**ORIGINAL RESEARCH ARTICLE**

# Drivers of Young People's Attitudes towards HIV/AIDS Stigma and Discrimination: Evidence from Ghana

*Joshua Amo-Adjei*[*1] *and Eugene KM Darteh*[1]

[1]Department of Population and Health, University of Cape Coast, Cape Coast, Ghana

*__For correspondence__: *E-mail: kjamoadjei@yahoo.com; Phone: +233-244092814*

## Abstract

Using data from the 2008 Ghana Demographic and Health Survey, this paper examines the drivers of young people's attitudes towards HIV/AIDS stigma and discrimination in Ghana. Descriptive statistics and binary logistic regression were used to examine these drivers. The odds of low stigma and discrimination attitudes increased with higher education: thus, males [OR=11.04; 95% CI=4.59-26.54] and females [OR=5.12; 95% CI=2.41-11.28] with higher education were significantly more likely to express positive attitudes towards people living HIV. Controlling for beliefs, myths and knowledge about causes of HIV, the influence of education on HIV-related stigma among males and females reduces considerably but the odds remain statistically significant. Beliefs, myths and knowledge of HIV causes/prevention had varying significant effects on stigma. Ethnic, regional and religious differences also emerged in the results. The findings suggest that people with better and accurate knowledge about HIV, particularly its transmission have lower tendencies of showing HIV-related stigma and discrimination. Both formal and informal education on HIV should be pursued rigorously as part of the larger efforts at reducing HIV. *Afr J Reprod Health 2013 (Special Edition); 17[4]: 51-59).*

**Keywords:** HIV/AIDS, stigma and discrimination, young people, Ghana

## Résumé

En utilisant les données de l'Enquête Démographique et de santé de 2008 au Ghana, cet article examine les dynamiques de l'attitude des jeunes gens envers la stigmatisation et la discrimination liées au VIH/SIDA au Ghana. Les statistiques descriptives et de la régression logistique binaire ont été utilisés pour examiner ces pilotes. Les possibilités d'une faible stigmatisation et des attitudes de la discrimination ont augmenté avec l'amélioration de l'enseignement supérieur: les hommes et les femmes qui ont fait les études supérieures étaient significativement plus susceptibles d'exprimer des attitudes positives envers les personnes vivant avec le VIH [OR = 11,04, IC 95% = 4,59 à 26,54] pour les hommes et [OR = 5,12 ; 95% IC = 2,41 à 11,28] pour les femmes. La même tendance a été observée chez les femmes. Avec le contrôle des croyances, des mythes et des connaissances sur les causes du VIH, l'influence de l'éducation sur la stigmatisation liée au VIH chez les hommes et les femmes diminue considérablement mais reste très significative. Les croyances, les mythes et les connaissances des causes et de la prévention du VIH avaient effets divers significatifs sur la stigmatisation. Les différences ethniques, régionales et religieuses ont également apparu dans les résultats. Les résultats suggèrent que les personnes qui ont de meilleures connaissances et plus précises sur le VIH, en particulier sa transmission semble avoir des attitudes plus bas vers la stigmatisation liée au VIH. L'éducation formelle et informelle sur le VIH devrait être poursuivie rigoureusement dans le cadre des efforts plus importants à la réduction du VIH. *Afr J Reprod Health 2013 (*Edition Spéciale*); 17[4]: 51-59).*

**Mots-clés:** VIH/SIDA, stigmatisation et discrimination, jeunes gens, Ghana

## Introduction

Since the beginning of the HIV/AIDS epidemic, metaphors such as death, guilt and punishment, crime, horror, abomination and several others have been associated with the disease. These varied representations of the disease have compounded and somehow 'legitimised' stigmatization and discrimination of people living with the disease. In many societies and cultures, stigma is expressed in the form of language[1,2]. Some fear-based stigma is attributable to people's fear of the outcomes of HIV infection in, particular, high fatality rates, fear related to transmission or fear stemming from

witnessing the visible debilitation of advanced AIDS[3].

Goffman[4] defined stigma as an attribute that is deeply discrediting and the stigmatised as individuals who are negatively regarded by the broader society and are devalued, shunned or otherwise lessened in their life chances. According to Goffman[4], stigma arises as a result of gaps between actual social identity and societal expectations of virtual social identity. The outcome of such divergent expectations is tainted social identity, and the individual is assumed to be incapable of fulfilling the role requirements of social interaction[4]. Jones *et al*[5] noted that people are stigmatised when they are found to possess a mark that makes them deviate from a prototype or norm[5]. They indicated that this deviance then initiates an attributional process through which people make meanings of individuals with perceived undesirable features and respond to the stigmatised individuals on the basis of their stigma at the expense of their individuality[5]. Major et al. also suggested that stigmatised people are believed to possess some attributes and characteristics that convey a social identity that is devalued in a particular context[6]. Link and Phelan[7] pointed out that the stigmatisation process includes elements of labelling, stereotyping, separation, status loss and discrimination, occurring together in power situations that permit them.

Stigma is a complex social phenomenon involving interplay between social, economic and psychosocial factors in the environment of affected individuals[8], and is highest among HIV/AIDS victims in sub-Saharan Africa[9]. Stigmatisation of people living with HIV still remains one of the challenges to the fight against HIV/AIDS epidemic in sub-Saharan Africa. The somewhat socially sanctioned context of stigma towards the disease has resulted in high cases of denial and refusal among people infected to disclose their HIV/AIDS status[9]. According to UNAIDS[1], HIV/AIDS has been accompanied by stigma and discrimination but stigma in Sub-Saharan Africa seems to be particularly common.

HIV/AIDS stigma and discrimination have a lot of effects on people living with it. These include the creation of an environment where people may avoid HIV related service[10], and promote silence, denials, ostracism and violence[11]. Some studies in Africa[9,12,13] have revealed some common reasons for entrenched stigmatisation. First, HIV/AIDS is a life-threatening disease, and therefore people react to it in strong ways. Second, HIV infection is associated with behaviour, such as homosexuality, drug addiction, prostitution or promiscuity, behaviours that are already stigmatised in many societies. Third, there is a lot of inaccurate information about how HIV is transmitted, creating misperceptions of personal risk. Fourth, religious or moral beliefs lead some people to believe that being infected with HIV is the result of moral fault, such as promiscuity or deviant sex that deserves to be punished.

Apart from these socioeconomic, demographic and psychological characteristics of individuals can positively or negatively shape individual attitudes towards HIV stigmatisation and discrimination. Among some of the popular socioeconomic and demographic factors that can influence HIV-related stigma include education, economic status, gender, occupation, beliefs about causes of HIV, urban-rural residence, spatial dimension of HIV epidemic (generalised or layered) among others[14,23]. Apart from these, psychological predictors such as knowledge about HIV prevention though practices such as consistent condom use and faithfulness to one HIV negative partner, whether witchcraft/supernatural powers could cause HIV have been found to influence HIV-related stigma[18].

In Ghana knowledge of HIV/AIDS among people between 15-24 years is high for both males and females. Approximately 99% of both sexes between 15 and 24 years have knowledge about the disease. However, comprehensive knowledge of HIV transmission is low among males (34.2%) and females (28.3%)[24]. The 2012 HIV/AIDS sentinel survey report puts median prevalence for the country at 2.1%[25]and the prevalence among young people aged 15-24 (proxy for new infections) stood at 1.3% in 2012 with the Central and Eastern Regions reporting the highest prevalence[26].

Ghana, like many other countries, is also confronted with the HIV/AIDS threat and its associated stigma with stigmatisation believed to have contributed to the further spreading of the

disease. Yet, there is little research evidence on HIV/AIDS-related stigma and discrimination attitudes of young people in the country. Although a recent study by Tenkorang and Owusu[27] has examined the subject of HIV/AIDS-related stigma in Ghana, we focus on young people between ages 15-24 years because of their peculiar relevance to discourses on HIV/AIDS infections.

## Methods

The study uses data from the 2008 Ghana Demographic and Health survey, a nationally representative probability sample of 4,916 women between 15–49 years and 4,568 men between 15-59 years[24].After data cleaning, 1,615 and 1,902 weighted sample of males and females between 15-24 years respectively were used for this paper. This age group is the focus of the research because it is one of the groups most affected and infected by HIV/AIDS and its related issues, including stigma and discrimination[28,29]. Besides, the age category under study is used as proxy for new infections and their attitudes towards HIV-related stigma could therefore be used as proxy for the general population. The survey comes with a number of variables for the comprehensive derivation of stigma and discrimination towards people living with HIV/AIDS. For this paper, one proxy of stigma and discrimination is derived from four questions asked during the survey. The specific questions were: "willingness to buy fresh vegetables from a person infected"? "Should a female teacher infected be allowed to continue to teach"? "Would you care for a family member infected with HIV"? "Family/relations infected allowed to keep AIDS infection secret"? Each of these questions generated a dichotomous response – "Yes" or "No". A composite measure was generated as a proxy for stigma and discrimination. To aid this generation, the "any count" command was used to derive matrix of possible outcomes, using STATA 12 (College Station, Texas). The strategy yielded a continuum of responses from 0-4 where 0 means a respondent responded "No" on all the four questions while a score of four indicated responding "Yes" to all questions. To simplify the analysis, a binary outcome was generated with the range of 0-2 indicating "high" (coded=1) stigma while 3-4 "Yes" responses was considered "low/no" (coded=0) stigma possibilities. With this binary outcome, we employed binary logistic regression to examine how the outcome reacts to our explanatory variables.

The following were the main background variables used to examine young people's stigma and discrimination attitudes: age, education, residence, region, ethnicity, religion, wealth index and beliefs and misconceptions about HIV. Some of the explanatory variables were recoded and this was done to make the data handy. For instance, ethnicity was recoded into Akan=1, Ga/Dangme=2, Ewe=3, Mole-Dagbani=4 and others=5. The "others" category consisted of the minority ethnic groups such as Guan, Mande, Grussi and Gruma. The first four were maintained because they constitute the major ethnic groups in Ghana. Religion was also recoded to be consistent with the main religious groupings that similar religious theology; thus, Catholic=1, Protestants=2, Pentecostal/other Christian=3, Moslem=4 and Traditional/others=5. The following variables that tap into knowledge, beliefs and myths about HIV transmission were recoded into binary form (No=0& Yes=1). These were 'consistent condom use can prevent HIV', 'being faithful to one HIV-negative partner can prevent HIV', 'healthy looking person can have HIV' and 'witchcraft/supernatural power can cause HIV'. Four logistic regression models were estimated for males and females. Models 1 and 3 included demographic and socioeconomic factors while Models 2 and 4 included beliefs, myths and knowledge variables. Questions about beliefs, myths and knowledge were included in the analysis to explore whether the inclusion of these variables would affect attitudes towards stigma and discrimination. The *a-priori* logic is that having correct knowledge about HIV causal mechanisms is likely to result in positive attitudes towards stigma and discrimination. In each of the models where all the variables in this study are included, the sample drops minimally and this could be accounted for by missing returns. The Akaike's Information Criterion (AIC) measure of relative quality of statistical models shows that Models 2 (males) and 4 (females) better fits the

data more than Models 1 and 3. Thus, the smaller the AIC value, the better the model's fit. Separate analysis was done for males and females because DHS data hardly allows for merging the two files – the unique identification codes for merging male and female data files can conflict which can lead to loss of data. This informed the different analysis for males and females.

## Results

Table 1 show the proportion of respondents who were found to have high inclinations towards HIV/AIDS stigma and discrimination. Related Chi-square results are also shown. Among males, significant association between age and high potentials of stigma and discrimination are noted; younger males (63%) and females (59%) were more likely to report stigma and discrimination attitudes towards HIV/AIDS. For both males and females, higher education reduces these attitudes. For instance, about 86% and 81% of males and females without any form of formal education expressed attitudes that are inclined towards stigma and discrimination of HIV/AIDS compared to those with higher formal education as shown in Table 1. Although male respondents from wealthy households expressed positive attitudes towards HIV-related stigma and discrimination, females from wealthy households reported high levels of HIV-related stigma and discrimination. Religious differences are noted among both males and females. However, the most outstanding among the various religious groups was those who belonged to the Traditional Religion/no religion. About seven out of every ten males and eight out of every ten females who belonged to the Traditional/no religion category scored lower on our index of stigmatisation. The ethnic differences do not come forth strongly among females but does significantly among males (Table 1).

The analysis further reveals significant spatial differences in stigma and discrimination and these varied by sex. Whereas among males, those from the Central Region reported the lowest HIV-related stigma and discrimination, among females, it was those from the Upper West Region who reported lower attitudes.

**Table 1:** Attitudes towards HIV-related stigma by background characteristics

| | Males | | Females | |
|---|---|---|---|---|
| | High | Total | High | Total |
| Covariates | % | No. | % | No. |
| *Age* | | | | |
| 15-19 | 63.43 | 910 | 59.16 | 1,024 |
| 20-24 | 51.98 | 704 | 46.2 | 877 |
| $X^2$=18.0627; $p$=0.000 | | | $X^2$=18.0627; $p$=0.000 | |
| *Highest educational level attended* | | | | |
| No education | 86.3 | 100 | 81.5 | 201 |
| Primary | 76.83 | 314 | 73.77 | 379 |
| Secondary | 52.63 | 1,113 | 51.7 | 1,272 |
| Higher | 26.95 | 62 | 36.57 | 46 |
| $X^2$=35.2933; $p$=0.000 | | | $X^2$=32.7156; $p$=0.000 | |
| *Wealth index* | | | | |
| Poorest | 86.3 | 100 | 81.5 | 201 |
| Poorer | 76.83 | 307 | 70.62 | 353 |
| Middle | 58.47 | 305 | 60.58 | 397 |
| Richer | 50.53 | 406 | 50.58 | 461 |
| Richest | 46.54 | 318 | 79.32 | 263 |
| $X^2$=14.1601; $p$=0.000 | | | $X^2$=25.6412; $p$=0.000 | |
| *Religion* | | | | |
| Catholic | 61.67 | 207 | 81.5 | 201 |
| Protestant | 56.05 | 302 | 73.77 | 379 |
| Pentecostal/Other Christian | 56.51 | 718 | 51.7 | 1,272 |
| Moslem | 55.14 | 240 | 36.57 | 46 |
| Traditional/no religion | 73.71 | 145 | 81.5 | 201 |
| | | | | |
| Catholic | 61.67 | 207 | 81.5 | 201 |
| Protestant | 56.05 | 302 | 73.77 | 379 |
| Pentecostal/Other Christian | 56.51 | 718 | 51.7 | 1,272 |
| Moslem | 55.14 | 240 | 36.57 | 46 |
| Traditional/no religion | 73.71 | 145 | 81.5 | 201 |
| $X^2$=25.3938; $p$=0.000 | | | $X^2$=12.3886; $p$=0.030 | |
| *Ethnicity* | | | | |
| Akan | 55.05 | 789 | 56.83 | 955 |
| Ga/Dangme | 72.31 | 103 | 58.5 | 143 |
| Ewe | 59.71 | 235 | 59.62 | 241 |
| Mole/Dagbani | 59.63 | 257 | 59.67 | 281 |
| Others | 61.34 | 229 | 64.63 | 279 |
| $X^2$=2.8309; $p$=0.024 | | | $X^2$=1.2249; $p$=0.298 | |
| *Region* | | | | |
| Western | 57.67 | 152 | 51.15 | 160 |
| Central | 51.48 | 129 | 63.29 | 173 |
| Greater Accra | 54.99 | 218 | 53.92 | 335 |
| Volta | 58.02 | 160 | 60.63 | 161 |
| Eastern | 59.87 | 171 | 63.71 | 188 |
| Ashanti | 55.71 | 333 | 57.83 | 402 |
| Brong-Ahafo | 64.57 | 136 | 56.43 | 162 |
| Northern | 68.06 | 160 | 73.47 | 175 |
| Upper East | 58.4 | 99 | 56.05 | 92 |
| Upper West | 60.62 | 52 | 48.89 | 50 |

| | | | | |
|---|---|---|---|---|
| $X^2$=1.3462; $p$=0.212 | | | $X^2$=3.0133; $p$=0.002 | |
| *Consistent Condom use* | | | | |
| No | 61.2 | 258 | 64.4 | 443 |
| Yes | 57.14 | 1,332 | 56.18 | 1,424 |
| | $X^2$= 2.0080; $P$=0.134 | | $X^2$=8.0033; $P$=0.005 | |
| *Faithful to one HIV negative partner* | | | | |
| No | 66.81 | 182 | 65.44 | 299 |
| Yes | 56.75 | 1,410 | 56.71 | 1,566 |
| | $X^2$=5.9611; | | | |
| | $P$=0.015 | | $X^2$=6.7107; $P$=0.010 | |
| *Healthy-looking person can have HIV* | | | | |
| No | 71.18 | 192 | 69.38 | 262 |
| Yes | 55.07 | 1,321 | 54.97 | 1,505 |
| | $X^2$=15.8000; | | | |
| | $P$=0.000 | | $X^2$= 16.6013; $P$=0.000 | |
| *Witchcraft/supernatural can cause HIV* | | | | |
| No | 52.89 | 1,010 | 54.57 | 1,061 |
| Yes | 66.21 | 481 | 59.6 | 616 |
| | $X^2$=19.778; | | | |
| | $P$=0.000 | | $X^2$= 3.3126; $P$=0.069 | |

Among the beliefs, myths and knowledge variables, respondents who knew that consistency in condom use at every sexual encounter could prevent HIV infection were less likely to stigmatise and discriminate against people with HIV for both males and females. Also, among male and female respondents who knew that being faithful to one HIV negative partner could prevent infection were less likely to stigmatise and discriminate HIV. Respondents who accepted that witchcraft/supernatural forces could cause HIV showed higher inclinations towards stigmatising HIV.

Of the socioeconomic and demographic factors, education showed the most consistent effect on HIV-related stigma and discrimination. Thus, in Models 1-4 [Table 2] (both males and females), the effect of education is clearly observable. The significant effect of education impacting positively on lower HIV-related stigma and discrimination increases with educational attainment. The higher the formal education attained, the more likely one was to reject HIV stigma and discrimination attitudes, particularly in Models 1 (males) and 3 (females). That notwithstanding, the significant effect of education declines when the background characteristics are controlled for with beliefs, myths and knowledge about HIV. Nevertheless, the odds remain robustly significant at $p<0.001$.

**Table 2:** Multivariable logistic regression results on drivers of attitudes towards HIV/AIDS-related stigma among young people in Ghana

| | Males | | | | Females | | | |
|---|---|---|---|---|---|---|---|---|
| | Model 1 | | Model 2 | | Model 3 | | Model 4 | |
| | OR | 95% CI | OR | 95% CI | OR | 95% CI | OR | 95% CI |
| *Age* | | | | | | | | |
| 15-19 | 1 | [1,1] | 1 | [1,1] | 1 | [1,1] | 1 | [1,1] |
| 20-24 | 1.434** | [1.151,1.788] | 1.437** | [1.140,1.812] | 1.030 | [0.843,1.258] | 0.968 | [0.775,1.210] |
| *Wealth status* | | | | | | | | |
| Poorest | 1 | [1,1] | 1 | [1,1] | 1 | [1,1] | 1 | [1,1] |
| Poorer | 0.941 | [0.625,1.416] | 0.853 | [0.553,1.316] | 1.627* | [1.067,2.481] | 1.421 | [0.896,2.252] |
| Middle | 1.249 | [0.821,1.900] | 1.162 | [0.747,1.809] | 2.256*** | [1.471,3.459] | 1.856* | [1.155,2.981] |
| Richer | 1.564* | [1.017,2.406] | 1.399 | [0.883,2.216] | 3.602*** | [2.354,5.513] | 2.916** | [1.847,4.604] |
| Richest | 1.771* | [1.085,2.889] | 1.574 | [0.922,2.688] | 4.581*** | [2.912,7.208] | 3.605** | [2.200,5.906] |
| *Highest educational level* | | | | | | | | |
| No education | 1 | [1,1] | 1 | [1,1] | 1 | [1,1] | 1 | [1,1] |
| Primary | 1.653 | [0.953,2.869] | 1.574 | [0.794,3.123] | 1.464 | [0.940,2.280] | 1.413 | [0.861,2.318] |
| Secondary | 4.960*** | [2.876,8.555] | 4.614*** | [2.351,9.057] | 3.120*** | [2.035,4.783] | 2.389** | [1.477,3.865] |
| Higher | 11.04*** | [4.590,26.54] | 8.996*** | [3.302,24.51] | 5.217*** | [2.413,11.28] | 3.828** | [1.722,8.510] |
| *Religion* | | | | | | | | |
| Catholic | 1 | [1,1] | 1 | [1,1] | 1 | [1,1] | 1 | [1,1] |
| Protestant | 1.035 | [0.688,1.555] | 1.066 | [0.700,1.622] | 0.781 | [0.528,1.155] | 0.841 | [0.541,1.309] |
| Pentecostal/Other Christian | 1.101 | [0.766,1.581] | 1.063 | [0.729,1.550] | 0.770 | [0.554,1.070] | 0.781 | [0.549,1.112] |
| Moslem | 1.134 | [0.736,1.747] | 1.237 | [0.786,1.946] | 0.889 | [0.594,1.330] | 0.956 | [0.621,1.470] |
| Traditional/Others | 0.618 | [0.357,1.069] | 0.654 | [0.367,1.166] | 0.572* | [0.333,0.981] | 0.631 | [0.341,1.170] |
| *Region* | | | | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Western | 1 | [1,1] | 1 | [1,1] | 1 | [1,1] | 1 | [1,1] |
| Central | 1.297 | [0.687,2.448] | 1.339 | [0.694,2.586] | 0.675 | [0.402,1.132] | 0.512* | [0.302,0.867] |
| Greater Accra | 0.963 | [0.555,1.670] | 1.045 | [0.591,1.848] | 0.530** | [0.337,0.835] | 0.444** | [0.275,0.716] |
| Volta | 1.682 | [0.893,3.165] | 1.677 | [0.886,3.176] | 0.867 | [0.490,1.534] | 0.602 | [0.328,1.106] |
| Eastern | 1.192 | [0.704,2.018] | 1.339 | [0.761,2.357] | 0.636 | [0.391,1.036] | 0.506** | [0.302,0.847] |
| Ashanti | 1.040 | [0.623,1.737] | 1.043 | [0.613,1.776] | 0.675 | [0.438,1.042] | 0.593* | [0.375,0.939] |
| Brong-Ahafo | 0.875 | [0.486,1.575] | 0.856 | [0.454,1.612] | 0.843 | [0.462,1.540] | 0.688 | [0.362,1.308] |
| Northern | 1.242 | [0.608,2.535] | 1.416 | [0.686,2.921] | 0.703 | [0.381,1.295] | 0.649 | [0.334,1.259] |
| Upper East | 2.159* | [1.077,4.330] | 1.918 | [0.895,4.113] | 1.809* | [1.002,3.263] | 1.339 | [0.702,2.554] |
| Upper West | 1.704 | [0.865,3.359] | 1.575 | [0.786,3.156] | 1.924* | [1.075,3.441] | 1.534 | [0.811,2.902] |
| *Ethnicity* | | | | | | | | |
| Akan | 1 | [1,1] | 1 | [1,1] | 1 | [1,1] | 1 | [1,1] |
| Ga/Dangme | 0.477** | [0.278,0.821] | 0.362** | [0.196,0.666] | 1.087 | [0.715,1.652] | 1.160 | [0.763,1.766] |
| Ewe | 0.740 | [0.460,1.190] | 0.731 | [0.448,1.192] | 1.137 | [0.739,1.749] | 1.284 | [0.811,2.033] |
| Mole/Dagbani | 1.030 | [0.592,1.794] | 1.024 | [0.600,1.748] | 1.111 | [0.760,1.623] | 1.060 | [0.707,1.591] |
| Others | 1.262 | [0.740,2.151] | 1.194 | [0.689,2.067] | | | | |
| *Consistent condom use* | | | | | | | | |
| No | | | 1 | [1,1] | | | 1 | [1,1] |
| Yes | | | 1.137 | [0.824,1.568] | | | 1.086 | [0.852,1.385] |
| *Faithful to one HIV negative partner* | | | | | | | | |
| No | | | 1 | [1,1] | | | 1 | [1,1] |
| Yes | | | 1.027 | [0.679,1.554] | | | 1.132 | [0.845,1.517] |
| *Healthy looking person can have HIV* | | | | | | | | |
| No | | | 1 | [1,1] | | | 1 | [1,1] |
| Yes | | | 1.662** | [1.150,2.402] | | | 1.698** | [1.229,2.345] |
| *Witchcraft/supernatural can cause HIV* | | | | | | | | |
| No | | | 1 | [1,1] | | | 1 | [1,1] |
| Yes | | | 0.691** | [0.528,0.906] | | | 0.845 | [0.681,1.049] |
| _Cons | 0.101*** | [0.0436,0.232] | 0.0754*** | [0.0265,0.215] | 0.163*** | [0.0844,0.314] | 0.174** | [0.0780,0.387] |
| *AIC* | 2065.2 | 1829.5 | | | 2372.9 | | 2062.9 | |
| *N* | 1,643 | | 1,446 | | 1,903 | | 1,586 | |

*$p$< 0.05, **$p$< 0.01, ***$p$< 0.001

Males aged 20-24 years were found to be significantly likely to reject HIV-related stigma and discrimination compared to those aged 15-19 but this effect was not found among females. Indeed, for males, the odds increased minimally after controlling for beliefs, myths and knowledge of HIV (Table 2 Model 2). The influence of wealth status is observed to be consistently significant among females in respect of their attitudes towards HIV-related stigma and discrimination. Positive attitudes towards stigma and discrimination of HIV followed wealth gradient pattern – richest were more likely to reject HIV-related stigma and discrimination. However, among males, the effect is only seen prior to controlling for beliefs, myths and knowledge about HIV (Table 2 Models 1-2). Some ethnic and religious significant differences can also be found in the results. For instance, Ga/Adangme males (Model 1 & 2) were less likely to accept people with HIV compared to Akan males. However, similar significant ethnic differences are not shown from the female section, although the odds vary (Table 2 Model 3 & 4). In respect of the beliefs, myths and knowledge about HIV, the most statistically outstanding observation was perceptions on whether a healthy looking person could have HIV. Respondents who knew that a healthy looking person could have the infection were more likely to accept a person infected with HIV than those who felt otherwise.

## Discussion and conclusion

HIV/AIDS related stigma and discrimination is a multifaceted phenomenon which often emanates from social construction of an "abominable" disease whose victims are to be shun and maligned[4] and it presents a major obstacle to disclosure and early treatment seeking. In a region where heterosexual intercourse is the major

pathway for infections; where young people' sexual activities are 'moralised' and used as a representation for new infections, understanding the drivers of HIV/AIDS stigma and discrimination attitudes could foreground the fight against HIV/AIDS.

Overall, the proportion of females who reported higher likelihood of stigma and discrimination of HIV was higher than that reported among males. Factors that informed these variations between males and females both diverge and converge at some points space. The most significant pointer to positive attitudes towards stigma and discrimination as shown from this analysis is formal education. The higher a person's educational attainment, the better their behavioural dispositions towards HIV/AIDS. This is consistent with studies[19,27] on HIV related stigma and discrimination, which is correlated with increasing formal education.

Of the four proxies for stigma (allowing female teachers infected to continue teaching, buying fresh vegetables from a known infected female, caring for infected relations and disclosure), none of these mechanisms has the potential of mediating infection on their own without any external triggers such as sharing sharp objects or engaging in sexual intercourse with the infected and people with some form of formal education are more likely to understand these trajectories than those without. It is therefore possible that this likelihood of awareness among educated people, which can be predicted to be high, could have influenced their views on HIV/AIDS. Put together, these factors have the potential of neutralising or changing negative attitudes towards HIV-related stigma and discrimination. The findings reinforce the fact that education presents one of the best remedies to discouraging stigma and discrimination of HIV/AIDS.

The HIV epidemic provides a strong example of a disease shaped by socioeconomic and class gradients[27,30-31] and this class dimension pervades both spread and attitudes towards the disease itself. In respect of HIV-related stigma, some past studies[18,32] have shown that poor understanding of how the disease is transmitted is a major driver of stigma and discrimination and our findings support this assertion. People with limited knowledge about HIV are likely to avoid those infections with it for fear of being infected, albeit wrongly perceived.

The spatial differences noted deserve commenting. Previous studies[27] have partly established that the type of HIV epidemic being experienced in a particular setting can influence attitudes towards its stigma and discrimination. In high prevalence settings, it is possible that the disease could be considered just like any other disease but in low prevalence areas, there is high probability of it being considered more abominable. Guided by this suspicion, we anticipated stigma will discrimination HIV-related to follow the pattern of HIV prevalence in the country. Contrary to this expectation, lower levels of HIV-related stigma and discrimination were significantly more likely in the Upper East Region as against high prevalence regions of Eastern and Central. Further qualitative studies that explore spatial differences in HIV-related will be to appropriate uncover some of the nuances we are unable to identify from this analysis.

Two key issues come up for policy consideration in relation to efforts at reducing HIV-related stigma and discrimination. The analysis has shown the importance of formal education and how accurate understanding of HIV transmission could help reduce HIV-related stigma. Already, those in formal education system have the opportunity of learning about HIV because it forms part of the curriculum. Equitable access to formal education therefore becomes important in this dimension and for those already out of the system, extra efforts, for instance, through collaboration by the state with non-governmental organisations and civil society organisations could help capture a greater proportion of the out-of-school population for HIV education. This will contribute to reducing myths and misconceptions about the disease, which were found to be significant drivers of HIV-related stigma and discrimination.

Notwithstanding the importance of these findings for policy and practice, the cross-sectional nature of the data used does not allow us to make any causal claims. At best, the findings only point to associations. However, the strength of the data, which is that, it was drawn from a national survey,

provides indications about the HIV-related stigma and discrimination among young people in the country. HIV-related stigma and discrimination still remains one of the setbacks to self-disclosure of sero status and early treatment seeking behaviour. This calls for concerted efforts at all levels of HIV control and improving formal education among the general population remains an effective tool.

## Contribution of Authors

EKMD conceived and designed the study. JAA contributed to the design, analysed the data. Both authors share equally in the preparation of the draft and review of the manuscript and have approved the final submission.

## References


1 UNAIDS. HIV-related stigma, Discrimination and human rights violations: case studies of successful programmes. 2005. Geneva: UNAIDS.

2 UNAIDS. HIV and AIDS-related stigmatisation, discrimination and denial: forms, contexts and determinants. Research studies from Uganda and India. 2000. UNAIDS, Geneva.

3 Khaut T, Nguyua A, Jessica, O. Understanding about HIV and AIDS- Related Stigma and Discrimination. International Centre for Research on Women, 2008.

4 Goffman E. Stigma: notes on the management of spoilt identity. 1963. London, UK: Penguin.

5 Jones EE, Farina A, Hastorf AH, Markus H, Miller DT, Scott RA. Social stigma: the psychology of marked relationships. 1984. New York, NY, USA: Freeman.

6 Crocker J, Major B, Steel C. Social stigma. In: Gilbert D T, Fiske S T, Lindsay G, Eds. Handbook of social psychology. 4th ed. Boston, MA, USA: McGraw-Hill, 1998: 504–553.

7 Link BG, Phelan JC. Conceptualizing stigma. *Ann Rev Sociol* 2001; 27: 363–385.

8 Ogden J, Nyblade L. Common at Its Core: HIV-Related Stigma across Contexts. Washington, DC: ICRW, 2005.

9 UNAIDS. Report on the global AIDS epidemic: 2010. Retrieved on December 19, 2011; Retrieved from http://www.unaids.org/globalreport/Global_report.htm.

10 Piot P. AIDS: from crisis management to sustained strategic response. *Lancet*, 2006, 368:526–530.

11 Mbwambo J, Kilonzo G, Kopoka P, & Nyblade L. Understanding HIV-Related Stigma in Tanzania. Dar es Salaam: Muhimbili University College of the Health Sciences (MUCHS), 2004.

12 Stigma & Discrimination Indicators Working Group. Stigma & Discrimination Indicators Working Group: An Update from the Field (Meeting Report). Washington, DC: USAID, 2005.

13 UNAIDS. Report on the global AIDS epidemic. UNAIDS, Geneva, Switzerland, 2008.

14 Kalichman SC, Simbayi LC. HIV testing attitudes, AIDS stigma, and voluntary HIV counselling and testing in a black township in Cape Town, South Africa. Sex Transm Infect 2003; 79: 442–7. doi: 10.1136/sti.79.6.442.

15 Bwambale FM, Ssali SN, Byaruhanga S, Kalyango JN, Karamagi C. Voluntary HIV counselling and testing among men in rural western Uganda: implications for HIV prevention. BMC Public Health 2008; 8: 263–75. doi:10.1186/1471-2458-8-263.

16 Venkatesh KK, Madiba P, De Bruyn G, Lurie MN, Coates TJ, Gray GE. Who gets tested for HIV in South African urban township? Implications for test treat and gender-based prevention interventions. J Acquir Immune Defic Syndr 2011; 56: 151–65. doi:10.1097/QAI.0b013e318202c82c.

17 Li L, Zunyou W, Sheng W, Yu Z, Manhong J, Zhihua Y. HIV-related stigma in health care settings: a survey of service providers in China. AIDS Patient Care STDS 2007; 21: 753–62. doi:10.1089/apc.2006.0219.

18 Stephenson R. Community factors shaping HIV-related stigma among young people in three African countries. AIDS Care 2009; 21: 403–10. doi: 10.1080/09540120802290365.

19 Genberg BL, Hlavka Z, Konda KA, Maman S, Chariyalertsak S, Chingono A, et al. A comparison of HIV/AIDS-related stigma in four countries: negative attitudes and perceived acts of discrimination towards people living with HIV/AIDS. Soc Sci Med 2009; 68: 2279–87. doi:10.1016/j.socscimed.2009.04.005.

20 Sebudde S, Nangendo F. Voluntary counselling and testing services: breaking resistance to access and utilization among the youths in Rakai district Uganda. Educ Res Rev 2009; 4: 490–7.

21 Luginaah IN, Yiridoe EK, Taabazuing MM. From mandatory to voluntary testing: balancing human rights, religious and cultural values, and HIV/AIDS prevention in Ghana. Soc Sci Med 2005; 61: 1689–700. doi:10.1016/j.socscimed.2005.03.034.

22 Khonde N, Bevalot M, Till H, Dzokoto A. Study on stigma and discriminatory attitudes and perceptions in Accra and Tema Metropolis – how does the general adult population see most at risk populations and how does most at risk populations see themselves in the context of HIV/AIDS? Accra: GTZ ReCHT Publications; 2009.

23 Wolff B, Nyanzi, B, Katongle G, Ssesanga D, Wari AR & Whitworth J. Evaluation of a home-based voluntary counselling and testing interventions in rural Uganda. Health Pol Plan, 2005, 20, 109–116.

24 Ghana Statistical Service (GSS), Ghana Health Services (GHS) and ORC Macro. 2008 Ghana Demographic

and Health Survey. Calverton, Maryland: GSS, GHS, and ORC Macro. 2009.
25 National AIDS/STI Control Programme & Ghana Health Service. National HIV Prevalence & AIDS Estimates Report. Accra, Ministry of Health, 2013.
26 National AIDS/STI Control Programme, & Ghana Health Service. 2012 National HIV sentinel report. Accra, Ministry of Health, 2013.
27 Tenkorang, EY, Owusu, A.Y. Examining HIV-related stigma and discrimination in Ghana: what are the major contributors? Sexual Health, 2013, 10, 253–262.
28 UNAIDS. AIDS Epidemic Update December 2004. Geneva: UNAIDS, 2004.
29 Summers T, Kates J, & Murphy G. The Tip of the Iceberg: The Global Impact of HIV/AIDS on Youth. Henry K Kaiser Family Foundation, 2002.
30 Ngigi, MM. A Geographical Study on the HIV/AIDS Pandemic in Kenya. Doctoral thesis, University of Tsukuba, 2007.
31 Badahdah AM, Sayem N. HIV-related knowledge and AIDS stigma among college students in Yemen. East Mediterr Health J 2010; 16:901–6.
32 Hutchinson PL, Mahlalela X, Yukich J. Mass media, stigma and disclosure of HIV test results: Multilevel analysis in the Eastern Cape, South Africa. *AIDS Education and Prevention, 2007*; 19(6):489–510.