Exercise Prescription: Attitude & Barriers among Healthcare Professionals in Hospital Setting, Kenya

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Abstract- Objective. **To find out attitudes and barriers of exercise prescription among healthcare professionals in Kakamega county, Kenya *Design*. The study design was a descriptive cross-sectional, that utilized quantitative methods *Setting*. The study was conducted in Public health facilities in Kakamega County, located in Western Kenya. These facilities were four (4) Sub-County hospitals, two (2) County hospitals and one (1) County referral hospital *Sample* Stratified random sampling was embraced to divide the population into homogeneous subgroups as per the professional cadres then simple random in proportion to their number in the population was done. Formulae that was used for calculating the sample size was Cochran with an attrition rate of 10%, since the sample size was less than 10,000 people, the sample size was adjusted with the Finite population correction for proportions based on the populations of nurses, doctors and clinical officers (*n* = 221) *Analysis*. Data was analyzed through descriptive statistics. All assumption for conducting parametric tests were met before undertaking parametric tests. ANOVA was used to determine if healthcare providers differed with regards to attitude towards exercise prescription. *Main outcome measures*. Attitudes and barriers towards *e*xercise prescription among healthcare professionals *Results*. 103 (46.6%) of the respondents strongly agreed that discussing the benefits of physical activity with their patients was part of the healthcare professional's role. 98 (44.3%) strongly agreed that healthcare professionals should be physically active to act as role models for their patients. 72(32.6%) strongly disagreed that exercise counselling would not change the patient's behavior. Majority of the healthcare professionals had positive attitude towards exercise prescription 135 (61%). The independent between- group ANOVA yielded a non- statistically significantly effect, $F(2, 218) = 1.941$, $p = .146$, $\eta p2 = .02$ leading to the conclusion that there exist no significant differences in attitude towards exercise prescription among the three cadres of Healthcare professionals. The major barrier to exercise prescription noted was lack of resources e.g. patients' educational materials (n=124,56.1%) *Recommendation*. It is recommended that future research investigate the opinions of HCPs pertaining to where the responsibility to prescribe exercise ultimately lies to explore possible additional barriers to exercise prescription not previously reported in literature.**

Keywords: - Health promotion, healthcare professionals, exercise prescription. Kakamega, Kenya, Attitude, barriers

I. BACKGROUND

Recent research shows that HCPs agree to the importance of PA counseling and the role they have in promoting PA to their patients (Hébert *et al*., 2012).However, a gap in belief on exercise counseling and prescription amongst HCPs exists. Gnanendran, Pyne, Fallon, and Fricker (2011) found out that

almost all respondents had positive attitudes to exercise counseling but recommended that more research into the attitudes and beliefs of health professionals was required in relation to the effectiveness of current health promotion strategies.

A study among dietitians, nurses, patient care technicians, and social workers showed that 72% of the respondents did not think it was their responsibility to encourage PA among their patients (Painter *et al.,* 2004). In terms of who is responsible for providing PA advice, a study among internal medicine residents found that more than 90% felt it was the physicians' responsibility to counsel patients on exercise, but only 15% of the residents reported counseling their patients (Rogers, Bailey & Gutin, 2002). In Canada, Frank, Segura, Shen and Oberg (2010) found out that physicians reported apositive association between attitudes toward being a role model for their patients and higher frequency of PA counseling. This positive attitude to be a role model is supported by other studies that reported HCPs who engage in healthy habits such as not smoking, eating a healthy diet, or having periodic preventive health screenings and immunizations have a positive attitude toward PA and also provide preventive counseling to their own patients more confidently (Frank, 2004; Bleich *et al*.,2012). In South Africa, Roos (2014) found out that only 18% of thegeneral practitioners believed it was not their job to prescribe exercise to their patients while 25% considered exercise prescription was a waste of time. This positive attitude was consistent with a study done in Nigeria by Aweto *et al* (2013) whonoted that 94.8% of health care professionals had good attitude towards PA promotion in patients' management.

In a meta-analysis done by van der Ploeg *et al* (2007) amongst general practitioners (GPs) between 1997 and 2000, results showed that there were significant improvements in confidence of exercise counseling among general practitioners over the years. In 2000, most GPs recognized their role in helping patients increase PA compared to the year 1997 (van der Ploeg *et al*., 2007). On the other hand, a study that attempted to check this change of attitude over time but with inconsistent results, was done by Frank, Tong, Lobelo, Carrera and Duperly (2008) amongst medical students who completed questionnaires at orientation to hospital wards and during their senior year. The results showed that perceived relevance of exercise counseling was higher at orientation to hospital wards than at senior year (69% vs. 53%, p<0.01) (Frank, Tong, Lobelo, Carrera & Duperly, 2008). These

results from the studies above are therefore inconclusive hence need for further research to have more conclusive findings.

A systematic literature review done by Lobelo and de Quevedo (2016) found out that, out of 24 studies reviewed, 19 reported a significant positive association between HCPs' perceived importance to exercise counseling and their PA counseling habits. The remaining 5 studies either did not report a measure of association (Du Monthier, Haneline & Smith, 2009; Connolly, Gulanick, Keough & Holm, 1997) or had non-significant results, although a trend was observed toward a positive association.However, the relationship between attitude and practice of exercise counseling has not been clearly studied in Africa and there is scanty of information in the area, hence creating a methodological research gap that needs to be filled by this study.Many barriers have been identified as contributors to HCPs' low rates of PA counseling. The most frequent reported barriers were lack of time(Rodgers *et al.,* 2002;Buchholz & Purath 2007; Walsh *et al.,*1999; Abramson *et al.,* 2000), HCPs' low self-efficacy for PA counseling, (Painter *et al.*, 2004;Walsh *et al.,* 1999;Abramson *et al.,* 2000), lack of PA counseling materials (Douglas, Ferdinand, Bakris & Sower, 2002) ,lack of reimbursement (Buchholz & Purath 2007; Douglas, Torrance, Van-Teililingen, Meloni & Kerr, 2006), lack of knowledge and counseling skills,(Douglas *et al.,* 2006a;Painter *et al.,* 2004;Douglas *et al.*, 2002) and patient's co-morbidities (WHO, 2009).

In other studies, barriers to PA counseling included, intrinsic HCP factors, and poor personal habits. (Frank, Bhat, Schelbert & Elon, 2003; Kosteva, Salata & Krishnan, 2012). In the USA, Abramson *et al*(2008) noted that primary care physicians identified the most frequently obstacle to PA counseling was time (81.6%), with 20.4 percent saying knowledge was their biggest obstacle while 16.3% said other reasons. In a review done by Seth (2014) in the UK found that barriers to exercise prescription included scarcity of referral pathways, lack of time, not having adequate access to reference material to guide them in the practical aspects of exercise prescription and lacking confidence in the service they are referring to. Roos (2014) in South African found that46% of general practitioners did not feel confident enough to prescribe exercise to their patients, 18% felt they had a lack in resources while 18% believed that prescribing exercise to their patients would be overly time consuming. Similarly, in Nigeria a study by Aweto *et al*(2013) found that, 60.7% of the HCPs identified insufficient consultation time as a barrier to PA promotion.

A systematic literature review by Lobelo and de Quevedo (2016) found that, lack of needed skills, training, time, and reimbursement were noted by HCPs as important barriers to provide PA counseling.The studies cited above recommended further research into the barriers of exercise prescription among health care professionals in low income countries in order to explore possible additional barriers to exercise

prescription not previously reported in literature,hence need for this research.Very few studies reviewed captured the situation in low income countries in Africa, creating a gap for this study. There is paucity of literature regarding attitudes and barriers to PA counseling among HCPs in low income countries (Teferi, Kumar, & Singh, 2017).The current study therefore, sought to fill these gaps and provide critical analysis of the attitude and barriers to exercise prescription among HCPs in Kakamega county Kenya.

II. THEORETICAL FRAME WORK

This study was guided by Pender's Health Promotion Model (HPM) (2002). The theoryfocuses on the multidimensional nature of individuals, in whichthere are interpersonal and environmental interactions which contribute substantially to achieve a healthy behavior (Pender, Murdaugh & Parsons, 2002; Villar *et al.,* 2017).The model attempts to evaluate the behavior of individuals that leads to health promotionaccording to three basic components: 1) individual characteristics and experiences (previous behaviors and personal factors); 2) feelings and knowledge about the desired behavior (perception of benefits, barriers, self-efficacy, inter-personal influences); and 3) desirable health promotion behavior (commitment to the plan of action, demands and preferences). The model is based on social cognitive theory according to which cognitive-perceptual factors (perceived benefits, barriers, and self-efficacy) influence engagement in health-promoting behaviors. Modifying factors (demographic characteristics, interpersonal influences, and behavioral factors) are considered to interact with each other to influence cognitive perceptual processes (Khodaveisi, Omidi, Farokhi & Soltanian, 2016). Studies show that Pender's HPM can positively affect and improve behaviors(Khodaveisi, Omidi, Farokhi, & Reza, 2017).

III. METHODS

The study was conducted in Kakamega County and ethics approval was obtained from Masinde Muliro University of Science and Technology ethics board, National commission for science and technology, the Kakamega county commissioner and from Kakamega county referral hospital (KCRH). No further approval was needed since the project didnot require access to patients or personal data.

IV. RESEARCH DESIGN

The study design was a descriptive cross-sectional, that utilized quantitative method. The design was chosen because the data to be collected on exercise counselling behavior was a product of temporal and spacial factors. This particular design was ideal since the research entailed collecting and comparing data from the phenomena at the same time of study. Kothari (2004) describes descriptive surveys as formalized and typically structured fact-finding enquiries, involving asking questions (often in the form of a questionnaire) to a group of individuals, adding that the major purpose is description of the current state of affairs as it exists

at present and describe "what exists" with respect to variables or conditions in a situation.Therefore, the descriptive survey was deemed the best strategy to fulfill the objectives of this study. Several studies on exercise counselling behavior have found the design robust (Galaviz *et al.,* 2015; Teferi *et al.*, 2017; Roos, 2014). The study was notexpected to measure changes in exercise counselling behavior at different points in time, further logistical and time issues also influenced the design choice.

V. STUDY SETTING

The study was conducted in Kakamega County, located in Western Kenya. Kakamega County has 132 government run health facilities ranging from a County Referral hospital to a dispensary distributed in twelve sub counties: Kakamega North (Malava), Kakamega Central (Lurambi), Kakamega South (Ikolomani), Kakamega East (Shinyalu), Butere, Khwisero, Navakholo, Matete, Likuyani, Lugari, Matungu and Mumias. Numerous private and faith-based facilities also provide health care services to the population in this County. HCPs working in seven (7) health facilities were studied. These facilities were four (4) Sub-County hospitals, two (2) County hospitals and one (1) County Teaching and referral hospital**.** Kakamega County has one (1) County referral hospital, four (4) County hospitals, seven (7) Sub-County hospitals, 34 Health centers and 86 dispensaries run by the government and several health facilities run by faith-based organizations and Non-governmental organizations.The choice of Kakamega County is because it is the second most populous County in Kenya but with a nurse patient ratio of 86.37 per 100,000 people, which is 34.87 per 100,000 people less than the national average of 51.5 per 100,000 people (Kenya Nursing Workforce Report[MOH], 2012); this means that health professionals in this county have an opportunity to meet many sedentary people from the population.

VI. PARTICIPANTS

The study population (280) were nurses, doctors and clinical officers working in public hospitals in Kakamega County. Stratified random sampling was embraced to divide the population into homogeneous subgroups as per the professional cadres then simple random in proportion to their number in the population was done.Formulae that was used for calculating the sample size was Cochran (Singh & Masuku, 2014) with an attrition rate of 10%, since the sample size was less than 10,000 people, the sample size was adjusted with the Finite population correction for proportions based on the populations of nurses. There was limited data on the prevalence of exercise counselling and prescription in Kenya. Therefore, for estimation of prevalence the researcher conducted a pre-test study in Navakholo sub county hospital and found an estimated assumed prevalence of 50% on the outcome variable practice of exercise prescription. In addition, an a priori power analysis, using the software application G*Power 3.1 forWindows (Erdfelder, Faul, Buchner, & Lang, 2009), demonstrated that a sample size of 280 was sufficient in order to discover significant effect sizes. Table 1 below show the sample size calculation.

$$n_o = \frac{z^2 pq}{e^2}$$

$$n_o = \frac{(1.96^2)(0.5)(0.5)}{0.05^2}$$

$$n_o = 384 + (10\% \ attrition) = 422$$

Finite Population Correction For Proportions

$$n = \frac{n_o}{1 + \frac{(n_o - 1)}{N}}$$

After proportional calculation per health facility the total n= 301

Z=1.96, *P*=0.5(for maximum variability),*e*=0.05(5% margin of error),*n₀*=estimate population sample, *N*=actual population, *n*=desired sample size

Table 1. Number of respondents studied per facility in Kakamega County

Facility	Proportional calculation (Nurses)	Proportional calculation (Doctors)	Proportional calculation (C. O's)
Kakamega CRH	$^{211}/429 x251=122$	$^{53}/59\ x43=34$	$^{84}/106\ x19=15$
Malava SCH	$^{211}/429 x40=19$	$^{53}/59\ x6=4$	$^{84}/106\ x10=7$
Butere SCH	$^{211}/429 x28=13$	$^{53}/59\ x2=1$	$^{84}/106\ x6=4$
Matungu SCH	$^{211}/429 x31=15$	$^{53}/59\ x2=1$	$^{84}/106\ x24=18$
Lumakanda CH	$^{211}/429 x25=12$	$^{53}/59\ x3=2$	$^{84}/106\ x10=7$
Likuyani CH	$^{211}/429 x26=12$	$^{53}/59\ x2=1$	$^{84}/106\ x4=3$
Iguhu SCH	$^{211}/429 x18=8$	$^{53}/59\ x1=1$	$^{84}/106\ x3=2$
Total	**201**	**44**	**56**

$$n(sample\ size) = 301$$

VII. DATA COLLECTION INSTRUMENT

The data was collected using a pre-coded self-administered questionnaire.Attitude was assessed by ten questions. The section sought to establish health professionals subjective perception to the importance and need of exercise prescription. The questions were measured on a 5-point likert scale with the anchors being strongly disagree=1 to strongly agree=4 with "not sure" having a code of 0.Scale scores were computed by summing the scores for the individual items constituting the scale. Each item on the scale had a maximum score of four and a minimum of one.In order to score the attitudes torwards prescribing PA to patients' total score was obtained by taking the sum of the total score, consisting of 9 questions each ranging from 1- 4. The highest possible score was a 36 and the lowest was 9. Respondents who scored below the mean were classified as having negative attitude and those that scored above the mean were classified as having a positive attitude torwards prescribing or counseling patients onPA.

PA counseling barriers questionnaire was modified using aquestionnaire found in the literature by Karvinen *et al*(2010),nine questions were used to find out general possible barriers to exercise prescription that health professionals may be encountering.The questions were on a 5-point likert scale with the lowest being strongly disagree=1 to strongly agree=4 with "not sure" having a code of 0. Finally, in section six, seven items were used. This domain assessed whether the healthcare practitioner had any formal training in exercise-prescription and if exercise prescription formed part of their curriculum, the items were also ranked on a 5-point likert scale with the anchors being strongly disagree=1 to strongly agree=4 with "not sure" having a code of 0.The researcher conducted a reliability analysis for the attitude and barriers subscalesof the questionnaire to asses consistency in response in this sub scales. Cronbach's alpha for the 10-items attitude scale and 9-items barriers scale was $\alpha = .702$ and $\alpha = .728$. Deleting select items would not increase the alpha. To increase the validity and reliability of the instruments, after adapting the questionnaires were evaluated by experts. Then based on the feedback the final questionnaire was prepared for pre-test. The pre-test study was conducted in Navakholo sub-county hospital.

VIII. DATA ANALYSIS

Data analysis was done using the statistical program for social sciences (SPSS) version 22. Inferential and descriptive statistics were used to analyze data. Descriptive analysis of data was done using the mean, frequencies and percentages. In this study association between the study variables were assessed by a two-tailed probability value of p<0.05 for significance. Schlomer *et al*. (2010) outlined guidelines for best practices regarding the handling and reporting of missing data within research. Visual inspection of the data illustrated that missing data appeared to be missing at random. After visual inspection, in order to further examine the pattern of missing data, the researcher evaluated whether the data was missing completely at random (MCAR). The researcher utilized Little's MCAR test (Schlomer *et al*., 2010) which employs a chi-square statistical analysis and assumes the null hypothesis, that missing data is missing completely due to randomness. In this case, failing to reject the null hypothesis indicates that the data was most likely not missing in a random way.For this study, Little's MCAR test results showed that knowledge ($\chi^2[103] = 73.572$, $p = .170$), was not significant indicating that the variables were missing completely at random, the researcher proceeded to address the missing data. To avoid reducing the variances of the scores by replacing missing items using subscale means, the missing data items were instead imputed using the Expectation-Maximization (EM) algorithm within SPSS 23; EM is considered a superior method for conducting missing data imputation when one has MCAR data (Schlomer *et al.,* 2010). Their guidelines were considered when reviewing the missing data for the current research study. The data was tested for assumptions of normality using the Shapiro Wilk test, Skewness and Kurtosis were also checked. Homogeneity of variance was checked using the Levene test. All assumption for conducting the above parametric tests were met before undertaking the test.ANOVA was used to determine if healthcare providers differed with regards to attitude of exercise prescription. In case of observing significant differences Hochberg's GT2 post-hoc test was used. Alpha level for all the computations was considered at p <0.05.

IX. RESULTS

This study targeted a sample size of 301 respondents out of which 221 filled in and returned the questionnaires, making a total response rate of 73%.This was considered adequate considering that majority of health workers are always busy at their workstations and therefore have minimal time to answer research questionnaires. The analysis of data collected was done using descriptive and inferential statistics. Schlomer *et al* (2010) outlined guidelines for best practices regarding the handling and reporting of missing data within research which were considered when reviewing the missing data for the current research study. For this study, missing data ranged from a low of 0.5% to a high 7.7% in all the variables in the study. Visual inspection of the data illustrated that missing data appeared to be missing at random. After visual inspection, in order to further examine the pattern of missing data, the researcher evaluated whether the data was missing completely at random (MCAR). The researcher utilized Little's MCAR test (Schlomer *et al*., 2010) which employs a chi-square statistical analysis and assumes the null hypothesis, that missing data is missing completely due to randomness. In this case, failing to reject the null hypothesis indicates that the data was most likely not missing in a random way.

For this study, Little's MCAR test results: Attitude ($\chi^2[103] = 134.5$, $p = .184$) and Barriers ($\chi^2 [77] = 70.571$, $p = .684$) were not significant for any of the variables considered, indicating that the variables were missing completely at

random (MCAR), and as such failed to reject the null hypotheses. Once the study determined that the data were missing completely at random, the study proceeded to address the missing data. To avoid reducing the variances of the scores by replacing missing items using subscale means, the missing data items were instead imputed using the Expectation- Maximization (EM) algorithm within SPSS 25; EM is considered a superior method for conducting missing data imputation when one has MCAR data (Schlomer *et al.,* 2010). This also avoids biases that occur when using listwise

deletion or pairwise deletion methods. This missing data imputation was done per subscale (attitude subscaleand barriers sub scale) based on data missing on each individual subscale for more accuracy.Based on the scores on Table 1 below, the data appeared to be normally distributed. Shapiro Wilk tests of normality that tests the hypothesis that the data is normally distributed was also done in SPSS. The results were all not significant hence accepting the null hypothesis that the data was normally distributed.

**Table 1.** *Summary statistics for Skewness and Kurtosis*

	Central tendency			Dispersion		Distribution		
	M	**SEM**	**Mdn**	**SD**	**Skewness**	**Kurtosis**	**Shapiro Wilk *P***
Attitude	35.3	.33	36	4.92	-.898	.839	.476
Barriers	23.4	.44	23	6.55	.305	.561	.299

Note. Mdn= median; M = mean; SD = standard deviation; SEM = standard error of mean.
[a] Dependent variable.

The results showed that, of the 221 respondents, 103 (46.6%) said that they strongly agreed that discussing the benefits of PA with patients was part of the health care professional's role. 100 (45.2%) agreed that suggesting to patients' ways to increase their daily PA was part of the HCP's role.98 (44.3%) said that they strongly agreed that HCPs should be physically active to act as role models for their patients.92 (41.6%) said that they strongly agreed that exercise counseling would impact patients' quality of life. 72 (32.6%) said that they strongly disagreed that exercise counseling would not change the patients' behavior.125 (56.6%) said that they strongly

disagreed that exercise would not be very beneficial to the patients. 69 (31.2%) said that they strongly disagreed that there was lack of evidence for effectiveness of exercise and preferred medication management.63 (28.5%) said that they strongly disagreed that exercise counseling was difficult in general.82 (37.1%) said that they strongly agreed that prevention of conditions related to physical inactivity was as important as treatment. Finally, 62 (28.1%) disagreed that patients should find appropriate exercise themselves. Figure 1 shows a summary of the responses.

Figure 2: Attitude towards exercise counselling by Healthcare professionals
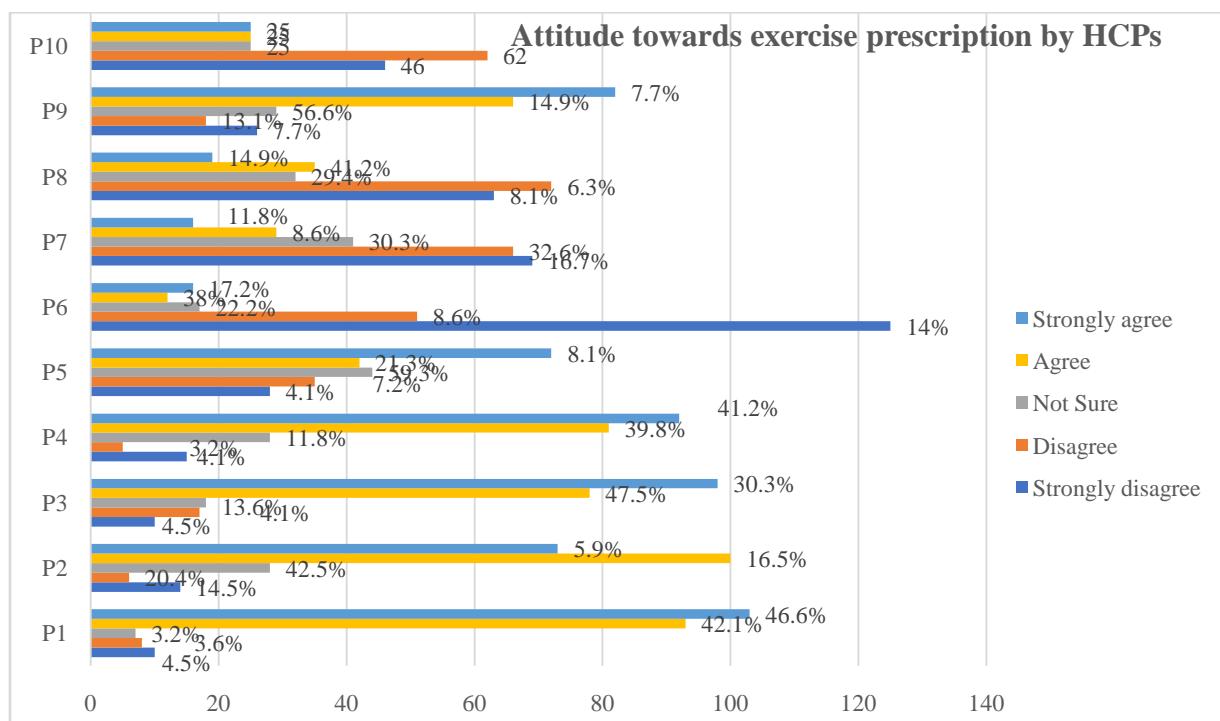
Key

P1-Discussing the benefits of PA with patients is part of the health care professional's role

P2-Suggesting to patients' ways increases daily PA as part of the HCPs role

P3-HCP should be physically active to act as a role model for their patients

P4-Exercise counseling impacts patient's quality of life

P5-Exercise would not change the patient's behavior

P6-Exercise would not beneficial for the patient

P7-There's lack of evidence for effectiveness of exercise and prefer medication management

P8-Exercise counseling is difficult in general

P9-Prevention of conditions related to physical inactivity is as important as treatment

P10- Patients should find appropriate exercise themselves

Respondents answered a total of ten closed ended questions. Each response was given a mark based on the level on the 5-point likert scale with the anchors being strongly disagree=1 to strongly agree=4 and vice versa for questions that were reverse coded. Not sure was given a code of zero. Scale scores were computed by adding responses to the ten questions resulting in a minimum possible score of 10 and a maximum of 40. Respondents who scored below the mean attitude score of 37.9 were classified as having negative attitude and those that scored above the mean attitude score were classified as having positive attitude as follows:

- Positive attitude (above the mean score of 37.9).

- Negative attitude(Below the mean score of 37.9).

From the results, majority of the health care professionals had a positive attitude towards exercise prescription 135 (61.1%), while 86(38.9%) had negative attitude (Figure1)
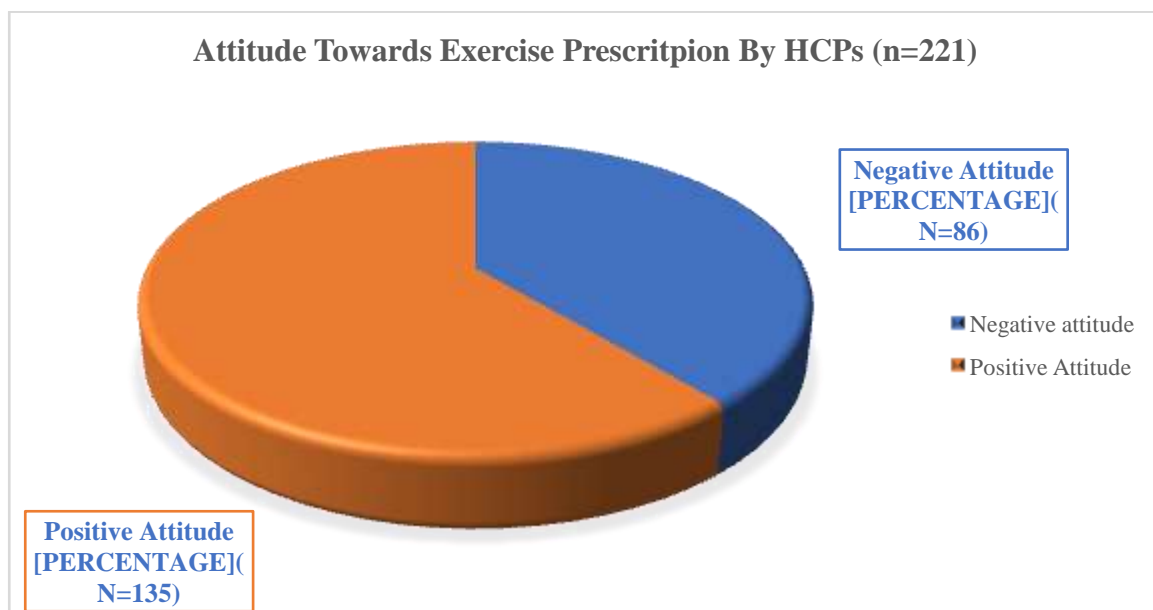

Figure1. Attitude towards exercise Prescription by HCPs

The descriptive statistics associated with attitudes towards exercise prescriptionacross the three HCPs' groups are reported in Table 2. It was seen that the medical officers' group was associated with the numerically smallest mean of attitude towards exercise prescription (M=35.82 ±6.4 CI=31.5-40.1) and clinical officers' group was associated with the numerically highest mean of attitude towards exercise prescription (M=39.9 ±5.7 CI=37.4-42.3). In order to test the hypothesis that the professional cadre (nurses, clinical officers and medical officers) had an effect on the attitude towards exercise prescription, a between- groups ANOVA was performed.

Prior to conducting the ANOVA, the assumption of normality was evaluated and determined to be satisfied as the three groups distributions were associated with skew and kurtosis less than |-1.0| and |1.0| respectively (Table 4.8). Furthermore, the assumption of homogeneity of variances was tested and satisfied based on Levene's F test, F test (2, 218) = .224, p= .800.

The independent between- group ANOVA yielded a non-statistically significantly effect, F (2, 218) = 1.941, p = .146, η_p^2= .02. Statistical power was not adequate and was equal to .40. Thus, the null hypothesis of no significant differences in attitude towards exercise prescription among the three cadres of health professionals at public health facilities in Kakamega was accepted, and only 2% of variance in attitudes was accounted for by group membership.

Table 2.: *Descriptive statistics for knowledge scores across professional cadre*

Professional cadre	n	Mean	Std. Deviation	CI 95%	Skewness	Kurtosis
Nurse	187	37.9	5.9	37.0-38.7	-.527	.007
Medical officer	11	35.8	6.4	31.5-40.1	-.742	.161
Clinical officer	23	39.9	5.7	37.4-42.3	-.906	.942

Note. M = median; SD = standard deviation

The null hypothesis was accepted (p>0.05) leading to the conclusion that there exist no significant differences in attitude towards exercise prescription among the three cadres ofHCPs at public health facilities in Kakamega County, Kenya.

The results showed that, of the 221 respondents 70 (31.7%) disagreed that time is a major barrier to prescribing exercise and a few strongly agreed (n=19, 8.6%). 100 (45.2%) disagreed that lack of counseling skills was a major barrier to prescribing exercise while a few strongly agreed (n=14, 6.3%).65 (29.4%) disagreed that lack of remunerations for promoting PA was a major barrier to them prescribing exercise.respondents 82 (37.1%) disagreed that they were unable to prescribe exercise because it was not their job. 92 (41.6%) disagreed that lack of interest in promoting PA was a major barrier.84 (38%) agreed that lack of resources e.g. education materials for the patients, was a major barrier.58 (26.2%) strongly disagreed that fear of medical law because of the high risk of sudden death and complication, was a major barrier to them prescribing exercise. 57 (25.8%) disagreed that lack of referral places for exercise was a major barrier to them prescribing exercise. Finally, Of the 221 respondents, 63 (28.5%) agreed they are unable to prescribe exercise because patients expect medication to cure them not exercise.

Table 3. Descriptive Statistics on training of exercise prescription

Training items	SA	A	NT	D	SD
I Lack time	19(8.6%)	54(24.4%)	20(9%)	70(31.7%)	58(26.2%)
I Lack counseling skills	14(6.3%)	32(14.5%)	18(8.1%)	100(45.2%)	57(25.8%)
Lack of remuneration for promoting PA	22(10%)	52(23.5%)	43(19.5%)	65(29.4%)	39(17.6%)
It's not my job	15(6.8%)	15(6.8%)	28(12.7%)	82(37.1%)	81(36.7%)
I Lack interest in promoting PA	8(3.6%)	30(13.6%)	20(9%)	92(41.6%)	71(32.1%)
I Lack resources	40(18.1%)	84(38%)	16(7.2%)	48(21.7%)	33(14.9%)
I am afraid of medical-law issues because of the high risk of sudden death or other complications	22(18.1%)	37(38%)	37(7.2%)	67(21.7%)	58(14.9%)
I Lack referral places for exercise	29(13.1%)	53(24%)	31(14%)	57(25.8%)	51(23.1%)
Patients expect medication to cure them, not exercise	41(18.6%)	63(28.5%)	22(10%)	37(16.7%)	58(26.2%)

Note. SA = Strongly Agree; D = Disagree; NT= Not Sure; A- Agree; SA- Strongly Agree

X. DISCUSSION

The second objective of the study was to find out the attitudes towards exercise prescription amongst HCPs in Kakamega county. This study revealed that 46.6% of HCPs strongly agreed that discussing the benefits of PA with patients was part of the health care professional's role. However, previous studies have reported that 72% of the respondents did not think it was their responsibility to encourage PA among their patients. Painter, Carlson, Carey, Myll and Paul (2004) and Roos (2014) found that only 18% of the general practitioners believed it was not their job to prescribe exercise to their patients while 25% considered exercise prescription was a waste of time. This inconsistency could be as a result of HCPs having been trained in prescribing exercise (38.9%) hence they had a better attitude towards exercise prescription.

With regards to general attitude towards exercise prescription that was computed from all questions asked on attitude overall, the current study noted that majority of the HCPs had positive attitude (n=135, 61.1%) towards exercise prescription.Previous studies have noted that an average of two thirds of respondents had good attitude towards exercise prescription (Kenendy & Meeuwisse, 2003; Gnanendran, Pyne, Fallon, & Fricker, 2011; Aweto *et al.,* 2013; Lamarche & Vallance, 2013). The current study's findings are consistent with previous studies and the study is speculating that over time the HCPs are becoming more accepting of the fact that exercise plays an important role in prevention of non-communicable diseases.

The current study found that 44.3% of the respondents strongly agreed that HCPs should be physically active to act

as role models for their patients. This positive attitude to be a role model is supported by other studies that reported HCPs who engage in healthy habits such as not smoking, eating a healthy diet, or having periodic preventive health screenings and immunizations have a positive attitude toward PA and also provide preventive counseling to their own patients more confidently (Frank, 2004; Bleich *et al.*,2012; Frank, Segura, Shen & Oberg, 2010). The current study also supports the study's theoretical framework that says an individual's interpersonal influences interact with other modifying factors to influence the cognitive perceptual process of the individual towards the health promotion behavior.

The study also sought to find out the major barriers to exercise prescription by HCPs in Kakamega county. The current study found out that 45.2% disagreed that lack of counselling skills was a major barrier to prescribing exercise.Previous studies highlighted that practitioners refrain from prescribing exercise because; they lack counselling skills (Painter *et al.*, 2004; Walsh *et al.,* 1999; Abramson *et al.,* 2000; Douglas *et al.*, 2002). This study's findings were inconsistent with many previous findings and the possible explanation could be based on the fact that many of the respondents (26.2%) agreed that exercise prescription was integrated within mandatory courses during training.

The current study also reported that 31.7% of HCPs disagreed that time was a major barrier to prescribing exercise.Previous studies have highlighted that the most frequently reported barrier to exercise prescription was lack of time (Rodgers *et al.,* 2002; Buchholz & Purath 2007; Walsh *et al.,* 1999; Abramson *et al.,* 2000).In Nigeria Aweto *et al* (2013) found that, 60.7% of the respondents identified insufficient consultation time as a barrier to PA promotion. The possible explanation for this inconsistency with previous findings could be that the HCPs over time have had a change in attitude towards practice of exercise prescription hence, no longer perceive time as an excuse for the perceived benefits the clients would gain from exercising.

One particular barrier about a quarter of the sample (38%) agreed with, was that they lacked resources e.g. education material for the patients. These findingswere consistent with results from a study done by Roos (2014) where 18% of the HCPs reported lack of resources, a study by Douglas, Ferdinand, Bakris & Sower, (2002) also noted a lack of PA counseling materials as a major barrier, (Buchholz & Purath 2007; Douglas, Torrance, Van-Teililingen, Meloni & Kerr, 2006) noted lack of reimbursement as a major barrier. This obviously is a significant barrier, especially for those who are from developing countries. Overall, only a select few barriers, were reported to negatively affect exercise prescription. In general, participants had little consensus on barriers and the percentage of any of the barriers was essentially low. With regards to the study's theoretical framework, there was consistency. The current study's findings agree with the model that an individual's perceived barriers towards a

behavior influences the ability of the individual to assimilate the health promotion behavior.

XI. CONCLUSION

The second research question was to find out what were the attitudes of HCPs in Kakamega towards prescription of exercise in healthcare setting.In general, the study found that the health care professionals (61.1%) displayed positive attitude towards exercise prescription in healthcare setting. When asked more specifically to agree or disagree with statements regarding exercise, the vast majority of HCPs concurred thatthat discussing the benefits of PA with patients was part of the HCPs' role, HCPs should be physically active to act as role models for their patients, disagreed that exercise counseling would not change the patients' behavior and that exercise counselling was not difficult in general.Only a few participants regarded exercise prescription not to be within the scope of their practice. It is recommended that future research investigate the opinions of HCPs pertaining to where the responsibility to prescribe exercise ultimately lies to explore possible additional barriers to exercise prescription not previously reported in literature. It is also the recommendation of this study that health institutions find strategies to improve the confidence of HCPs to prescribe exercise.Program support and leadership are also important in fostering positively ingrained beliefs in the importance of exercise in health, which the data shows are strongly correlated with HCPs' practices of exercise prescription. The main barriers for not prescribing exercise noted were lack of resources. Considering this barrier is essentially unsubstantiated in light of literature, it is recommended that interventions be done among general practitioners to rectify these misperceptions

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