A Quantitative Assessment of Relationship between Urban Green Parks and Self-Esteem of Urban Children and Adolescents (Teenage Group) in Ghana

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Abstract

The importance of urban green parks in sustainable urban design development has gained currency in recent times, not only because urban parks do enhance the visual image of the city, or ameliorate its harsh climatic conditions, or purify its air, but they help develop high self-esteem of children and adolescents. The study examines the correlation between the presence of green parks and self-esteem development among urban adolescents in Kumasi, the second largest city and Accra, the largest and the capital city of Ghana as case studies. The Children and adolescents used as respondents had their ages ranging from 13 to 19 years (teenage group). Using the Rosenberg Self-Esteem Scale as a measure, the study revealed that the lack of green parks at Tafo (Kumasi) has significantly impacted the self-esteem of Tafo adolescents; {t (59) =13.178, P=0.000 (two-tailed)}. And, Respondents who socialize in green parks at Cantonments (Accra had high self-esteem levels, whereas respondents who have no access to green parks at Tafo (Kumasi) had low self-esteem.

Keywords: Green parks, Socialization, Self-esteem, Urban, Tennage Group, Kumasi and Accra.

1. Introduction

The study unveils the impact that the absence of urban green parks has on the self-esteem (self-image) development of adolescents in cities in Ghana using Kumasi and Accra as case studies. It examines the correlation between the presence of green parks and self-esteem development among urban adolescents in Kumasi, the second largest city and Accra, the largest and the capital city of Ghana. This study is very significant for Kumasi which though situated in the tropical rainforest zone, is rapidly being stripped of its urban greenery. Barton and Pretty (2010) affirm that any activity on a green environment positively affects mood and the self-esteem development of participants and even five minutes activity in green environment leads to significant improvement in self-esteem and mood development. High self-esteem has a strong positive relationship with health (Pretty, 2007); and that positively affects work productivity (Sorensen et al., 1997; Tennessen and Cimprich, 1995) and also positively impacts the intellectual development in children and adolescents (Kellert, 2005). Low self-esteem on the other hand is associated with depression, suicidal ideation, anorexia nervosa, delinquency and several other social adjustment problems (Boadi, 2009).

1.1   Self-esteem Development, Socialization and Green Parks

Self-esteem (or self-worth), defined as a generalized human response to success or failure, and interpreted as mood (Hewitt 2005), is a stable trait-like (relatively unchanging) construct. This implies that individuals with relatively high self-esteem at one point in time tend to have high self-esteem in later years and people with low self-worth earlier in life invariably also tend to maintain that condition in later years (Robins and Trzesniewski2005). The development of high self-esteem is crucial since it has a strong positive relationship with health (Pretty, 2007) and inversely correlated with mental health problems (Blascovich and Tomaka, 1991). High self-worth is associated with healthy behaviors such as participating in physical activities (Torres and Fernandez, 1995) and healthy social interactions (Schaefer, 2005). It has a strong positive relationship with high productivity and high intellectual development in children and adolescents (Sorensen et al., 1997; Tennessen and Cimprich, 1995; Kellert, 2005). Low self-esteem is correlated with mental health problems. In some adolescents, low self-esteem can lead to serious problems such as depression, low academic performance, suicidal ideation, anorexia nervosa, delinquency and several other social adjustment problems (Boadi, 2009). According to American Academy of Pediatrics (2000), suicide tendency is higher in adolescents who suffer from depression than those without depression. Low self-esteem can have serious implications since nearly all negative emotional reactions 'inflict their damage only as a result of low self-esteem' and a poor self-image is a 'magnifying glass' which turns a little mistake into an unprecedented symbol of personal defeat (Burns, 1999). Thus, self-esteem development in adolescents is very important and when ignored, adolescents could develop worrying mental issues. Socialization promotes self-esteem development. Social interaction or socialization is crucial in the development of self-esteem. It is considered as the key ingredient to the development of an individual's sense of self-worth (Schaefer, 2005). Socialization, a process in which people learn attitudes, norms, and behaviors

suitable for members of a particular culture and which happens through human interaction (Schaefer, 2005), is very important to this study. It is asserted that the social environment is totally responsible for the range of adolescents' experiences, from erratic and agitated to calm and stress free (Berk, 2002). As the process of socialization takes place, the self-image of the individual is shaped (Schaefer, 2005) and thus leads to self-esteem development. The individuals learn about who they are during the social interaction. It is asserted that the more adolescents socialize, the better the self-worth develops and green parks offer the best opportunity for socializing and recreation as well as physical activities (see for example, Campbell et al., 2015; Lindberg and Schipperijn, 2015; Sakici et al., 2013; Fan et al., 2011).

Green parks are identified as ideal settings for social interaction (Loukaitou-Sideris and Stieglitz, 2002; Faber et al., 1998) through which children's self-esteem is developed (Barton and Pretty, 2010; Schaefer, 2005). They offer city children a first exposure to nature. They are conducive and interactive enough for socialization to have its maximum effect. Nature is beautiful and thus parks should be designed in a manner to replicate this beauty. Even though the home, school, church, and the mosque are major settings where children and adolescents socialize, they are mostly devoid of nature and do not provide children ample opportunity to ameliorate their motor skills (Loukaitou-Sideris and Stieglitz, 2002).

It is also widely accepted that nature or greenery has a more profound impact on children and thus plays an invaluable role in their psychological development (Kaplan, 1973). The psychological and physiological benefits of physical activities on greenery are greater than those in other non-greenery environments (Berg et al., 2007; Pretty et al., 2005) since spending time in greenery is associated with better psychological well-being (Kaplan, 1973). Research reveals that there is a high level of satisfaction of leisure within green settings (Lloyd and Auld, 2002; Hartig et al., 2001) which leads to longer play and socialization periods among children (USDA Forest Service, 2001). Green parks are known to stimulate social interaction among children and they are suitable for social interaction or socialization (Loukaitou-Sideris, 2002). They independently stimulate physical activities (Kaczynski & Henderson, 2007; Humpel et al., 2002). Exercise and socially interactive-based activities on greenery ameliorate self-esteem (Barton et al., 2012; Pretty et al., 2005) and Faber-Taylor et al. (1998) also found that children's play was more enhanced by green spaces than the relatively barren play settings.

Children who dwell near urban greenery possess a higher sense of self-worth or higher self-esteem than children who live in urban neighborhoods without greenery (Wells and Evans, 2003), since green environment has the capacity to help improve self-esteem and mood (Barton and Pretty, 2010). Analysis of ten (10) UK studies involving 1,252 participants with the use of meta-analysis methodology revealed that even five (5) minutes of green exercise (activity in greenery) give an improvement in self-esteem with the most impact on people less than 30 years. Barton and Pretty (2010) found out that an activity in greenery ameliorates self-esteem irrespective of duration, intensity, location, gender, age and health status. Children thus socialize more in green settings and their well-being will be adversely affected in the absence of such natural environments (Wells and Evans, 2003).

1.2 *Children's Predilection for Greenery*

It has been established that children have inkling for natural settings (Moore, 1986) especially green settings and naturally experience some amount of joy playing on such green settings. Coley et al. (1997) also found out that young people more frequently use outdoor public spaces with greenery than those that are barren. The joy experienced in such natural green environments has the potential to precipitate more interaction (socialization) with another person or persons. The importance of green parks and Children's predilection for green settings is not new. A study involving 237 children in Britain who dwelled on and off public housing estate also revealed children's taste for greenery. When quizzed about features of their neighborhood that they liked most, 75% of the estate children and 45% of the non-estate children indicated their preference for outdoor areas with greenery (Department of Environment, 1973). Again, Moore (1986) reported in a study that, when children were asked to draw their favorite places, 96% of the drawings by the children constituted outdoors settings such as parks, playgrounds, schoolyards and trees. It is asserted elsewhere that Bedford Park in west London which grew up in the 1870s and 80s positively impacted newly created settlements and districts; made it possible to work in the city and live in supposedly park-like rural surroundings that favoured artistic and cultural leanings (Charles, 1989). Green spaces have been proven to stimulate and encourage social interaction (Coley et al., 1997).

A documentation of children's inkling for natural environments among British and Caribbean children (Sobel 1993 as cited in Wells & Evans, 2003) shows the close association between children and nature. Children are closely attached to green settings that even in adulthood, the memories of childhood 'green experiences' continue to exist. When adults were asked in a study of their favorite places during childhood, 97% of them indicated green outdoor places (Sobel 1991). A study by Lynch (1977) also revealed a profound appreciation of vegetation universally. The reasons why children and the youth in general have an affinity for green environments are provided by Faber et al., (1998) and Coley et al., (1997) when they concluded that green outdoor spaces are more supportive of children's play and activities undertaken by the youth than other settings.

The next section presents profile and selection of the case study areas as well as the approaches and tools adopted for the study.

2.0   Methodology

2.1   Profile and Selection of Case Study Areas

The study measured the self-esteem of the two groups of children and adolescents in different environments; Tafo, a sub-metro in Kumasi, as an environment without green parks but with very limited scattered greenery and Cantonments a community in Accra with pockets of developed green parks. Kumasi, though situated in the middle of Ghana's rainforest zone and was once known as the 'Garden City of West Africa', it's urban greenery is being depleted at a very fast rate (0.6km in radius per five years) and now becoming a "city" but without the "garden" (Quagraine, 2011) and Tafo, one of its ten sub-metros under consideration is not different. A reconnaissance survey of most of the other eight sub-metropolitan districts also reveals more concrete structures, bare open spaces and very little greenery. This study is to find out if Kumasi's deteriorating green parks and rapidly urban green depletion is having effects on the positive development of the self-esteem of its adolescents. The study was limited to children and adolescents in Junior High School (JHS) and Senior High School (SHS) of ages between 13 and 19 years. The adolescence state is marked by mood swings as the young individual strives to establish a personal sense of individual identity and a feeling of self-worth (Ingersoll, 1989) and the tension between biological maturity and social dependence in adolescents creates a period of "storm and stress" (Myers, 1999). Adolescence can thus be seen as a 'battleground' and it is important for society to help its development.

Tafo, a sub-metro of Kumasi, was selected to represent environments with dense housing environment and very scarce green spaces and without green parks (Figure 1). The Tafo sub-metro has a total population of 140,086 of which children from 5-18 years constitute 25 percent (Tafo sub-metro Council, 2008). It has 11 JHSs and 4 SHSs out of which one JHS and one SHS are selected for the study. Cantonments is a community in Accra with the total population of about 10,809. It has 4 JHSs and 4 SHSs out of which one JHS and one SHS are also selected for the study (Ghana Statistical Service, 2012). Though Accra is not different from Kumasi with its green coverage, it is considered in this study due to the presence of pockets of developed green areas especially those at Cantonments (Figure 2).
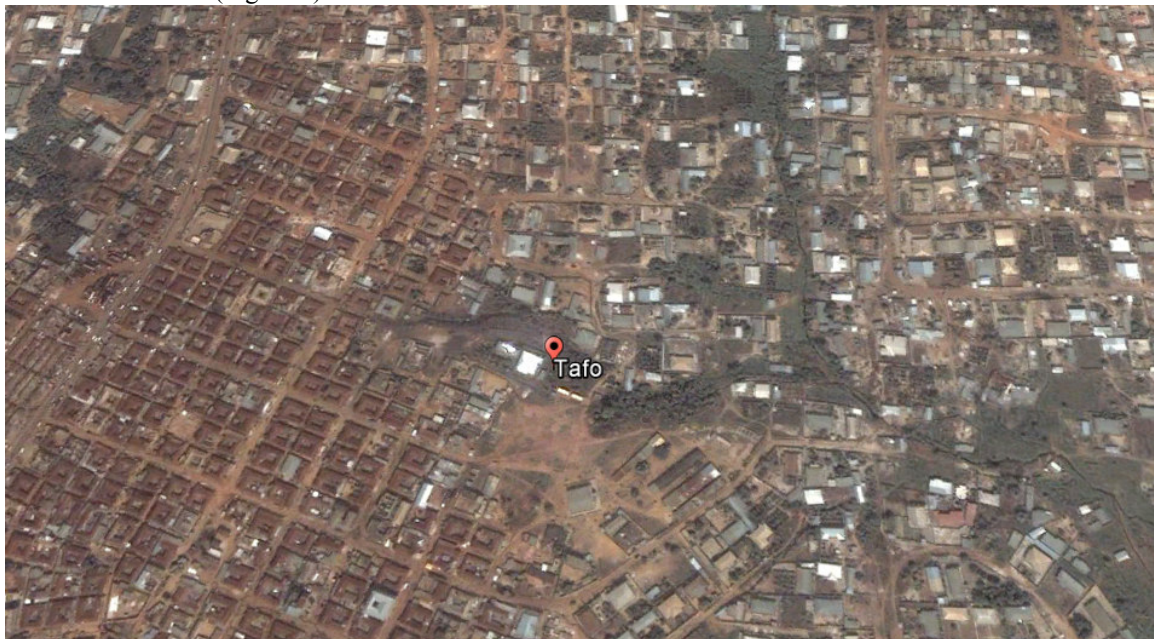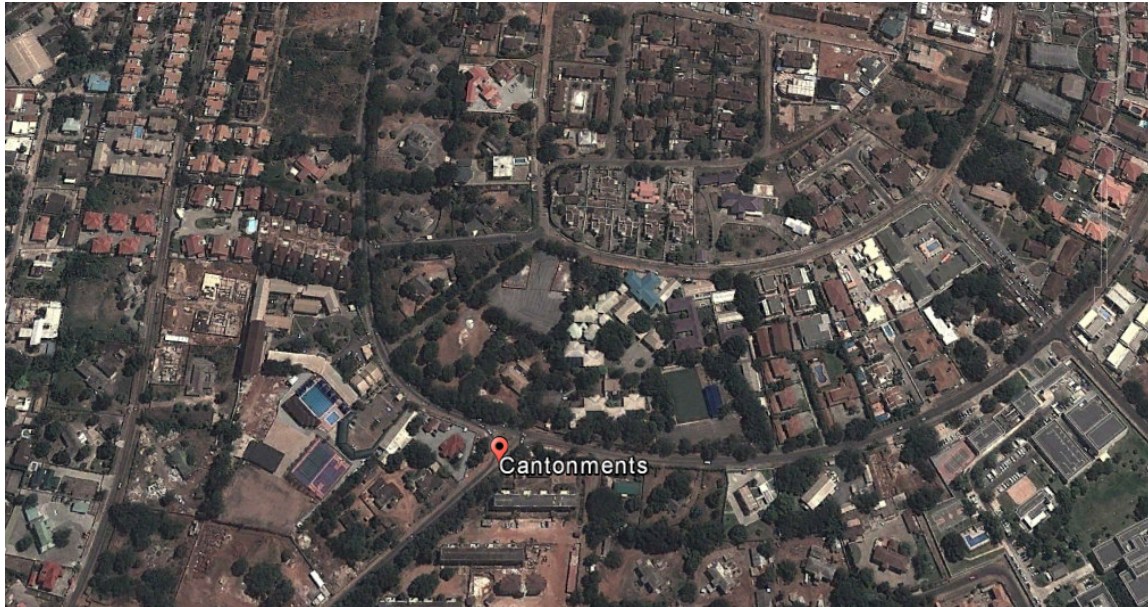

Figure 1: A section of Tafo -Kumasi (Adapted from Google Earth, 2016)

Figure 2: A section of Cantonments - Accra (Adapted from Google Earth, 2016)

2.2   Approaches and Tools

The study utilized literature, questionnaires and observations to gather information and psychological testing and Statistical Package for Social Sciences for analysis to reach conclusions. One JHS and one SHS were selected from each community (Tafo and Cantonments) for the study. From Tafo sub-metro in Kumasi, the Tafo Methodist Junior High School and the Kwasi Oppong Senior High School were selected. From Cantonments in Accra, the Ghana International School (JHS) and St. Thomas Aquinas Senior High School were selected. Sixty adolescents were randomly selected from each community; thirty (30) from the JHS and thirty (30) from SHS. Thus, sixty (60) children and adolescents were conveniently selected from the JHS and the Senior High School (SHS) in Tafo sub-metro, those who do not have access to green parks for socialization (Control Group) and sixty (60) children and adolescents were also conveniently selected from the JHS and SHS in Cantonments, those who often socialize in green parks (Experimental Group). Each group comprised 30 males and 30 females. Ages range from 13 to 19 years for both groups with mean ages of 15.98 and 14.75 for the control and experimental groups respectively.

The research did not include the socio-economic background of respondents since self-assessment information showed varied socio-economic backgrounds of both groups ranging from low to high. Thus, it is not the case that the adolescents in experimental group are necessarily from a higher socio-economic class or vice versa. All 60 children and adolescents in the control group live in different parts of the Tafo sub-metro. They were from families of different socio-economic backgrounds like their counterparts in the experimental group. The 60 children and adolescents in the experimental group dwell in different parts of Accra but have access to green parks at their schools which are situated at Cantonments. All 120 children and adolescents were given questionnaire that covers their perceived views about green parks, their self-esteem and the level of sociability. The results were measured using psychological test tools (Rosenberg Self-Esteem Scale (RSE) and a Sociability Measuring Scale (SMS). Two photos of green public parks (shown in Figures 3 and 4) were incorporated into the questionnaires to enable all respondents understand the study in which they were participating in, especially for the respondents in the Tafo sub-metro who have no access to green parks.
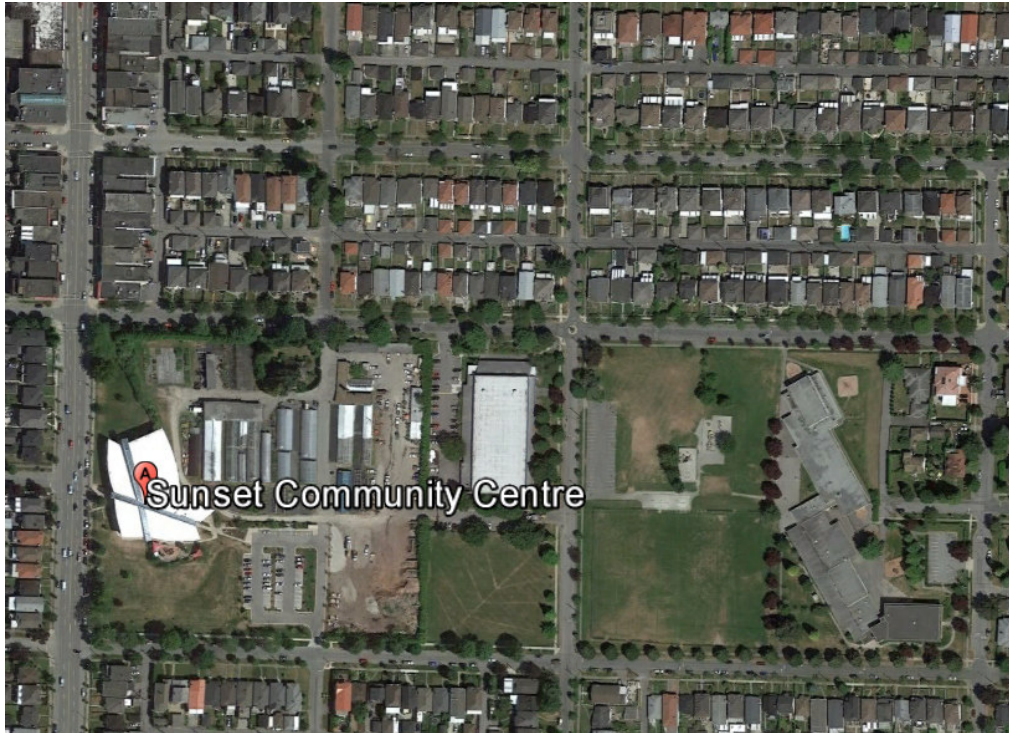
Figure 3: Example of a Green Park (Sunset Community Center [2014] in the United States of America)
(Source: Adapted from Google Earth, 2016).

Figure 4: Example of socializing Green Park (Villa Borghese in Rome, Italy)
(Source: Adapted from Google Earth, 2016).

The Rosenbergs (1965) Self-esteem scale was used to measure the self-esteem of adolescents in both groups. It is the most widely used scale for measuring self-esteem (Biddle et al., 2001). It is used by researchers as a yardstick to compare measures of self-esteem (Barton and Pretty, 2010). Ten items are in the scale and these are rated on a 4-point Likert scale with responses ranging from strongly disagree to strongly agree. Test-retest correlations range from .82 to .88, Cronbach's alpha for samples are in the range of .77 to .88 (Boadi, 2009) and the scale ranges from 0-30. Scores between 15 and 25 are within normal range and scores below 15 suggest low self-esteem. The Correlated t Test was used to measure the influence of green parks on their self-worth using the Statistical Package for Social Sciences (SPSS).

The sociability measuring scale from the Autism Treatment Evaluation Checklist (ATEC) was used to

measure the sociability level of adolescents in the study. It is a 20-item self-report checklist and each item has three responses namely Not True, Somewhat True and Very True. This sociability test has a large number of items and can thus be said to be reliable since any test reliability is enhanced if it contains a considerable number of items (Dunn, 1999). The study, in measuring the sociability level of the respondents sought to find out if there is any correlation between self-esteem development and sociability. Respondents in all groups; Control Group and Experimental Group were given basic information about the study before standardized questionnaires on green parks were administered to them to fill. In the case of the both Control and Experimental Groups, respondents were grouped into classrooms in their respective schools during school section to fill the questionnaires. There was a 100% return of the questionnaires because the study was done in the schools. The school environment aided the study with coordination and discipline. However, the study ensured that the respondents were protected from duress, over-reaching, or other ulterior form of constraint or coercion. Participation was absolutely voluntary.

3.0   Results and Discussions

3.1   Hypothesis Testing

The results showed a correlation between self-esteem development and socialization in green parks. The Correlated t Test was used since samples in the two groups; the adolescents from Tafo (the control group) and those from Cantonments (the experimental group) were deemed equivalent in every respect (Opoku, 2006) except on the independent variable (Socialization in Green Parks) that was being manipulated to observe its effect on the dependent variable (Self-Esteem). The study hypothesized that:

H_0:   it appears *self-esteem in children and adolescents in the study areas (Tafo-Kumasi and Cantonments-Accra)* are independent of manifested socialization in green parks (any observed association has occurred by chance).

H_1:   it appears *self-esteem in children and adolescents in the study areas (Tafo-Kumasi and Cantonments-Accra)* are dependent of manifested socialization in green parks a (any observed association may be the result of real association).

(H_0 = null hypothesis H_1 = alternative or maintained hypothesis)

3.2   Key Findings

The findings are in line with the results of Barton and Pretty (2010) and Well and Evans (2003) that children and adolescents with access to greenery for socialization (those from Cantonments) mostly possess high sense of self-esteem whereas children and adolescents living in environments without greenery for socialization (those from Tafo) mostly had low sense of self-esteem. Whereas adolescents in Cantonments had an average score of 20.2 on self-esteem, their counterparts in Tafo (area with very little greenery and no green parks) scored an average of 14.3 out of total score of 30 on the self-esteem scale. Table 1 shows the statistical analysis of the data input (using the correlated t test) on the self-esteem of adolescents of Cantonments who socialize on green parks and those from Tafo who do not have access to green parks. The computed t value is 13.178 and with a degree of freedom of 59, the t value is significant at p=0.000 (two-tailed). Since 0.00<0.05, the null hypothesis is rejected, and we conclude that a significant difference in self-esteem exists between adolescents who socialize in green environments (Cantonments; experimental group) and adolescents who do not socialize in greenery (Tafo; control group): {t (59) =13.178, P=0.000 (two-tailed)}

Table 1: Correlated t Test between green parks and self-esteem

Mean	Std. Deviation	Std. Error	95% Confidence Interval of the Difference		t	Df	Sig.(2-tailed)
			Mean Lower	Upper			
4.90000	2.88009	.37182	4.15599	5.64401	13.178	59	.000

Source: Authors' Field Survey, 2016.

The majority of adolescents in Cantonments, Accra who have access to green parks for socialization, have high sense of sense of self-esteem whereas the majority of their counterparts from Tafo, Kumasi have low self-esteem level. This does not imply that most adolescents in Accra have high self-esteem as compared to those in Kumasi since both cities have very few deteriorating green parks, except in Cantonments and other parts of Accra that happened to have few developed green parks. However, the total green coverage of Accra is not different from the Kumasi situation. What the results imply is that creating more green parks in both cities and other towns and cities in Ghana would help urban children and adolescents develop high self-esteem.

The study also sought to find out if there exist a correlation between level of self-esteem and sociability (level of socialization). The results also showed that adolescents with high self-esteem turn to have a high sociability level as well. For in instance, the majority of the adolescents from Cantonments (the experimental group) registered both high self-esteem (90%) and high sociability levels (100%) as shown in Table 2 below. The statistics also suggest that all the 10% experimental group respondents (those who have access to green

parks) who scored low self-esteem also had high sociability levels since all respondents (100%) in the experimental group scored high sociability levels. This confirms the assertion that green parks have the natural tendency to facilitate socialization which in turn mostly leads to high self-esteem development.

Table 2: Self- Esteem and Sociability levels

Variables	Adolescents (in %) with:			
	High Self-esteem	Low Self-esteem	High Sociability	Low Sociability
Control Group	31.67	68.33	73.33	26.67
Experimental Group	90.00	10.00	100.00	0.00

Source: Authors' Field Survey, 2016.

Though the data asserts that a positive correlation may exist between sociability and high self-esteem, it does not seem to suggest that high sociability necessarily leads to high self-esteem since both groups scored high sociability level of 73.33% (control group) and 100% (experimental group) respectively but only 31.67% of the control group (those from Tafo and without green parks) scored high self-esteem. The analysis makes it clear that the absence of green parks substantially but negatively impacted self-esteem development in children and adolescents in Tafo, a sub-metro of Kumasi.

Table 3 indicates adolescents' views on socialization and green parks. As compared to the 58.33% of the adolescents from Cantonments, a higher majority (90%) of the adolescents in Tafo (without green parks) opined that the level of social interaction at school, home, church and mosque is satisfactory, though as many as 91.67% of them want to socialize more. This may confirm the assertion made above that the adolescents in the control group (Tafo sub-metro) may need another environment that orients itself for more socialization; green parks that will stimulate and encourage high self-esteem development beyond those from socialization at school, home, church and mosque.

Table 3: Perceived views of adolescents on social interaction and green parks

VIEWS OF PARTICIPANTS	PERCENTAGES (%)	
	CONTROL GROUP (Tafo, Without green parks)	EXPERIMENTAL GROUP (Cantonments, With green parks)
Green parks are good settings for social interaction	83.33	83.33
Social interaction is the primary reason to visit green parks	25.00	46.67
Level of social interaction at school/home/church/mosque is satisfactory	90.00	58.33
Want to socialize more	91.67	88.33

Source: Authors' Field Survey, 2016.

4.0   Conclusions

The findings are consistent with the research hypothesis that socialization in green parks impact positively on the self-esteem of adolescents. The study revealed a significant positive relation between socializing in green parks and high self-esteem development. The study revealed that a significant difference exists in self-esteem between adolescents who have access to green parks and their counterparts who do not have access to greenery {$t(59)=13.178$, $P=0.000$ (two-tailed)}. Respondents who socialize in green parks turned to have a high self-esteem. The present findings revealed how self-esteem development among Ghanaian adolescents in urban centers is being hampered as a result of lack of green parks in the cities. When it comes to the availability of urban greenery in Kumasi, the Tafo sub-metro condition is a typical representation of the Kumasi Metropolis. Kumasi has only 7% canopy tree coverage even though it is situated in the center of the tropical rainforest in the country. Kumasi has not been able to give prominence to the creation and maintenance of greenery, and its scarce green coverage situation in the city is not different from that of Accra or other cities in Ghana. This is consequently leading to low self-esteem development among its urban adolescents. Since low self-esteem is associated with negative self-worth and mental problems and high self-esteem is associated with academic excellence and high productivity, green parks that stimulate the development of high self-esteem must be considered very important.

In many developed countries, premium is put on the creation of green parks especially in cities and towns, but it is not the case in developing countries and especially in sub-Saharan Africa. Nevertheless, it is surprising that policy makers and stakeholders would not take advantage of the existing conditions in the creation of green parks in cities and towns, especially those located in the tropical rainforest areas like Tafo, Kumasi where climatic elements are very favorable. Many adolescents in the Tafo sub-metro area (those without green parks) lack experience of socializing in green settings. This is evidenced in the responses from an overwhelming majority of the respondents (98%) who asserted that they do not have access to green parks for

socialization. They only see green parks in movies, on the internet and other media. A survey (personal observation) of Tafo sub-metro showed that the settings where adolescents in the community meet for diverse reasons namely sports, play and relaxation among others are bare grounds, with only few scattered trees. The development of green parks will provide suitable avenues for city children and adolescents to socialize and enhance their self-esteem. Policy makers and stakeholders must take as very important the creation of green parks in cities and towns to help boost positive self-esteem development among the youth of the country.

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