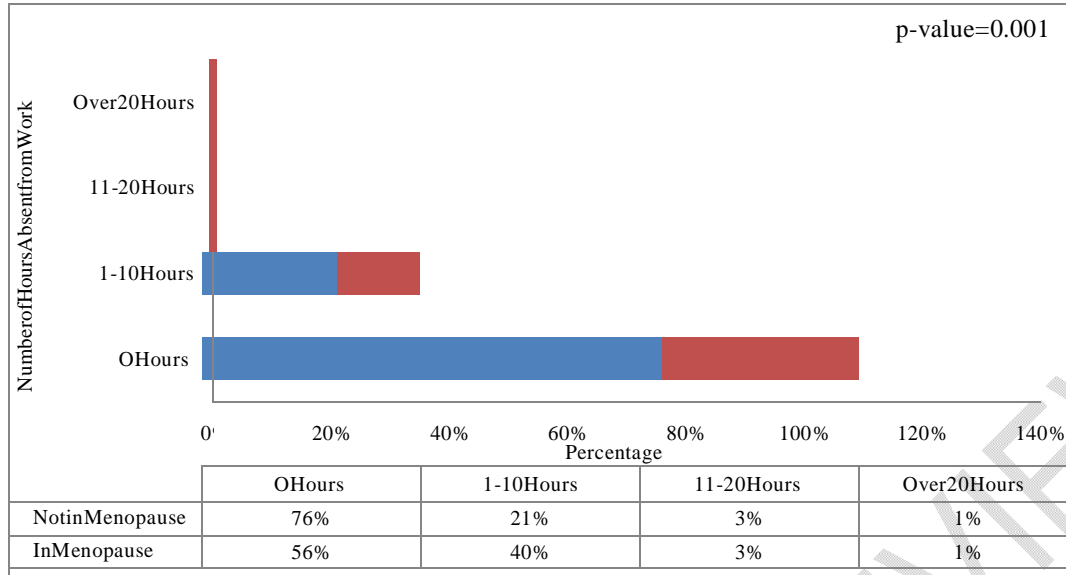


Figure 3 Association of Menopause on Work Absenteeism

Work absenteeism was higher among respondents in menopause than those who were not in menopause. 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 ($\chi^2=21.549$, $p=0.001$) (Figure 3)

Qualitative results indicated high work absenteeism among menopausal staff due to health problems associated with menopause which affects facility performance because these women are the most skilled and experienced workforce as illustrated in the following statement from a key informant interview:

“...absenteeism is more common among staff who have reached menopause than the rest yet these are the most experienced, reliable and skilled staff I have. They request for sick offs very often... that definitely affect our performance”~Head of Nursing department

Menopause Symptoms predicting Work Productivity Impairment

All the symptoms which had a statistically significant relationship ($p < 0.05$) with menopause were subjected to a regression analysis model to establish menopause symptoms predicting work productivity impairment and the results as shown in Table 2.

Table 2 Menopause Symptoms predicting Work Productivity

	Estimate	Std. Error	Wald	df	Sig.	95% CI	
						Lower	Upper
Psychological Symptoms							
Feeling tense or nervous	.402	.143	7.91	1	.005	.122	.682
Difficulty in sleeping	.025	.152	0.03	1	.868	-.273	.324
Difficulty in concentrating	.400	.187	4.61	1	.032	.035	.766
Feeling tired or lacking energy	.009	.170	0.00	1	.959	-.324	.342
Loss of interest in most things	.158	.164	0.93	1	.336	-.164	.479

Feeling unhappy or depressed	-.201	.166	1.46	1	.227	-.527	.125
Irritability/irritation	.041	.173	0.06	1	.814	-.299	.381
Muscle and joint pains	-.100	.156	0.41	1	.521	-.406	.205
Breathing difficulties	.417	.163	6.59	1	.010	-.736	-.099
Loss of eating appetite	.457	.174	6.88	1	.009	.115	.798
Increase in eating appetite	.057	.214	0.07	1	.792	-.363	.476
Pressure or tightness in head	.132	.147	0.80	1	.370	-.156	.419
Vasomotor Symptoms							
Hot flushes	.191	.207	0.85	1	.356	-.215	.597
Sweating at night	.101	.207	0.24	1	.627	-.305	.507
Gynecological Symptoms							
Loss of interest in sex	-.191	.196	0.95	1	.330	-.576	.194
Increased interest in sex	-.285	.240	1.41	1	.235	-.757	.186

Nervousness had a statistically significant association with work productivity. A menopausal staff who reported a nervous feeling was 7.9 times likely to report work productivity impairment compared to one who was not feeling nervous ($P=0.005$, $df=1$, $OR=7.909$). Lack of concentration had a statistically significant relationship with work productivity. Menopausal staff who reported lack of concentration was 4.6 times more likely to have work productivity impairment than one who reported concentration ($p=.032$, $df=1$, $OR=4.608$). Dyspnea had a statistically significant relationship with work productivity. A menopausal woman who reported 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. A menopausal woman who reported anorexia was 6.9 times more likely to report work ability impairment compared to one who did not have anorexia ($p=0.09$, $df=1$, $OR=6.880$).

Symptoms such as hot flushes, insomnia, anhedonia and depression, sweating at night, loss of sex desire, increase in sex desire, had no statistically significant association with work productivity impairment ($p>0.05$). According to qualitative results, influence of menopause on work ability differed across women due to variation in their severity and coping strategies adopted. Symptoms which reduced concentration, increased forgetfulness and affected team work such as loneliness, irritability, hot flushes, anxiety and mood swings decreased work productivity. The following statement from one of the key informant interviews illustrates this point:

"...Menopause affects performance but this depends on how one is able to cope because it's a life transition stage. Some of my junior staff in this stage has bad mood swings and irritation. Assigning them to demanding responsibilities has been a difficult task..." - Head of Public Health Department.

4. DISCUSSION

In this study, women in menopause have been shown to have more work impairment (moderate to severe) in their capacity to function at work compared to those who were not in menopause. This result was similar to past studies done by Amanda et al (2013) (10) and Williams et al (2009) (11) in which menopausal women were reported to have stopped working and sought early retirement.

Menopause problems have significant effect on women work ability and overall quality of life Sagdeo (2011) (12). The study showed that women affected by the menopause problems reported negative influence on their physical, social and sexual life. This was articulated in a study by Ama and Ngome (2012) (13) who showed a significant relationship between severe menopause symptoms and decrease in the quality of life.

Psychological symptoms were the main symptoms shown to have serious negative impact on women work abilities. Some of these symptoms included nervousness, lack of concentration and anorexia, irritability and lack of concentration to cause discomfort among women at work hence limiting their productivity. The study also showed that vasomotor symptoms especially hot flushes, affected concentration, and hence reducing work productivity.

The study showed no association between muscle and joint pains, loss of sexual interest and work productivity among menopausal women. This was contrary to a study by Geukes et al 2012(14) who found back aches and joint pains to reduce work productivity. The difference in findings can be attributed to difference in context of study; this study focused on health care professionals who were more aware of symptoms and able to access appropriate therapies compared to the general populations.

The study has linked menopause with increase in work absenteeism. Women in menopause were shown to ask for more time off at work (sick off, leaves) due to health reasons which affected their performance. This was similar to a study by Whiteley et al., 2013(9) who reported higher staff absenteeism among women in menopause due to health problems related to menopause. Although this study did not examine determinants of work productivity impairment, Whiteley et al., 2013(9) showed that some factors aggravate menopause symptoms and make it difficult for women to be optimally productive in their work such as working in poorly ventilated environments and high visibility work duties (especially for women presenting with hot flushes) such as long training and formal presentations. This is a significant study gap which has not been well researched across available body of literature. The demonstrated influences of menopause on work productivity impairment underscore the need for recognition of menopause as a work place issue to facilitate adoption of appropriate mitigation strategies.

5. CONCLUSION AND RECOMMENDATION

Menopause has adverse effect on a woman's work ability but varies across individuals. Menopause is associated with higher work absenteeism and productivity impairment. Due to the invaluable experience and skills of menopausal women, absenteeism and work productivity impairment adversely affect

facility performance. Physiological symptoms, which include nervousness, anorexia, and lack of concentration and breathing difficulties, impair work productivity. Vasomotor, neurological and orthopedic symptoms had no statistically significant relationship with work productivity impairment. County government in consultation with relevant stakeholders, to develop, implement and institutionalize policy guidelines to recognize menopause as a work place issue to facilitate adoption of acceptable programs, guidelines, interventions and facilitate mobilization of resources for managing and mitigating influence of menopause on personal life and overall work productivity impairment.

ETHICAL APPROVAL AND CONSENT

Authority to undertake the research was obtained from Kenyatta University Graduate School and Ethical clearance was obtained from Kenyatta University Ethics Review Committee. A research permit was also obtained from the National Commission for Science, Technology and Innovation. approval to carry out the study was sought from respective county administrative offices which included research approval from Kiambu County commissioner, County Director of Education and Department of Health Services, Health Research and Development Unit. Informed consent was sought from the respondents using an informed consent form. Participation to the study was completely voluntary and the respondents had the choice of not answering any question or withdraw from the study at any time. Confidentiality and privacy of respondents were assured by ensuring their identities of the respondents involved in the study were duly protected by ensuring that the names of the participants were not indicated in the data collection tools. Data collected from the field was kept in a lockable box to ensure security and confidentiality. The principle researcher is the only one who had access to the data contents.

Disclaimer (Artificial intelligence)

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

REFERENCES

1. Diane M., Margaret A., Anna G. *Myles Textbook for Midwives: African Edition*, 16th Edition. Elsevier: Churchill Livingstone 2014.
2. Hammam R, Abbas A, Hunter S. Menopause and work: the experience of middle-aged female teaching staff in an Egyptian governmental faculty of medicine. *Maturitas*, 71 (3): 294-300. 2012.
3. Mayo Clinic Staff (2023). Menopause
4. Harlow D., Gass M., Hall E., Lobo R., Maki P., Rebar R., Sherman S., Sluss P., de Villiers T. (2012). Executive summary of the Stages of Reproductive Aging Workshop: addressing the unfinished agenda of staging reproductive aging. *Fertility and Sterility*, 97 (4): 398-406.
5. Njoku O, Ngome E. Menopausal Perceptions and Experiences of Older Women from Selected Sites in Botswana. *Advances in Sexual Medicine*, 3: 47-59. Available at <http://dx.doi.org/10.4236/asm.2013.33009> 4:00pm November, 2014. 2013.
6. Yee W. and Lin L. Anxiety and depressive symptoms among communities in the east coast of Peninsular Malaysia: A rural exploration. Available at: <http://www.mjpsychiatry.org/index.php/mjp/article/view/143> (access: 8:00pm 1.11.14). 2010.
7. Adoyo D, Odero W, Adijah O. Knowledge of Perimenopausal Phase and Symptoms Women Experienced in Njoro District, Kenya. *International Journal of Humanities and Social Science*; 4(3): 123-132. 2014.
8. Ayers B, Smith M, Hellier J, Mann E, Hunter M. Effectiveness of group and self-help cognitive behavior therapy in reducing problematic menopausal hot flushes and night sweats (MENOS2): a randomized controlled trial. *Menopause*; 19(7): 749-59. 2012.
9. Whiteley J, Marco D, Jan-Samuel W, Jose A, Sonali S. The Impact of Menopausal Symptoms on Quality of Life, Work Productivity, and Economic Outcomes. *J Womens Health (Larchmt)*, 22(11): 983-990. 2013.
10. Amanda G, Sara J, Juliet H. Menopause and work: An electronic survey of employees' attitudes in the UK. *Maturitas*; 76: 155-159. 2013.
11. Williams M, Strapoli C, Benedict J, Borgeest C, Flaws J. Risk factors for hot flashes in midlife women. *Journal of Women's Health*, 12(5): 459-472. 2009.
12. Sagdeo M, Dimple A. Menopausal Symptoms: A Comparative Study in Rural and Urban Women. *Jkscience*, 13(1): 14-23. 2011.
13. Ama N, Ngome E. *The Sexual and Reproductive Health Including Family Planning of Older Women from Selected Sites in Botswana*. A Report Submitted to the Office of Research and Development (ORD), University of Botswana, Botswana. 2012.
14. Geukes M, van Aalst P, Nauta E, Oosterhof H. The impact of menopausal symptoms on workability. *Menopause*; 19(3): 27. 2012.