

# Correlational Study on Academic Anxiety and Home Environment of Secondary School Students

Kritika Gosain

PhD Research Scholar

Department of Education

University of Delhi, New Delhi, India

**Abstract:** *The competition prevalent in the present day society has inculcated a need to prove oneself among the adolescents. Constant urges from the parents and society to excel in schools in order to withstand the competition has led to Academic Anxiety among school students. This study explores the relation between Academic Anxiety and Home Environment of the secondary school students studying in two private schools of south Delhi. The standardized tools are used to measure the Academic Anxiety and Home Environment for 120 secondary schools students. The data was analyzed quantitatively. The findings of the study revealed that the level of Academic Anxiety is high among the sample and is significantly correlated with the Home Environment. The findings also highlighted the differences in correlation between Academic Anxiety and dimensions of Home Environment with respect to gender.*

**Index Terms** – Academic Anxiety, Home Environment

## I. INTRODUCTION

Bandura (1997) <sup>[1]</sup> defined anxiety as “a state of anticipatory apprehension over possible deleterious happenings”. In other words, Anxiety refers to a state wherein an individual excessively worries about a real or perceived threat in his/her environment. Academic anxiety is a context based form of anxiety which is related to the educational settings (Cassady, 2010) <sup>[5]</sup>. There could be several factors causing anxiety among adolescents such as inappropriate curriculum transition, information explosion, evading examinations, apprehensions about the future, etc. Academic performance in students is measured through the marks or grade obtained by the student in the exam. Therefore the students have to put in their best in studies in order to secure good marks. This causes stress and discomfort and eventually leads to academic anxiety. The persistent pressure of excelling in schools aching every completion has fostered academic anxiety among school students.

Globalization has paved way for a robust competition by expanding the channels of communication and exchange throughout the world. Competing for resources and opportunities often lead to sense of doubt and fear of failure. Joshi, Gumashta, Kasturwar & Despande (2012) <sup>[9]</sup> conducted a study in India to explore the level of Academic anxiety among 410 urban adolescent school students. The findings depicted that out of the total students, 15.1% show sign of no anxiety whereas most of the students have Academic Anxiety. A study conducted by Shao and Khees (2010) <sup>[13]</sup> has shown that the occurrence of depression, anxiety, and stress among adolescents and young adults across the world is estimated to range from 5% to 70%.

Home Environment of a child includes all the extrinsic forces within his/her family such as attitude and support of family, social status of the family and available resources which are influencing the life, nature, behavior and growth of the child. Uric Bronfenbrenner in his ecological system theory suggested that a child develops within a complex system of relations. He also suggested that there are five levels of the surrounding environment; *Microsystem*, *Mesosystem*, *Exosystem*, *Microsystem* and *Chronosystem*. The most immediate and influential level is *Microsystem* which includes the individual's family (home), school, religious institutions, neighborhood, and peers (Berk, 2007) <sup>[2]</sup>. As per behaviorist views of theories on anxiety, if any aversive stimulus (punishment) is present in the individual's environment then it cause distress and discomfort in them. The prolonged exposure to this aversive stimulus will leads to anxiety (Berk, 2007) <sup>[2]</sup>.

## II. HOME ENVIRONMENT AND ACADEMIC ANXIETY

Karen Horney believes that the parent-child relationship laid the foundation of personality development (Berk, 2007) <sup>[3]</sup>. She argued that all children need is the feeling of security and safety that can be gained by the love of parents. However, at times parents do overindulge, reject or neglect their children which lead to the feeling of basic hostility in children. If children repress this feeling of hostility it will eventually turn into sense of insecurity and apprehension termed as 'basic anxiety'. Thus anxiety is caused by the basic disturbances in parent-child relationship. Diana and Baumrind gathered information on child rearing and categorized child rearing types as authoritative, authoritarian, permissive and uninvolved. Each of these has an impact on the personality of a child. The atmosphere of the family in which a child is raised has a great effect on his/her conduct. The vision of

the child is colored by the prejudices held by members of his/her family. The development of one's living in defective home environment is likely to be defective. (Berk, 2007) <sup>[3]</sup>

Various evidences have highlighted that the quality of a child's early learning in the home environment is positively related to his/her development. Kaur, Rana & Kaur (2009) <sup>[10]</sup> studied home environment as a factor which influences the self-concept among adolescent. The findings of the study supports the viewpoint that children reared in a democratic home environment and have stronger personality as compared to the children raised in authoritative home environment. Thergaonkar & Wadkar (2007) <sup>[16]</sup> conducted a study that establishes the relationship between test anxiety and parenting style. The results statically established a significant negative correlation between democratic parenting style of the parent and test anxiety among child. Hence, the democratic attitude and acceptance by the parents prevents anxiety whereas authoritarian parenting style leads to anxiety. A study on Academic Anxiety on adolescent girls residing in rural and urban areas in relation with their socio-economic status was conducted. The study highlighted that the socio-economic status is one of the factor which causes anxiety. Girls in urban girls showed high levels of academic anxiety as compared to rural (Gautam, 2011) <sup>[7]</sup>. Kumar (2013) <sup>[11]</sup> conducted an on Academic Anxiety among Adolescents in relation with their Home Environment. The study illustrated the presence of academic anxiety among adolescent which is significantly correlated with Home Environment. Sharma and Jaiswal (2005) <sup>[14]</sup> studied parental aspiration and attitude as determinants of academic stress among adolescents. The study was performed on the boys and girls belonging to different subject scheme. The study highlighted that there is no significant difference between the level of academic stress among the students of humanities and science streams.

The literature also supported the impact of child's immediate environment on their well-being as the child born in the authoritative environment tend to have more chance of having academic anxiety than child born in the permissive or democratize environment (Wadkar & Thergaonkar, 2007 <sup>[16]</sup>; Kumar, 2013 <sup>[11]</sup>; Kaur, Rana & Kaur, 2009 <sup>[10]</sup>).

### III. THE STUDY

The aim of this study is to find the relation between Home Environment secondary school students and Academic Anxiety. Academic Anxiety is negatively related with the academic achievement (Das, Halder & Mishra, 2014 <sup>[6]</sup>; Hussain, 2015 <sup>[8]</sup>) and failure in achieving the desired academic results leads to suicide and mental disorders in students (Varnik, 2012 <sup>[17]</sup>). Therefore, it is important to identify and alter the aversive stimulus present in the Home Environment that causes Academic Anxiety.

#### 3.1 Research Objectives

The objectives of the study are as follows:

1. To study the Academic Anxiety among secondary school students.
2. To study Home Environment of secondary school students.
3. To study the relation between Academic Anxiety and Home Environment of the secondary school students.
4. To study the relation between Academic Anxiety and Home Environment of the secondary school students with respect to gender.

#### 3.2 Research Hypothesis

The following null hypotheses are tested to establish the relation between Academic Anxiety and Home Environment:

1. There is no significant relation between Academic Anxiety and Home Environment of secondary school children.
2. There is no significant difference in the relation between Academic Anxiety and Home Environment of secondary school children with respect to gender.

### IV. RESEARCH METHODOLOGY

The study is descriptive in nature. It adopts a correlation research design. The primary aim of the study is to describe as the objective of the research is to describe the relation that exists between the two variables; Home environment and Academic Anxiety.

#### 4.1 Variables

Academic Anxiety is taken as the dependent variable for the study. It is referred as the feeling of irrational worry or fear in the context of education. The review of similar studies has revealed that Home environment is one of the factors influencing Academic Anxiety. Therefore, Home Environment is taken as the independent variable for the study that refers to all the aspects of child's domestic life either physical aspect like income, facilities, etc. or social which includes patterns of interpersonal relationship between the members.

#### 4.2 Population and Sample

The students studying at secondary level constitute the population of the study. The sample consisted of the students studying at secondary level of two private schools of South Delhi. Convenient sampling is used for selecting the schools. The total sample size

is 120 students, out of which 60 are boys and 60 are girls. 60 students are selected from both the schools. The selected sample comprises of students studying in class ninth and tenth i.e. level of secondary schooling in Delhi.

#### 4.3 Tools for Data collection

The standardized tools are used to gather the primary data from the above mentioned sample. Home Environment Inventory (Misra, 1989)<sup>[10]</sup> is used to study the Home Environment of Secondary school students. Academic Anxiety Scale (Singh & Gupta, 1984)<sup>[15]</sup> is used to study the Academic Anxiety among secondary school students.

#### 4.4 Statistics

Descriptive statistics is used for the analysis of the data. The mean, median and standard deviation are calculated to compare the intensities of all dimensions of Home Environment and Academic Anxiety. Pearson's coefficient of correlation between Academic Anxiety and home environment is calculated and tested for significance with the help of t-test.

### V. RESULTS AND DISCUSSIONS

#### 5.1 Academic Anxiety

Academic Anxiety Scale (Singh & Sen. Gupta, 1984)<sup>[15]</sup> measures the Academic Anxiety on five levels i.e. very anxious, anxious, average anxiety, less anxiety and very less anxiety. The scores obtained from the administration of this tool were converted into the mentioned percentiles as per the given norms. The percentile ranks are then interpreted as per the levels of Academic Anxiety. Table 1 show the frequency of percentile ranks across levels:

Table 1: Academic Anxiety

LEVELS OF ACADEMIC ANXIETY	TOTAL
Very Anxious	16
Anxious	81
Average Anxiety	18
Less Anxious	5
Very Less Anxious	0

As evident from Table 2, out of 120 students, 16 are very anxious, 81 are anxious, 18 are moderately anxious and 5 are less anxious. The mean, median and standard deviation for the Academic Anxiety are 14.05, 14 and 3.84 respectively. The mean for Academic Anxiety is 14.05, which is interpreted as high, according to the criteria given in the tool. Thus Academic Anxiety is high among the selected sample of the secondary school students.

The analysis of data substantiated the presence of high Academic Anxiety among the Secondary school students. Similar studies (Wadkar & Thergaonkar, 2007<sup>[16]</sup>; Kumar, 2013<sup>[11]</sup>; Kaur, Rana & Kaur, 2009<sup>[10]</sup>; Joshi, 2012<sup>[9]</sup>) in the Indian context also highlighted the presence of Academic Anxiety among secondary school students. Hence, it can be asserted that Academic Anxiety exists among current generation of adolescents.

#### 5.2 Home Environment

Home Environment Inventory (Mishra,1989)<sup>[12]</sup> measures the Home Environment on 10 dimensions- Control, Protectiveness, Punishment, Conformity, Social Isolation, Reward, Deprivation of privileges, Nurturance, Rejection, and Permissiveness. The Inventory measures each dimension on six different levels i.e. very high, high, above average, average, low and very low. The scores obtained from the administration of the tool are converted into the percentiles as per the given norms. The percentile ranks are then interpreted according to the given levels. Table 2 show the frequency of percentile ranks across levels for each dimension.

Table 2: Home Environment

DIMENSIONS OF HOME ENVIRONMENT	VERY HIGH	HIGH	ABOVE AVERAGE	AVERAGE	LOW
CONTROL	59	36	20	5	0
PROTECTIVENESS	48	36	32	4	0
PUNISHMENT	44	24	40	12	0
CONFORMITY	16	8	51	26	19
SOCIAL ISOLATION	1	12	68	26	0
REWARD	6	49	59	6	0

SOCIAL PRIVILEGES	3	45	48	24	0
NURTURANCE	29	43	46	2	0
REJECTION	5	47	55	13	0
PERMISSIVENESS	41	51	28	0	0

The table 2 illustrates that the Home Environment for most of the secondary school students is at above average level for dimensions; Conformity, Social Isolation, Reward, and Rejection. The home environment for dimensions; control, protectiveness, punishment and permissiveness are high. In order to compare the intensities of all the dimensions mean, median and standard deviation are computed in table 3.

Table 3: Mean Median and Standard Deviation of dimensions

DIMENSIONS OF HOME ENVIRONMENT	MEAN	MEDIAN	STANDARD DEVIATION
CONTROL	25.49	26	5.37
PROTECTIVENESS	26.21	26	4.8
PUNISHMENT	28.23	28	2.89
CONFORMITY	26.38	27	4.67
SOCIAL ISOLATION	9.47	9	3.63
REWARD	28.25	28	2.81
SOCIAL PRIVILEGES	8.9	9	3.15
NURTURANCE	23.83	24	3.85
REJECTION	8.23	8	2.83
PERMISSIVENESS	20.14	20	3.4

The Reward and Punishment dimensions of the Home and Environment are relatively higher than other dimensions with mean of 28.25 and 28.23 respectively. This highlights that the families are using reward and punishment approach for pursuing their children to perform good in academics. Dimension; Control, Protectiveness and Conformity are also high with the mean of 25.49, 26.21 and 26.38 respectively. This reflects the authoritative parenting style of the parents (Berk, 2007) [3], in which parents demand blind obedience from their children. Parents are highly responsive, protective and do not let their children act without the prior parental consent. The authoritative environment of the home can further be justified by the moderate levels of Nurturance and Permissiveness with the mean of 23.83 and 20.14 respectively. Social Isolation, Social Privileges and Rejection dimensions of the Home Environment are low with the means of 9.47, 8.9 and 8.23 respectively. This reflects the high amount of care that were being given to the students, supplementing the prevalence of authoritative parenting.

### 5.3 Relation between Academic Anxiety and Home Environment

The relation between home environment and academic anxiety is measured in terms of Pearson's Product Moment's correlation. The coefficient of correlation 'r' is computed between the Academic Anxiety and all the dimensions of the Home Environment and is given in table 4.

Table 4: Coefficient of Correlation between Academic Anxiety and Home Environment

DIMENSION OF HOME ENVIRONMENT	COEFFICIENT OF CORRELATION WITH RESPECT TO ACADEMIC ANXIETY
CONTROL	0.0196
PROTECTIVENESS	0.0051
PUNISHMENT	0.055
CONFORMITY	0.109
SOCIAL ISOLATION	-0.019
REWARD	0.043
DEPRIVATION OF SOCIAL PRIVILEGES	0.068
NURTURANCE	-0.063
REJECTION	0.182
PERMISSIVENESS	-0.161

The Dimensions- Punishment, Control, Protectiveness, Conformity, Reward, Deprivation of Social Privileges and Rejection are positively correlated with the Academic Anxiety. The Dimensions- Social Isolation, Nurturance and Permissiveness are negatively correlated with the Academic Anxiety. The finding depicts the authoritative style of parenting. This signifies the authority or high involvement of parents in the life of their children. The actions of students are controlled by rewards and punishments. Children were never being deprived of any social privileges or rejected. Children have to confirm their decisions or seek permission before every act. The authoritative style of parenting or too much involvement and restrictions imposed by parents leads to Academic Anxiety. A study conducted by Thergaonkar & Wadkar (2007) [16] also that established that authoritative parenting causes test anxiety.

To test the significance of the obtained coefficients of correlation between all the dimensions of Home Environment with that of Academic Anxiety, the null hypothesis 1 is tested via t-test. The calculated t values ( $t_{cal}$ ) with respect to correlation coefficients are in Table 5.

Table 5:  $t_{cal}$  between Home Environment and Academic Anxiety

DIMENSION OF HOME ENVIRONMENT	$t_{calculated}$
CONTROL	2.32
PROTECTIVENESS	3.87
PUNISHMENT	1.62
CONFORMITY	2.18
SOCIAL ISOLATION	1.34
REWARD	7.57
DEPRIVATION OF SOCIAL PRIVILEGES	4.66
NURTURANCE	7.89
REJECTION	6.52
PERMISSIVENESS	5.60

The significance  $t_{calculated}$  is tested against  $t_{critical}$  values from the statistical table: student's t distribution. The  $t_{critical}$  values at 0.05 and 0.01 levels are .18 and .24 respectively for degree of freedom ( $df$ ): 118. The values of  $t_{calculated}$  are much higher than that of  $t_{critical}$  values hence the null hypothesis is rejected at both the significance level.

#### 5.4 Relation between Academic Anxiety and Home Environment w.r.t Gender

The coefficient of correlation 'r' is computed between the Academic Anxiety and all the dimensions of the Home Environment for girls and boys separately and is given in table 6.

Table 6: Coefficient of correlation between Home Environment &amp; Academic Anxiety with respect to gender

DIMENSION OF HOME ENVIRONMENT	COEFFICIENT OF CORRELATION FOR GIRLS	COEFFICIENT OF CORRELATION FOR BOYS
CONTROL	0.079	-0.08
PROTECTIVENESS	-0.010	-0.128
PUNISHMENT	0.022	0.123
CONFORMITY	0.092	-0.163
SOCIAL ISOLATION	0.133	-0.232
REWARD	0.042	0.040
DEPRIVATION OF SOCIAL PRIVILEGES	-0.064	0.25
NURTURANCE	-0.268	-0.136
REJECTION	-0.0264	0.152
PERMISSIVENESS	-0.016	-0.086

Differences can be observed in the correlation coefficient between Academic Anxiety and Home Environment computed for girls and boys. Control is positively correlated with Academic Anxiety in case of girls and negatively correlated in case of boys. This indicated that controlled home environment leads to the anxiety among girls but not in boys. Protectiveness is positively correlated with Academic Anxiety in girls whereas in case of boys, it is negatively correlated which depicts that too many restrictions will leads to anxiety in girls but not in boys. Punishment given by parents to avoid undesirable behaviour relates positively to Academic Anxiety in both girls and boys. Conformity relates positively with Academic Anxiety in girls and negatively in boys, which means that need to confirm their actions will create anxiety among girls but not in boys. Social Isolation correlates positively with Academic Anxiety in girls but negatively in boys, it highlights that isolation from any loved member of the family leads to the anxiety in girls but not in boys. Rewards correlated positively with Academic Anxiety in both girls and boys. Deprivation Social Privileges correlated positively with Academic Anxiety in boys and negatively in girls. Nurturance is negatively correlated with Academic Anxiety in both boys and girls, indicating too much love and affection reduce academic anxiety.

Rejection correlated negatively with Academic Anxiety in boys but positively in case of girls. Permissiveness correlated negatively with Academic Anxiety for both girls and boys, indicating that suppressing child's freedom to act or express views can cause anxiety.

The study highlighted the difference in the direction of correlation between Academic Anxiety and dimensions of Home Environment with respect to gender. Control, Protectiveness, Punishment, Conformity, Social Isolation and Rejection are positively correlated with Academic Anxiety in girls but are negatively correlated in case of boys. It substantiates that the Indian society follows patriarchal culture wherein girls are challenged with more restrictions, enjoys less freedom and are protected more than boys. This over-protectiveness and too many restrictions would have led to anxiety among girls but not in boys. This is supported by a research conducted by Bhansali and Trivedi (2008) <sup>[4]</sup> which states, girls have more incidences of Academic Anxiety than boys. Deprivation of Social Privileges correlated positively with Academic Anxiety in case of boys and negatively in case of girls. This depicts that being born in a male dominated society, boys will experience anxiety whenever they were devoid of social privileges whereas girls are not much privileged socially and thus deprivation from social privileges didn't cause any anxiety in them. Nurturance is negatively correlated Academic Anxiety in both boys and girls, which again strengthened the fact that affection and care reduces anxiety. Permissiveness is negatively correlated with the Academic Anxiety in both girls and boys, which supports the fact that freedom to express one's self reduces the intensity of Academic Anxiety.

The significance of coefficients for correlation between all the dimensions of Home Environment and Academic Anxiety with respect to gender, null hypothesis 2 is tested via t-test. The calculated t values ( $t_{cal}$ ) are given in Table 7.

Table 7:  $t_{cal}$  with respect to gender

DIMENSION OF HOME ENVIRONMENT	$t_{calculated}$
CONTROL	0.25
PROTECTIVENESS	8.1
PUNISHMENT	2.58
CONFORMITY	1.72
SOCIAL ISOLATION	1.34
REWARD	0.29
DEPRIVATION OF SOCIAL PRIVILEGES	2.55
NURTURANCE	4.6
REJECTION	0.26
PERMISSIVENESS	2.67

The significance  $t_{calculated}$  is tested against  $t_{critical}$  value from the statistical table D: student's t distribution. The values for  $t_{critical}$  at 0.05 and 0.01 significant levels are .18 and .24 respectively for  $df$  (degree of freedom) 118. The calculated values of t are much higher than that of  $t_{critical}$  values from the table D. Thus the null hypothesis 2 is rejected at both the significance levels.

## VI CONCLUSION

The study can be concluded by highlighting the presence of Academic Anxiety among Secondary School students attributed to their Home Environment which implies authoritative parenting style. The correlation between Academic Anxiety and Home Environment were found to be significant. Punishment, Control, Protectiveness, Conformity, Reward, Deprivation of Social Privileges and Rejection are significantly positively correlated with the Academic Anxiety. Social Isolation, Nurturance and Permissiveness are significantly negatively correlated with the Academic Anxiety. This signifies that the authoritative Home Environment causes Academic Anxiety whereas friendly and caring Home Environment reduces Academic Anxiety. Also there are significant differences in the direction of correlation between Academic Anxiety and Home Environment with respect to gender demonstrating the patriarchic nature of the society. Control, Protectiveness, Punishment, Conformity, Social Isolation and Rejection are significantly positively correlated with Academic Anxiety in girls but are significantly negatively correlated in case of boys. Deprivation of Social Privileges is significantly positively correlated with Academic Anxiety in case of boys and significantly negatively correlated in case of girls. Nurturance and Permissiveness is significantly negatively correlated with the Academic Anxiety in both girls and boys.

## References

- [1] Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: Freeman
- [2] Berk, L. (2007). Theory and Research in Child Development. In *Child Development* (7th ed., pp. 26-29). Delhi: Pearson Education.

- [3] Berk, L. (2007). The family. In *Child development* (7th ed., pp. 536-566). New Delhi. Pearson Prentice Hall.
- [4] Bhansali, R., & Trivedi, K. (2008). Is Academic Anxiety Gender Specific: A Comparative Study. *Journal of Social Science*, 17(1), 1-3.
- [5] Cassady, J. C. (Ed.). (2010). *Anxiety in the schools: The causes, consequences, and solutions for academic anxieties*. New York, NY: Peter Lang.
- [6] Das, S., Halder, U., & Mishra, B. (2014). A study on Academic Anxiety and Academic Achievement of Secondary Level School Students. In *Indian Stream Research Journal*, 4(6), 1-5.
- [7] Gautam. (2011). Academic anxiety of urban and rural adolescent girls in relation to their socio-economic status. M.Ed. Dissertation. University of Punjab. NCERT. New Delhi.
- [8] Hussain, A. (2015). A Study of Academic Anxiety and Academic Achievement of Secondary School Students In Relation to Gender, Locality and Birth Order. In *International Multidisciplinary Research Journal, Golden Research Thought*, 4(10), 1-6.
- [9] Joshi, M., Gumashta, R., Kasturwar, N., & Deshpande, V. (2012). Academic anxiety a growing concern among urban mid adolescent school children. *International Journal of Biological & Medical Research*, 3 (3).
- [10] Kaur. Rana. Kaur (2009). A study of Home Environment and Academic Achievement as Correlates of Self-concept among adolescent (Dissertation). Punjab University, Punjab.
- [11] Kumar, A. (2013). Relationship of Academic Anxiety among Adolescents in Relation to their Home Environment. *International Journal for Research in Education*, 2(7). Retrieved November 25, 2014, from [http://raijmr.com/wp-content/uploads/2013/10/7\\_29-34-Dr.-Ajay-Kumar.pdf](http://raijmr.com/wp-content/uploads/2013/10/7_29-34-Dr.-Ajay-Kumar.pdf)
- [12] Mishra, K. S. (1989). Home Environment Inventory. Agra: National Psychological Corporation.
- [13] Sahoo, S., & Khes, C. (n.d.). Prevalence of Depression, Anxiety, and Stress Among Young Male Adults in India. *The Journal of Nervous and Mental Disease*, 901-904. Retrieved July 9, 2015, from [http://www.researchgate.net/publication/49662140\\_Prevalence\\_of\\_depression\\_anxiety\\_and\\_stress\\_among\\_young\\_male\\_adults\\_in\\_India\\_a\\_dimensional\\_and\\_categorical\\_diagnoses-based\\_study](http://www.researchgate.net/publication/49662140_Prevalence_of_depression_anxiety_and_stress_among_young_male_adults_in_India_a_dimensional_and_categorical_diagnoses-based_study)
- [14] Sharma, S., & Jaswal, M (2005): Parental Aspirations and Attitudes as Determinants investigation of Academic Stress among Adolescent. A Dissertation: M.D. University. Rohtak.
- [15] Singh, A. K & Gupta, S.A (1984). Anxiety Scale for Children. Agra: National Psychological Corporation.
- [16] Thergaonkar, N., & Wadkar, A. (2007). Relationship between Test Anxiety and Parenting Style. *Journal of Indian Association of Child Adolescence Mental Health*, 2(4), 10-12.
- [17] Varnik, P. (2012, March 2). Suicide in the World. *International Journal of Environmental and Public Health*, 9(3), 760-771. doi:10.3390/ijerph9030760