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Media exposure to family planning contents and adult support for teaching children about condom use to prevent HIV/AIDS: Findings from 2003 to 2014 Ghana Demographic Health Surveys

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ABSTRACT

Exposure to public health contents in the media has a positive influence on people's attitudes towards the adoption of certain health behaviours and acceptance of health policies. However, the effect of adult's exposure to family planning contents in the media on their support for teaching children about condoms in Ghana is unknown. Therefore, we investigated the relationship between adults' exposure to family planning contents in the media and their support for teaching 12–16 years old children about condoms to prevent HIV/AIDs. To test the hypothesis, we used 2003, 2008, and 2014 demographic and health surveys (DHS) datasets. About 61%, 54%, and 55% of adults have supported the teaching of children about condoms to prevent HIV/AIDS in 2003, 2008, and 2014, respectively. The results indicated that adult's exposure to family planning content through reading the newspaper, listening to the radio, and watching television (TV) was significantly related to their support for teaching children about condoms. Media exposure was related to adult's support for teaching children about condoms, but there were large numbers of non-media exposed adults who supported the teaching of children about condoms to prevent HIV/AIDS and of media exposed adults who were not in support. We propose that from a public health standpoint, media exposure and other factors should be considered when designing health education programs to garner adult's support in teaching children about condoms. Some of the other important factors that policymakers should consider include encouraging adults to use modern contraceptives and creating opportunities for all Ghanaians to attain formal education to the highest level.

1. Background

Globally, there has been a decline in mortality and morbidity associated with HIV/AIDs (HIV/AIDS, J.U.N.P.o., 2018). Although there has been an 18% reduction in new HIV infections since 2010, more effort is required to achieve the 2020 global 75% reduction target (HIV/AIDS, J.U.N.P.o., 2018). In Ghana, the number of young people living with HIV/AIDS has increased from 32,462 to 34,219 between 2013 and 2018, representing a 5.41% increase (Ghana AIDS Commission, 2017). Over the years, condom use has been judged as an effective way of combating the spread of HIV among populations. Increasing condom knowledge and use among the youth also has the potential to reduce infection rates and the spread of other STIs, as well as the occurrence of unplanned pregnancies (Petrova and Garcia-Retamero, 2015; Johnson et al., 2011). For this reason, the Ghana Health Service and the Ghana National AIDS Commission (NAC) have undertaken a series of intervention programs to educate the public about condom use during sexual intercourse (Commission et al., 2016). Despite these efforts, condom use among sexually active young Ghanaians has declined sharply from 42% to 34% between 2008 and 2014 (Ghana Statistical Service (GSS) and Macro International Inc. (MI), 2008, 2014).

Research shows that apart from their peers, children spend a lot of time with their parents or adult caregivers. Thus, attitudes and beliefs of parents/adults including those about condoms may affect children's sexual and reproductive health behaviours. The implication is that the education of children about the importance of condom use should

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involve parents and adult caregivers as key players (AugsJoost et al., 2014). However, in Ghana, as in other sub-Saharan African countries, sex and reproductive health communications between parents/adults and children are limited to abstinence and menstrual hygiene, with little emphasis on condom use (Manu et al., 2015). Some parents and adults fear that when children are adequately taught about sex, they may engage in sexual experimentations (Asampong et al., 2013; Trinh et al., 2009; Gyasi-Duku, 2017). However, observed increases in teenage pregnancy cases in sub-Saharan African countries suggest that children's limited knowledge about sex may not necessarily prevent them from sexual experimentations (Loaiza and Liang, 2013). Instead, preventing children from adequately knowing about sex and safe reproductive health practices may only predispose them to unplanned pregnancies and risks of contracting sexually transmitted diseases (STDs).

A critical component of sexual and reproductive health education among children is accurate knowledge and use of condoms. Studies indicate that a range of socio-economic and demographic factors influence parent's/adult's attitude towards and support for teaching children about condoms and sex and reproductive health in general. For example, A study conducted in California, USA, indicated that younger parents, who were of Hispanic ethnic group, with lower educational attainment, without a religious affiliation, less religiously observant, and politically liberal were more supportive of equipping children with the knowledge of condoms to prevent HIV/AIDS and other STDs (AugsJoost et al., 2014). Similarly, a study conducted in Thailand noted that Thai parents had positive attitudes about condom use but were not in support of promoting condom knowledge and use among their male children because they (parents) lacked knowledge and experience in the use of condoms, felt embarrassed/discomfort when talking about condoms, and they believed that their male children were not sexually active (Tipwareerom and Weglicki, 2017). In-sub-Saharan Africa, Tarkang (Tarkang, 2014) found that sexually active secondary-school-going-girls in Limbe, Cameroon, who freely discussed the usage of condoms with their parents or any adult member of their family were more likely to have used condoms during sexual encounters.

In both developed and developing countries, exposure to mass media has a positive influence on people's attitudes towards the adoption of certain health behaviours and acceptance of health policies (Kansanga et al., 2018; Benefo and Takyi, 2002; Wakefield et al., 2010). For instance, Jung et al (Jung et al., 2013) found that exposure to media among sub-Saharan African adults was associated with an increased knowledge of HIV/AIDS prevention and the use of condom during sexual intercourse. Specifically, the positive association between adult's exposure to family planning contents in the media on the use of modern contraceptives, including condoms, have been well established in the literature (Grindlay et al., 2018; Nyarko, 2020; Ajaero et al., 2016). In Ghana, condoms are the widely accepted contraceptive method among adults (Grindlay et al., 2018). However, whether an adult's media exposure to family planning contents extends to their support to teach children about condoms has not been well investigated.

There are important reasons for investigating the association between mass media exposure to family planning contents and adult support for teaching children about condom use. First, family planning education touches on the use of condoms as an effective contraceptive method for birth control. Second, policymakers will understand whether family planning education in the media are having positive effects on the way adults interact with their children about the other benefits of using condoms such as HIV prevention. Third, generating knowledge on the link between media exposure to family planning contents and adult support for teaching children about this important reproductive health practice of condom use will help stakeholders in the design of interventions and the extent to which mass media should be relied on in achieving reproductive health objectives among children. Against this backdrop, the present study was designed to examine the relationship between media exposure to family planning contents and adult's support for teaching children about condoms to prevent HIV/AIDs.

2. Methods

2.1. Design and data source

The study used men and women datasets from the 4th, 5th, and 6th waves of the cross-sectional Ghana Demographic and Health Surveys (GDHS) conducted in 2003, 2008, and 2014. The GDHS datasets are publicly available for use after a simple registration-access request. The Ghana Statistical Service and the Ghana Health Service were the main implementers of the GDHS. The surveys were designed to account for representativeness at the following levels: national, regional and locality of residence (rural–urban). Detailed sampling procedures for the three waves of the GDHS are reported elsewhere (Ghana Statistical Service (GSS) and Macro International Inc. (MI), 2008, 2014, 2003).

2.2. Study area

Ghana is a lower-middle-income country with a population of about 30 million. Ghana has a total landmass area of 238,537 square kilometres. Ghana shared a boundary with these countries: Cote d'Ivoire to the west, Togo to the east, and Burkina Faso to the North. Majority of Ghanaians are into agriculture for local consumption and exports (Edgar et al., 2016). The estimated HIV/AIDS prevalence rate in Ghana is 2.0% (Ghana Statistical Service (GSS) and Macro International Inc. (MI), 2014). The AIDS commission is the main body responsible for the sensitization of the public about HIV/AIDS (Commission et al., 2016).

2.3. Study sample

The men and women datasets were merged. Cases with missing information were deleted from the datasets before data analyses. The analytic weighted samples for the study were 10, 486 for the 2003 dataset, 9,336 for the 2008 dataset, and 13,483 for the 2014 dataset.

2.4. Variables

The criterion variable of the study was adult's support for teaching 12–16 years old children about condoms to prevent HIV/AIDs, taking a yes (coded as 1) and no (coded as 0) as response categories in the dataset. The explanatory variables of the study are in two categories: the media exposure to family planning content variables and the controlled variables. The media exposure variables include the following: reading about family planning in the newspaper/magazine few months to the survey, listening to family planning messages on the radio a few months before the survey, and watching family planning content on the TV few months to the survey. The controlled variables include the following socio-economic and demographic factors: sex, age, education, religion, marital status, contraceptive use, household wealth, region, ethnicity, and place of residence.

2.5. Statistical analysis

Data were cleaned in IBM SPSS Statistics version 21, and the statistical analyses were performed using STATA version 14. Chi-square test of independence was performed to assess the relationship between the dependent variable and the variables measuring media exposure to family planning contents. The statistical significance threshold was pegged at 5% ($p \leq 0.05$). The DHS dataset is based on a complex samples design; thus, we use the svy command in STATA to adjust for the sample weight and the two-stage sampling design embedded in the dataset. Given that the DHS is a cross-sectional survey, we used Poisson regression to estimate prevalence ratios. Prevalence ratios are preferred over odd ratios when using cross-sectional datasets (Barros and Hirakata, 2003; Santos et al., 2008; Zou, 2004; Zou and Donner, 2013).

The justification for using Poisson regression to estimate prevalence ratios are sufficiently explained elsewhere (Barros and Hirakata, 2003; Santos et al., 2008; Zou, 2004; Zou and Donner, 2013). We followed this procedure to achieve our study objective. First, we modelled the association between media exposure to family planning content and adult's support for teaching 12–16 years old children about condoms to prevent HIV/AIDs. Second, the socio-economic and demographic factors of the respondents were added to the model as potential confounding variables.

2.6. Ethical considerations

Ethical approval for the GDHS was obtained from the Ghana Health Service Ethical Review Committee and the Institutional Review Board of ICF International. The GDHS is publicly available upon a simple, registration-access request, so no further ethical clearance was sought.

3. Results

3.1. Sample characteristics

About 61%, 54%, 55% of Ghanaian adults supported the teaching of children about condoms to prevent HIV/AIDs in 2003, 2008, 2014, respectively (Table 1). Majority of the respondents indicated that they heard family planning messages on the radio and TV a few months before the survey (Table 1). Few respondents were exposed to family planning contents through reading the newspaper/magazines (Table 1). In all the three samples, women were more than men (Table 1). Majority of the respondents attained a secondary level education in all the three samples (Table 1). Many of the respondents were currently married across the three samples (Table 1). The summary statistics for the remaining study variables are reported in Table 1.

3.2. Relationship between the criterion variable and the explanatory variables of the study

Chi-square test of independence was used to assess the relationship between the criterion variable and the explanatory variables of the study. The results indicated that exposure to family planning contents through reading the newspaper, listening to the radio, and watching the TV were significantly related to adults' support for teaching children about condoms to prevent HIV/AIDs from 2003 to 2014. Seven out of the ten explanatory (controlled) variables were associated with adults' support for teaching children about condoms to prevent HIV/AIDs in 2003: sex, age, education, religion, contraceptive use, household wealth, and region. All the ten explanatory (controlled) variables were significantly associated with adults' support for teaching children about condoms in 2008 and 2014: sex, age, education, religion, marital status, contraceptive use, household wealth, region, ethnicity, and place of residence (see table 2). To compare the models for the three data waves, all variables were controlled for in each adjusted model.

3.3. Poisson regression with a binary outcome

We achieved the objective of the study by using Poisson regression to investigate the effect of each of the three media exposure variables on the likelihood of adults' support for teaching children about condoms to prevent HIV/AIDs while holding the effect of others constant (see Table 3). The results indicated that adults who were media exposed to family planning contents were more likely to support the teaching of children about condoms to prevent HIV/AIDs across the three data waves (see Table 3). Specifically, exposure to family planning contents through watching the TV and reading the newspaper/magazines were positively associated with adults' support for teaching children about condoms to prevent HIV/AIDs in 2003, 2008, and 2014 (see Table 3). Exposure to family planning content through listening to the Radio was

Table 1
Weighted summary statistics for sample characteristics.

Variables	2003 n (%)	2008 n (%)	2014 n (%)
DV			
No	4043 (38.6)	4293 (46.0)	6109 (45.3)
Yes	6443 (61.4)	5044 (54.0)	7374 (54.7)
Media exposure variables			
Listened to FP content on Radio			
No	1951 (18.6)	3223 (34.5)	5185 (38.5)
Yes	8535 (81.4)	6113 (65.5)	8298 (61.5)
Watched FP content on TV			
No	4629 (44.1)	4799 (51.4)	6286 (46.6)
Yes	5857 (55.9)	4537 (48.6)	7197 (53.4)
Read FP content in Newspaper			
No	7714 (73.6)	7846 (84.0)	12,222 (90.6)
Yes	2772 (26.4)	1490 (16.0)	1261 (9.4)
Controlled variables			
Gender			
Male	4966 (47.4)	4515 (48.4)	4327 (32.1)
Female	5521 (52.6)	4822 (51.6)	9156 (67.9)
Age			
15–24	3863 (36.8)	3452 (37.0)	4549 (33.7)
25–34	3077 (29.3)	2595 (27.8)	4032 (29.9)
35–44	2167 (20.7)	2004 (21.5)	3205 (23.8)
45 +	1379 (13.1)	1285 (13.8)	1697 (12.6)
Education			
No education	2364 (22.5)	1597 (17.1)	2096 (15.5)
Primary	1886 (18.0)	1620 (17.3)	2183 (16.2)
Secondary	5771 (55.0)	5519 (59.1)	8091 (60.0)
Higher	466 (4.4)	601 (6.4)	1113 (8.3)
Marital status			
Never married	3595 (34.3)	3483 (37.3)	4841 (35.9)
Currently married	6074 (57.9)	5193 (55.6)	7448 (55.2)
Formerly married	818 (7.8)	660 (7.1)	1195 (8.9)
Religion			
No religion	558 (5.3)	400 (4.3)	518 (3.8)
Roman Catholic	1493 (14.2)	1210 (13.0)	1918 (14.2)
Protestants	1794 (17.1)	1624 (17.4)	1621 (12.0)
Other Christians	4513 (43.0)	4222 (45.2)	6338 (47.0)
Muslims	1759 (16.8)	1442 (15.4)	2551 (18.9)
Traditional/spiritualist	369 (3.5)	439 (4.7)	536 (4.0)
Ethnicity			
Guan/others	884 (8.4)	614 (6.6)	592 (4.4)
Akan	5193 (49.5)	4629 (49.6)	6816 (50.6)
Ga/Dangme	821 (7.8)	633 (6.8)	1111 (8.2)
Ewe	1384 (13.2)	1295 (13.9)	1812 (13.4)
Northern Ethnic group	2204 (21.0)	2166 (23.2)	3153 (23.4)
Current contraceptive use			
No method	6692 (63.8)	7232 (77.5)	10,254 (76.0)
Folkloric method	970 (9.3)	557 (6.0)	651 (4.8)
Modern method	2824 (26.9)	1547 (16.6)	2579 (19.1)
Household wealth			
Poorest	1738 (16.6)	1520 (16.3)	2095 (15.5)
Poorer	1810 (17.3)	1679 (18.0)	2353 (17.4)
Middle	2012 (19.2)	1746 (18.7)	2735 (20.3)
Richer	2285 (21.8)	2182 (23.4)	3053 (22.6)
Richest	2641 (25.2)	2210 (23.7)	3247 (24.1)
Place of residence			
Urban	4957 (47.3)	4481 (48.0)	7276 (54.0)
Rural	5529 (52.7)	4856 (52.0)	6207 (46.0)
Region of residence			
Western	1022 (9.7)	908 (9.7)	1512 (11.2)
Central	792 (7.6)	791 (8.5)	1346 (10.0)
Greater Accra	1652 (15.8)	1575 (16.9)	2813 (20.9)
Volta	929 (8.9)	844 (9.0)	1006 (7.5)
Eastern	1106 (10.6)	949 (10.2)	1286 (9.5)
Ashanti	2081 (19.8)	1853 (19.8)	2580 (19.1)
Brong Ahafo	1079 (10.3)	805 (8.6)	1100 (8.2)
Northern	938 (8.9)	881 (9.4)	1022 (7.6)
Upper West	273 (2.6)	498 (5.3)	508 (3.8)
Upper East	613 (5.8)	233 (2.5)	310 (2.3)

DV: Support Teaching Children About Condoms to prevent HIV
FP: Family planning

Table 2
Association between the criterion variable and the explanatory variables of the study.

Variables	2003		2008		2014	
	Supports Teaching Children About Condoms					
	No n(%)	Yes n(%)	No n(%)	Yes n(%)	No n(%)	Yes n(%)
FP content on Radio						
No	942 (23.3)	1009 (15.7)	1596 (37.2)	1627 (32.3)	2659 (43.5)	2526 (34.3)
Yes	3101 (76.7)	5434 (84.3)	2697 (62.8)	3416 (67.7)	3450 (56.5)	4848 (65.7)
	χ^2 = 95.22; φ = 0.10 ; P ≤ 0.01		χ^2 = 24.55; φ = 0.05 ; P ≤ 0.01		χ^2 = 120.93; φ = 0.10; P ≤ 0.01	
FP content on TV						
No	2006 (49.6)	2623 (40.7)	2447 (57.0)	2352 (46.6)	3248 (53.2)	3037 (41.2)
Yes	2037 (50.4)	3820 (59.3)	1846 (43.0)	2691 (53.4)	2861 (46.8)	4337 (58.8)
	χ^2 = 79.55; φ = 0.09; P ≤ 0.01		χ^2 = 99.24; φ = 0.10 ; P ≤ 0.01		χ^2 = 192.28; φ = 0.12; P ≤ 0.01	
FP content in Newspaper						
No	3134 (77.5)	4580 (71.7)	3758 (87.5)	4088 (81.0)	5722 (93.7)	6500 (88.1)
Yes	909 (22.5)	1863 (28.9)	535 (12.5)	956 (19.0)	387 (6.3)	874 (11.9)
	χ^2 = 52.51; φ = 0.07 ; P ≤ 0.01		χ^2 = 72.34; φ = 0.09 ; P ≤ 0.01		χ^2 = 119.28; φ = 0.9; P ≤ 0.01	
Gender						
Male	1813 (44.8)	3152 (48.9)	2028 (47.2)	2487 (49.3)	1855 (30.4)	2472 (33.5)
Female	2230 (55.2)	3291 (51.1)	2265 (52.8)	2556 (50.7)	4254 (69.6)	4902 (66.5)
	χ^2 = 16.41; φ = -0.04 ; P ≤ 0.01		χ^2 = 3.92; φ = -0.02 ; P ≤ 0.05		χ^2 = 15.15; φ = -0.03; P ≤ 0.05	
Age						
15–24	1434 (35.5)	2429 (37.7)	1552 (36.2)	1901 (37.7)	2056 (33.7)	2493 (33.8)
25–34	1129 (27.9)	1949 (30.2)	1131 (26.3)	1464 (29.0)	1724 (28.2)	2308 (31.3)
35–44	892 (22.1)	1275 (19.8)	946 (22.0)	1058 (21.0)	1540 (25.2)	1665 (22.6)
45+	589 (14.6)	790 (12.3)	664 (15.5)	621 (12.3)	789 (12.9)	908 (12.3)
	χ^2 = 24.20; Cramer's V = 0.05 ; P ≤ 0.01		χ^2 = 25.42; Cramer's V = 0.05 ; P ≤ 0.01		χ^2 = 21.29; Cramer's V = 0.04; P ≤ 0.01	
Education						
No education	1040 (25.7)	1324 (20.5)	848 (19.8)	749 (14.8)	1164 (19.1)	933 (12.7)
Primary	729 (18.0)	1157 (18.0)	785 (18.3)	835 (16.6)	1096 (17.9)	1087 (14.7)
Secondary	2124 (52.5)	3647 (56.6)	2466 (57.4)	3053 (60.5)	3535 (57.9)	4556 (61.8)
Higher	150 (3.7)	315 (4.9)	194 (4.5)	407 (8.1)	315 (5.2)	798 (10.8)
	χ^2 = 44.77; Cramer's V = 0.07 ; P ≤ 0.01		χ^2 = 86.92; Cramer's V = 0.10 ; P ≤ 0.01		χ^2 = 247.61; Cramer's V = 0.14; P ≤ 0.01	
Marital status						
Never married	1385 (34.2)	2210 (34.3)	1500 (34.9)	1983 (39.3)	2050 (33.6)	2790 (37.8)
Currently married	2350 (58.1)	3724 (57.8)	2462 (57.3)	2731 (54.2)	3549 (58.1)	3899 (52.9)
Formerly married	309 (7.6)	509 (509)	331 (7.7)	329 (6.5)	510 (8.3)	684 (9.3)
	χ^2 = 0.26; Cramer's V = 0.01 ; P = 0.88		χ^2 = 20.82; Cramer's V = 0.05 ; P ≤ 0.01		χ^2 = 36.76; Cramer's V = 0.05 ; P ≤ 0.01	
Religion						
No religion	235 (5.8)	322 (5.0)	215 (5.0)	186 (3.7)	255 (4.2)	264 (3.6)
Roman Catholic	555 (13.7)	938 (14.6)	526 (12.2)	684 (13.6)	788 (12.9)	1130 (15.3)
Protestants	667 (16.5)	1127 (17.5)	788 (18.3)	836 (16.6)	708 (11.6)	913 (12.4)
Other Christians	1740 (43.0)	2773 (43.0)	1879 (43.7)	2343 (46.5)	2831 (46.3)	3508 (47.6)
Muslims	701 (17.3)	1058 (16.4)	679 (15.8)	763 (15.1)	1361 (22.3)	1190 (16.1)
Traditional/spiritualist	145 (3.6)	224 (3.5)	208 (4.8)	232 (4.6)	167 (2.7)	369 (5.0)
	χ^2 = 7.05; Cramer's V = 0.03 ; P = 0.22		χ^2 = 21.41; Cramer's V = 0.05 ; P ≤ 0.01		χ^2 = 129.61; Cramer's V = 0.10; P ≤ 0.01	
Ethnicity						
Guan/others	350 (8.7)	534 (8.3)	270 (6.3)	345 (6.8)	268 (4.4)	323 (4.4)
Akan	2001 (49.5)	3192 (49.5)	2144 (49.9)	2484 (49.2)	3112 (50.9)	3704 (50.2)
Ga/Dangme	325 (8.0)	496 (7.7)	239 (5.6)	394 (7.8)	426 (7.0)	685 (9.3)
Ewe	499 (12.3)	885 (13.7)	616 (14.3)	679 (13.5)	747 (12.2)	1064 (14.4)
Northern Ethnic group	868 (21.5)	1336 (20.7)	1024 (23.9)	1142 (22.6)	1556 (25.5)	1597 (21.7)
	χ^2 = 5.06; Cramer's V = 0.02 ; P = 0.28		χ^2 = 21.31; Cramer's V = 0.05 ; P ≤ 0.01		χ^2 = 54.91; Cramer's V = 0.06; P ≤ 0.01	
Current contraceptive use						
No method	2875 (71.1)	3816 (59.2)	3439 (80.1)	3793 (75.2)	4803 (78.6)	5451 (73.9)
Folkloric method	335 (8.3)	635 (9.9)	230 (5.4)	327 (6.5)	254 (4.2)	397 (5.4)
Modern method	833 (20.6)	1991 (30.9)	624 (14.5)	923 (18.3)	1052 (17.2)	1527 (20.7)
	χ^2 = 159.42; Cramer's V = 0.12 ; P ≤ 0.01		χ^2 = 31.97; Cramer's V = 0.06 ; P ≤ 0.01		χ^2 = 41.35; Cramer's V = 0.06 ; P ≤ 0.01	
Household wealth						
Poorest	701 (17.3)	1037 (16.1)	757 (17.6)	763 (15.1)	1093 (17.9)	1002 (13.6)
Poorer	740 (18.3)	1070 (16.6)	867 (20.2)	812 (16.1)	1165 (19.1)	1188 (16.1)
Middle	767 (19.0)	1245 (19.3)	784 (18.3)	963 (19.1)	1227 (20.1)	1508 (20.5)
Richer	908 (22.5)	1377 (21.4)	1010 (23.5)	1172 (23.2)	1333 (21.8)	1721 (23.3)
Richest	928 (22.9)	1713 (26.6)	876 (20.4)	1334 (26.4)	1292 (21.1)	1955 (26.5)
	χ^2 = 20.99; Cramer's V = 0.05 ; P ≤ 0.01		χ^2 = 67.31; Cramer's V = 0.09 ; P ≤ 0.01		χ^2 = 100.11; Cramer's V = 0.09; P ≤ 0.01	
Place of residence						
Urban	1872 (46.3)	3085 (47.9)	1941 (45.2)	2540 (50.4)	3176 (52.0)	4100 (55.6)
Rural	2171 (53.7)	3358 (52.1)	2352 (54.8)	2504 (49.6)	2933 (48.0)	3274 (44.4)
	χ^2 = 2.42; φ = -0.02 ; P = 0.12		χ^2 = 24.58; φ = -0.05 ; P ≤ 0.01		χ^2 = 17.40; φ = -0.04; P ≤ 0.01	
Region of residence						
Western	335 (8.3)	687 (10.7)	456 (10.6)	452 (9.0)	629 (10.3)	883 (12.0)
Central	282 (7.0)	510 (7.9)	353 (8.2)	439 (8.7)	633 (10.4)	713 (9.7)
Greater Accra	649 (16.1)	1003 (15.6)	654 (15.2)	920 (18.2)	1088 (17.8)	1725 (23.4)
Volta	320 (7.9)	609 (9.5)	433 (10.1)	411 (8.1)	435 (7.1)	571 (7.7)

(*continued on next page*)

Table 2 (*continued*)

Variables	2003		2008		2014	
	Supports Teaching Children About Condoms					
	No n(%)	Yes n(%)	No n(%)	Yes n(%)	No n(%)	Yes n(%)
Eastern	402 (9.9)	704 (10.9)	451 (10.5)	497 (9.9)	524 (8.6)	762 (10.3)
Ashanti	941 (23.3)	1140 (17.7)	873 (20.3)	980 (19.4)	1473 (24.1)	1108 (15.0)
Brong Ahafo	393 (9.7)	686 (10.6)	375 (8.7)	430 (8.5)	467 (7.6)	633 (8.6)
Northern	384 (9.5)	554 (8.6)	401 (9.3)	480 (9.5)	447 (7.3)	575 (7.8)
Upper West	125 (3.1)	148 (2.3)	211 (4.9)	287 (5.7)	256 (4.2)	252 (3.4)
Upper East	212 (5.2)	401 (6.2)	85 (2.0)	147 (2.9)	157 (2.6)	153 (2.1)
	χ^2 = 80.00; Cramer's V = 0.09 ; P ≤ 0.01		χ^2 = 42.16; Cramer's V = 0.07 ; P ≤ 0.01		χ^2 = 230.05; Cramer's V = 0.13; P ≤ 0.01	

Table 3
Media exposure regressed upon support for teaching children about condom use.

Variables	2003 PR [95% CI]	2008 PR [95% CI]	2014 PR [95% CI]
FP content on Radio			
No	1	1	1
Yes	1.17* [1.11, 1.23]	1.00 [0.95, 1.06]	1.08* [1.03, 1.13]
FP content on TV			
No	1	1	1
Yes	1.08* [1.03, 1.12]	1.17* [1.11, 1.23]	1.17* [1.11, 1.23]
FP content in Newspaper			
No	1	1	1
Yes	1.06* [1.02, 1.10]	1.15* [1.09, 1.22]	1.19* [1.13, 1.26]

PR: Prevalence Ratio
* P ≤ 0.05

significantly associated with the outcome in 2003 and 2014, but not in 2008.

3.4. Accounting for the effect of controlled variables in the hypothesised model

Even after accounting for the controlled variables in the hypothesized model, media exposure to family planning contents still had a positive effect on adult's support for teaching children about condoms to prevent HIV/AIDs in 2003, 2008, and 2014 (see Table 4). Again, except 2008, adults who listened to family planning contents on the radio were more likely to support the teaching of children about condoms to prevent HIV/AIDs (see Table IV). In all the three data waves, adults who were exposed to family planning content on TV and through the newspaper/magazine were more likely to support the teaching of children about condoms to prevent HIV/AIDs (see Table 4).

These socio-economic and demographic factors were consistently significantly associated with the criterion variable across the three data waves: respondents' contraceptive usage and region of residence (see Table 4). Across the three data waves, adults who used modern contraceptive were more likely to support the idea that children can be taught about condoms to prevent HIV/AIDS. In 2003 and 2008, adults who were younger than 45 years were more likely to support the teaching of children about condoms to prevent HIV/AIDs. However, in 2014, age was not significantly associated with the idea of supporting the teaching of children about condoms to prevent HIV/AIDS.

Respondents' education status was statistically significantly associated with the criterion variable in 2008 and 2014 (see Table IV). For example, adults who had at least a primary level of education were more likely to support the teaching of children about condoms to prevent HIV/AIDs (see Table IV). In 2014, adults who were in non-poorest households were more likely to support the teaching of children about condoms to prevent HIV/AIDs. In 2008, adults who belonged to northern ethnic groups were less likely to support the teaching of children about condoms to prevent HIV/AIDs. In 2003 only, gender was statistically significantly associated with the criterion variable. More specifically, male adults were more likely to support the teaching of children about condoms to prevent HIV/AIDs.

4. Discussion

The current study ascertained the relationship between media exposure to family planning content and support for the teaching of children about condoms to prevent HIV/AIDs among Ghanaian adults in the period 2003 to 2014, controlling for socio-economic and demographic factors.

The results revealed that more adults are in support of teaching children about condoms to prevent HIV/AIDS, although there had been a 6% decline between 2003 and 2014. This result aligns with a previous study (AugsJoost et al., 2014), that found that most Californian mothers were in support of equipping children with sex education and reproductive health and the teaching of children about condoms to prevent HIV/AIDS (AugsJoost et al., 2014). However, other studies revealed that parents consider it to be inappropriate to discuss condom use with their children (Manu et al., 2015; Trinh et al., 2009; Kaljee et al., 2011).

A positive association between media exposure to family planning content and adult's support for teaching children about condoms was observed. The literature posits that exposure to family planning content in the media has led to the use of contraceptives, especially condoms, among adults in sub-Saharan Africa (Nyarko, 2020; Ito et al., 2006). It is, therefore, possible that these adults may have perceived the use of condoms to be effective, making it easy for them to accept and promote as an effective preventive measure for children. The findings of the present study accentuate the positive effect of media exposure on changes in health behaviour. Similar to the results of the present study, scholars found that exposure to advertisements on radio, TV, and other media influenced people's adoption of HIV preventive measures, family planning, and adoption of other healthy behaviours (Kansanga et al., 2018; Benefo and Takyi, 2002; Wakefield et al., 2010; Jung et al., 2013). This result suggests that Ghanaian adults who know family planning methods will find it useful to teach children about condoms.

Gender was associated with adult's support for teaching children about condoms in 2003 only. This means that the effect of gender became insignificant over time. Also, the results indicated that adults younger than 45 years were more supportive of teaching children about condom use between 2003 and 2008. In 2014, age was not associated with supporting the teaching of children about condom use. The 2003 and 2008 finding of the present study is in agreement with findings of a 2010 California study by AugsJoost et al (2014). AugsJoost et al (2014) found that younger mothers were more likely to support enhancing

Table 4
Media exposure, socioeconomic and demographic factors regressed on adults' support for teaching children about condom use.

Variables	2003 APR [95% CI]	2008 APR [95% CI]	2014 APR [95% CI]
Radio			
No	1	1	1
Yes	1.16* [1.10, 1.22]	1.03 [0.98, 1.09]	1.10* [1.05, 1.18]
TV			
No	1		1
Yes	1.08* [1.03, 1.12]	1.13* [1.06, 1.20]	1.12* [1.06, 1.17]
Newspaper			
No	1	1	1
Yes	1.05* [1.03, 1.09]	1.10* [1.04, 1.16]	1.09* [1.03, 1.15]
Gender			
Male	1	1	1
Female	1.01* [1.00, 1.09]	0.99 [0.94, 1.04]	0.99 [0.93, 1.06]
Age			
45+	1		1
15–24	1.22* [1.13, 1.30]	1.10* [1.00, 1.20]	0.97 [0.90, 1.05]
25–34	1.11* [1.04, 1.18]	1.12* [1.03, 1.22]	1.01 [0.95, 1.07]
35–44	1.03 [0.97, 1.10]	1.09* [1.01, 1.17]	0.98 [0.91, 1.05]
Education			
No education	1		1
Primary	1.05 [1.00, 1.11]	1.09 [1.00, 1.19]	1.11* [1.02, 1.21]
Secondary	1.04 [0.98, 1.10]	1.12* [1.03, 1.22]	1.20* [1.12, 1.29]
Higher	1.03 [0.94, 1.13]	1.24* [1.11, 1.39]	1.38* [1.26, 1.50]
Marital status			
Never married	1	1	1
Currently married	1.07** [1.02, 1.11]	0.96 [0.89, 1.03]	0.91 [0.86, 0.95]
Formerly married	1.12 [1.05, 1.10]	0.94 [0.84, 1.05]	1.00 [0.93, 1.08]
Religion			
No religion	1	1	1
Roman Catholic	1.01 [0.92, 1.10]	1.09 [0.97, 1.24]	1.18* [1.03, 1.35]
Protestants	1.01 [0.93, 1.10]	0.99 [0.88, 1.11]	1.10* [0.96, 1.27]
Other Christians	1.00 [0.93, 1.09]	1.09 [0.97, 1.22]	1.10 [0.97, 1.26]
Muslims	0.99 [0.90, 1.09]	1.04 [0.91, 1.18]	0.92 [0.79, 1.08]
Traditional/spiritualist	1.05 [0.93, 1.18]	1.13 [0.95, 1.34]	1.32* [1.13, 1.55]
Ethnicity			
Guan/others	1	1	1
Akan	0.99 [0.90, 1.08]	0.95 [0.87, 1.05]	1.02 [0.91, 1.13]
Ga/Dangme	0.98 [0.88, 1.10]	1.13 [1.01, 1.27]	1.08 [0.94, 1.24]
Ewe	1.01 [0.91, 1.11]	0.99 [0.88, 1.11]	1.06 [0.93, 1.20]
Northern Ethnic group	1.02 [0.94, 1.12]	0.89* [0.80, 0.99]	0.99 [0.88, 1.10]
Current contraceptive use			
No method	1	1	1
Folkloric/Traditional method	1.16* [1.09, 1.24]	1.08 [0.99, 1.19]	1.07 [0.99, 1.16]
Modern method	1.20* [1.15, 1.25]	1.08* [1.02, 1.15]	1.09* [1.03, 1.15]
Household wealth			
Poorest	1	1	1
Poorer	0.97 [0.90, 1.03]	0.98 [0.90, 1.06]	1.08* [1.01, 1.16]
Middle	1.00 [0.93, 1.07]	1.08 [0.99, 1.19]	1.16* [1.06, 1.25]
Richer	0.97 [0.89, 1.05]	1.00 [0.91, 1.10]	1.19* [1.08, 1.30]
Richest	1.04 [0.95, 1.14]	1.08 [0.97, 1.20]	1.21* [1.10, 1.33]
Place of residence			
Urban	1		1
Rural	1.01 [0.95, 1.06]	1.00 [0.93, 1.20]	1.06 [1.00, 1.14]
Region of residence			
Upper West	1	1	1
Western	1.15* [1.04, 1.26]	0.67* [0.58, 0.78]	0.94 [0.82, 1.08]
Central	1.13* [1.02, 1.24]	0.73* [0.63, 0.86]	0.86 [0.73, 1.00]
Greater Accra	0.98 [0.88, 1.08]	0.69* [0.93, 1.07]	0.93 [0.81, 1.06]
Volta	1.14* [1.02, 1.26]	0.67* [0.59, 0.80]	0.96 [0.82, 1.12]
Eastern	1.07 [0.97, 1.19]	0.68* [0.57, 0.81]	0.98 [0.86, 1.13]
Ashanti	0.91 [0.83, 1.00]	0.70* [0.61, 0.80]	0.70* [0.60, 0.81]
Brong Ahafo	1.06 [0.96, 1.18]	0.76* [0.66, 0.87]	1.06 [0.92, 1.23]
Northern	1.10* [1.02, 1.18]	0.87* [0.77, 0.98]	1.21* [1.05, 1.39]
Upper East	1.15* [1.04, 1.28]	0.91 [0.80, 1.04]	1.04 [0.89, 1.21]

APR: Adjusted Prevalence Ratio
* $P \leq 0.05$

children's condom knowledge and skills. Also, adults who attained some level of formal education were more supportive of teaching children about condom use between 2008 and 2014. Ghanaian adults who have attained some degree of formal education may support the teaching of children about condoms because of the ease in grasping the debilitating effect of HIV/AIDS on people's lives. This result, however, is in contrast with findings of studies elsewhere (AugsJoost et al., 2014; Ito et al., 2006). For instance, AugsJoost et al (2014) found that adults who had higher educational attainment were rather less likely to support equipping children with condom use, knowledge, and skills.

The study found that household wealth index had a positive effect on an adult's support for teaching children about condoms to prevent HIV/AIDS in 2014. As compared to those in the poorest households, adults in households with higher wealth quintiles were more likely to support the teaching of children about condom use. There is a dearth of literature on the link between household wealth and adult support for teaching children about condoms. Therefore, further studies will be required to explain this observation. The study found that married adults were more likely to support the teaching of children about condom use as compared to adults who had never married in 2003 only. The effect of marital status on supporting the teaching of children about condoms became insignificant over time, as shown in the 2008 and 2014 models. It is equally possible that adults in Ghana will support or reject the idea of teaching children about condoms regardless of their marital status.

The results indicated that adults who use contraceptives were more likely to support the teaching of children about condom use. Adults who use contraceptive as a birth control strategy were more likely to be aware of the dual protection of condom use as birth control strategy as well as an effective way of preventing STI. This knowledge advantage put them in a position to support the teaching of children to use condoms to prevent HIV/AIDS. The study revealed some significant regional variations in adult's support for teaching children about condom use to prevent HIVAIDS. Contrary to a study (Yehadji, 2010), the place of residence was not associated with the idea of supporting the teaching of children about condoms to prevent HIV (Yehadji, 2010). Yejadji (2010) found that that there was a relationship between place of residence and adults' support for teaching children about condoms, with rural adults in Burkina Faso being less likely to support the teaching of children about condom use.

4.1. Limitation and strength of the study

The analyses of the present study cannot establish causal relationships because cross-sectional survey datasets were used. Therefore, the results in this study are limited to associations between the criterion and the explanatory variables. Also, the dataset did not include variables on exposure to family planning content through social media. It would have been interesting to know whether adults are exposed to family planning contents in the social media and the extent to which it relates to their support for teaching children about condoms. This limitation is provided here as a guide for interpreting the results of the study. One strength of the study is the use of datasets from the Ghana Demographic Health Surveys (GDHS) program. The sample sizes of these datasets are large and nationally representative; therefore, findings from the analyses can be generalized for the entire Ghanaian population. The GDHS programs have consistently been undertaken about 7 times already since the 1980s; thus, GDHS' sampling methodologies, data collection procedures, and questionnaires have been improved.

5. Conclusion

The objective of this study was to investigate the relationship between media exposure to family planning content and adult's support for teaching children about condoms to prevent HIV/AIDS, and the results indicated a significant statistical relationship even after accounting for socio-economic and demographic characteristics. Although media exposure to family planning was related to adult's support for teaching children about condoms to prevent HIV/AIDS, there were large numbers of non-media exposed adults who declared their support for teaching children about condoms to prevent HIV/AIDS and of media exposed adults who were not in support of teaching children about condoms to prevent HIV/AIDS. We propose that from a public health standpoint, media exposure and other significant factors should be considered when designing public health education programs to garner the support of adults for teaching children about condoms. Some of the other important factors that policymakers should consider include encouraging adults to use modern contraceptives and allowing adults to attain formal education to the highest level.

Data Availability

The 2003, 2008, and 2014 Ghana DHS men and women datasets supporting the analysis of this study are available in the DHS repository. The DHS datasets are available for free after a simple registration process.

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CRediT authorship contribution statement

Pascal Agbadi: Conceptualization, Data curation, Formal analysis, Software, Writing - original draft, Visualization. **Twumwaa Eunice Tagoe:** Writing - original draft. **F. Akosua Agyemang:** Writing - review & editing, Supervision. **Veronica Millicent Dzomeku:** Writing - review & editing, Supervision. **Herman Nuake Kofi Agboh:** Methodology, Writing - review & editing. **Ernest Darkwah:** Writing - review & editing, Supervision.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.childyouth.2020.105447.

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