

Determinants of HIV/AIDS Awareness among Garments Workers in Dhaka City, Bangladesh

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ABSTRACT

The main purpose of this study is to find the awareness level as well as the determinants of awareness on HIV/AIDS among the garments workers in Dhaka City, Bangladesh. To do so, 200 garments workers were interviewed through a structured questionnaire using purposive sampling technique. As the statistical tools, univariate analysis was completed to figure out frequency distribution and the binary logistic regression model was used to predict the probability occurrence of the events by fitting data. The results revealed that the majority of the garments workers (63.5%) are very young (18 - 27 years), almost all (97.5%) are literate and most of them (57.0%) used contraceptives. Importantly, most of the respondents (64.0%) had not participated in any type of seminar or workshop related to HIV/AIDS, though almost all the respondents (84.5%) know HIV is a dangerous and life threatening disease. The logistic regression model identified that respondents' education, contraceptive usage, mass media and HIV workshops have statistically significant positive effects on HIV/AIDS awareness. Various media campaigns are strongly suggested to be increased knowledge and awareness to control the spread of HIV as well as STDs among garments workers in Bangladesh.

Keywords: HIV/AIDS; STDs; Garments Workers in Bangladesh; Logistic Regression Model

1. Introduction

Acquired Immune Deficiency Syndrome (AIDS) is known as the killer disease caused by Human Immunodeficiency Virus (HIV). AIDS is the late clinical stage of HIV infection, a serious health condition in which a human body's defenses against some illnesses breakdown and subsequently acquire diseases which are typically not life threatening. HIV is a parasite virus that attacks the immune system's soldiers—the CD4 cells (T-cells) and makes a body susceptible to and unable to recover from other opportunistic diseases. The virus is generally transmitted through sexual contact, infected women to their unborn children, or through contaminated needles (infections) or blood. HIV/AIDS has become global health problem. Many countries around the world are experiencing an epidemic of this sexually transmitted disease (STD). The first recognized cases of AIDS occurred in the USA in June 1981 [1]. Since then the disease has increased tremendously. At the end of 2010, an estimated 34 million people were living with HIV worldwide, up 17.0% from 2001 [2]. There were 2.7 million new HIV infections in 2010, including an estimated 390,000 cases

among children, this was 15.0% less than in 2001, and annual new HIV infections fell 21.0% between 1997 and 2010 [2]. Clearly, the number of people becoming infected with HIV is continuing to fall. The number of people dying of AIDS-related causes fell to 1.8 million in 2010 and the proportion of HIV affected women has remained stable at 50.0% globally [3].

Bangladesh is one of the few countries in the South Asia region with a low HIV prevalence. In Bangladesh, the first case of HIV/AIDS was detected in 1989 [4], and since then the number of HIV/AIDS patients have been steadily increasing. Since 2002 the number of HIV infected persons has been increased faster (**Figure 1**). Till December 2010, there were 2088 reported cases of HIV and 850 cases of AIDS; among these cases, 241 died [4]. However, at the end of 2008, there were only 1495 active HIV cases and 476 cases of AIDS [5]. Though this is not a large number, it is a threat for the health of the country. Bangladesh, is considered as a low prevalence country. The 9th Round National HIV Serological Surveillance, 2011 identified prevalence less than 1%, but there are significant levels of risky behaviors that make Bangladesh vulnerable to HIV/AIDS. While analyzing data from the first round of national HIV Serological Surveillance

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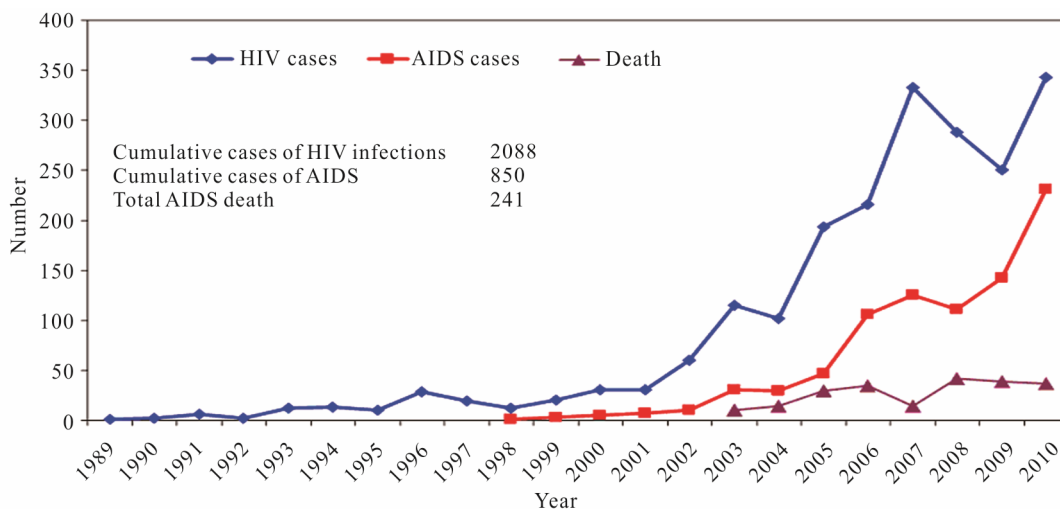


Figure 1. Reported HIV and AIDS cases and deaths in Bangladesh from 1989 to 2010. Source: [8].

conducted in 1998-1999 to the 9th round conducted in 2010-2011, HIV prevalence among most at risk population (MARP) were always found higher than that of total population (**Figure 2**). Although HIV prevalence among MARP have remained <1%, the trend have been increasing over the years 1998-2011 (**Figure 3**), especially from 1999 to 2007 (Round II to Round VII). The most vulnerable groups for HIV/AIDS in Bangladesh are: commercial sex workers (CSW), men who have sex with men (MSM), male sex worker (MSW), transgender and injecting drug users (IDU) [6]. In this regard, it has been identified that male migrants are also a high risk group for HIV [7]. The 9th Round HIV Serological Surveillance added the clients of sex workers, with the aforesaid group, including dock workers, rickshaw pullers and truckers as risky groups [8]. In Bangladesh, some other groups may also be considered as vulnerable to HIV due to their risky sexual behaviors, such as professional blood donors, garment workers, smugglers, fishermen, etc. Significantly, Bangladesh is vulnerable to an expanded HIV epidemic due to the prevalence of behavioral patterns and risk factors including a large commercial sex industry, low rate of condom use, needle-sharing among IDUs, and lack of knowledge that facilitates the rapid spread of HIV [9].

Garments workers play an important role in the economy as this sector brings in about 76% of the country's total merchandise export earnings [10]. Because of cheap labor, pressure for globalization of production based on location economies as well as the favorable treatment from developed countries, Bangladesh and some other developing countries have gradually become the global players in international trade for Ready Made Garments (RMG). In Bangladesh, garment workers constitute 40.0% of the total industrial workforce [11], and 2 million workers are employed; among them 80.0%

are women. The pathetic scene for garment workers includes an average working day of about 10 hours, and they are still neglected in our Bangladesh [10]. They are paid little for their contribution, and are still deprived of their basic rights. Workers are not highly educated and inhabit lower conditions. The mass media did not focus on this group. These workers do not have enough time for any type of entertainment like reading daily newspapers, watching television (TV), participating in seminars etc. On the other hand, they may be involved with unprotected sex, needle-sharing with IDUs and taking drugs. Garment workers often leave behind their husbands/wives in their home towns or villages, which fuel the extra marital sex. Government of Bangladesh (GoB) and other non-government-organizations (NGOs) have not identified them as a vulnerable group to HIV acquisition and transmission. Therefore, it is important to explore and identify the relationship of factors for which AIDS awareness is modified significantly in the context of Bangladesh garments workers. Thus the purposes of the present study is to find the level of awareness and to identify the determinants of awareness of HIV/AIDS regarding its prevention and control among garments workers in Bangladesh.

2. Data and Methods

In this study, data taken from a total of 200 (male: 100, female: 100) garments workers were interviewed during 15 May 2010 to 30 November 2010 from three companies namely "The Silver Garment (BD. Ltd.)", "Islam Garment (a Group of Industries)" and "Fahami Garment" in Dhaka City, Bangladesh. Respondents were interviewed using a standard questionnaire through purposive sampling technique. Univariate and logistic regression analysis have been used to analyze the collected data.

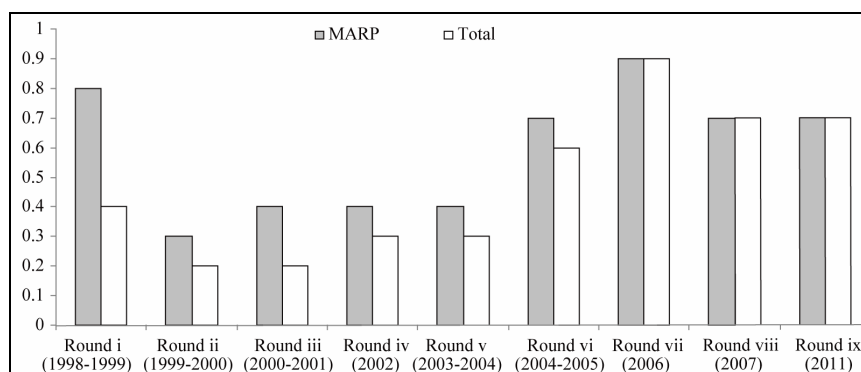


Figure 2. HIV/AIDS prevalence over the rounds of surveillance. Source: [8].

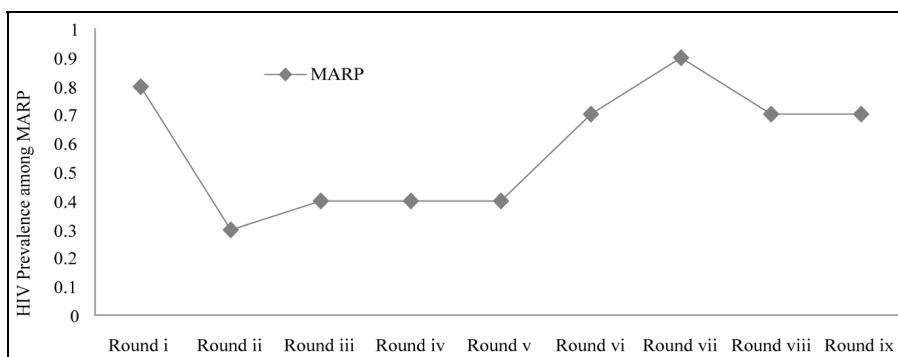


Figure 3. Trends of HIV among populations most at risk over the rounds of surveillance. Source: [8].

Initially, univariate analysis was used to explore the current situation of the respondents and finally, logistic regression analysis was completed out to identify determinants of level of awareness of HIV/AIDS among the respondents. The dependent variable used in logistic regression analysis as a dichotomous binary variable, was of the following form:

$$Y = \begin{cases} 1, & \text{if the respondents have awareness about HIV/AIDS;} \\ 0, & \text{otherwise.} \end{cases}$$

The independent variables in logistic analysis were educational status, contraceptive use, aware from radio, aware from TV, participation in HIV workshop, and aware about HIV by anybody.

3. Results

3.1. Background Characteristics of the Garments Workers

Table 1 shows the socio-demographic characteristics of respondents which highlights that, more than half of the respondents (63.5%) are young (18 - 27 years), while about, one-third (32.5%) are between 28 - 37 years of age and the rest are in higher age groups. Almost all of the respondents are Muslim (94%). The study also determined that, 64% respondents are married and 35% are unmarried and only 1% belong to the widowed group.

Almost all (98%) respondents are educated, of these 22% completed primary education, 54% completed secondary education and 23% completed higher secondary education. Among the total respondents, 75% have monthly income < 5000 TK, 22% have between 5000 - 10000 TK and only 4% have monthly income > 10,000 TK. Also nearly the same values are found in their monthly expenditures. Among these respondents 72% have a monthly expenditure < 5000 TK, 21% have between 5000 - 10,000 TK and only 8% have monthly expenditure > 10,000 TK.

The frequency distributions of different HIV/AIDS related variables of the respondents are presented in Table 2. The study results revealed that around half of the respondents (43%) did not use contraceptives. Almost all of the respondents (94%) known HIV/AIDS is contagious, about, though most of the respondents (64%) have not participated in HIV/AIDS related seminars. On the other hand, almost all (90%) participated in the company programs about HIV. Most of the garment workers (89%) have knowledge about treatment of HIV and almost all (95%) have knowledge that HIV is treatable. Most of the respondents (85%) know that HIV is a dangerous and life threatening disease and almost all of the respondents (77%) know that HIV causes the loss disease preventing power and increases physical weakness. With help of other persons a higher percentage of respondents (90%) are

Table 1. Socio-demographic characteristics of respondents (n = 200).

Characteristics	Frequency (%)	Characteristics	Frequency (%)
Age (in years)		Educational status	
18 - 27	127 (63.5)	Illiterate	5 (2.5)
28 - 37	65 (32.5)	Primary	43 (21.5)
38 - 47	7 (3.5)	Secondary	107 (53.5)
≥48	1 (0.5)	Higher secondary	45 (22.5)
Religion		Monthly income (TK)	
Muslim	188 (94.0)	<5000	151 (75.5)
Non Muslim	12 (6.0)	5000 - 10,000	41 (21.5)
Sex		>10,000	7 (3.5)
Male	100 (50.0%)	Monthly expenditure (TK)	
Female	100 (50.0%)	<5000	144 (72.0)
Marital status		5000 - 10,000	41 (20.5)
Married	128 (64.0)	>10,000	15 (7.5)
Unmarried	70 (35.0)		
Widow	2 (1.0)		

Note: The numbers indicated within the parenthesis represent the percentages.

Table 2. Background characteristics of HIV/AIDS related attributes (n = 200).

Characteristics	Frequency (%)	Characteristics	Frequency (%)
Contraceptive use		Dangerous and life threatening disease	
No	86 (43.0)	No	31 (15.5)
Yes	114 (57.0)	Yes	169 (84.5)
Is it contagious disease		Loss preventive power and increasing physical weakness by HIV	
No	14 (7.0)	No	47 (23.5)
Yes	186 (93.5)	Yes	153 (76.5)
Participation of HIV workshop		Awareness about HIV	
No	128 (64.0)	No	19 (9.5)
Yes	72 (36.0)	Yes	181 (90.5)
Company programs about HIV		Awareness about HIV from anybody	
No	19 (9.5)	No	21 (10.5)
Yes	181 (90.5)	Yes	179 (89.5)
Knowledge about treatment of HIV		Aware from radio	
Yes	177 (88.5)	No	114 (57.0)
No	23 (11.5)	Yes	86 (43.0)
Knowledge about remediable of HIV		Aware from TV	
yes	189 (94.5)	No	60 (30.0)
No	11 (5.5)	Yes	140 (70.0)

Note: The numbers indicated within the parenthesis represent the percentages.

aware of HIV/AIDS. Regarding media as an information source, the study showed, a large proportion of respondents (57%) became aware listening radio programs, and most of the respondents (70%) became aware through TV programs about HIV/AIDS related issues.

3.2. Determinants of Awareness about HIV/AIDS

In the logistic regression model, the respondent's educational status, contraceptive use, radio program, TV program, HIV workshop, and aware about HIV by anybody have been considered as the predictor variables. All these predictor variables significantly associated with the awareness of HIV/AIDS among garments workers. The results of logistic regression analysis included regression coefficients (β -values), p-values and odds ratios (OR), and 95% level of confidence interval (CI) which are presented in **Table 3**.

The study results showed that education has a statistically positive significant effect ($p < 0.001$) on awareness about HIV/AIDS. The regression coefficient is 0.56 and OR = 1.75 (95% CI = 1.241 - 2.474), which indicates that literate garment workers are 1.75 times more likely to have awareness about HIV/AIDS than their illiterate counterparts. In case of contraceptive use, it has a positive significant effect ($p < 0.012$) on HIV/AIDS awareness. The regression coefficient is 2.245 and OR = 9.44 (95% CI = 1.640 - 66.705), which imply that there is a positive relationship between contraceptive use, and HIV awareness and the garments workers who use contraceptives are 9.44 times more likely to have awareness about HIV/AIDS compared to those who do not use contracep-

tives. Mass-medias programs about AIDS play an important role in raising the awareness level in all sections. In case of media, the study revealed that garment workers who watch TV are 7.12 times more aware about HIV/AIDS than those who did not watch TV ($\beta = 1.963$, and OR= 7.12, 95% CI = 1.278 - 39.644). Thus TV programming is a strong media effect which has significant impact ($p < 0.025$) in raising the awareness about HIV/AIDS. Similarly AIDS related radio programs also have positive effects ($p < 0.094$) on awareness about HIV/AIDS. The regression coefficient and OR for garment workers who listen to radio programs about AIDS are 1.857 and 6.41 (95% CI = 0.727 - 56.407) respectively. This indicates that garment workers who listened to radio programs about AIDS are 6.41 times more likely to have awareness about AIDS than their counterparts. Participation in an HIV/AIDS workshop also has a significant positive effect ($p < 0.019$) on their awareness. The regression coefficient is 2.216 and OR is 8.38 (95% CI = 1.419 - 49.489) for garment workers who participated in an HIV/AIDS workshop, which implies that garments workers who participate in workshops are 8.38 times more aware about HIV/AIDS than those who do not participate in HIV/AIDS workshops. Generally, the garments workers who participate in HIV/AIDS workshop acquire a greater knowledge about HIV/AIDS and they are conscious about this disease. The study also revealed that the regression coefficient of the respondents who are aware of HIV/AIDS by anybody is 2.184 and the corresponding OR is 8.88 (95% CI = 1.311 - 60.157), which implies that the respondents who are aware about HIV/AIDS by anybody has a significant impact ($p < 0.025$) and is 8.88

Table 3. Determinants of the HIV/AIDS awareness of the garments workers.

Predictors	95% CI					
	Co-efficient of β	S.E of β	p-value	OR	Lower	Upper
Educational status						
Illiterate (r)	-	-	-	1.00		
Literate	0.561	0.176	0.001	1.75	1.241	2.474
Contraceptive use						
No (r)	-	-	-	1.00		
Yes	2.245	0.893	0.012	9.44	1.640	66.705
Radio program						
No (r)	-	-	-	1.00		
Yes	1.857	1.110	0.094	6.41	0.727	56.407
TV program						
No (r)	-	-	-	1.00		
Yes	1.963	0.876	0.025	7.12	1.278	39.644
Participation in HIV workshop						
No (r)	-	-	-	1.00		
Yes	2.126	0.906	0.019	8.38	1.419	49.489
Aware about HIV from anybody						
No (r)	-	-	-	1.00		
Yes	2.184	0.976	0.025	8.88	1.311	60.157

Note: r represents the reference category.

times more likely to have awareness about HIV/AIDS than that of the respondents who are not aware about HIV/AIDS by anybody.

4. Discussion

HIV is not only an epidemic, today it is a global concern. The results from this study indicate a higher proportion of young aged garments workers in the respective study area. Because of poverty, high growth rate and shortage of jobs, young people are being forced to participate in any type of work for their livelihood. Most of them are not highly educated so, they cannot get a good job with better salary. Jobs in the garment sector, as a low level worker, require less educational qualifications and less experience (sometimes no experience). These workers get low salaries. The present study provides evidence of their low income (≤ 5000 TK monthly) and low expenditures (≤ 5000 TK monthly) representing a low standard of living. Consistent with other studies [12-14] the findings indicate that education predicts the level of HIV/AIDS awareness and reiterates the importance of education for Bangladesh. The findings of this study also suggest that the respondents are not sufficiently conscious about contraceptive use, but contraceptive usage was found to be an important factor for HIV/AIDS awareness [15]. Most residents know that HIV/AIDS is a contagious disease, though their participation in HIV workshops is not satisfactory. It is a good sign that most of these respondents have participated in HIV awareness programs organized by their respective garment industry employer. The assistance of other persons, such as, health workers, friends, parents were found to be important predictors for HIV awareness among respondents. This is also consistent with the findings of [13]. Mass media programs (electronic and print media) show positive sign of increasing awareness among all groups consistent with [13,16]. This study found that, radio programs and TV programs about HIV/AIDS, are both important predictors in HIV/AIDS awareness as both has positive effects on HIV/AIDS awareness. In this study, participants in HIV/AIDS workshops were more likely to aware compared to those who have not participated in such workshops which indicate the effectiveness of such programs.

5. Conclusion

HIV/AIDS awareness has become one of the burning health issues across the world. HIV/AIDS awareness in Bangladesh has long been a topic of interest in research including all sectors of population because it has a direct relationship with the prevalence of HIV. The analyzed results show large proportions of respondents are in very young ages, most of them have secondary education and

are unmarried. It also shows that almost all garments workers are aware about HIV/AIDS, though their knowledge regarding prevention is not satisfactory. HIV/AIDS awareness depends on respondent's education, contraceptive usage, radio programs and TV programs on HIV/AIDS, their participation in HIV/AIDS workshop and the assistance of other persons to make them aware of HIV/AIDS. Though Bangladesh has a low prevalence of HIV, there remain a number of factors that make the country at high risk in acquisition and transmission of HIV. Therefore, it is the time to give more emphasis on education, mass-media exposure, workshops, and campaign.

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REFERENCES

- [1] Center for Disease Control and Prevention (CDC), "Morbidity and Mortality Weekly Report," *Center for Disease Control and Prevention*, Vol. 50, No. 21, 2001.
- [2] UNAIDS, "World AIDS Day Report," UNAIDS, 2011.
- [3] UNAIDS, "UNAIDS Report on the Global AIDS Epidemic," 2010.
- [4] National AIDS/STD Program (NASP), "UNGASS Country Progress Report," National AIDS/STD Program, Ministry of Health & Family Welfare (MOHFW), Government of Bangladesh, 2010.
- [5] UNAIDS, "20 Years of HIV in Bangladesh: Experience and Way Forward," UNAIDS, 2009.
- [6] M. M. Islam and K. M. Conigrave, "HIV and Sexual Risk Behaviors among Recognized High-Risk Groups in Bangladesh: Need for a Comprehensive Prevention Program," *International Journal of Infectious Diseases IJID Official Publication of the International Society for Infectious Diseases*, Vol. 12, No. 4, 2008, pp. 363-370. [doi:10.1016/j.ijid.2007.12.002](https://doi.org/10.1016/j.ijid.2007.12.002)
- [7] P. L. Johnson, "Male Migrants as a High-Risk Group: Harm Reduction and HIV/AIDS in Bangladesh," *Asian Affairs*, Vol. 25, No. 3, 2003, pp. 5-29.
- [8] National AIDS/STD Program (NASP), "UNGASS Country Progress Report," National AIDS/STD Program, Ministry of Health & Family Welfare (MOHFW), Government of Bangladesh, 2011.
- [9] World Bank (WB), "HIV/AIDS in Bangladesh," The World Bank, 2009.
- [10] A. Barkat, M. Majid, R. Ara, *et al.*, "Study on Change in Attitude and Behavior of Garment Owners, Managers and

- Workers towards Gender and Reproductive Health Issues,” Human Development Research Centre, 2008.
- [11] Communist Internationalist (CI), “The CIA World Fact Book 2005-2006,” US Department of State, Area Handbook of the US Library of Congress, 2006.
- [12] M. M. Rahman, M. Kabir and M. Shahidullah, “Adolescent Knowledge and Awareness about AIDS/HIV and Factors Affecting Them in Bangladesh,” *Journal of Ayub Medical College Abbottabad*, Vol. 21, No. 3, 2009, pp. 3-6.
- [13] S. Akter and M. Rahman, “Socio-Demographic Covariates Play a Tremendous Role in Mounting HIV/AIDS Awareness, Knowledge among Slum Women in Bangladesh,” *Revista de Ciências Médicas e Biológicas*, Vol. 8, No. 3, 2009, pp. 250-255.
- [14] M. S. Rahman and M. L. Rahman, “Media and Education Play a Tremendous Role in Mounting AIDS Awareness among Married Couples in Bangladesh,” *AIDS Research and Therapy*, Vol. 4, 2007, p. 10.
[doi:10.1186/1742-6405-4-10](https://doi.org/10.1186/1742-6405-4-10)
- [15] M. N. I. Mondal, M. M. Hossain and M. M. Rahman, “Knowledge and Awareness about HIV/AIDS among Garments Workers in Gazipur District, Bangladesh,” *The Social Sciences*, Vol. 3, No. 7, 2008, pp. 528-530.
- [16] M. Rahman, “Determinants of Knowledge and Awareness about AIDS: Urban-Rural Differentials in Bangladesh,” *Journal of Public Health and Epidemiology*, Vol. 1, No. 1, 2009, pp. 14-21.