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To cite this article: Esther Priscilla Biamah Danquah, Samuel Agyei Agyemang, Samuel Amon & Moses Aikins (2019): Routine medical and dental examinations: a case study of adults in Tema community 20 in Ghana, International Journal of Health Promotion and Education, DOI: [10.1080/14635240.2019.1695529](https://doi.org/10.1080/14635240.2019.1695529)

To link to this article: <https://doi.org/10.1080/14635240.2019.1695529>



Published online: 02 Dec 2019.



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Routine medical and dental examinations: a case study of adults in Tema community 20 in Ghana

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ABSTRACT

Routine medical and dental examinations are important and effective measures in the prevention of diseases and promotion of good health. A cross-sectional quantitative study was conducted among adult residents in Community 20, Tema. The study randomly sampled 216 adults aged over 18 years. These participants were interviewed after informed consent was obtained. Socio-demographic factors associated with routine medical and dental examinations were determined using multivariable logistic regression analysis. Weighted mean was used to determine the level of perceived importance of medical and dental examination. A total of 68.1% and 31.9% of the adults have ever undergone routine medical and dental examination, respectively. Personal reasons constituted 35.4% for medical examination and 55.1% for dental examination. Medical and dental examinations encourage adults to be health conscious was ranked highest with a weighted mean of 3.78. Routine medical and dental examinations were higher among adults over 50 years, males, higher educated adults, higher income earners and the unmarried. Most of the adults indicated that medical and dental examinations were very important. Routine medical and dental examinations encourage adults to be health conscious. Routine medical and dental examinations were higher among adults over 50 years. Public health education programs should educate and encourage the general public especially among the younger population to undergo routine medical and dental examinations annually.

ARTICLE HISTORY



Received 25 February 2019
Accepted 18 November 2019

KEYWORDS

Medical examination; dental examination; adults and Ghana

Introduction

Routine¹ medical check-up is a form of preventive medicine involving thorough history, examination and screening of asymptomatic persons by physicians on a regular basis as part of a routine health care process (Anderson and Anderson 1990). Routine medical check-up is considered effective in preventing illness and promoting health and reducing morbidity and mortality (World Health Organization 2010). Medical examination is determined by age, sex, socioeconomic status, health risk factors, having health

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insurance, presence of a chronic disease, family history, life style choices among others (Culica et al. 2002).

Not much priority is given by people regarding medical check-up (Byrne 2008; Taber, Leyva, and Persoskie 2015; Teo, Ng, and White 2017; Yousaf, Grunfeld, and Hunter 2015). Mostly, people undertake medical and dental check-up as a requirement for job offer. There have been accounts of employment contracts and renewal being conditional on medical assessments (Pachman 2009). Each profession requires a certain medical standard that has to be met in order to pursue the preferred career. There are different fields which require minimum health standards while there are those which implements very strict health standards (Sarmiento et al. 2015).

Oral health is essential to the overall well-being of an individual. The mouth is normally seen as the gateway to the body. Despite the importance of oral health, it is often neglected by most individuals (Singh et al. 2014; Singh and Shetty 2014). Studies have shown association between periodontal diseases and infective endocarditis and stroke (Cotti and Mercurio 2015). Regular medical examination helps determine the general health status of individuals. The main essence of a periodic medical examination is to diagnose treatable asymptomatic diseases (Nakanishi, Tatara, and Fujiwara 1996).

In developing countries, the practice of regular medical examinations is poor and on the low side, despite the steady increase of the burden of chronic and non-communicable diseases (Ilesanmi et al. 2015). Existing literature on health seeking behavior in Ghana and other parts of sub-Saharan Africa (SSA) reports the use of biomedical drugs for self-medication, especially pain killers purchased from 'chemical/drug stores' (Goodman et al., 2007; Kassam et al. 2015). Studies in Ghana indicate that patients mainly delay in seeking proper medical attention during times of illness (Agbokey et al., 2019; Ahorlu et al. 2006). Patients tend to self-care for illness they perceive less chronic. Medicines used in these situation include both biomedical drugs and traditional herbal medicine. The difference in general health seeking behavior and the type of treatment sought for last illness can be understood from both health and socioeconomic perspectives (Amegbor 2017). A study on oral health in Ghana found that more people present with acute dental conditions for emergency treatment (Nimako-Boateng, Owusu-Antwi, and Nortey 2016). The study also found that fewer people are attending the clinic for preventive oral health care. Likewise in Ghana, there is little literature on routine medical and dental examination among the population. Hence, this study seeks to assess routine medical and dental examinations among adult in Tema community 20. The findings of this study will inform population-specific health prevention programs.

Methods

Study design and population

This was a retrospective cross-sectional quantitative study of routine medical and dental examination among adults in Tema Community 20. This study design is less expensive, less time consuming and less labor intensive. The study aims at taking a snapshot of the prevailing situation on routine medical and dental examination among adults. Community 20 located at the Tema West Constituency, is one of the newly developed communities by the Tema Development Cooperation, in the Greater Accra region of

Ghana. Residents are of a mixture of high, middle and low socio-economic status. Community 20 has about 1,284 houses. The area is well planned and developed to include churches, schools, commercial area and other institutional sites such as police station and an abattoir.

Data collection and sampling

The data for this study were collected from June to July 2017 using interviewer administered structured questionnaires. The questionnaire consisted of open and closed ended questions on the adults' demographic information, employment status, insurance status and socio-economic statuses. The questionnaire also contained questions on whether the participant had gone for medical or dental examination, reasons for routine medical and dental examinations and the perceived importance of medical and dental examination. The interviews were conducted in English and two of the common local Ghanaian languages (*Twi* and *Ga*) spoken in the area. Research assistants were trained to conform to research ethical guidelines and to ensure questionnaires are administered appropriately. The questionnaire was pretested in Community 18, and all ambiguities and difficult questions were revised before use.

Using the Cochrane Formula (Cochran 1977), the finite population correction factor and a non-response rate of 18%, a sample size of 216 was obtained. Using a housing map of the community, the house in the middle of the community was identified and selected. At the first selected house, a coin was then tossed to determine whether to turn left or right. This direction was followed until the end of the road was reached. At the end of each road, the coin was tossed again to determine the next direction. In each selected house, where there was more than one adult in a household, one adult was selected randomly using balloting. This approach was used in all subsequent selection of households and adults until the required sample size was attained. Ethical approval for the study was obtained from the Ghana Health Service Ethics Review Board with the Ethics Approval Certificate Identification number (GHS-ERC: 160/02/17). Permission was sought from the Tema Metropolitan Assembly. The purpose of the study was explained to participants and their written consent obtained. Data was collected by interviewer administered structured questionnaires

Data analysis

Data were entered using Epi Info software, version 7.0 and then exported to Stata version 14.0 for analysis. Cross-tabulation was used to categorize the data by the required socio-demographic variables. Descriptive statistics was then used to calculate the proportions and percentages and were presented in graphs and tables. Univariate and bivariate analysis was conducted to determine association between outcome (i.e. routine medical examination and routine dental examination) and exposure variables of interest. Chi-squared test was used to examine the association between routine medical and dental examination, and socio-demographic characteristics. Furthermore, multivariate analysis was undertaken using logistic regression to determine the strength of association between the outcome and explanatory variables. Weighted mean was used to determine the level of perceived importance of medical and dental examination responses obtained from the

male and female participants. Using a 4-point Likert scale with 1 representing 'Not important' and 4 representing 'Very important.'. The various responses to the perceived importance was summed up and then divided by the total number of respondents to the question (mean), this was then multiplied by the quotient of the number of respondents to a particular importance and the grand total (sum of all the respondents to the various importance). The computed weighted means were then categorized as 'Very important' (3.50–4.00), 'Important' (2.50–3.49), 'Less important' (1.50–2.49) and 'Not Important' (1.00–1.49). The responses were then ranked as to which response the highest had weighted mean similar to Sarmiento et al. (2015) approach. Internal consistency of 'importance of medical and dental examinations' was significant with a Cronbach's alpha (α) value of 0.8416 indicating homogeneity of items within the scales.

Results

Socio-demographic characteristics of adults

The response rate for the study was 100%. Most of the adults were males 53.7% (116). The mean age of the adults was 36.4 (SD: 11.32) years. The majority of the adults 65.7% (142) had tertiary education. About 49.1% (106) of the adults were married. The employment status of the adults showed that 49.5% (107) were professionals or technical or managerial with 10.7% (23) were unemployed. About 56.9% (123) earned monthly income of more than US\$230. The majority of adults 44% (95) were insured with the National Health Insurance Scheme (NHIS) as shown in Table 1.

Proportion of medical and dental examination

Table 2 shows that there was statistically significant association both routine medical and dental examination, and educational level, employment status, health insurance status and income level. Furthermore, both routine examinations had no relationship with sex.

Routine of medical and dental examination

Figure 1 shows that 38.8% (57) had medical examination done a year ago, 29.9% (44) two years ago, 23.1% (34) five or more years and 8.2% (12) do not remember when they had medical examination. Of those who had ever undergone dental examination, 39.1% (27) had the dental examination a year ago, with 30.4% (21) had dental examination done two years ago, 17.4% (12) 6 years ago, 10.2% (7) have had dental examination done five or more years ago and 2.9% (2) do not remember when they had the dental examination done. The majority of them 86.1% (186) agree that annual medical and dental examinations should be done regularly, of which 54.3% (101) were males.

Reasons for routine medical and dental examination

Figure 2 shows that 35.4% (52) adults went for medical examination for personal reasons, 24.5% (36) due to employment, 24.5% (36) were also due to school requirements and 2% (3) had medical examination because of insurance coverage. About 8.8% (13) of the

Table 1. Socio-demographic characteristics of adults.

Characteristic	Number (%)
Sex:	
Male	116 (53.7%)
Female	100 (46.3%)
Age:	
< 29	78 (36.1%)
30–49	99 (45.8%)
>50	39 (18.1%)
Marital status:	
Married	106 (49.1%)
Unmarried	110 (50.9%)
Educational level:	
Primary	19 (8.8%)
Secondary	55 (25.5%)
Tertiary	142 (65.7%)
Employment status:	
Clerical	12 (5.6%)
Technical/managerial	107 (49.5%)
Sales and services	33 (15.3%)
Skilled manual	29 (13.4%)
Unemployed	23 (10.7%)
Unskilled manual	12 (5.6%)
Monthly income:	
< GHS 1000	93 (43.1%)
> GHS 1000	123 (56.9%)
Health insurance status:	
Insured (NHIS)	95 (44.0%)
Insured (private health insurance)	52 (24.1%)
Uninsured	69 (31.9%)
Total	216 (100%)

adults indicated that they had the medical examination done for travel and 4.8% (7) as a result of marriage. Most of the participants 55.1% (37) had undergone dental examination for personal reasons while 24.6% (17) of them had the examination because of employment. About 14.5% (10) who had dental examination went because it was required by school with 1.4% (1) due to insurance coverage.

Importance of medical and dental examination

Table 3 shows that medical and dental examinations encourage adults to be health conscious, was ranked highest with a weighted mean of 3.78. Dental examination encourages the individual to maintain healthy teeth and gums was ranked third with a weighted mean of 3.73. On the contrary, medical examination motivates adults acquire unhealthy habit such as smoking and irresponsible alcohol intake got the lowest rank with a weighted mean of 1.07. The composite mean was 3.34.

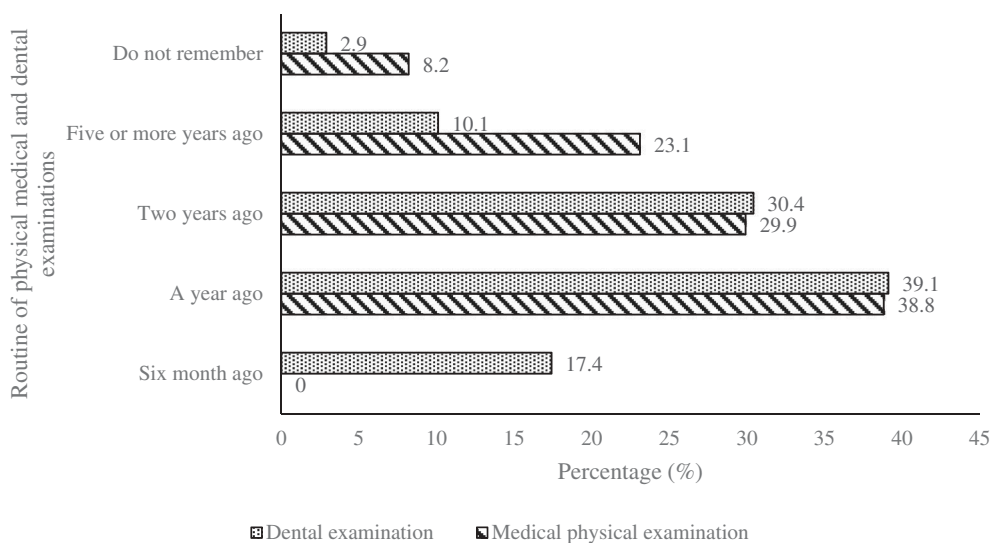
Socio-demographic factors associated with routine medical and dental examinations

Table 4 compares differences between simple logistic regression and multiple logistic regression on factors associated with routine medical and dental examinations. Controlling for all observed confounders, both routine medical and dental examinations

Table 2. Socio-demographic characteristics and association with routine medical and dental examination.

Characteristic	Number (%)	Routine medical examination		Routine dental examination	
		Pearson χ^2	<i>p</i> -value	Pearson χ^2	<i>p</i> -value
Sex					
Male	116 (53.7%)	2.19	0.139	2.09	0.148
Female	100 (46.3%)				
Age					
< 29	78 (36.1%)	5.37	0.068	7.97	0.019**
30–49	99 (45.8%)				
>50	39 (18.1%)				
Marital status					
Married	106 (49.1%)	5.27	0.022**	0.30	0.587
Unmarried	110 (50.9%)				
Educational level					
Primary	19 (8.8%)	67.18	0.000*	22.00	0.000*
Secondary	55 (25.5%)				
Tertiary	142 (65.7%)				
Employment status					
Clerical	12 (5.6%)	68.26	0.000*	29.59	0.000*
Technical/managerial	107 (49.5%)				
Sales and services	33 (15.3%)				
Skilled manual	29 (13.4%)				
Unemployed	23 (10.7%)				
Unskilled manual	12 (5.6%)				
Monthly income					
< GHS 1000 (USD ...)	93 (43.1%)	35.76	0.000*	9.96	0.002**
> GHS 1000 (USD ...)	123 (56.9%)				
Health insurance status					
Insured (NHIS)	95 (44.0%)	40.93	0.000*	14.69	0.001**
Insured (private health insurance)	52 (24.1%)				
Uninsured	69 (31.9%)				
Total	216 (100%)				

* $p < 0.001$, ** $p < 0.05$ significant levels

**Figure 1.** Routine physical medical and dental examination.

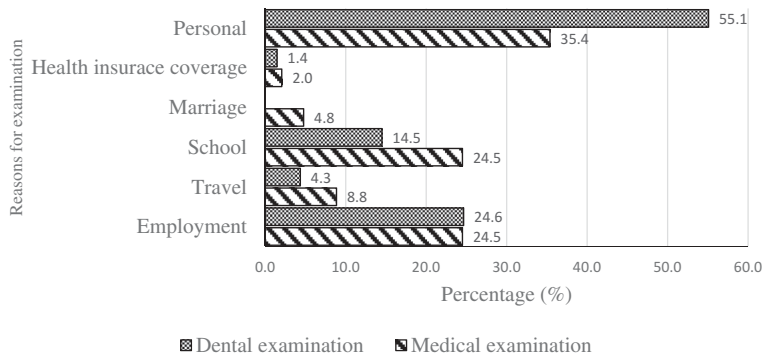


Figure 2. Reason for routine physical medical and dental examination.

Table 3. importance of medical and dental examinations.

Importance indicators	WM ¹	Scale ²	Rank
Physical medical and dental examinations encourage adults to be health conscious.	3.78	Very important	1
Physical medical and dental examinations are to screen for diseases and get educated by the doctor about healthy lifestyle choices.	3.75	Very important	2
Dental examination encourages the individual to maintain healthy teeth and gums	3.73	Very important	3
Physical medical examination is a routine test performed to check your overall health.	3.71	Very important	4
Physical medical and dental examinations are necessary to establish a health baseline to compare a patient's present health to assess any changes in health.	3.67	Very important	5
Do you think routine physical medical and dental examination is important for asymptomatic adult?	3.66	Very important	6
Physical medical and dental examinations is used to promote doctor-patient relationship	3.31	Important	7
Physical medical examination motivates adults acquire unhealthy habit such as smoking and irresponsible alcohol intake.	1.07	Not important	8

1 = WM (weighted mean)

2 = Scale: Very important: 3.50–4.00; Important: 2.50–3.49; Less important: 1.50–2.49; Not Important: 1.00–1.49

had statistically significant association with all socio-demographic background characteristics of study participants. The odds of an adult with tertiary education undertaking routine medical examination was 51.85 (95% CI:11.12–241.75) times higher than those with primary education; however, after adjusting for confounding effects, the odds was 26.41 (95% CI:3.055–229.04) times more. Secondly, the multiple logistic regression analysis shows that uninsured adults had 0.25 (95% CI:0.10,0.63) decreased odds of routine medical examination uptake compared to the insured. Also, uninsured adults had 0.46 (95% CI:0.19,1.12) decreased odds of routine dental examination uptake compared to the insured. Adults aged over 50 years had 1.56 (95% CI:0.43–5.69) times higher odds of undertaken dental examination compared to those under 30 years of age, after adjusting for confounding effects. Adults with higher monthly income were more likely to undertake routine medical 6.36 (95% CI:3.37–12.03) and dental examinations 2.67 (95% CI:1.44–4.96).

Table 4. Logistic regression analysis of factors associated with routine medical and dental examination.

Covariates/exposure	Routine medical examination			
	ORc (95% CI)	p-value	OR _A (95% CI)	p-value
Sex				
Male	<i>Ref</i>	0.139	<i>Ref</i>	0.000*
Female	0.65 (0.37,1.15)		1.00 (0.40,2.51)	
Age				
< 29	<i>Ref</i>	0.064	<i>Ref</i>	0.000*
30–49	0.60 (0.32,1.14)		0.40 (0.13,1.28)	
>50	1.52 (0.61,3.82)		2.01 (0.34,11.94)	
Marital status				
Married	<i>Ref</i>	0.021***	<i>Ref</i>	0.000*
Unmarried	0.51 (0.28,0.91)		0.88 (0.25,3.12)	
Educational level				
Primary	<i>Ref</i>	0.000*	<i>Ref</i>	0.000*
Secondary	6.12 (1.28,29.07)		5.18 (0.81,33.08)	
Tertiary	51.85 (11.12,241.75)		26.41 (3.055,229.04)	
Employment status				
Clerical	<i>Ref</i>	0.000*	<i>Ref</i>	0.000*
Technical/managerial	3.23 (0.75,13.92)		0.98 (0.12,8.09)	
Sales and services	0.25 (0.06,1.08)		0.19 (0.02,1.48)	
Skilled manual	0.15 (0.03,0.69)		1.20 (0.13,11.05)	
Unemployed	0.76 (0.16,3.70)		1.37 (0.15,12.14)	
Unskilled manual	0.07 (0.01,0.49)		0.66 (0.04,10.25)	
Monthly income				
< GHS 1000 (USD ...)	<i>Ref</i>	0.000*	<i>Ref</i>	0.000*
> GHS 1000 (USD ...)	6.36 (3.37,12.03)		4.20 (1.36,13.01)	
Health insurance status				
Insured (NHIS)	<i>Ref</i>	0.000*	<i>Ref</i>	0.000*
Insured (private health insurance)	9.93 (2.26,43.69)		3.45 (0.64,18.55)	
Uninsured	0.29 (0.15,0.55)		0.25 (0.10,0.63)	
Routine dental examination				
Sex				
Male	<i>Ref</i>	0.147	<i>Ref</i>	0.000*
Female	0.65 (0.36,1.17)		0.86 (0.43,1.72)	
Age				
< 29	<i>Ref</i>	0.017***	<i>Ref</i>	0.000*
30–49	0.43 (0.22,0.83)		0.52 (0.19,1.41)	
>50	1.05 (0.48,2.30)		1.56 (0.43,5.69)	
Marital status				
Married	<i>Ref</i>	0.587	<i>Ref</i>	0.000*
Unmarried	1.17 (0.66,2.08)		2.05 (0.74,5.71)	
Educational level				
Primary	<i>Ref</i>	0.000*	<i>Ref</i>	0.000*
Secondary	1		0.58 (0.21,1.55)	
Tertiary	0.27 (0.12,0.59)		1	
Employment status				
Clerical	<i>Ref</i>	0.000*	<i>Ref</i>	0.000*
Technical/managerial	1.23 (0.37,4.11)		1.19 (0.29,4.81)	
Sales and services	0.25 (0.0,1.11)		0.34 (0.07,1.71)	
Skilled manual	0.10 (0.02,0.65)		0.44 (0.06,3.40)	
Unemployed	0.61 (0.14,2.61)		0.79 (0.15,4.19)	
Unskilled manual	1		1	
Monthly income				
< GHS 1000 (USD ...)	<i>Ref</i>	0.001**	<i>Ref</i>	0.000*
> GHS 1000 (USD ...)	2.67 (1.44,4.96)		2.00 (0.77,5.20)	
Health insurance status				
Insured (NHIS)	<i>Ref</i>	0.001**	<i>Ref</i>	0.000*
Insured (private health insurance)	1.74 (0.87,3.46)		1.12 (0.49,2.59)	
Uninsured	0.36 (0.16,0.77)		0.46 (0.19,1.12)	

Discussion

The study showed differences among educational and income levels, as well as employment and insurance statuses for both routine medical and dental examinations. Most of the adults have ever undergone routine medical. Personal reasons constituted the main reason for medical examination among adults. This study reveals that more adults, 68.1% (147) have ever undergone medical examinations which are comparable to some studies in other countries. This findings is similar to a study conducted in Nigeria (Ilesanmi et al. 2015) which shows that about 79.2% ever had a routine medical examination. However, this study is contrary to the study by Eke et al. (2012), who found that only very few adults practiced periodic medical examination. About 29.4% of males and 39.4% of females practiced periodic medical examination. Some important contributors to the number of adults that have had medical examination is the free serial screening done in various churches in the community, high health education and awareness. Most of the people who live in the community have a high literacy level and therefore are health conscious. There were more males 72.4% (84) than females 63% (63) who have ever undergone medical examination in this study. This confirms findings from a study by (Hoebel, Richter, & Lampert, 2013), which showed more 50.8% of the men and 49.8% of the women surveyed had had a check-up in the two years before the survey. Deductions that can be made for high turn-out of men for routine medical examination is that, men have become more conscious of their health. In addition to this, most of the men are employed hence their employers may require them to have regular examinations.

This study is consistent with previous studies which found that adults who were 50 years and older had an increased likelihood of having frequent medical examinations compared to those of the younger age group (Hoebel, Starker, Jordan, Richter, & Lampert, 2014; Ilesanmi et al. 2015; Viera, Thorpe, and Garrett 2006). Poor health awareness among young persons may somewhat explain why fewer undergo medical examination. Consistent with prior evidence, married people are more likely to undergo medical examinations than those who are unmarried (Culica et al. 2002; Hoebel et al. 2014). It is most likely that spouses living together are associated with a mutual health monitoring which could have resulted in increased health or symptoms attention, and a higher patronage in prevention examination. In line with previous studies documenting the association between higher level of education and increased medical check-up, we found that adults with tertiary education are more likely to undergo medical examination (Chun and Kim 2007; Trohel et al. 2016). Prior evidence indicates that lower level of education is associated with poorer health status and limited health care access (Adler and Newman 2002).

This study revealed that adults who earn more than US\$230 as monthly income were more likely to undergo medical and dental examinations. This is confirmed by findings from studies by (Brunner-Ziegler et al. 2013; Chun and Kim 2007; Culica et al. 2002; Hoebel et al., 2013). High income does not only bring about financial security, but also facilitates the devotion of a person's time and resources to health-influencing benefits and to satisfy health requirements. Findings from this study reveals only few adults underwent medical examination in the past year. The majority of adults agree that annual medical and dental examinations should be done regularly. This corresponds with earlier proposal made by the American Medical Association that routine examination should be

done yearly for healthy patients. Although they now suggest medical examinations be performed every five years (for adults over 18) until 40 years and every one to three years thereafter (American Medical Association, n.d.).

In our study, only a few adults have ever had a dental examination. This finding is consistent with findings from El Bcheraoui et al. (2016) and Pavi et al. (2010) which shows that the extent of dental treatment sought is associated with need for treatment rather than preventive reasons. Contrary to previous studies by Nuttall et al. (2001) and Kosteniuk and D'Arcy (2006) which suggest that men are less likely to go for regular dental examination, findings from this study reveals that more adults who have ever undergone dental examination are males. This finding could be explained by the fact that more men are changing their attendance behavior and are becoming more conscious of their oral health. This study shows that adults who are not married were more likely to undergo dental examination. This finding is contrary to studies from McDonald (2013) which demonstrated that about 60% of those who visited the dentist were married. One factor for this finding could be married people may not see the need or point for dental examination unless they have to, therefore some spouses may not encourage their partners to go for routine dental examination. About 42.3% (60) of those who have had tertiary education have ever had dental examination. This finding is consistent with studies by Kosteniuk and D'Arcy (2006), Kadaluru, Kemprij, and Muddaiah (2012) and McDonald (2013) stating that there is a likely increased in routine dental examination among subjects with higher education level.

About 35.4% had medical examination and 55.1% had dental examination for personal reasons. The purpose of these visits is to screen for diseases, assess risk of future medical problem, encourage a healthy life style, update vaccinations and maintained a relationship with a provider in case of an illness as confirmed by Vorvick (2015). Other reason for undergoing medical and dental examination is employments. This is confirmed by Pachman (2009) who stated that some people do medical examination as a requirement for job offer or placement. Certain employers will require an applicant or employee to undergo medical examination to ascertain the health status of the employee before job placement.

It can be deduced that adults have knowledge on what medical and dental examination is. However, from the findings of the study it can be concluded that medical and dental examinations is used to promote doctor- patient relationship is important but ranked least. Contrary to findings by Vorvick (2015) that routine medical examination maintain a relationship with health provider. The difference can be attributed the fact that there is long waiting time when they have to see the doctor and they do not spend much time they called to see the doctor

Strengths and limitations

The major strength of this paper has to do subject matter. Medical and dental examinations represents one of the least studied areas in health. Assessment of medical and dental examinations among adults offers a new perspective for health promotion and education. Information on previous medical and dental examinations were based on the recall of adults which might not be accurate and exact. Also, the study could have used a bigger sample to show differences in socio-economic status. The results are not representative of

the entire population of Ghana. However, the paper offers important information to inform health promotions, education and advocacy activities among adults in Ghana.

Conclusion

Routine medical and dental examinations encourage adults to be health conscious. Most of the adults indicated that medical and dental examinations were very important. Routine medical and dental examinations were higher among adults over 50 years, males, higher educated adults, higher income earners and the unmarried. The MoH as part of its public education programs should educate and encourage the general public especially women and young adults to undergo routine medical and dental examinations annually. The study provides some evidences to support the formulation of policy and guidelines on the need for routine annual medical and dental examinations among the general populace.

Note

1. Routine means a sequence of action regularly done.

Acknowledgments

We express our profound gratitude to all the participants of Community 20, Tema for their assistance.

Disclosure statement

No potential conflict of interest was reported by the authors.

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