Regenerative health maintenance practise of Ghanaian urban men

[1]Sandra Boatemaa

Abstract

Regenerative health (RH) is the adoption of healthy lifestyles to prevent diseases. Although the components of RH are individually oriented, social representations can hinder practise. The study identifies the influence and differentials of background characteristics on RH practises of urban men and assesses the impact of Ghana's RHN program. The 2008 GDHS was analysed to identify glasses of water men consumed daily, days men exercised in a week and daily rest duration of men, employing their background characteristics. Urban men drink six glasses of water daily, rest three hours daily and exercise three out of seven days. Age, education, marital, wealth status and religion determined glasses of water consumed. Days' exercised was related to age, education, marital status and religion. Also, age, education, marital and wealth status influenced rest duration. Multivariate analysis highlighted the association between education, marital status and religion to resting hours and physical activity. RH practise can be encouraged by adopting a multi-level approach.

INTRODUCTION

Regenerative health is the adoption of a holistic healthy lifestyle that strengthens and renews the body and mind in order to prevent diseases and to achieve optimal physical and mental well-being. The Regenerative Health and Nutrition (RHN) program was instituted by the Ghana Ministry of Health (MOH) in 2005 as a means of preventing diseases and promoting health (MOH, 2007). The programme had three main components; health and lifestyle, regenerative nutrition and maternal and child health (Tagoe and Dake, 2011; de-Graft Aikins, 2010; MOH, 2007). The components of the health and lifestyle section includes water therapy, regular exercise, improving environmental sanitation, resting, improving personal hygiene and encouraging lifestyles that promote good health. The RHN program recommends adequate resting, drinking eight glasses of water daily and thirty minutes of exercise three days a week. The program was piloted in 2006.

The RHN program was advanced through advocacy and service delivery. The advocacy for the health and lifestyle section was through mediums such as health promoters, mass media,

churches and community health workers. Sportsmen, gym managers and physical education instructors were involved in the service delivery (de-Graft Aikins, 2010). [1]

The components of the RHN program (adoption of healthy lifestyle) have the potential to assist in prevention, treatment and management of acute and chronic diseases (Tagoe and Dake, 2011; Ghana Health Service, 2008; WHO, 2005). Duration of rest has several health benefits for the individual such that rest disturbance has effects on endocrinology, immunology and metabolism (Akerstedt and Nilsson, 2003). Short or/and long sleep duration has been associated with the incidence of hypertension, type 2 diabetes, cardiovascular diseases (CVD) and mortality (Cappuccio et al., 2011; Grandner et al., 2010; Akerstedt and Nilsson, 2003).

Water constitutes about 50-70% of body mass and functions mainly in the transportation of blood components, transfer of nutrients and metabolism (Levallois et al., 1998; Mehas and Rodgers, 1997). Fifty-four percent of the weight of an average adult man is water (Oh and Uribarri, 2006). Intake of water is crucial for life. Insufficient intake of water can lead to dehydration, a life threatening condition. Humans ingest water as plain drinking water, or from foods and beverages. However, water intake from diet consumed is mostly inadequate thus it is recommended that individuals consume at least eight glasses of water daily. Demographic characteristics have been associated with sleep duration, drinking water patterns and physical activity by some researchers (Levallois et al., 1998; Auslander and Langlois, 1993; AWWARF, 1993; US EPA, 2000; Lee et al., 2002).

Research suggests that individuals who engage in vigorous physical activity have lower risk of obesity, hypertension, CVDs and cancers (WHO, 2005). Engaging in physical activity enhances blood circulation and muscle tone, reduces stress and lowers blood pressure. Individual and environmental factors influence a person's adherence to physical activity. Factors at the individual level comprise of demographics, personality, skills, exercise history, social cognitive variables and perceived barriers. For instance, among highly educated individuals their education may indirectly raise awareness of the health benefits of physical activity and may increase their practice (Rhodes et al., 1999; Stephens and Craig, 1990). Environmental factors reflect social environmental situations that exert influence external to the individual (Seefeldt et al., 2002). These may include assess to gym facilities and systems of support.

The RHN program had a purpose of achieving maximum impact in the urban areas, on the assumption that the urban area presents more opportunities for the achievement of better health. However, the exact opposite is also true considering recent environmental and psychosocial health challenges faced by urban residents in Ghana (Luginaah et al, 2010). According to Unwin et al., (2001), the African urbanised area has become associated with a high prevalence of

[1] Regional Institute for Population Studies, University of Ghana, Legon. email: s.boatemaa@yahoo.com

hypertension, obesity, sedentary lifestyle and diabetes. This study thus poses these questions; what is the influence of demographic (age, educational status, marital status, religion and wealth index) characteristics on health maintenance in the urban area and what has been the impact of the RHN program?

METHODS

The men's file of the 2008 Ghana Demographic and Health Survey (GDHS), a nationally representative survey is used for this analysis of urban residents. Three indicators of regenerative health, hours of rest per day, number of glasses of water consumed per day and number of days of vigorous physical activity for ≥15 minutes in seven days are examined. Missing cases and those who reported 'dont know' were excluded from the sample. The GDHS data set asked for information on the number of glasses of water consumed daily, number of days of vigorous exercise for ≥15 minutes in seven days and hours of rest per day. Hours of rest were defined as short (1-6 hours), average (7-9 hours) and long (10+). The number of glasses of water consumed daily was categorised into sufficient (8+ glasses) and insufficient (1-7 glasses). Vigorous physical activity was classified as inactive (0 days of activity in last 7 days), moderate (1-3 days of activity in last 7 days; to represent persons who exercise but were unable to exercise for the 90 minutes recommended per week) and active (4+ days of activity in last 7 days). Due to the small sample of persons in the poorest and poorer wealth index and persons with traditional and no religion, these categories were merged as one respectively at the multivariate analysis stage. The analysis comprises of descriptive, bivariate and multivariate measures. A test is statistically significance at 95% confidence level.

RESULTS

Characteristics of the study population

The sample consisted of 2,102 men living in the urban area. They were aged between 15 and 59 years; the mean age was 31.84 years (12.07SD). As shown in Table 1, two-fifths of the respondents had attained Middle/JSS level of education (41.6%) and about one-third had secondary education (28.8%). Half were married/living together (50.2%). Majority were Christians (76.6%). Nearly half of the respondents belonged to households of richest wealth index (45.4%), while a few belong to households of poorest wealth (1.1%).

Table 1.1 Characteristics of respondent		
	%	Number of men
Age		
15-24	35.2	739
25-34	27.1	570
35-44	19.0	399
45-54	13.6	286
55-64	5.1	108
Educational level		
None	6.6	138
Primary	8.8	186
Middle/JSS	41.6	875
Secondary	28.8	606
Higher	14.1	297
Marital status		
Never married	45.5	957
Married/living together	50.2	1054
Formerly married	4.3	91
Religion		
Christianity	76.6	1618
Moslem	19.9	409
Traditionalist	0.6	13
No religion	2.9	61
Wealth index		
Poorest	1.1	23
Poorer	4.9	104
Middle	13.0	274
Richer	25.6	747
Richest	45.4	953
Total	100	2102

Hours of rest of urban men

Urban men rested for at least three (SD 0.687) hours daily. About half rested for the recommended hours (56.6%), however short durations (20.2%) and long durations (23.2%) of rest were also observed (Table 2). The hours of rest/nap/sleep (day and night combined) was significantly related to age, marital status, educational level, religion and wealth index of men (Table 2). The proportion of men who rested for short hours increased after age 15-24 years and

was common among the highly educated (32.8%) and the married/living together (25%). Moslems recorded the least of average resting (47.7%) but the highest of long resting hours (35%) when compared to men of other faiths. Short sleep duration increases with increasing wealth status.

Table 2 Unadjusted regenerative health maintenance practice of urban men by background characteristics

	Daily hours of rest				Number of glasses of water consumed daily			
	Short	**Average**	**Long**	**p**	**Insufficient**	**Sufficient**	**P**	**Number**
Age								
15-24	13.8	59.5	26.7	0.000	74.7	25.3	0.000	739
25-34	21.7	53.4	24.9		63.3	36.7		570
35-44	25.8	57.1	17.0		62.2	37.8		399
45-54	24.2	56.1	19.6		66.1	33.9		286
55-64	25.0	51.9	23.0		64.8	35.2		108
Educational status								
None	18.0	43.9	38.1	0.000	77.5	22.5	0.009	138
Primary	11.4	61.6	27.0		74.2	25.8		186
Middle/JSS	18.2	61.3	20.6		67.5	32.5		875
Secondary	20.1	55.9	23.9		64.9	35.1		606
Higher	32.8	47.3	19.9		64.3	35.7		297
Marital status								
Never married	14.7	57.9	27.3	0.000	71.2	28.3	0.006	957
Married/Living together	25.0	55.3	19.7		64.6	35.4		1054
Formerly married	23.1	57.1	19.8		64.8	35.2		91
Religion								
Christianity	21.1	58.5	20.4	0.000	66.4	33.6	0.032	1618
Moslem	17.4	47.7	35.0		72.6	27.4		409
Traditionalist	15.4	61.5	23.1		46.2	53.8		13
No religion	16.4	63.9	19.7		70.5	29.5		61
Wealth index								
Poorest	4.3	47.8	47.8	0.000	82.6	17.4	0.000	23
Poorer	16.3	48.1	35.6		81.7	18.3		104
Middle	15.0	54.2	30.8		72.9	27.1		274
Richer	18.5	58.9	22.6		67.7	32.2		747
Richest	23.9	56.9	19.5		64.0	36.0		953

Total	20.2	56.6	23.2	67.6	32.4	2102

Multivariate analysis results show that educational level, marital status, religion and wealth were significantly related to duration of rest. Persons with secondary education were 89% more likely to have short rest duration compared to those with no education (Table 3). Married/cohabiting men were 50% more likely to have short sleep duration. However, men with primary and higher education were significantly less likely to sleep for long hours than those with no education. This suggest that those with no education sleep the required number of hours while those with some education receive less hours of sleep. This could be due to the nature of work of men with no education and those with secondary education. Moslems were 1.808 times as likely to have long rest duration compared to Christians, while the richer and richest men were 40% and 45% less likely to experience long hours of sleep compared to their poorer and poorest counterparts.

Table 3: Adjusted resting pattern of urban men, Ghana

	Short duration			Long duration		
	β	**Exp β**	**Sig**	**β**	**Exp β**	**Sig**
Age						
15-24 (RC)						
25-34	0.232	1.261	0.221	0.150	1.162	0.359
35-44	0.269	1.309	0.237	-0.232	0.793	0.294
45-54	0.199	1.220	0.428	-0.037	0.963	0.879
55-64	0.168	1.183	0.597	0.184	1.202	0.556
Educational status						
None (RC)						
Primary	-0.135	0.874	0.621	-0.637	0.529	0.005
Middle/JSS	0.115	1.122	0.685	-0.426	0.653	0.077
Secondary	0.638	1.893	0.032	-0.324	0.723	0.232
Higher	-0.545	0.580	0.113	-0.593	0.553	0.026
Marital status						
Never married (RC)						
Married/living together	0.403	1.496	0.028	-0.288	0.750	0.940
Formerly married	0.368	1.444	0.242	-0.287	0.751	0.368
Religion						
Christians (RC)						
Moslem	0.111	1.118	0.495	0.592	1.808	0.000
No religion/traditional	-0.114	0.893	0.736	-0.16	0.852	0.609
Wealth index						
Poorest/poorer (RC)						
Middle	-0.066	0.936	0.841	-0.215	0.806	0.379

Richer	-0.020	0.981	0.948	-0.523	0.592	0.021
Richest	0.069	1.071	0.818	-0.604	0.547	0.009
NR = .085	RC: refers to reference category					

Drinking water pattern

The mean number of water consumed daily was six glasses (SD 2.233). This is below the recommended eight glasses by the RHN program. About two out of three men had an insufficient water consumption pattern (67.6%) as shown in Table 2. The number of glasses of water consumed in a day was significantly associated with all the demographic variables analysed in this study at the bivariate level. Among men aged 15-24, only a quarter (25.3%) consumed sufficient water daily. The proportion of men who do not consume sufficient glasses of water reduced as age increased (Table 2). Insufficient consumption of water was common among men with no education (77.5%) and primary education (74.2%). This is consistent with what was found by Jones et al., 2007.

The result in Table 2 indicate that the never married (71.2%), Moslem (72.6%), poorest (82%) and poorer (81.7%) men consumed insufficient glasses of water daily. When the effect of other variables was controlled for, age and wealth status remained the only significant predictors of number of glasses of water consumed daily (Table 4). Men aged 54-65 years and those of richest wealth index were 44% and 49% less likely to consume sufficient water respectively. The results indicate that there is an association between water intake and age, contrary to that of Levallois et al.'s, (1998) findings.

Table 4. Drinking water pattern adjusted, Ghana			
	β	OR	Sig
Age			
15-24 (RC)			
25-34	-0.576	0.562	0.000
35-44	-0.658	0.518	0.000
45-54	-0.515	0.598	0.013
55-64	-0.569	0.566	0.032
Educational status			
None (RC)			
Primary	-0.226	0.797	0.408
Middle/JSS	-0.427	0.653	0.066
Secondary	-0.578	0.561	0.016
Higher	-0.405	0.667	0.115
Marital status			
Never married (RC)			
Married/living together	1.054	0.724	0.928
Formerly married	1.015	0.954	0.679
Religion			
Christians (RC)			
Moslem	0.160	1.174	0.224
No religion/traditional	-0.098	0.906	0.708
Wealth index			
Poorest/poorer (RC)			
Middle	-0.450	0.638	0.099
Richer	-0.596	0.551	0.018
Richest	-0.672	0.511	0.008
NR=0.38		RC= reference category	

Physical activity

On the average, urban men exercised for ≥15 minutes for about 3(SD2.654) days in the last 7 days preceding the survey. Out of three men, there is at least one who is inactive (30.4%), semi-active (34.5%) or active (35.1%) as given in Table 5. Age, educational status, marital status and religion were associated with number of days of vigorous physical activity (≥15 minutes) in a

week. Two-fifths of men aged 45-54 and 55-64 years were inactive (Table 5). Vigorous physical activity decreased with age and the older ages were most likely to have the lowest rates. A higher proportion of men with no education (44.2%) were more active than men of higher educational status (33.6%). One-third of the married/living together and the formerly married were inactive respectively. Inactivity was high among persons with no religion (45.2%).

Table 5. Number of days of vigorous physical activity for ≥15 minutes, Ghana

	Inactive	Moderate	Active	p	Number
Age					
15-24	23.3	39.8	36.9	0.000	739
25-34	30.0	33.9	36.1		570
35-44	32.8	32.6	34.6		399
45-54	40.0	26.7	33.3		286
55-64	40.0	26.7	33.3		108
Educational status					
None	37.0	18.8	44.2	0.000	138
Primary	34.9	32.8	32.3		186
Middle/JSS	29.9	37.2	33.0		875
Secondary	25.2	37.0	37.8		606
Higher	36.6	29.9	33.6		297
Marital status					
Never married	23.1	40.0	36.9	0.000	957
Married/Living together	36.2	30.4	33.4		1054
Formerly married	38.9	24.4	36.7		91
Religion					
Christianity	31.0	35.2	33.8	0.015	1618
Moslem	25.9	34.2	39.9		409
Traditionalist	23.1	30.8	46.2		13
No religion	45.2	19.4	35.5		61
Wealth index					
Poorest	33.3	16.7	50.0	0.474	23
Poorer	26.0	31.7	42.3		104
Middle	28.8	34.7	36.5		274
Richer	30.1	35.3	34.6		747
Richest	30.1	35.3	34.6		953
Total	30.4	34.5	35.1		2102

At the multivariate analysis level, educational status, marital status and religion were significant predictors of physical activity (Table 6). Men with primary education were 18% more likely to be inactive compared to those with no education. The highly educated were 40% more likely to be inactive compared to men with no education; however they were 1.2 times more likely to be moderately active. The results indicate that a higher level of education in Ghana does not necessary guarantee physical activity in men. Married men were 1.5 times as likely to be inactive compared to the never married. Advents of no religion/traditional religion were 21% more likely to be inactive and 55% less likely to be semi-active compared to Christians.

Table 6. Adjusted physical activity of urban men, Ghana

	Inactive			Moderate		
	β	**Exp β**	**Sig**	**β**	**Exp β**	**Sig**
Age						
15-24 (RC)						
25-34	0.021	1.021	0.914	0.038	1.039	0.813
35-44	0.055	1.057	0.808	0.115	1.122	0.578
45-54	0.239	1.270	0.329	-0.013	0.987	0.958
55-64	0.729	2.074	0.022	0.478	1.612	0.142
Educational status						
None (RC)						
Primary	0.018	1.018	0.938	0.836	2.307	0.002
Middle/JSS	-0.210	1.018	0.389	0.636	1.890	0.020
Secondary	0.117	1.124	0.657	0.517	1.677	0.082
Higher	0.365	1.440	0.183	0.792	2.207	0.009
Marital status						
Never married (RC)						
Married/living together	0.390	1.478	0.026	-0.206	0.814	0.214
Formerly married	0.377	1.458	0.201	-0.493	0.611	0.116
Religion						
Christians						
Moslem	-0.319	0.727	0.035	-0.072	0.931	0.606
No religion/traditional	0.190	1.209	0.496	-0.605	0.546	0.069
Wealth index						
Poorest/poorer (RC)						
Middle	0.332	1.393	0.223	0.217	1.242	0.409
Richer	0.414	1.513	0.098	0.229	1.257	0.341
Richest	0.423	1.526	0.096	0.263	1.301	0.281
NR=0.54	**RC= reference category**					

DISCUSSION AND CONCLUSION

The resting pattern of men was related to their educational, marital and religious affiliation. Marital status can influence rest duration because of certain responsibilities expected of married men as heads of households. These responsibilities may require working overtime and sometimes doing more than one job in order to meet the financial needs of the household. Such a situation can reduce rest duration. The co-existence of short and long duration of rest imply that some men may be lacking the social knowledge of the benefits of observing the average sleep hours and the increase in mortality and morbidity associated with short or long rest duration (Cappuccio et al., 2011). Also, the stressors of urban livelihood including housing, job insecurity, traffic and household financial burden may be fuelling this trend. It is possible that the RHN program slogan of 'sleep is medicine' has not been adopted in the everyday lives of most urban Ghanaian men.

The findings indicate that majority of respondents are not drinking the recommended glasses of water as found in the GDHS report (GSS, 2008). This habit is related to age more than any other variable engaged in the analysis. At all ages, men were less likely to drink sufficient water, compared to the reference age (15-24). In Ghana, most urban households depend on pipe water as main source of drinking water, thus water shortages can restrict consumption.

The proportion of persons who are inactive leaves a gap to be filled in the motivation of persons to adopt RH lifestyle behaviours. Unlike some countries where a higher level of education is correlated with increase in physical activity, the Ghanaian situation is different (Stephens and Craig, 1990; Rhodes et al., 1999). This is because the highly educated (above secondary) tend to work in the formal sector, which is sedentary in nature. Also, conscious engagement in physical activity is seen as foreign by most communities and individuals.

Also, due to the unhealthy lifestyles (inappropriate resting pattern, insufficient water intake and inactivity) adopted by men as found in this study, it is not surprising that hypertension, diabetes and cardiovascular diseases are increasing in urban areas (Unwin et al., 2001). The knowledge acquired by the change agents during the pilot training have probably not sunk down to the population as the program intended. Also, by the nature of the RHN program using churches as social spaces for advocacy it is likely that RHN message reached more Christians than men of other faiths (de-Graft Aikins, 2010).

Regenerative health practices can be encouraged if a multi-level approach is adopted. Such an approach will have to take into consideration the individual, his/her significant others, socio-

cultural and institutional factors. In other words, the RHN message will have to be communicated in a language that is clear to individuals of various statuses, their significant others and communities. This will include addressing worries, misconceptions and fears of adopting the RHN lifestyle by every Ghanaian. The educational sector, family and religious groups can be considered as social spaces within which to spread and promote the RHN culture in order to produce the desired result of more healthy urban men.

REFERENCES

Akerstedt, T. A and Nilsson, P. M. 2003. "Sleep as restitution: an introduction." *Journal of Internal Medicine*, 254: 6–12.

Auslander, B. & Langlois P. 1993. "Toronto tap water: perception of its quality and use of alternatives". *Canadian Journal of Public Health* 84:99–102.

AWWARF (American Water Works Association Research Foundation). 1993. *Consumer Attitude Survey on Water Quality Issues*. Denver, Colorado: American Water Works Association Research Foundation.

Cappuccio, P. F. et al. 2011. "Sleep duration predicts cardiovascular outcomes: a systematic review and meta-analysis of prospective studies". *European Heart Journal,* 32:1484–1492.

Casperson C. J, Merritt R. K, and Stephens T. 1994. International physical activity patterns: a methodological perspective. In *Advances in exercise adherence*, edited by Dishman R. K.. Champaign (IL): Human Kinetics, 73-110

de-Graft Aikins, A. 2010. "Beyond "Food is medicine": evaluating the impact of Ghana's regenerative health and nutrition pilot program". *Ghana Social Science Journal*, 1:14-35.

Ghana Statistical Service (GSS). 2009. Ghana Demographic and Health Survey 2008. Accra, Ghana: GSS.

Grandner, M. A., et al. 2010. "Mortality associated with short sleep duration: The evidence, the possible mechanisms, and the future". *Sleep Medicine Reviews,* 14:191–203.

Jones, A. Q. 2007. "Drinking water consumption patterns in British Columbia: An investigation of associations with demographic factors and acute gastrointestinal illness." *Science of the Total Environment*, 388, 54–65

Lee, S. et al. 2002. *Drinking water exposures and perceptions among 1998–1999 FoodNet survey respondents.* EIP FoodNetWorking Group. Atlanta, Georgia: U.S. Centers for Disease Control and Prevention.

Levalloisa P. et al. 1998. "New patterns of drinking-water consumption: results of a pilot study." *The Science of the Total Environment*, 209:233-241

Luginaah, I., Arku, G., and Baiden, P. 2010. "Housing and Health in Ghana: The Psychosocial Impacts of Renting a Home." *International Journal of Environment Research and Public Health*, 7:528-545.

Mehas, K. Y. and Rodgers, S. L. 1997. *Food science: the biochemistry of food and nutrition*. USA: Glencoe/McGraw-Hill.

Ministry of Health (MOH) (Ghana). 2007. *The Ghana Health Sector 2007 Programme of Work*. Accra: MOH

MOH (Ghana) 2005. *Regenerative health and nutrition programme: strategic plan 2007-2011*. Ministry of Health, Ghana: Accra.

Oh, M. S. And Uribarri, J. "Electrolytes, water and acid base balance." In *Modern nutrition in health and disease* edited by Shils M. E. et al. Philadelphia, Pa USA: Lippincott Williams & Wilkins. pp 149-193

Seefeldt, V., Malina, R. M. & Clark, M. A. 2002. "Factors Affecting Levels of Physical Activity in Adults." *Sports Medicine* 32 (3): 143-168

Stephens T., and Craig C. L. 1990. *The well-being of Canadians: highlights of the 1988 Campbell's Soup Survey.* Ottawa (ON): Canadian Fitness and Lifestyle Research Institute.

Tagoe, H. A. and Dake, A. A. F. 2011. "Healthy lifestyle behaviour among Ghanaian adults in the phase of policy change." *Globalisation and health* 7, 7:1-9.

United States of America Environmental Protection Agency, Office of Water. (2000). *Estimated per capita water ingestion in the United States; 2000*. US EPA: Washington, DC.

Unwin, N. et al. 2001. "Noncommunicable diseases in sub-Saharan Africa: where do they feature in the health research agenda?" *Bulletin of the World Health Organisation* 79, 10: 947-953

World Health Organisation 2005. *Avoiding heart attacks and strokes: Don't be a victim- Protect yourself.* WHO Press: Geneva, Switzerland.