Health Education and Care

Research Article ISSN: 2398-8517

Exploring relationships between school-based health clinics and academic performance in elementary school-aged children

Sherwood-Samuel CE*

School Nurse, Irvington Public Schools, USA

Abstract

Background: Student health in elementary and secondary schools is an important aspect that has gained increased consideration over the past several decades in the United States. Researchers have well documented the positive impact of school-related health services on several health-related outcomes in middle and high school students. This study aimed to determine if there is an association between academic school performance and SBHCs among elementary school aged students.

Methods: A quantitative ex post facto design was implemented to measure the students' academic performance. The researcher compared the historical GPA scores (2011-2013) between students attending schools with access to SBHCs and students attending schools without access to SBHCs.

Results: The null hypotheses was supported, thus, there were no significant relationships observed. The correlation analysis indicated weak negative relationships between the usage of specific SBHC services (physicals and mental health care), and a weak positive relationship between immunizations and the academic performance of the cohort of students for grades 3 and 5 (n=48).

Conclusions: There is a dearth of research into SBHCs and its impact on the academic achievements of middle and high school students. However, there is little research into SBHCs and its impact on the academic achievements of elementary school students. The healthcare reform that was introduced, and the need to effect savings in Federal funding pose a real threat to SBHC, although this study did not show a strong positive relationship between academic success, the presence and use of SBHCs. Larger previous studies showed indirect probable effects. Researchers have not undertaken comprehensive studies to ascertain the positive effects of providing school-based healthcare for students. Further research on this topic is needed.

Student health in elementary and secondary schools has gained increased consideration over the past several decades in the United States (The Center for Health and Healthcare in Schools, 2007). It is imperative to assure that children receive adequate healthcare within the school setting that contributes to the growth and development of healthy and productive lifestyles. Children between the ages of 5 and 19 make up approximately 18% (55 million) of the population in the United States (The Center for Health and Healthcare in Schools, 2007). One way of assuring that these students mature with meaningful lives is to provide them with onsite healthcare access in school.

A School-based Health Clinic (SBHC) is an onsite clinic located within the school grounds providing a comprehensive range of services to students. These services are targeted to the specific healthcare needs of the youth community [1]. These onsite clinics become part of the school community, as healthcare practitioners and others involved strive to become leaders, mentors, and instructors of healthcare, and hope to provide the necessary medical and health services to students with illnesses. SBHCs employ practitioners who provide comprehensive care to students in diverse areas of healthcare, including general practitioners such as physicians, nurse practitioners, registered nurses, and physician assistants; mental health specialists such as social workers, alcohol counsellors, and drug counsellors; and other varieties of health professionals [1]. Students use the services of the SBHC for medication administration, preventative care, mental health counselling services, and emergency care during the school day. SBHCs provide services through a qualified health provider such as a hospital, health department, or medical practice. Parents must sign written consent forms in order for their children to receive access to the full scope of available services [1].

School-Linked Health Services (SLHS), the second type of school-based health centers, are similar to the school-based health clinics by providing healthcare services in a readily accessible manner to youths. However, these clinics are often mobile, which increases their availability to the student body although it may be intermittent as they frequently serve more than one school system. These types of clinics are well-suited to travel and cover the distance required to service a greater number of students in suburban and rural areas. SLHSs also frequently provide extended office hours beyond those of the school day, and provide a larger range of services because they serve more than one youth community, such as multiple schools in a district, and the needs of each community may vary from another [1]. Regardless of which form is available in the community, both health clinics aim to

Correspondence to: Sherwood-Samuel CE PhD, RN, School Nurse, Irvington Public Schools, 602 Grove Street Irvington, NJ 07111, USA, 973-399-6800 ext. 2406; E-mail: csamuel@irvington.k12.nj.us

Key words: *school-based health, school-based health clinics, SBHC, academic performance, absenteeism, school nursing*

Received: November 21, 2017; **Accepted:** December 18, 2017; **Published:** December 22, 2017

decrease barriers to accessing healthcare, because school is the center of community healthcare activity.

In light of the commitments in President Obama's Patient Protection and Affordable Care Act (PPACA of 2010), there are a myriad of implications for SBHCs [2]. Initially, the reform proposed some threats for the SBHCs; the White House suggested that the healthcare reform legislation eliminate the SBHC program in order to cut costs. State-wide, the proposed cuts make up an anticipated loss of $4.7 million in SBHC funding. NASBHC, being the national body for SBHC, addressed the threat by appealing to the White House through calls and emails. No cuts have yet been made [1]. Despite these threats, the NASBHC seized the opportunities presented by the health reforms. This organization identified opportunities that will promote school-based healthcare. A proposed amendment of the NASBHC was accepted, there is now a requirement in place relative to cost-based reimbursement for SBHCs. This is a major milestone, considering the financial challenges faced by SHBCs. Furthermore, the NASBHC Assembly has integrated the authorization language into the H.E.L.P. Bill. Another breakthrough was the establishment of a 2-year competitive grant program that would provide SBHCs funds and assistance at a time when other programs are suffering from budget cuts [1]. This funding reflects government and community advocacy of SBHC operations, which significantly aid in maintenance and sustainability amidst threatening financial challenges and reforms. The government, community, and the school should be cognizant that budgeting is critical for the SHBCs, especially for the benefits they bring to the entire community.

Benefits of SBHCs

Board of advisors

School-based health centers have decided effects on society, some of which include the well-being of the students, their academic performance, attendance, self-esteem, and school connectedness. The feeling of safety, acceptance, belongingness, worth, and respect are all aspects of school connectedness for the student [3]. One of the most significant benefits to students of SBHCs in the urban communities is that some SBHCs employ a board of advisors consisting of medical professionals, parents, youths and advisors from community planning organizations to help provide direction and insight into the diverse needs of their client population. These advisors provide keen insight into the school community's challenges and obstacles and are best equipped to collaboratively arrive at viable solutions to problems like teen pregnancy and discrimination. The student community is more likely to accept solutions obtained in this manner. There is frequently cultural distrust for the medical profession in underserved, under-privileged communities. By involving the community in the healthcare process, the population determines feasible solutions that address health disparities within these communities [1]. Rural communities are served by SLHS which is often mobile, structured differently, and therefore do not have a board of advisors.

Due to their functional difference, the way school-linked health centers benefit users is different from how school-based health clinics (SBHCs) benefit users. Fothergill explored the benefits and appeal of school-linked health centers (SLHCs) to adolescents. Fothergill found that SLHCs provided answers to adolescents about their development issues, provide a wide range of services which is convenient to the adolescents—including family planning and contraceptives, continuity of care by serving both junior and senior high schools

These school-based health services (SHBCs and SLHCs) provided their greatest service by disseminating this much-needed health information Thistle. A review of 23 studies published about school-based programs indicated that the provision of specific sexual health programs actually delayed adolescent and teenage sexual activity. These programs reportedly lower the frequency of intercourse and sexually transmitted diseases (STDs) including HIV infection, decrease the average number of sexual partners, as well as increase safe sex activities such as using condoms and other contraceptives. The number of teenage pregnancy decreases when there is an established school-based health clinic. According to Strunk, this is beneficial for the students and the community, since the children receive proper guidance regarding personal and emotional health.

Confidentiality

The greatest benefit students report is the confidentiality provided by the SBHC [4] as they feel more comfortable seeking medical attention for high risk behaviors such as sex, drugs, and violence when they understand that the SBHC is held to a high level of confidentiality as provided by the Health Insurance Portability and Accountability Act (HIPAA) [1]. SBHCs have demonstrated not just a positive influence over high school aged students who exhibit high risk behaviours, but also promote them to interact with both community and school programs [4,5].

Academic achievement

Students who regularly use HBSC services reported feeling a connection with their healthcare providers, since they established a relationship and became their confidants. Additionally, these students had greater academic success in terms of staying in school, promotion and graduation [6]. Some of the students in the Thompson *et al.* [6] study were enmeshed in difficult life circumstances, such as teen pregnancy, parenthood, and living independently from their parents, thus most likely to drop out or otherwise not graduate from school. The study credited the connectedness of the supportive community of school health providers and teachers as primary factors that kept these high-risk students in school. This underscores the SBHCs' role in providing for the psychosocial needs of students with otherwise limited access to healthcare.

These findings reinforced the finding of earlier studies by [7], which examined the effects of having a SBHC in urban socio-economically deprived communities enabling families to rely on the school system for support in providing healthcare to their children. The findings suggested that having access to the SBHC, resulted in improved student attendance, promotion, and graduation rates, and reduced the rates of suspension and withdrawal from school of one school system in New York City.

Barbara Keshishian, President of the New Jersey Education Association, asserted that health status during childhood and adolescence positively influences children's educational success. Keshishian (2009) stated that healthy students have great academic advantages: they are in class more often, better able to learn, and focus more during classroom instructional time. Educators are also positioned to strongly advocate for students to have access to the medical services they need as realize that readily available healthcare, lead to students who are strong, healthy, and ready to learn [8].

Absenteeism

One way that SBHCs reduce student dropout rates or increase student academic achievement overall is from the centers' impact on

student attendance. Attendance is the number one determinant of the connectedness between students and their school community, whether this is high or low [9]. Since attending school regularly is a necessary part of the learning process, being absent most of the time has a direct negative effect on academic performance [9,10].

Students struggling with health issues are often absent from school either due to illness or having to visit a doctor away from school [11,12]. Without a proper safety net to compensate for missed schoolwork and learning, adolescents fall behind academically and perform poorly on learning assessments both within and outside of school. Jackson assessed variations in the link between health and educational attainment by race/ethnicity and socio-economic status. In the study Jackson used nationally representative data from adolescents in the National Longitudinal Survey of Youth 1997. The findings suggested that adolescents with poor health are less likely to graduate from high school in a timely manner and are less likely to attend college. The findings also reflected that the adverse educational consequences of poor health are not limited to one subgroup of the population, but span the socio-economic spectrum when defined by ethnicity and race [13]. supported Jackson's [12] findings, but the authors claimed that the link between social status and health may be partially explained by the diverse beliefs and choices people make in shaping their success.

Kernery [14] showed that school attendance is directly related to academic achievement and inversely related to school dropout rates. Students who are always absent from class or show irregular attendance rates are at higher risk of delinquency and dropping out of school. They will have more problems in adulthood as well, whether it concerns their job, their marriage, or their general emotional and social well-being. However, youth who receive intervention for these problems, whether received from parents or school, may be at decreased long-term risk.

Presence of school nurses

According to [9,15] the presence of school nurses can be effective in addressing the issue of school absences. Weismuller *et al.* [9] described the effect of school nurse interventions on decreasing the rate of student absenteeism because of their increased interaction with students who are absent from school and by giving health guidance to the students. In similar vein [16] found that there is a strong correlation between student attendance (including absenteeism and tardiness) and SBHCs. Students are more likely to attend school if there is an SBHC available, because this provides a margin of health safety and security for the students. It provides them with resources to utilize when they have health concerns, especially on days that they become ill [16].

Effect on self-esteem

Polkenon [17] conducted an earlier study that assessed three self-esteem variables: (a) positive thinking, (b) hope, and (c) resilience. Pulkkinen emphasized the importance of self-esteem towards academic achievement. Students who are unable to keep up with their peers with regard to academic achievement are likely to suffer a decrease in self-esteem [18-21]. Dalgash-Pelish [18] found that self-esteem is necessary for school-aged children's overall health. High self-esteem is connected to enhanced academic performance, better health, and being creative as well as productive individuals. The researcher analyzed the effects of an interactive four-lesson self-esteem enhancement program for 5th and 6th grade students (n= 98) who were divided into six groups. The program taught children what self-esteem is, and how to acquire it. The program also exposes children to diverse media influences, consequences of hiding emotions, and various factors that could result in self-esteem changes.

The purpose of this study was to determine if there is a difference in academic performance of students across grades 3, 4, and 5 that have access to SBHCs and those without access to SBHCs. To achieve this four research questions were posed: these were (1) Is there a statistically significant relationship between the use of SBHC, non-use of SBHC, and the students' academic outcomes? (2) Is there a statistically significant relationship between the use of specific SBHC services (physicals, immunizations, and mental health counselling) and the students' academic outcomes? (3) Was there a difference in academic performance between SBHC users and SBHC non-users? and (4) Was there a difference in academic performance among services that students used and services that students did not use?

Methods

The quantitative ex post facto research design of the current study allowed effective examination of students attending schools with access to school-based health clinics (SBHCs) and students attending schools who do not have access to SBHCs. Data were obtained for the years 2011-2013 following permission from the Newark Public School District, New Jersey, where the school was selected from.

Participants

The participants for the study were students in the Newark Public School District (NPS) who were currently enrolled in a public (regular) school having access to SBHCs. A cross-sectional convenience sampling plan was used to collect information for the study. As data was collected on a single occasion or during a short time span, a cross-sectional sampling plan was chosen [22]. A convenience sampling plan was used to gather information from the school based on the ease-of-access and the school's willingness to participate in the study [23]. The researcher selected a school that was representative of the target population for the current study in terms of demographic and social characteristics.

Instrumentation

Historical data (2011-2013), related to academic achievement and SBHCs through a district database consisting of attendance records, SBHC logs, and report cards were collected from the NPS Student Information department and the CEO of Jewish Renaissance.

Procedure

One school was sampled by tracking a group of students longitudinally over a three year time frame from grade three through grade five (aged 10 to 12 years). Students were identified as SBHC users or non-SBHC users. The academic performance of SBHC users and non-SBHC using students was compared, utilizing data (attendance records, SBHC logs, and report cards) from the NPS Student Information department and the CEO of Jewish Renaissance.

The researcher collected information regarding demographics and academic achievement from the school database, and imported this data into an Excel spreadsheet. Each row in the spreadsheet identified an individual student from the school, while each column represented the demographic characteristics, SBHC services used, final grades, and academic achievement scores for each student as per the New Jersey Assessment of Skills and Knowledge (NJ ASK) and Language Arts Literacy (LAL). The researcher identified the students as either being SBHC users or non-users along with their final grades, and academic performance results on their respective achievement tests.

Data analysis

The sample participants are urban elementary school students enrolled in a public school with an onsite SBHC. The chosen 48 students began as third graders tracked through the fifth grade (2010-2011 = third graders, 2011-2012 = fourth graders, and 2012-2013 = fifth graders). Several students had missing data with regards to the final grades and NJ ASK test results and were filtered out. After normalizing the data, the final sample size was 30 students. The samples consisted of 60% males (n = 18), and 40% females (n = 12). Ethnicity of the samples were 73.3% (n = 22) Black, and 26.7% (n = 8) Hispanic. None of the chosen students left the school or dropped out of the school.

The study considered two academic outcomes for the students, the first is the average of final grades, and the second is the NJ ASK test results. Due to limitations in data, the NJ ASK test results accounted only for Math and LAL subjects. Upon analysis of the retrospective data, there was incomplete data recorded for SBHC use for the 2011-2012 school year; thus, the researcher could not establish a correlation for the grade 4 data. The researcher only used data from grades 3 and 5. The Spearman's Rho correlation analysis was used to answer Research Questions 1 and 2, and performed mixed MANOVA tests to analyze Research Questions 3 and 4.

Results

The main independent variable (IV) of this study is SBHC use, and the specific SBHC uses—physicals, immunizations, and mental health counselling. The dependent variables (DV) of this study were the forms of academic outcome variables: the average final grades (2010-2011, 2011-2012, and 2012-2013), and the average New Jersey Assessment of Skills and Knowledge (NJ ASK) test results (2011, 2012 (Math and Language Arts Literacy (LAL) only), and 2013 (Math and LAL only). The moderating variables for this study were the demographic variables of gender, ethnicity, and age. The researcher performed a Spearman's Rho correlation test, and a mixed analysis of variance (MANOVA) tests to analyze the collected data in relation to the research questions and their respective hypotheses. The results of all analyses resulted in the support of the null hypotheses; that is, there were no significant relationships observed.

This study presents descriptive statistics of the continuous variables for the sample. The continuous variables consisted of the average age of the samples, the DVs of average final grades and NJ ASK test results average scores. Average age of the samples from 2011 to 2013 ranged from 10 to 12 years old, with a mean of 10.33 (SD = 0.61). Average final grade of school year 2010-2011 ranged from 38.80 to 93.80, with a mean of 77.42 (SD = 12.00). Average final grade of school year 2011-2012 ranged from 46.50 to 92.25, with a mean of 73.12 (SD = 11.09). Average final grade of school year 2012-2013 ranged from 31.50 to 93.38, with a mean of 71.40 (SD = 13.04). Average of 2011 NJ ASK test results ranged from 104.50 to 254, with a mean of 172.22 (SD = 29.35). Average of 2012 NJ ASK test results for Math and LAL ranged from 130.50 to 240.50, with a mean of 173.00 (SD = 26.13). Average of 2013 NJ ASK test results for Math and LAL ranged from 130.50 to 240.50, with a mean of 172.30 (SD = 27.10). From the NJ ASK guidelines, student proficiency is grouped into three categories: (a) advanced proficient: 250-300, (b) proficient: 200-249, and (c) partially proficient: 100-199. The mean NJ ASK scores using the average of Math and LAL indicate that the students are partially proficient. Attendance of the students in 2010-2011 ranged from 82 to 185 days, with an average of 165.67 days (SD = 19.69). Attendance of the students in 2011-2012 ranged from 150 to 185 days, with an average of 174.86 days (SD = 9.22). Attendance of the students in 2012-2013 ranged from 110 to 184 days, with an average of 171.31 days SD = 14.20). (Table 1)

Discussion

The findings contradicted the convenience theory. Based on the convenience and the health and academic performance theories, it was expected that SBHC would have a positive influence on the academic performance of students because it is convenient and maintains the good health status of the students. The researcher hypothesized that the establishment of SBHCs would save time, and provide resources Farquhar & Rowley [24] which would have a significant influence on the academic performance of the students. Gladson [25] stated that changes in the structure of the American family contributed to the increased need for convenience goods. Chang and Dibb [26] asserted that more families are turning to e-shopping because it is more convenient. Similarly, students should benefit because SBHCs are more convenient to them. However, in this study, the presence of SBHCs and other services under SBCHs had no influence on student academic outcomes in this age group.

The Health and Academic Performance Theory postulated that academic performance is bolstered by good health status in students. Behrman [27] found strong associations between child health and nutrition and educational achievement. Lehrer, Ding, & Rosenquist [28] concluded that poor physical and mental health had an adverse effect on the academic performance of their respondents, particularly the female students. Dilley [29] concluded that health and education are linked to each other, and academic success can be vastly affected by every health risk. With the establishment of SBHCs, the students should have good health status, which would positively influence their academic performance. However, in this study, the presence of SBHCs and other services under SBCHs had no influence on student academic outcomes at the elementary school level where the focus is on wellness promotion and healthy behavior practices.

Limitations

A limitation to this study was the fact that the researcher was unable to control for the subjects participating in the study; the sample came from a small cohort that the researcher obtained through a convenience sample. Secondly, the data of the sample set were retrospective, and were already a part of the students' cumulative school record. Lastly, the quantitative nature of the study might have limited the results of the study, in that the researcher was unable to ask more questions or probe the results.

Table 1. Descriptive Statistics Analysis of Student Cohort.

	Minimum	Maximum	Mean	Std. Deviation
Average age (2011-2013)	10.00	12.00	10.3333	.60648
Average final grade 2010-2011	38.80	93.80	77.4200	11.99648
Average final grade 2011-2012	46.50	92.25	73.1167	11.08718
Average final grade 2012-2013	31.50	93.38	71.4042	13.04380
2011 NJ ASK test results average	104.50	254.00	172.2167	29.34623
2012 NJ ASK test results average (Math and LAL)	130.50	240.50	173.0000	26.13394
2013 NJ ASK test results average (Math and LAL)	113.50	245.50	172.3000	27.10344
2010-2011 Attendance	82.00	185.00	164.67	19.688
2011-2012 Attendance	150.00	185.00	174.8621	9.21848
2012-2013 Attendance	110.00	184.00	171.3125	14.19875

Recommendations

In the literature, health is synonymous to wellness promotion for the Elementary School level with academic performance suggested for future research. Firstly to replicate the study using a larger urban elementary school sample and in other urban school districts, in-state. Secondly, to conduct a comparative study involving affluent and under-served school districts. Thirdly, to conduct a qualitative case study about the impact of SBHC to the academic outcomes of students.

Conclusions

Based from the convenience and the health and academic performance theories, it was expected that SBHC would have a positive influence on the academic performance of students because it is convenient and maintains the good health status of the students. Previous studies have also asserted that SBHCs and academic performance have a direct and positive relationship [6-8,12]. However, according to the statistical analyses performed, SBHC use, non-use, and all services were not positively related to academic achievement. However, the importance of school health and the implications for healthy behavior practices in school aged children is acknowledged. Further research on school based health clinic use at the elementary school level focusing on other aspects defining academic performance is needed.

Implications for school health

This study found no significant relationship between SBHCs and academic outcomes at the elementary school level. However, this comprehensive study provided knowledge about the effects of providing school-based healthcare for students in this age group. By exposing elementary students to SBHC use at an early age level we level the playing field encouraging healthy behaviors and practices across all school age groups. Referring to the literature, SBHCs enable the opportunity to address the health disparities many of these students face at a young age. Students in the elementary age group are more impressionable and easier to reach than older students where problems tend to be more complex because they experiment more with unhealthy practices and risky behaviors.

The findings of this study provide support for efforts to provide school-based healthcare, especially for those students residing in undeserved, underprivileged communities who lack access to healthcare. As a school nurse practitioner in this age group, the researcher can see the benefit of early exposure to healthy habits. Good health habits established early keeps young students in school so that as the behaviors get risky they can be handled appropriately. Early exposure to SBHCs establishes a firm foundation for improved academic performance, even though the findings of this study did not support the previous findings about the relationship of providing healthcare programs for students and improved school attendance and academic performance.

Human subjects approval statement

All procedures were approved by the Institutional Review Board at Seton Hall University and the Newark Public School system. The Director of Student Health Services and the CEO of Jewish Renaissance who oversees all SBHCs in the NPS gave permission to researcher to use the school databases. All historical data were de-identified therefore individual parent permission was not needed. The researcher sampled one school with access to a SBHC, students were identified as SBHC users and non-SBHC users.

References

1. National Assembly of School-Based Healthcare (2009) SBHCs in Healthcare Reform. September Policy Update. Washington D.C.
2. Goodson JD (2010) Patient Protection and Affordable Care Act: promise and peril for primary care. *Ann Intern Med* 152: 742-744. [Crossref]
3. Kearney CA (2007) School absenteeism and school refusal behavior in youth: A contemporary review. Clin Psychol Rev 28: 451-471. [Crossref]
4. Brindis CD, Klein J, Schlitt J, Sanelli J, Juszczak L, Nystrom R (2003) School-based health centers: Accessibility and accountability. *J Adolesc Health* 32: 98-107. [Crossref]
5. Gall G, Pagano ME, Desmond MS, Perrin JM, Murphy JM (2000) Utility of psychosocial screening at a school-based health center. *J Sch Health* 70: 292-298. [Crossref]
6. Thompson DR, Lachan R, Overpeck M, Ross JG, Gross LA (2006) School connectedness in the health behavior in school-aged children study: The role of student, school, and school neighborhood characteristics. *J Sch Health* 76: 379-386. [Crossref]
7. McCord MT, Klein JD, Foy JM, Fothergill K (1993) School-based clinic use and school performance. *J Adolesc Health* 14: 91-98. [Crossref]
8. Keshishian B (2009) Health insurance reform is an education issue. Asbury Park Press, B8.
9. Weismuller PC, Grasska MA, Alexander M, White CG, Kramer P (2007) Elementary school nurse interventions: Attendance and social health outcomes. *J Sch Nurs* 23: 111-118. [Crossref]
10. Foy JE, Hahn K (2009) School-based health centers: A four year experience, with a focus on reducing student exclusion rates. *Osteopathic Medicine and Primary Care* 3: 3. [Crossref]
11. Franklin C, Harris MB, Allen-Meares P (2006) The school services sourcebook: A guide for school-based professionals. New York, NY: Oxford University Press.
12. Jackson MI (2009) Understanding links between adolescent health and educational attainment. *Demography* 46: 1-24. [Crossref]
13. Mirowsky J, Ross CE, Reynolds JR (2000) Links between social status and health status. In C.E. Bird, P. Conrad and A.M. Fremont (Eds.). The handbook of medical sociology (5th ed.; pp.47-67). Upper Saddle River, NJ: Prentice Hall.
14. Kearney CA (2007) School absenteeism and school refusal behavior in youth: A contemporary review. Clin Psychol Rev 28: 451-471. [Crossref]
15. Allen G (2003) The impact of elementary school nurses on student attendance. *J Sch Nurs* 19: 225-231. [Crossref]
16. Geierstanger SP, Amaral G, Mansour M, Walters SR (2004) School-based health centers and academic performance: Research, challenges, and recommendations. *Journal of School Health* 74: 347-352. [Crossref]
17. Pelkonen M, Marttunen M, Aro H (2003) Risk for depression: a 6-year follow-up of Finnish adolescents. *J Affect Disord* 77: 41-51. [Crossref]
18. Berndt TJ (2002) Friendship quality and social development. *Current Directions in Psychological Science* 11: 7-10.
19. Dalgash-Pelish P (2006) Effects of self-esteem intervention program on school age children. *Pediatr Nurs* 4: 341-348. [Crossref]
20. Pulkkinen L, Nygren H, Kokko K (2002) Successful development: Childhood antecedents of adaptive psychosocial functioning in adulthood. *Journal of Adult Development* 9: 251-265.
21. Wigfield A, Battle A, Keller LB, Eccles JS (2002) Sex differences in motivation, self-concept, career aspiration, and career choice: Implications for cognitive development. *APA PsycNET* 21: 93-124.
22. Hulley SB (2007) Designing clinical research. Philadelphia, PA: Lippincott, Williams, & Wilkins.
23. Urdan TC (2005) Statistics in plain English (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum.
24. Farquhar JD, Rowley J (2009) Convenience: A services perspective. *Marketing Theory* 9: 425-438.
25. Gladson T (1990) Convenience has key role in marketing mix.
26. Chang CC, Dibb S (2007) Enhancing company performance and customer service through e-service convenience. *Information and Communication Technologies in Tourism* 346-356.

27. Behrman JR (1996) The impact of health and nutrition on education. *World Bank Research Observer* 11: 23-37.

28. Lehrer S, Ding W, Rosenquist J (2006) The impact of health on academic performance: New evidence using genetic markers. Paper presented at the annual meeting of the Economics of Population Health: Inaugural Conference of the American Society of Health Economists, Madison, WI, USA.

29. Dilley J (2009) Research review: School-based health interventions and academic achievement